



## Full wwPDB EM Validation Report ⓘ

Dec 15, 2025 – 05:01 PM EST

PDB ID : 9P7J / pdb\_00009p7j  
EMDB ID : EMD-71344  
Title : In situ HHT and CHX treated human P state 80S ribosome  
Authors : Wei, Z.; Yong, X.  
Deposited on : 2025-06-20  
Resolution : 3.91 Å(reported)

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

EMDB validation analysis : 0.0.1.dev129  
Mogul : 2022.3.0, CSD as543be (2022)  
MolProbity : 4-5-2 with Phenix2.0  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)  
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.47

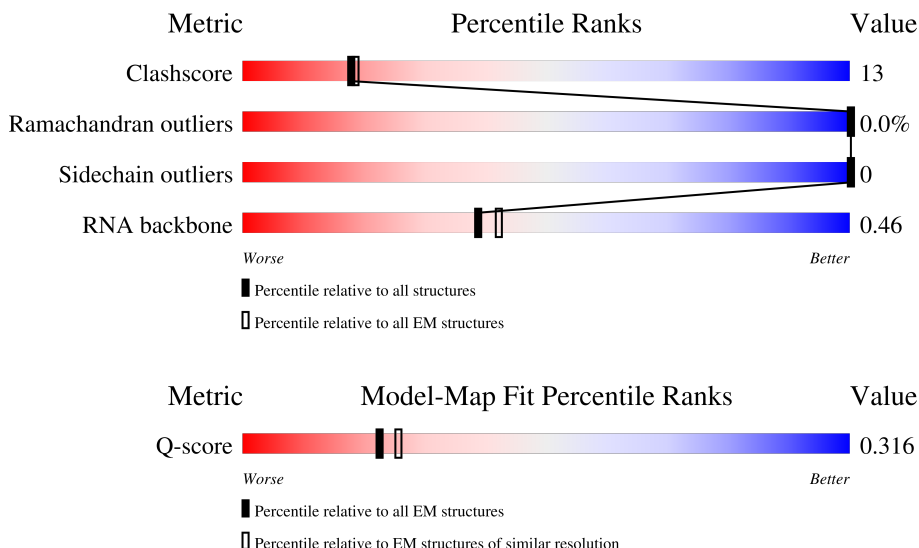
# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 3.91 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



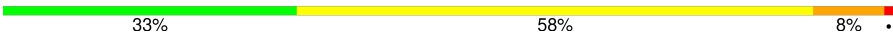
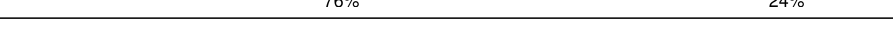
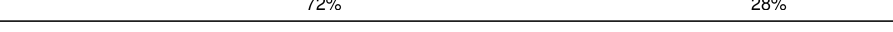
| Metric                | Whole archive<br>(#Entries) | EM structures<br>(#Entries) | Similar EM resolution<br>(#Entries, resolution range(Å)) |
|-----------------------|-----------------------------|-----------------------------|----------------------------------------------------------|
| Clashscore            | 210492                      | 15764                       | -                                                        |
| Ramachandran outliers | 207382                      | 16835                       | -                                                        |
| Sidechain outliers    | 206894                      | 16415                       | -                                                        |
| RNA backbone          | 6643                        | 2191                        | -                                                        |
| Q-score               | -                           | 25397                       | 7920 ( 3.41 - 4.41 )                                     |

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion  $< 40\%$ ). The numeric value is given above the bar.

| Mol | Chain | Length | Quality of chain                                          |
|-----|-------|--------|-----------------------------------------------------------|
| 1   | Pt    | 74     | <div> <div>43%</div> <div>51%</div> <div>5%</div> </div>  |
| 2   | L5    | 3655   | <div> <div>33%</div> <div>54%</div> <div>12%</div> </div> |
| 3   | L7    | 120    | <div> <div>43%</div> <div>49%</div> <div>8%</div> </div>  |

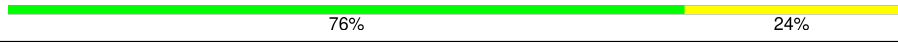
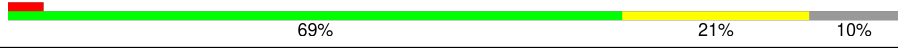
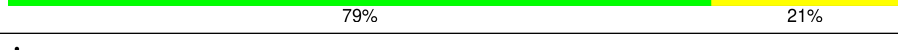
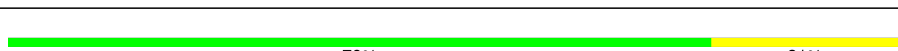
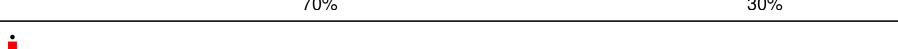
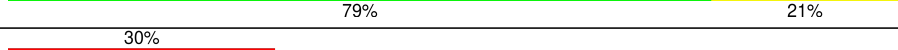
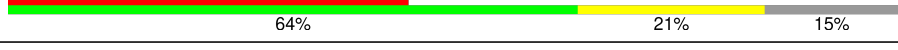
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| Mol | Chain | Length | Quality of chain                                                                     |
|-----|-------|--------|--------------------------------------------------------------------------------------|
| 4   | L8    | 156    |    |
| 5   | LA    | 248    |    |
| 6   | LB    | 402    |    |
| 7   | LC    | 368    |    |
| 8   | LD    | 293    |    |
| 9   | LE    | 250    |    |
| 10  | LF    | 225    |    |
| 11  | LG    | 241    |    |
| 12  | LH    | 190    |    |
| 13  | LI    | 213    |    |
| 14  | LJ    | 176    |    |
| 15  | LL    | 210    |    |
| 16  | LM    | 139    |  |
| 17  | LN    | 203    |  |
| 18  | LO    | 201    |  |
| 19  | LP    | 153    |  |
| 20  | LQ    | 187    |  |
| 21  | LR    | 187    |  |
| 22  | LS    | 175    |  |
| 23  | LT    | 159    |  |
| 24  | LU    | 101    |  |
| 25  | LV    | 131    |  |
| 26  | LW    | 124    |  |
| 27  | LX    | 120    |  |
| 28  | LY    | 134    |  |

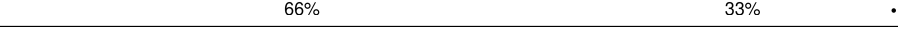
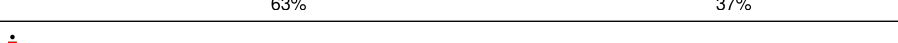
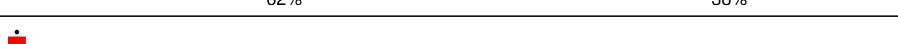
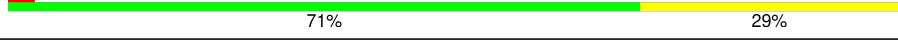
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| Mol | Chain | Length | Quality of chain                                                                     |
|-----|-------|--------|--------------------------------------------------------------------------------------|
| 29  | LZ    | 135    |    |
| 30  | La    | 147    |    |
| 31  | Lb    | 121    |    |
| 32  | Lc    | 98     |    |
| 33  | Ld    | 107    |    |
| 34  | Le    | 128    |    |
| 35  | Lf    | 109    |    |
| 36  | Lg    | 114    |    |
| 37  | Lh    | 122    |    |
| 38  | Li    | 102    |    |
| 39  | Lj    | 86     |    |
| 40  | Lk    | 69     |   |
| 41  | Ll    | 50     |  |
| 42  | Lm    | 52     |  |
| 43  | Ln    | 24     |  |
| 44  | Lo    | 105    |  |
| 45  | Lp    | 91     |  |
| 46  | Lr    | 125    |  |
| 47  | Ls    | 196    |  |
| 48  | Lt    | 157    |  |
| 49  | SD    | 227    |  |
| 50  | SF    | 189    |  |
| 51  | SK    | 98     |  |
| 52  | SM    | 122    |  |
| 53  | SP    | 121    |  |

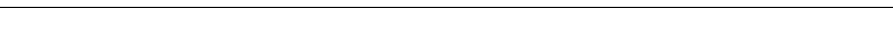
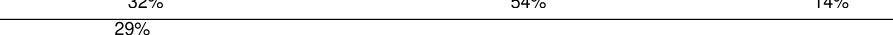
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| Mol | Chain | Length | Quality of chain                                                                     |
|-----|-------|--------|--------------------------------------------------------------------------------------|
| 54  | SQ    | 144    |    |
| 55  | SR    | 135    |    |
| 56  | SS    | 145    |    |
| 57  | ST    | 143    |    |
| 58  | SU    | 104    |    |
| 59  | SZ    | 75     |    |
| 60  | Sc    | 64     |    |
| 61  | Sd    | 55     |    |
| 62  | Sf    | 67     |    |
| 63  | Sg    | 313    |   |
| 64  | SA    | 221    |  |
| 65  | SB    | 214    |  |
| 66  | SC    | 222    |  |
| 67  | SE    | 262    |  |
| 68  | SG    | 237    |  |
| 69  | SH    | 189    |  |
| 70  | SI    | 206    |  |
| 71  | SJ    | 185    |  |
| 72  | SL    | 153    |  |
| 73  | SN    | 150    |  |
| 74  | SO    | 140    |  |
| 75  | SV    | 83     |  |
| 76  | SW    | 129    |  |
| 77  | SX    | 141    |  |
| 78  | SY    | 131    |  |

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| Mol | Chain | Length | Quality of chain                                                                                  |
|-----|-------|--------|---------------------------------------------------------------------------------------------------|
| 79  | Sa    | 102    | <br>78% 22%     |
| 80  | Sb    | 83     | <br>80% 20%     |
| 81  | Se    | 58     | <br>12% 64% 36% |
| 82  | S2    | 1740   | <br>32% 54% 14% |
| 83  | CI    | 31     | <br>29% 71% 29% |

## 2 Entry composition [i](#)

There are 89 unique types of molecules in this entry. The entry contains 218437 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a RNA chain called P site tRNA [Homo sapiens].

| Mol | Chain | Residues | Atoms |     |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 1   | Pt    | 74       | Total | C   | N   | O   | P  | 0       | 0     |
|     |       |          | 1576  | 705 | 286 | 512 | 73 |         |       |

- Molecule 2 is a RNA chain called 28S rRNA [Homo sapiens].

| Mol | Chain | Residues | Atoms |       |       |       |      | AltConf | Trace |
|-----|-------|----------|-------|-------|-------|-------|------|---------|-------|
| 2   | L5    | 3655     | Total | C     | N     | O     | P    | 1       | 0     |
|     |       |          | 78444 | 34968 | 14346 | 25475 | 3655 |         |       |

- Molecule 3 is a RNA chain called 5S rRNA [Homo sapiens].

| Mol | Chain | Residues | Atoms |      |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|-----|---------|-------|
| 3   | L7    | 120      | Total | C    | N   | O   | P   | 0       | 0     |
|     |       |          | 2561  | 1141 | 456 | 844 | 120 |         |       |

- Molecule 4 is a RNA chain called 5.8S rRNA [Homo sapiens].

| Mol | Chain | Residues | Atoms |      |     |      |     | AltConf | Trace |
|-----|-------|----------|-------|------|-----|------|-----|---------|-------|
| 4   | L8    | 156      | Total | C    | N   | O    | P   | 0       | 0     |
|     |       |          | 3315  | 1481 | 585 | 1094 | 155 |         |       |

- Molecule 5 is a protein called 60S ribosomal protein L8.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 5   | LA    | 248      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1898  | 1189 | 389 | 314 | 6 |         |       |

- Molecule 6 is a protein called Large ribosomal subunit protein uL3.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 6   | LB    | 402      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3238  | 2060 | 608 | 556 | 14 |         |       |

- Molecule 7 is a protein called 60S ribosomal protein L4.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 7   | LC    | 368      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 2927  | 1840 | 583 | 489 | 15 |         |       |

- Molecule 8 is a protein called Large ribosomal subunit protein uL18.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 8   | LD    | 293      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 2382  | 1507 | 434 | 427 | 14 |         |       |

- Molecule 9 is a protein called Large ribosomal subunit protein eL6.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 9   | LE    | 240      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1935  | 1242 | 368 | 321 | 4 |         |       |

- Molecule 10 is a protein called 60S ribosomal protein L7.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 10  | LF    | 225      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1870  | 1202 | 358 | 301 | 9 |         |       |

- Molecule 11 is a protein called 60S ribosomal protein L7a.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 11  | LG    | 241      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1927  | 1228 | 371 | 324 | 4 |         |       |

- Molecule 12 is a protein called 60S ribosomal protein L9.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 12  | LH    | 190      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1518  | 956 | 284 | 272 | 6 |         |       |

- Molecule 13 is a protein called Ribosomal protein uL16-like.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 13  | LI    | 213      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 1711  | 1082 | 329 | 285 | 15 |         |       |

- Molecule 14 is a protein called 60S ribosomal protein L11.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 14  | LJ    | 170      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1362  | 861 | 254 | 241 | 6 |         |       |

- Molecule 15 is a protein called Large ribosomal subunit protein eL13.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 15  | LL    | 210      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1701  | 1064 | 352 | 281 | 4 |         |       |

- Molecule 16 is a protein called 60S ribosomal protein L14.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 16  | LM    | 139      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1138  | 730 | 218 | 183 | 7 |         |       |

- Molecule 17 is a protein called 60S ribosomal protein L15.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 17  | LN    | 203      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1701  | 1072 | 359 | 266 | 4 |         |       |

- Molecule 18 is a protein called 60S ribosomal protein L13a.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 18  | LO    | 201      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1650  | 1063 | 321 | 261 | 5 |         |       |

- Molecule 19 is a protein called 60S ribosomal protein L17.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 19  | LP    | 153      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1242  | 776 | 241 | 216 | 9 |         |       |

- Molecule 20 is a protein called 60S ribosomal protein L18.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 20  | LQ    | 187      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1513  | 944 | 314 | 250 | 5 |         |       |

- Molecule 21 is a protein called 60S ribosomal protein L19.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 21  | LR    | 187      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1566  | 971 | 336 | 250 | 9 |         |       |

- Molecule 22 is a protein called 60S ribosomal protein L18a.

| Mol | Chain | Residues | Atoms |     |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 22  | LS    | 175      | Total | C   | N   | O   | S  | 0       | 0     |
|     |       |          | 1453  | 925 | 283 | 235 | 10 |         |       |

- Molecule 23 is a protein called 60S ribosomal protein L21.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 23  | LT    | 159      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1298  | 823 | 252 | 217 | 6 |         |       |

- Molecule 24 is a protein called Heparin-binding protein HBp15.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 24  | LU    | 101      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 825   | 529 | 144 | 150 | 2 |         |       |

- Molecule 25 is a protein called 60S ribosomal protein L23.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 25  | LV    | 131      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 979   | 618 | 184 | 172 | 5 |         |       |

- Molecule 26 is a protein called Ribosomal protein L24.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 26  | LW    | 116      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 945   | 592 | 193 | 156 | 4 |         |       |

- Molecule 27 is a protein called 60S ribosomal protein L23a.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 27  | LX    | 120      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 985   | 630 | 185 | 169 | 1 |         |       |

- Molecule 28 is a protein called 60S ribosomal protein L26.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 28  | LY    | 134      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1115  | 700 | 226 | 186 | 3 |         |       |

- Molecule 29 is a protein called 60S ribosomal protein L27.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 29  | LZ    | 135      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1107  | 714 | 208 | 182 | 3 |         |       |

- Molecule 30 is a protein called 60S ribosomal protein L27a.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 30  | La    | 147      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1162  | 736 | 237 | 186 | 3 |         |       |

- Molecule 31 is a protein called Large ribosomal subunit protein eL29.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 31  | Lb    | 109      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 876   | 546 | 189 | 137 | 4 |         |       |

- Molecule 32 is a protein called 60S ribosomal protein L30.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 32  | Lc    | 98       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 764   | 485 | 135 | 138 | 6 |         |       |

- Molecule 33 is a protein called 60S ribosomal protein L31.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 33  | Ld    | 107      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 888   | 560 | 171 | 155 | 2 |         |       |

- Molecule 34 is a protein called 60S ribosomal protein L32.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 34  | Le    | 128      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1053  | 667 | 216 | 165 | 5 |         |       |

- Molecule 35 is a protein called 60S ribosomal protein L35a.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 35  | Lf    | 109      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 876   | 555 | 174 | 144 | 3 |         |       |

- Molecule 36 is a protein called 60S ribosomal protein L34.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 36  | Lg    | 114      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 906   | 566 | 187 | 147 | 6 |         |       |

- Molecule 37 is a protein called 60S ribosomal protein L35.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 37  | Lh    | 122      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1015  | 641 | 205 | 168 | 1 |         |       |

- Molecule 38 is a protein called 60S ribosomal protein L36.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 38  | Li    | 102      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 832   | 521 | 177 | 129 | 5 |         |       |

- Molecule 39 is a protein called 60S ribosomal protein L37.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 39  | Lj    | 86       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 705   | 434 | 155 | 111 | 5 |         |       |

- Molecule 40 is a protein called 60S ribosomal protein L38.

| Mol | Chain | Residues | Atoms |     |     |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 40  | Lk    | 69       | Total | C   | N   | O  | S | 0       | 0     |
|     |       |          | 569   | 366 | 103 | 99 | 1 |         |       |

- Molecule 41 is a protein called 60S ribosomal protein L39.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 41  | Ll    | 50       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 444   | 281 | 98 | 64 | 1 |         |       |

- Molecule 42 is a protein called Large ribosomal subunit protein eL40.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 42  | Lm    | 52       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 429   | 266 | 90 | 67 | 6 |         |       |

- Molecule 43 is a protein called 60S ribosomal protein L41.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 43  | Ln    | 24       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 230   | 139 | 62 | 26 | 3 |         |       |

- Molecule 44 is a protein called 60S ribosomal protein L36a.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 44  | Lo    | 105      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 862   | 542 | 175 | 139 | 6 |         |       |

- Molecule 45 is a protein called 60S ribosomal protein L37a.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 45  | Lp    | 91       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 708   | 445 | 136 | 120 | 7 |         |       |

- Molecule 46 is a protein called 60S ribosomal protein L28.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 46  | Lr    | 125      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1002  | 622 | 207 | 168 | 5 |         |       |

- Molecule 47 is a protein called 60S acidic ribosomal protein P0.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 47  | Ls    | 196      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1496  | 952 | 259 | 276 | 9 |         |       |

- Molecule 48 is a protein called Large ribosomal subunit protein uL11.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 48  | Lt    | 134      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 998   | 626 | 180 | 189 | 3 |         |       |

- Molecule 49 is a protein called Small ribosomal subunit protein uS3.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 49  | SD    | 227      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1765  | 1125 | 317 | 315 | 8 |         |       |

- Molecule 50 is a protein called 40S ribosomal protein S5.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 50  | SF    | 189      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1495  | 934 | 284 | 270 | 7 |         |       |

- Molecule 51 is a protein called 40S ribosomal protein S10.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 51  | SK    | 98       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 827   | 539 | 148 | 134 | 6 |         |       |

- Molecule 52 is a protein called Small ribosomal subunit protein eS12.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 52  | SM    | 122      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 940   | 590 | 164 | 177 | 9 |         |       |

- Molecule 53 is a protein called Small ribosomal subunit protein uS19.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 53  | SP    | 121      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 985   | 623 | 185 | 170 | 7 |         |       |

- Molecule 54 is a protein called Small ribosomal subunit protein uS9.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 54  | SQ    | 144      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1142  | 726 | 216 | 197 | 3 |         |       |

- Molecule 55 is a protein called Small ribosomal subunit protein eS17.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 55  | SR    | 135      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1090  | 685 | 202 | 198 | 5 |         |       |

- Molecule 56 is a protein called 40S ribosomal protein S18.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 56  | SS    | 145      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1198  | 751 | 242 | 203 | 2 |         |       |

- Molecule 57 is a protein called 40S ribosomal protein S19.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 57  | ST    | 143      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1112  | 697 | 214 | 198 | 3 |         |       |

- Molecule 58 is a protein called 40S ribosomal protein S20.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 58  | SU    | 104      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 821   | 514 | 155 | 148 | 4 |         |       |

- Molecule 59 is a protein called Small ribosomal subunit protein eS25.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 59  | SZ    | 75       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 598   | 382 | 111 | 104 | 1 |         |       |

- Molecule 60 is a protein called 40S ribosomal protein S28.

| Mol | Chain | Residues | Atoms |     |     |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 60  | Sc    | 64       | Total | C   | N   | O  | S | 0       | 0     |
|     |       |          | 506   | 308 | 102 | 94 | 2 |         |       |

- Molecule 61 is a protein called 40S ribosomal protein S29.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 61  | Sd    | 55       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 459   | 286 | 94 | 74 | 5 |         |       |

- Molecule 62 is a protein called Ubiquitin-40S ribosomal protein S27a.

| Mol | Chain | Residues | Atoms |     |     |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 62  | Sf    | 67       | Total | C   | N   | O  | S | 0       | 0     |
|     |       |          | 548   | 346 | 102 | 93 | 7 |         |       |

- Molecule 63 is a protein called Receptor of activated protein C kinase 1.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 63  | Sg    | 313      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 2436  | 1535 | 424 | 465 | 12 |         |       |

- Molecule 64 is a protein called 40S ribosomal protein SA.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 64  | SA    | 221      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1741  | 1106 | 305 | 322 | 8 |         |       |

- Molecule 65 is a protein called 40S ribosomal protein S3a.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 65  | SB    | 214      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 1738  | 1103 | 310 | 311 | 14 |         |       |

- Molecule 66 is a protein called 40S ribosomal protein S2.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 66  | SC    | 220      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 1707  | 1104 | 293 | 300 | 10 |         |       |

- Molecule 67 is a protein called Small ribosomal subunit protein eS4, X isoform.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 67  | SE    | 262      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 2076  | 1324 | 386 | 358 | 8 |         |       |

- Molecule 68 is a protein called 40S ribosomal protein S6.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 68  | SG    | 237      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1923  | 1200 | 387 | 329 | 7 |         |       |

- Molecule 69 is a protein called Small ribosomal subunit protein eS7.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 69  | SH    | 186      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1497  | 956 | 274 | 266 | 1 |         |       |

- Molecule 70 is a protein called 40S ribosomal protein S8.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 70  | SI    | 206      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1686  | 1058 | 332 | 291 | 5 |         |       |

- Molecule 71 is a protein called 40S ribosomal protein S9.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 71  | SJ    | 185      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1525  | 969 | 306 | 248 | 2 |         |       |

- Molecule 72 is a protein called 40S ribosomal protein S11.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 72  | SL    | 153      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1247  | 793 | 234 | 214 | 6 |         |       |

- Molecule 73 is a protein called 40S ribosomal protein S13.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 73  | SN    | 150      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1208  | 773 | 229 | 205 | 1 |         |       |

- Molecule 74 is a protein called Small ribosomal subunit protein uS11.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 74  | SO    | 137      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1024  | 627 | 200 | 191 | 6 |         |       |

- Molecule 75 is a protein called Small ribosomal subunit protein eS21.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 75  | SV    | 83       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 636   | 393 | 117 | 121 | 5 |         |       |

- Molecule 76 is a protein called 40S ribosomal protein S15a.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 76  | SW    | 129      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1034  | 659 | 193 | 176 | 6 |         |       |

- Molecule 77 is a protein called 40S ribosomal protein S23.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 77  | SX    | 141      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1098  | 693 | 219 | 183 | 3 |         |       |

- Molecule 78 is a protein called 40S ribosomal protein S24.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 78  | SY    | 131      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1065  | 673 | 209 | 178 | 5 |         |       |

- Molecule 79 is a protein called 40S ribosomal protein S26.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 79  | Sa    | 102      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 821   | 512 | 171 | 133 | 5 |         |       |

- Molecule 80 is a protein called Small ribosomal subunit protein eS27.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 80  | Sb    | 83       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 651   | 408 | 121 | 115 | 7 |         |       |

- Molecule 81 is a protein called Small ribosomal subunit protein eS30.

| Mol | Chain | Residues | Atoms |     |     |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 81  | Se    | 58       | Total | C   | N   | O  | S | 0       | 0     |
|     |       |          | 459   | 284 | 100 | 74 | 1 |         |       |

- Molecule 82 is a RNA chain called 18S rRNA [Homo sapiens].

| Mol | Chain | Residues | Atoms |       |      |       |      | AltConf | Trace |
|-----|-------|----------|-------|-------|------|-------|------|---------|-------|
| 82  | S2    | 1740     | Total | C     | N    | O     | P    | 0       | 0     |
|     |       |          | 36953 | 16508 | 6600 | 12106 | 1739 |         |       |

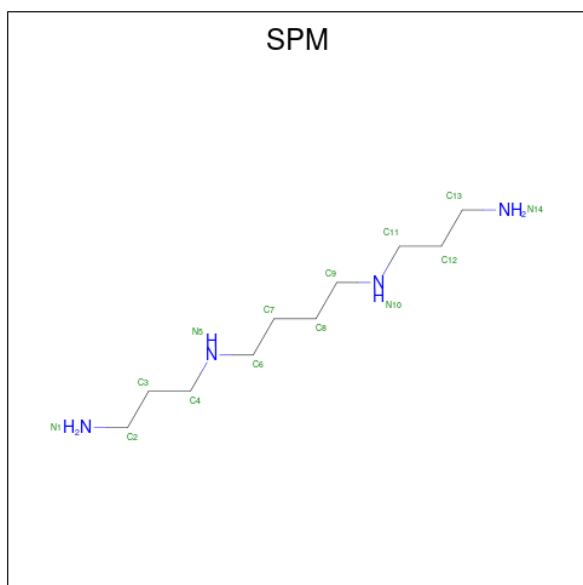
- Molecule 83 is a protein called Transcription factor BTF3.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 83  | CI    | 31       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 247   | 153 | 55 | 38 | 1 |         |       |

- Molecule 84 is MAGNESIUM ION (CCD ID: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

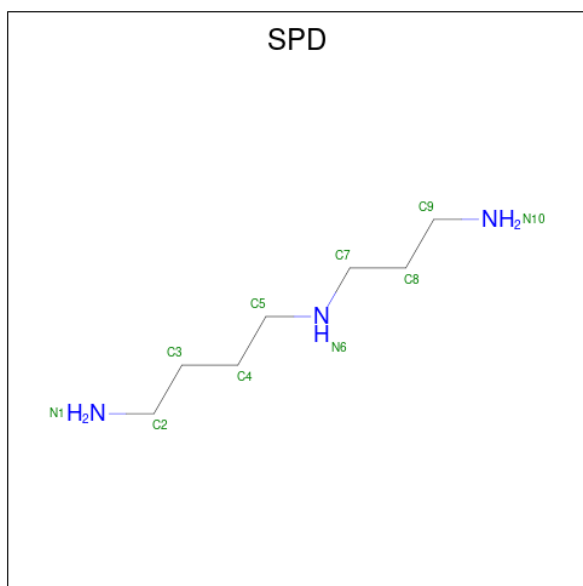
| Mol | Chain | Residues | Atoms        |           | AltConf |
|-----|-------|----------|--------------|-----------|---------|
| 84  | L5    | 177      | Total<br>177 | Mg<br>177 | 0       |
| 84  | L7    | 3        | Total<br>3   | Mg<br>3   | 0       |
| 84  | L8    | 6        | Total<br>6   | Mg<br>6   | 0       |
| 84  | LA    | 1        | Total<br>1   | Mg<br>1   | 0       |
| 84  | LC    | 1        | Total<br>1   | Mg<br>1   | 0       |
| 84  | LP    | 1        | Total<br>1   | Mg<br>1   | 0       |
| 84  | LV    | 1        | Total<br>1   | Mg<br>1   | 0       |
| 84  | Le    | 1        | Total<br>1   | Mg<br>1   | 0       |
| 84  | SS    | 1        | Total<br>1   | Mg<br>1   | 0       |
| 84  | Sa    | 1        | Total<br>1   | Mg<br>1   | 0       |
| 84  | S2    | 26       | Total<br>26  | Mg<br>26  | 0       |

- Molecule 85 is SPERMINE (CCD ID: SPM) (formula:  $C_{10}H_{26}N_4$ ) (labeled as "Ligand of Interest" by depositor).



| Mol | Chain | Residues | Atoms |    |   | AltConf |
|-----|-------|----------|-------|----|---|---------|
| 85  | L5    | 1        | Total | C  | N | 0       |
|     |       |          | 14    | 10 | 4 |         |
| 85  | L5    | 1        | Total | C  | N | 0       |
|     |       |          | 14    | 10 | 4 |         |
| 85  | L5    | 1        | Total | C  | N | 0       |
|     |       |          | 14    | 10 | 4 |         |
| 85  | L5    | 1        | Total | C  | N | 0       |
|     |       |          | 14    | 10 | 4 |         |
| 85  | L5    | 1        | Total | C  | N | 0       |
|     |       |          | 14    | 10 | 4 |         |
| 85  | L5    | 1        | Total | C  | N | 0       |
|     |       |          | 14    | 10 | 4 |         |

- Molecule 86 is SPERMIDINE (CCD ID: SPD) (formula:  $C_7H_{19}N_3$ ) (labeled as "Ligand of Interest" by depositor).



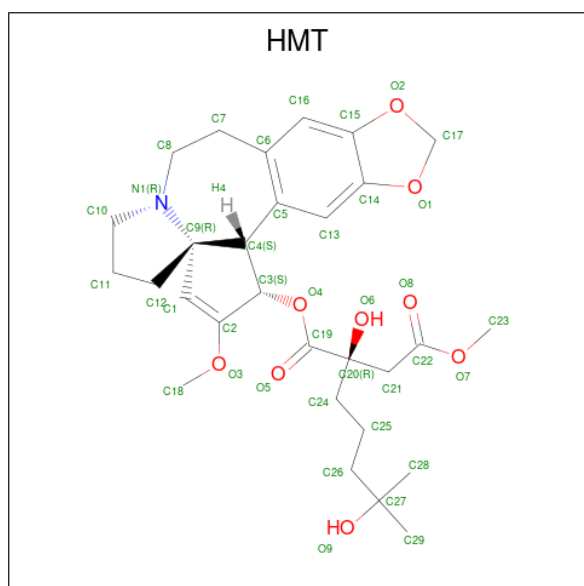
| Mol | Chain | Residues | Atoms |   |   | AltConf |
|-----|-------|----------|-------|---|---|---------|
| 86  | L5    | 1        | Total | C | N | 0       |
|     |       |          | 10    | 7 | 3 |         |
| 86  | L5    | 1        | Total | C | N | 0       |
|     |       |          | 10    | 7 | 3 |         |
| 86  | L5    | 1        | Total | C | N | 0       |
|     |       |          | 10    | 7 | 3 |         |
| 86  | L5    | 1        | Total | C | N | 0       |
|     |       |          | 10    | 7 | 3 |         |

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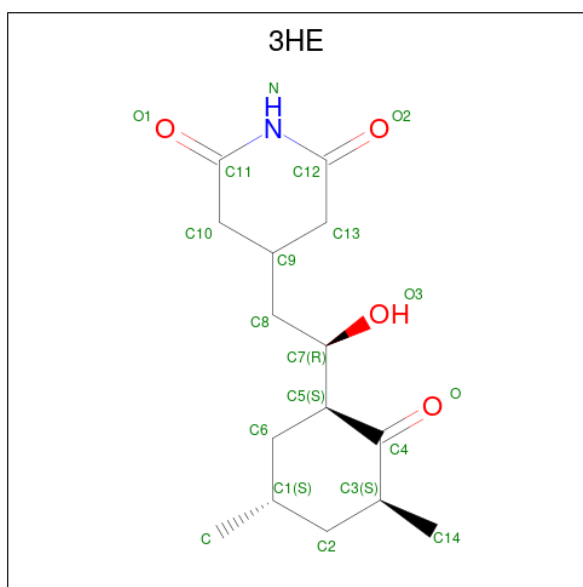
| Mol | Chain | Residues | Atoms |   |   | AltConf |
|-----|-------|----------|-------|---|---|---------|
| 86  | L5    | 1        | Total | C | N | 0       |
|     |       |          | 10    | 7 | 3 |         |
| 86  | L5    | 1        | Total | C | N | 0       |
|     |       |          | 10    | 7 | 3 |         |
| 86  | L5    | 1        | Total | C | N | 0       |
|     |       |          | 10    | 7 | 3 |         |
| 86  | L5    | 1        | Total | C | N | 0       |
|     |       |          | 10    | 7 | 3 |         |
| 86  | L5    | 1        | Total | C | N | 0       |
|     |       |          | 10    | 7 | 3 |         |
| 86  | L8    | 1        | Total | C | N | 0       |
|     |       |          | 10    | 7 | 3 |         |

- Molecule 87 is (3beta)-O 3 -[(2R)-2,6-dihydroxy-2-(2-methoxy-2-oxoethyl)-6-methylheptanoyl]cephalotaxine (CCD ID: HMT) (formula: C<sub>29</sub>H<sub>39</sub>NO<sub>9</sub>) (labeled as "Ligand of Interest" by depositor).



| Mol | Chain | Residues | Atoms |    |   |   | AltConf |
|-----|-------|----------|-------|----|---|---|---------|
| 87  | L5    | 1        | Total | C  | N | O | 0       |
|     |       |          | 39    | 29 | 1 | 9 |         |

- Molecule 88 is 4-{(2R)-2-[(1S,3S,5S)-3,5-dimethyl-2-oxocyclohexyl]-2-hydroxyethyl}piperidine-2,6-dione (CCD ID: 3HE) (formula: C<sub>15</sub>H<sub>23</sub>NO<sub>4</sub>) (labeled as "Ligand of Interest" by depositor).



| Mol | Chain | Residues | Atoms |    |   |   | AltConf |
|-----|-------|----------|-------|----|---|---|---------|
| 88  | L5    | 1        | Total | C  | N | O | 0       |
|     |       |          | 20    | 15 | 1 | 4 |         |

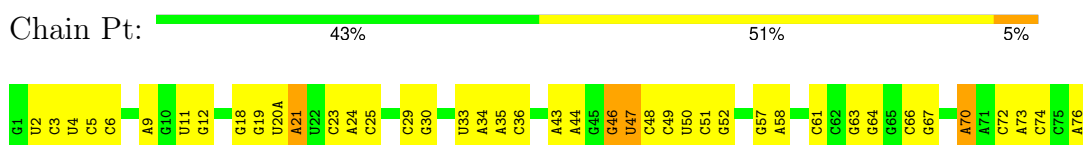
- Molecule 89 is ZINC ION (CCD ID: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

| Mol | Chain | Residues | Atoms |    | AltConf |
|-----|-------|----------|-------|----|---------|
| 89  | Lg    | 1        | Total | Zn | 0       |
|     |       |          | 1     | 1  |         |
| 89  | Lj    | 1        | Total | Zn | 0       |
|     |       |          | 1     | 1  |         |
| 89  | Lm    | 1        | Total | Zn | 0       |
|     |       |          | 1     | 1  |         |
| 89  | Lo    | 1        | Total | Zn | 0       |
|     |       |          | 1     | 1  |         |
| 89  | Lp    | 1        | Total | Zn | 0       |
|     |       |          | 1     | 1  |         |
| 89  | Sa    | 1        | Total | Zn | 0       |
|     |       |          | 1     | 1  |         |

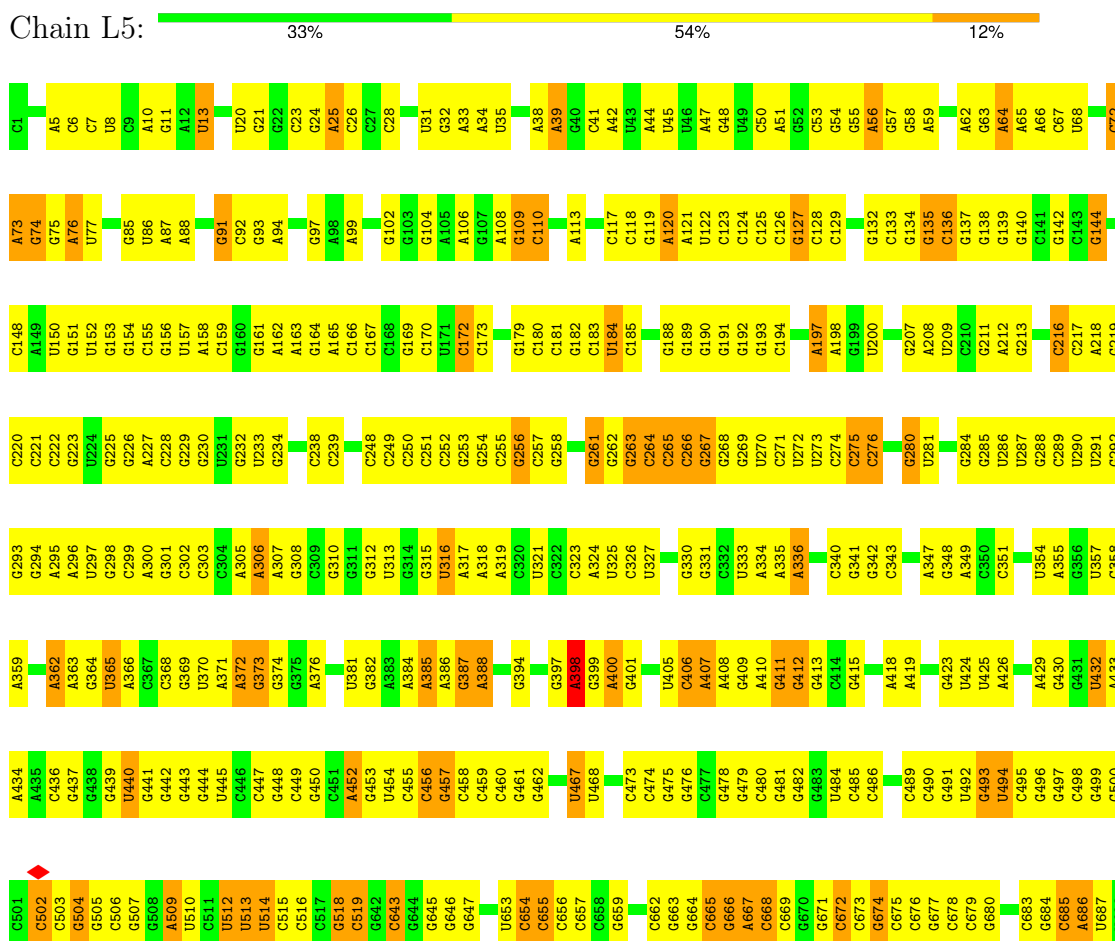
### 3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

#### • Molecule 1: P site tRNA [Homo sapiens]



#### • Molecule 2: 28S rRNA [Homo sapiens]



|       |       |       |       |       |       |       |       |       |       |       |       |      |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| A1907 | G1833 | G1761 | G1811 | G1539 | G1473 | C1402 | A1334 | G1266 | U1186 | C979  | G912  | U689 |
| A1908 | U1834 | C1762 | G1612 | C1540 | C1474 | G1403 | G1335 | C1267 | G1187 | U980  | U913  | C690 |
| G1909 | G1835 | U1683 | A1613 | U1542 | G1475 | G1404 | G1336 | G1268 | G1188 | G1268 | U914  | C691 |
| G1910 | G1836 | C1763 | C1614 | U1543 | U1542 | G1405 | A1337 | G1269 | G1189 | U982  | A915  | A692 |
| C1914 | A1837 | G1764 | U1615 | G1544 | C1478 | C1407 | U1339 | G1270 | C1190 | C984  | C916  | C696 |
| C1915 | A1838 | G1765 | U1616 | G1545 | G1479 | G1408 | U1340 | G1271 | C983  | C985  | G917  | G697 |
| C1916 | G1839 | G1686 | G1617 | G1546 | C1480 | C1409 | U1341 | G1272 | C984  | C986  | G918  | G698 |
| G1917 | U1840 | U1766 | G1618 | G1547 | G1481 | U1410 | U1342 | G1273 | C919  | C920  | C921  | G699 |
| U1918 | C1841 | G1768 | G1619 | A1547 | G1482 | C1411 | A1343 | G1274 | C922  | C923  | C924  | G701 |
| G1919 | G1842 | G1769 | U1620 | G1548 | C1483 | G1412 | C1344 | G1275 | U989  | G1064 | C704  | C704 |
| C1920 | A1843 | A1770 | A1621 | U1549 | U1489 | C1413 | A1345 | U1278 | G1068 | G1068 | C928  | G710 |
| C1921 | G1844 | U1771 | U1622 | A1554 | G1490 | G1414 | A1346 | A1279 | G1069 | G1070 | A929  | A711 |
| G1922 | U1845 | G1697 | G1624 | G1555 | A1491 | G1415 | G1347 | C1280 | G1198 | G1199 | G930  | C712 |
| G1925 | G1846 | U1773 | G1625 | C1556 | G1492 | G1416 | G1347 | G1281 | G1200 | U1201 | G931  | C713 |
| G1926 | C1847 | A1775 | G1626 | G1557 | G1493 | C1417 | G1349 | G1282 | U1202 | G1203 | C1071 | C714 |
| U1927 | U1848 | U1776 | G1627 | A1558 | U1494 | G1418 | G1350 | G1283 | G1204 | C1072 | A932  | G715 |
| C1931 | A1849 | G1700 | G1628 | U1559 | G1495 | A1420 | G1351 | G1284 | G1205 | U1205 | G933  | G716 |
| A1932 | U1850 | C1701 | G1629 | G1562 | A1496 | G1425 | A1354 | U1285 | G1206 | G1075 | C934  | G717 |
| G1933 | G1851 | G1702 | G1630 | A1563 | A1497 | G1426 | G1355 | C1286 | C1207 | G1076 | A935  | C718 |
| A1934 | U1852 | C1703 | A1631 | U1564 | G1498 | G1427 | U1359 | G1287 | U1208 | G1077 | C936  |      |
| G1937 | G1853 | G1704 | G1632 | A1565 | C1499 | C1430 | G1363 | U1291 | C1210 | C1081 | U937  | G726 |
| C1938 | U1854 | U1705 | G1633 | U1566 | U1502 | G1431 | U1364 | C1292 | G1211 | C1082 | C938  | C727 |
| G1940 | G1855 | G1706 | U1634 | C1567 | A1503 | G1432 | U1365 | A1294 | C1214 | U1083 | C941  | U728 |
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| A1942 | U1857 | C1717 | U1636 | U1569 | C1505 | G1434 | G1367 | G1296 | G1216 | C1085 | A943  | G730 |
| A1943 | A1858 | A1718 | A1637 | G1570 | G1506 | G1435 | C1367 | G1297 | G1217 | C1086 | A944  | G731 |
| G1948 | G1859 | G1719 | U1638 | U1571 | C1507 | C1436 | A1368 | U1298 | G1218 | C1087 | U945  |      |
| U1949 | U1860 | C1720 | U1639 | G1572 | A1508 | G1437 | C1369 | G1299 | G1219 | C1088 | C946  | G735 |
| G1951 | A1861 | G1721 | G1640 | G1573 | C1509 | U1438 | G1370 | U1300 | U1222 | G1089 | C947  | C736 |
| U1953 | G1862 | C1722 | A1842 | G1574 | U1510 | C1439 | A1371 | C1301 | A1238 | G1090 | C948  | C737 |
| G1957 | U1865 | U1727 | A1643 | G1577 | U1511 | U1440 | A1372 | U1302 | C1239 | C1091 | G949  | C738 |
| A1958 | U1866 | U1728 | G1644 | U1578 | U1512 | C1441 | A1373 | C1303 | G1094 | G1092 | G950  | G739 |
| U1959 | G1867 | A1729 | C1645 | C1579 | U1513 | C1442 | G1377 | C1304 | G1240 | C1093 | G951  | G740 |
| G1960 | A1868 | U1730 | A1646 | C1580 | U1514 | A1443 | C1378 | C1305 | C1241 | A1095 | G952  | C741 |
| G1961 | U1869 | G1731 | A1647 | G1581 | A1515 | U1444 | C1379 | C1306 | G1242 | C1096 | A956  | G742 |
| A1962 | G1870 | C1732 | U1647 | U1582 | G1516 | U1445 | U1381 | C1307 | C1243 | C1097 | G957  | A746 |
| G1965 | U1871 | G1733 | C1648 | A1583 | U1517 | C1446 | G1380 | C1308 | G1244 | G1098 | G958  | A747 |
| G1969 | C1872 | G1734 | U1649 | G1584 | A1518 | C1447 | U1381 | C1309 | C1245 | G1168 | G959  | G748 |
| C1970 | U1875 | U1735 | G1654 | U1585 | C1519 | G1448 | G1382 | C1310 | G1246 | G1169 | A960  | G749 |
| C1971 | G1876 | G1736 | G1655 | G1586 | C1520 | C1449 | G1383 | C1314 | U1247 | G1170 | C961  | U750 |
| G1972 | U1877 | A1737 | C1656 | G1587 | G1521 | G1450 | C1384 | C1315 | C1248 | C1172 | G962  | G751 |
| G1973 | C1878 | U1738 | C1657 | U1588 | A1522 | G1451 | A1387 | G1316 | G1253 | G1173 | G963  | G752 |
| U1974 | G1879 | G1739 | U1658 | U1589 | A1523 | A1452 | U1388 | U1317 | A1254 | A1175 | G964  | G753 |
| C1975 | U1880 | C1740 | C1659 | G1590 | A1524 | G1457 | U1389 | C1318 | A1255 | G1174 | G965  | G754 |
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| C1978 | G1883 | A1743 | C1662 | U1596 | A1527 | C1460 | A1392 | A1324 | G1258 | U1178 | C968  | C903 |
| U1980 | U1884 | U1744 | C1663 | G1597 | U1528 | G1461 | G1393 | C1325 | G1259 | U1179 | C969  | C904 |
| G1983 | G1885 | G1751 | A1669 | A1600 | G1529 | C1462 | U1394 | A1326 | G1260 | C1180 | G970  | C905 |
| C1984 | U1886 | G1752 | G1670 | A1601 | U1530 | A1463 | U1395 | G1327 | G1261 | C1181 | C974  | C906 |
| G1985 | G1887 | U1753 | U1671 | U1602 | U1531 | C1464 | G1396 | C1328 | G1262 | C1182 | C975  | G907 |
| C1986 | U1888 | G1754 | U1672 | G1603 | G1532 | G1465 | A1397 | G1329 | A1263 | C1183 | G976  | G908 |
| G1987 | C1889 | U1755 | C1673 | G1604 | A1533 | G1466 | U1398 | G1330 | G1264 | A1184 | C977  | G909 |
| C1988 | G1890 | C1756 | C1674 | G1605 | A1534 | G1467 | G1399 | U1332 | G1265 | A1185 | G978  |      |
| U1989 | U1891 | U1757 | C1675 | G1606 | C1535 | C1468 | U1401 | G1332 |       |       |       | U911 |
| G1990 | G1892 | U1758 | U1676 | G1607 | U1536 | U1471 |       |       |       |       |       |      |
| C1991 | C1893 | G1759 | U1677 | U1609 | A1537 | C1472 |       |       |       |       |       |      |
| G1992 | U1894 | U1760 | C1678 | C1610 | U1538 |       |       |       |       |       |       |      |

|       |       |       |       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| G3720 | C3650 | G2906 | A2832 | G3762 | C2699 | C9627 | G2557 | C2489 | G2262 | G2055 | G1981 |
| G3721 | A3651 | G2907 | A2833 | U2763 | G2700 | U2631 | C2558 | U2490 | A2262 | G2056 | G1982 |
| G3722 | A3652 | U2908 | C2834 | A2764 | U2701 | U2632 | G2559 | C2491 | C2264 |       | A1983 |
| A3723 | A3653 |       | A2835 | A2765 | G2702 | U2633 | C2560 | C2492 | G2331 | C2059 | A1984 |
| A3724 | G3654 | G3585 | A2836 |       | G2703 | U2634 | C2561 | C2493 | G2332 | G2060 | G1985 |
| G3725 |       | G3586 | U2837 | C2766 | G2706 | U2635 | C2562 | U2494 | G2333 |       | U1986 |
| A3726 | G3658 |       | G2838 | U2769 | U2707 | U2636 | C2563 | U2495 | G2334 | C2067 |       |
| A3727 | G3659 | G3589 | G2839 | C2770 | U2708 | U2637 | C2564 | U2496 | G2335 | A2068 | A1991 |
| A3728 | G3660 | G3590 |       | C2771 | G2709 | U2638 | A2565 | C2497 | G2336 | C2069 | U1992 |
| U3729 | G3661 | C3591 |       | C2772 | G2710 | U2639 | G2566 | C2498 | G2337 |       | C1993 |
| U3730 | A3662 |       |       | G2773 | G2711 | G2640 | G2567 | U2499 | G2338 | C2072 | C1994 |
| G3731 | G3663 | G3594 | A2845 | C2774 | G2712 | A2641 | C2568 | G2504 | C2346 | G2073 | G1995 |
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| A3733 | G3665 | A3596 | G2847 | G2776 | G2714 | G2643 | U2570 | C2506 | G2348 | G2075 | G1996 |
|       | G3666 | G3597 | U2848 | G2777 | G2715 | G2644 | C2571 | A2507 | A2349 | G2076 | U1997 |
| A3736 | C3667 | C3599 | G2849 | G2778 | G2716 | G2645 | C2572 | U2507 | U2350 | G2077 | C1998 |
| G3737 | C3668 | G3600 |       | G2779 | G2717 | G2646 | A2573 | G2508 | G2351 | G2078 | G2001 |
| G3738 |       | G3601 | U2852 | C2780 | U2718 | A2647 |       | G2509 | G2352 | U2352 | A2002 |
| G3739 | G3671 | C3602 |       | G2781 | G2719 | G2648 | C2577 | A2511 | G2353 | U2080 | G2003 |
| C3740 | G3672 | G3603 | G2855 | U2782 | G2720 |       | G2578 | A2512 | G2354 | G2082 | U2004 |
| C3741 | G3674 | A3604 | G2856 | A2783 | G2721 |       | G2579 | A2513 | G2355 |       |       |
| G3744 |       | G3605 | A2857 |       | G2722 | G2652 | U2580 | G2514 |       |       | G2007 |
|       | U3677 | C3606 | A2858 | A2787 | G2723 | G2653 | A2581 | G2515 | A2360 | G2084 | U2008 |
|       |       | U3607 | G2859 | U2788 | U2724 | C2654 | A2582 | G2516 | G2361 | G2085 |       |
| U3680 |       | A3608 | C2860 | U2789 | A2725 | C2655 | C2583 | G2517 | U2362 | G2086 | A2009 |
| A3681 |       | G3609 | G2861 | U2790 | G2726 | U2656 | G2584 | G2518 | G2363 | C2087 | A2010 |
| A3682 |       | A3610 | A2864 | C2794 | G2727 | G2657 | G2585 | U2519 | G2364 | A2088 | C2011 |
| G3683 | G3674 | A3611 | U2865 | A2795 | G2728 | G2658 | G2586 | C2520 | G2365 | A2012 |       |
| U3758 |       |       |       | G2798 | U2729 | G2662 | A2587 | G2521 |       | U2090 |       |
| A3759 | G3684 | G3615 | U2869 | G2799 | G2730 | G2663 | C2588 | G2522 | U2372 | C2091 | C2016 |
| A3760 | G3685 |       | A2870 |       | G2731 | G2664 | C2589 | G2523 | C2373 | G2092 | A2017 |
|       | A3687 | G3619 |       | U2803 | G2732 |       | G2590 | G2524 | A2374 | A2093 | C2018 |
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| G3765 |       | C3623 | G2878 | A2806 | G2735 | C2671 | G2596 | G2527 | C2377 | G2096 | G2021 |
|       | U3683 | A3624 | A2879 | A2807 | G2736 | C2672 | G2597 | U2528 | G2378 | U2097 |       |
| U3684 | U3684 | G3625 | U2880 | G2808 |       | C2673 | A2598 | U2529 | G2379 | G2098 | G2024 |
| U3685 | C3686 | G3626 | A2881 | G2809 | C2739 | C2674 | G2599 | U2530 | G2380 | G2099 | G2025 |
| U3686 |       | G3627 |       | U2810 |       | A2674 | A2600 | G2531 | A2381 | A2100 | A2026 |
| U3687 |       | A3630 |       | G2811 | G2742 | G2675 | A2601 | G2532 | U2384 | C2101 | U2027 |
| G3688 |       |       | G2884 | A2812 | A2743 | A2676 | G2602 | G2533 | U2385 | G2102 | C2028 |
| A3774 | A3774 |       | A2885 | A2813 | A2744 | G2677 | G2603 | G2534 | U2386 | G2103 | A2029 |
| A3775 | G3775 |       | U2886 | G2814 | A2745 | A2678 |       | G2535 | G2387 | G2104 |       |
| G3776 | G3776 |       | U2887 | A2815 | A2746 |       | C2607 | G2536 | U2388 | A2105 | A2033 |
| G3777 | G3777 |       | G2888 | A2816 | A2747 |       | G2608 | G2537 | U2389 | G2106 | G2034 |
| U3778 | A3778 | C3700 | G2889 | G2817 | U2747 | C2683 | G2609 | U2538 | A2312 | C2107 |       |
| A3779 | A3779 | A3701 | G2890 | C2818 | G2748 | C2684 | G2610 | C2539 | G2313 |       | C2037 |
| G3780 | G3780 | G3702 | U2891 | G2819 | C2749 | C2685 | G2611 | G2540 | G2314 | C2110 | U2038 |
| C3781 | C3781 | C3703 | U2892 | U2819 | G2750 | G2686 | A2612 | G2541 | G2315 | G2111 | G2039 |
| C3782 | C3782 | U3637 | G2893 | U2819 | G2751 | G2687 | G2613 | G2542 | G2316 | G2112 | A2040 |
| A3783 | A3783 | G3638 | G2894 | G2820 | G2752 | G2688 | G2614 | A2543 | G2317 | C2249 |       |
| A3784 | A3784 | U3639 | U2895 | U2821 | G2753 | C2689 | G2615 | G2544 | G2318 | C2250 | U2044 |
| A3785 | A3785 | U3640 | G2896 | G2822 | G2754 | C2690 | G2616 | U2545 | G2319 | G2251 | G2045 |
| U3786 | U3786 | U3641 | G2897 | G2823 | A2755 | U2691 | G2617 | G2546 | G2320 | G2252 | G2046 |
| G3787 | G3787 | A3642 | G2898 | G2824 | G2756 | G2692 | G2618 | G2547 | G2321 |       |       |
| C3788 | C3788 | A3643 | C2899 | C2825 | A2757 | G2693 | G2619 |       | G2324 | C2256 | A2047 |
| C3789 | C3789 | U3644 | U2900 | U2826 | G2758 | G2694 | G2620 | A2548 | G2325 | C2257 | U2048 |
|       |       | U3645 | G2901 | U2827 | G2759 | G2695 | A2621 | G2549 | G2326 | C2258 | G2049 |
| U3790 | U3790 | G3646 | G2902 | U2828 | G2760 | G2696 | G2622 |       | G2327 |       |       |
| C3791 | C3791 | A3647 | G2903 | U2829 | U2761 | A2696 |       |       | G2328 | G2261 | G2052 |
| G3792 | G3792 | A3717 | U2904 |       |       |       | U2626 |       |       |       |       |
| A3718 | A3718 |       |       |       |       |       |       |       |       |       |       |
| C3794 | C3794 | A3719 |       |       |       |       |       |       |       |       |       |

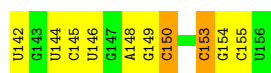
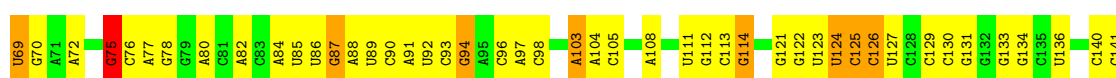
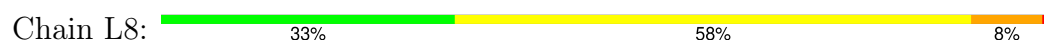




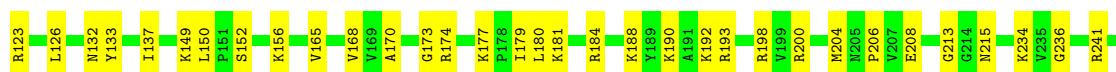
• Molecule 3: 5S rRNA [Homo sapiens]



• Molecule 4: 5.8S rRNA [Homo sapiens]

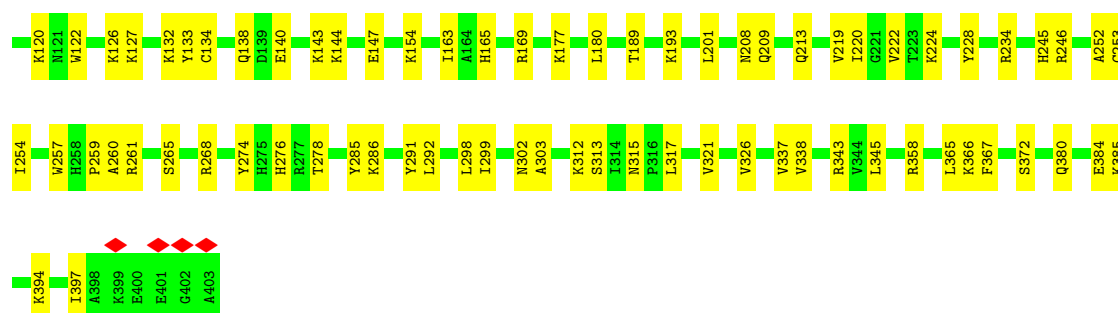


• Molecule 5: 60S ribosomal protein L8

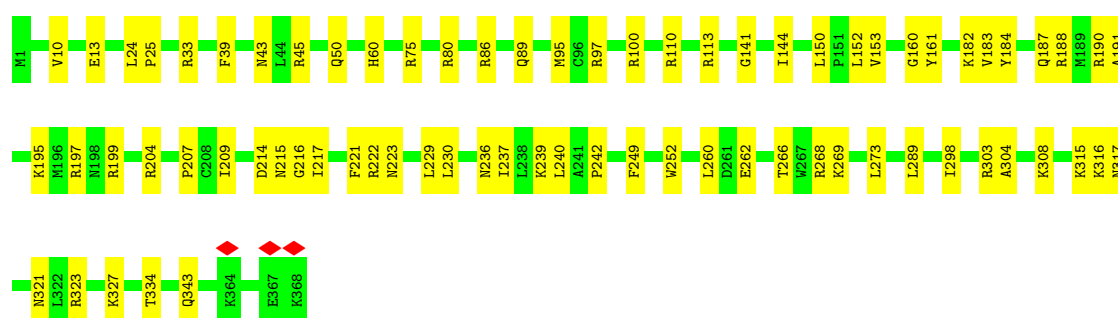
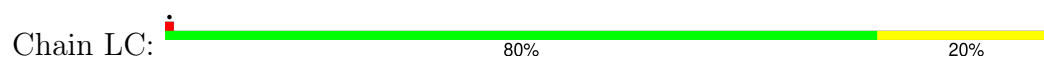


• Molecule 6: Large ribosomal subunit protein uL3

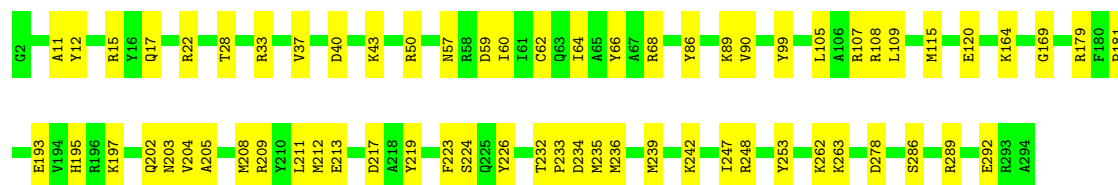
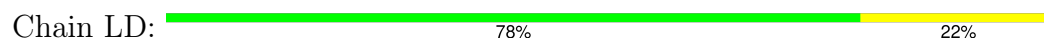




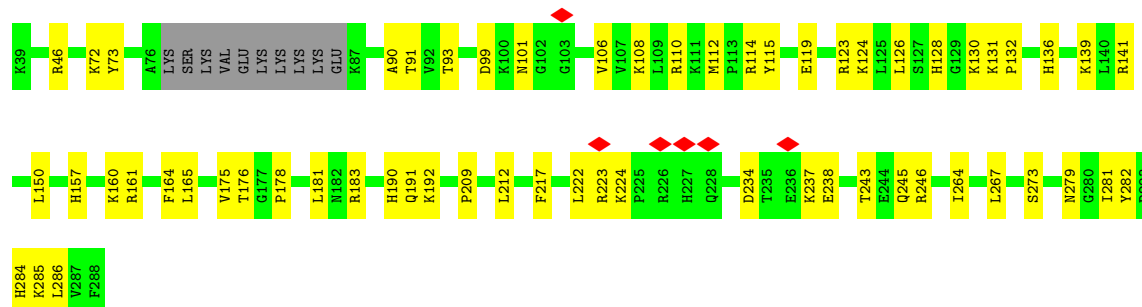
- Molecule 7: 60S ribosomal protein L4



- Molecule 8: Large ribosomal subunit protein uL18



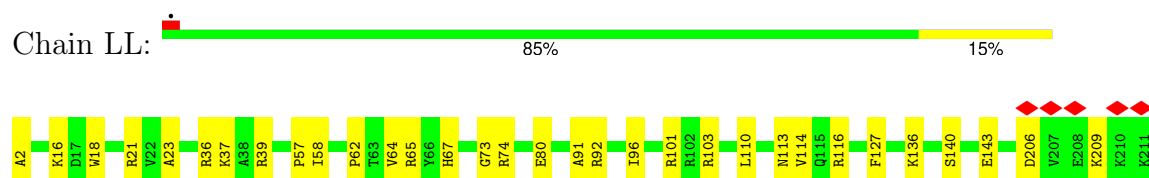
- Molecule 9: Large ribosomal subunit protein eL6



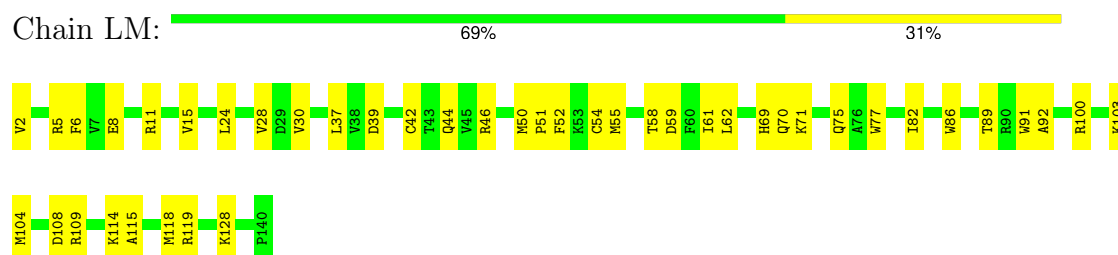
- Molecule 10: 60S ribosomal protein L7



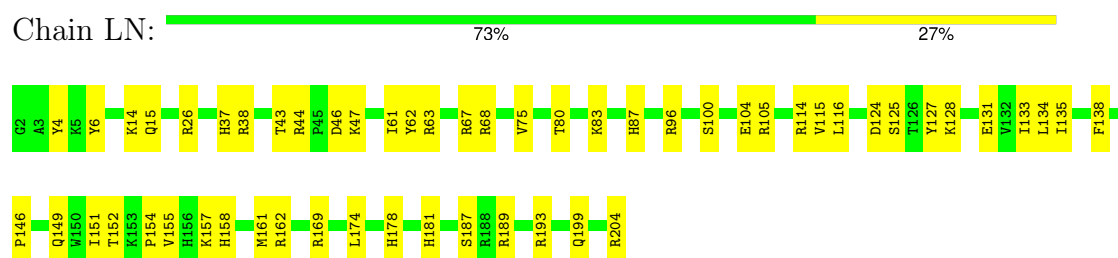
- Molecule 15: Large ribosomal subunit protein eL13



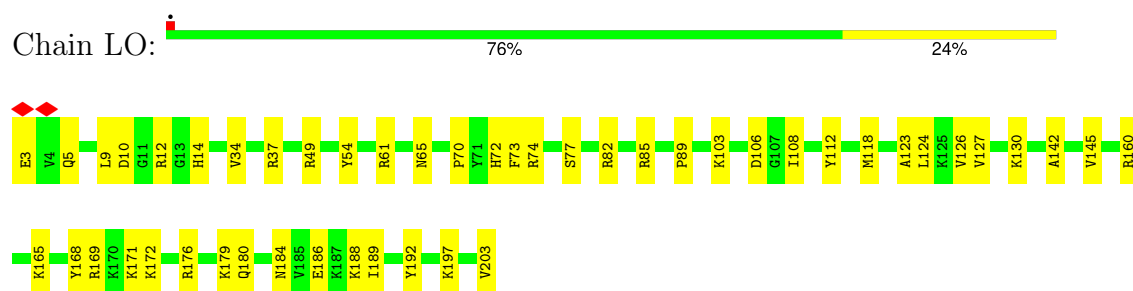
- Molecule 16: 60S ribosomal protein L14



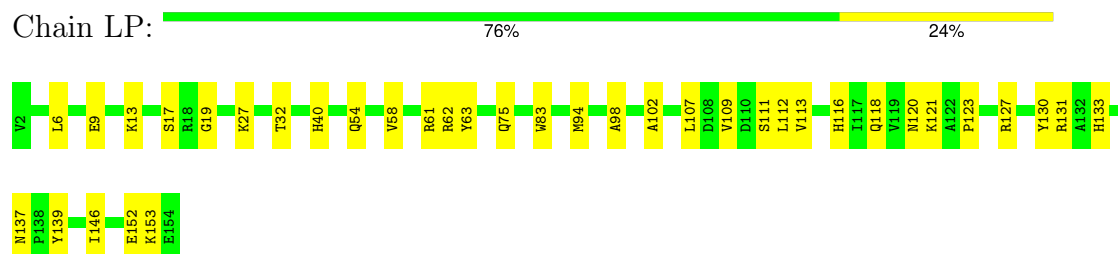
- Molecule 17: 60S ribosomal protein L15



- Molecule 18: 60S ribosomal protein L13a

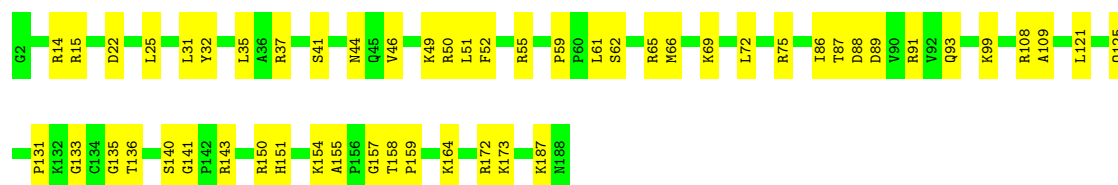


- Molecule 19: 60S ribosomal protein L17



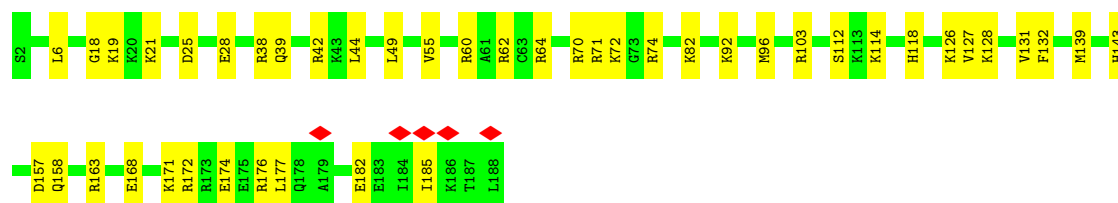
- Molecule 20: 60S ribosomal protein L18

Chain LQ:  72% 28%



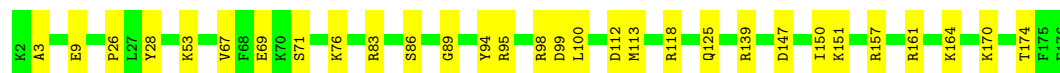
- Molecule 21: 60S ribosomal protein L19

Chain LR:  76% 24%



- Molecule 22: 60S ribosomal protein L18a

Chain LS:  83% 17%



- Molecule 23: 60S ribosomal protein L21

Chain LT:  77% 23%



- Molecule 24: Heparin-binding protein HBp15

Chain LU:  78% 22%

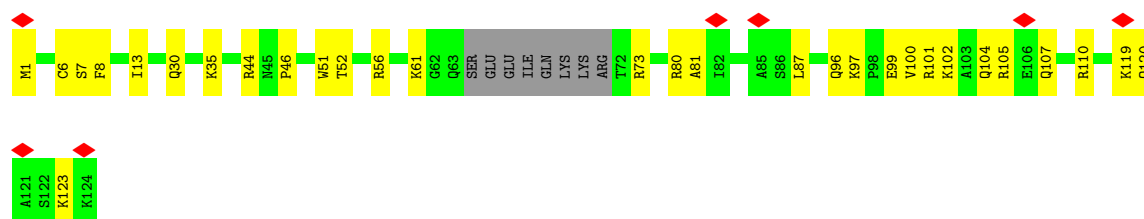


- Molecule 25: 60S ribosomal protein L23

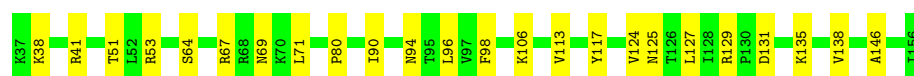
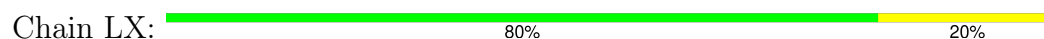
Chain LV:  79% 21%



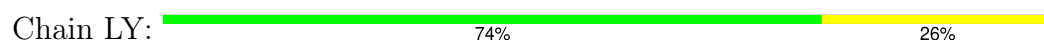
- Molecule 26: Ribosomal protein L24



- Molecule 27: 60S ribosomal protein L23a



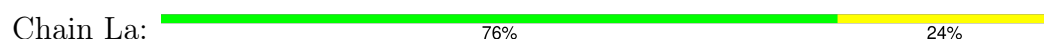
- Molecule 28: 60S ribosomal protein L26



- Molecule 29: 60S ribosomal protein L27

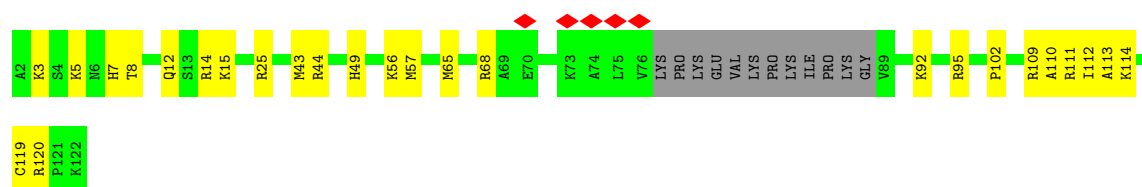


- Molecule 30: 60S ribosomal protein L27a



- Molecule 31: Large ribosomal subunit protein eL29

Chain Lb:  69% 21% 10%



- Molecule 32: 60S ribosomal protein L30

Chain Lc:  79% 21%



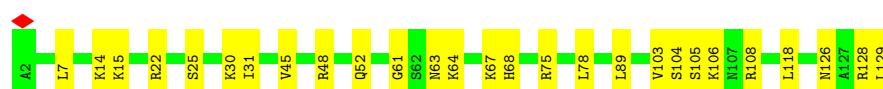
- Molecule 33: 60S ribosomal protein L31

Chain Ld:  80% 20%



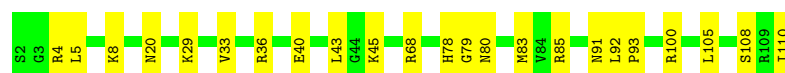
- Molecule 34: 60S ribosomal protein L32

Chain Le:  79% 21%



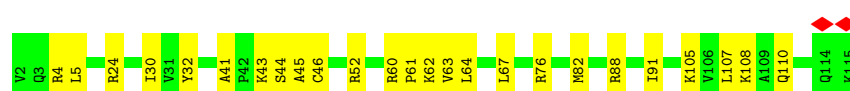
- Molecule 35: 60S ribosomal protein L35a

Chain Lf:  79% 21%



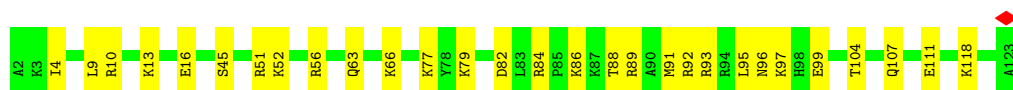
- Molecule 36: 60S ribosomal protein L34

Chain Lg:  78% 22%

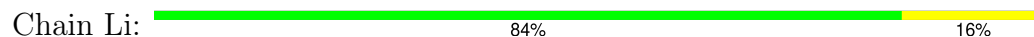


- Molecule 37: 60S ribosomal protein L35

Chain Lh:  76% 24%



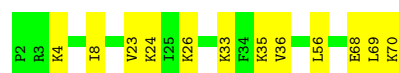
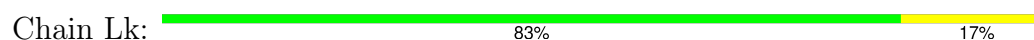
- Molecule 38: 60S ribosomal protein L36



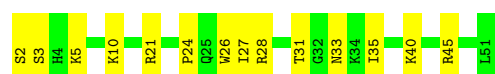
- Molecule 39: 60S ribosomal protein L37



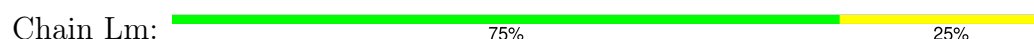
- Molecule 40: 60S ribosomal protein L38



- Molecule 41: 60S ribosomal protein L39



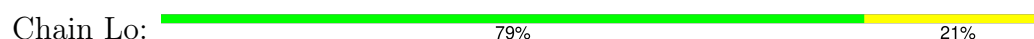
- Molecule 42: Large ribosomal subunit protein eL40

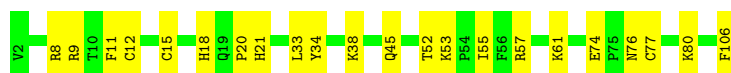


- Molecule 43: 60S ribosomal protein L41



- Molecule 44: 60S ribosomal protein L36a

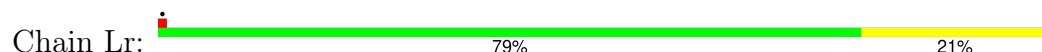




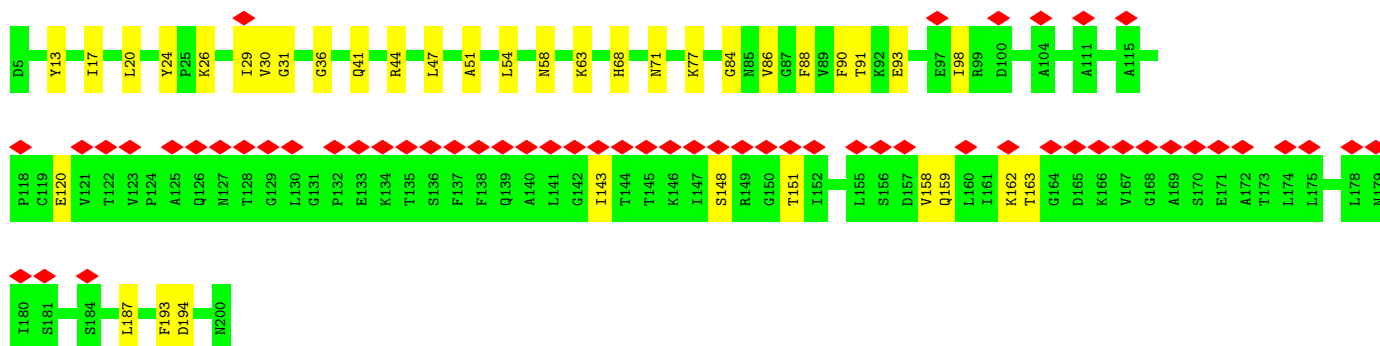
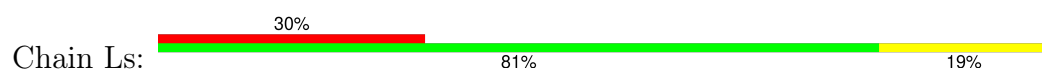
- Molecule 45: 60S ribosomal protein L37a



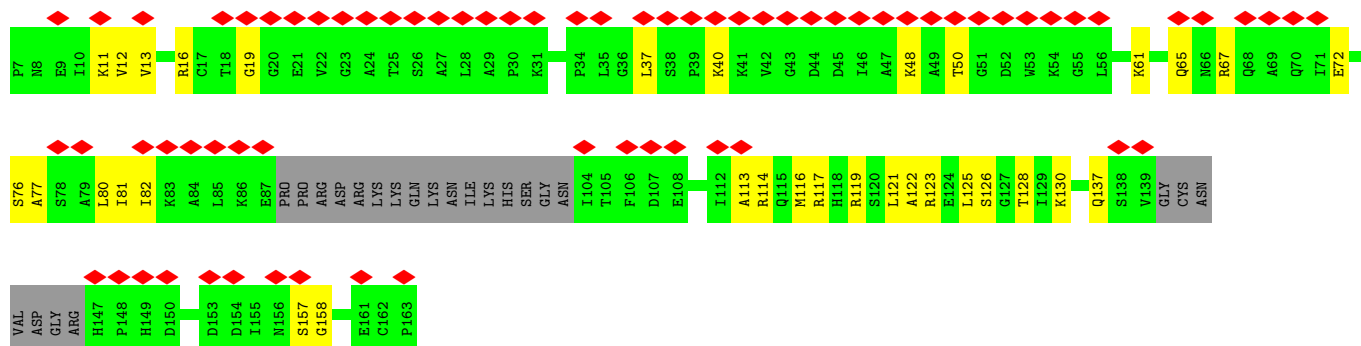
- Molecule 46: 60S ribosomal protein L28



- Molecule 47: 60S acidic ribosomal protein P0

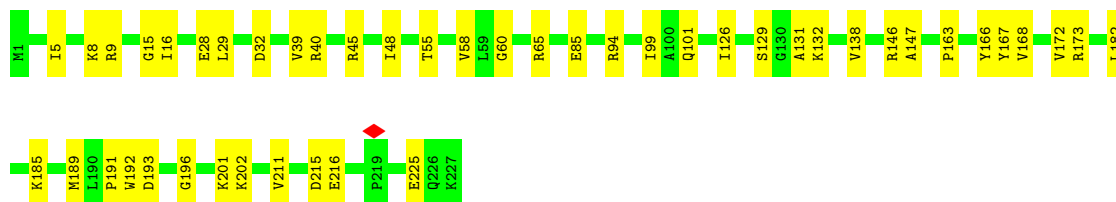


- Molecule 48: Large ribosomal subunit protein uL11



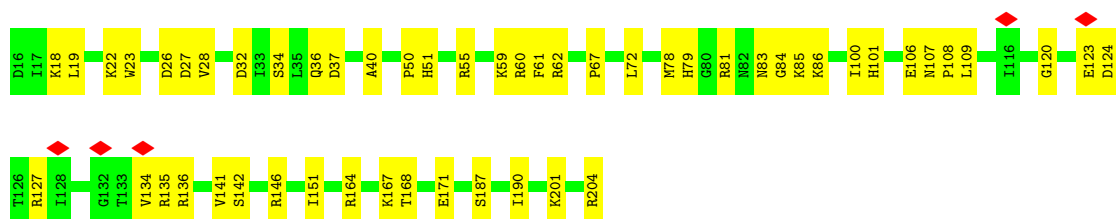
- Molecule 49: Small ribosomal subunit protein uS3

Chain SD:  80% 20%



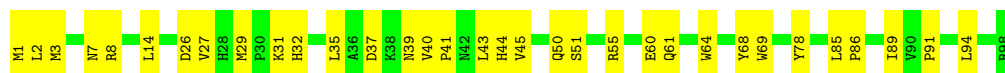
- Molecule 50: 40S ribosomal protein S5

Chain SF:  71% 29%



- Molecule 51: 40S ribosomal protein S10

Chain SK:  66% 34%



- Molecule 52: Small ribosomal subunit protein eS12

Chain SM:  13% 71% 29%



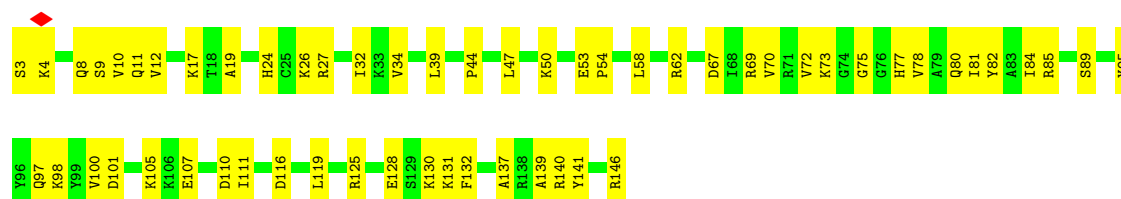
- Molecule 53: Small ribosomal subunit protein uS19

Chain SP:  64% 36%



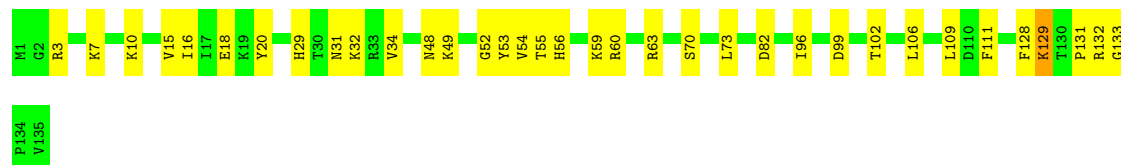
- Molecule 54: Small ribosomal subunit protein uS9

Chain SQ:  60% 40%



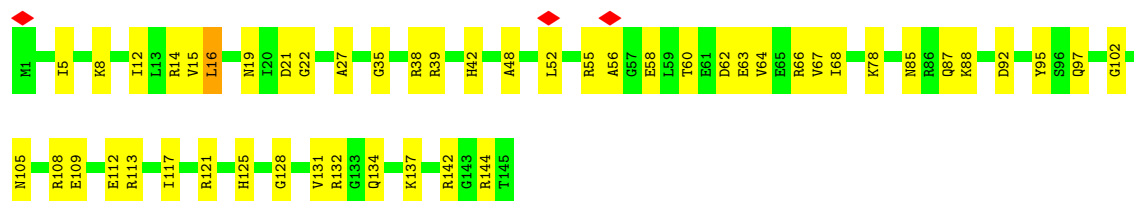
- Molecule 55: Small ribosomal subunit protein eS17

Chain SR:  74% 25%



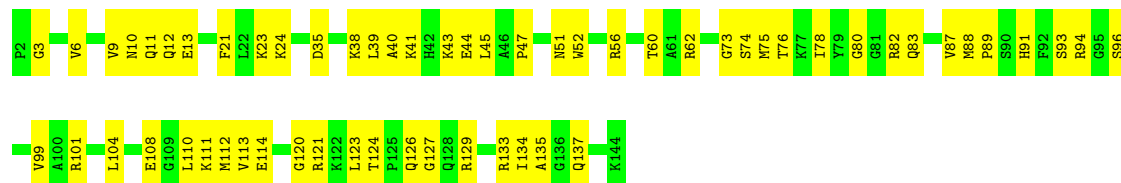
- Molecule 56: 40S ribosomal protein S18

Chain SS:  66% 33%



- Molecule 57: 40S ribosomal protein S19

Chain ST:  59% 41%



- Molecule 58: 40S ribosomal protein S20

Chain SU:  56% 43%



- Molecule 59: Small ribosomal subunit protein eS25

Chain SZ:  81% 19%



- Molecule 60: 40S ribosomal protein S28

Chain Sc:  72% 28%



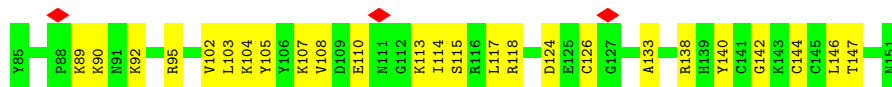
- Molecule 61: 40S ribosomal protein S29

Chain Sd:  67% 33%



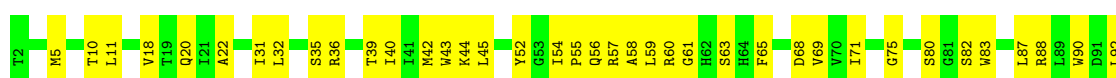
- Molecule 62: Ubiquitin-40S ribosomal protein S27a

Chain Sf:  63% 37%



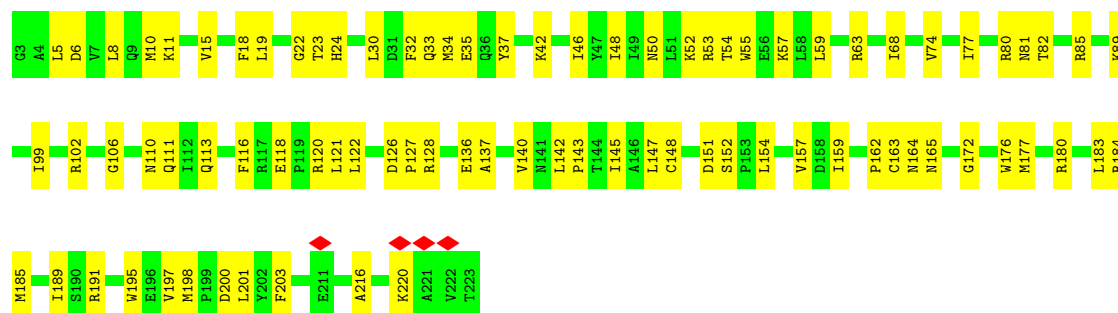
- Molecule 63: Receptor of activated protein C kinase 1

Chain Sg:  65% 35%



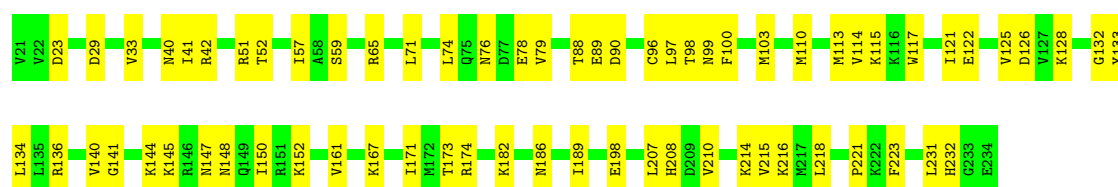
- Molecule 64: 40S ribosomal protein SA

Chain SA:  62% 38%



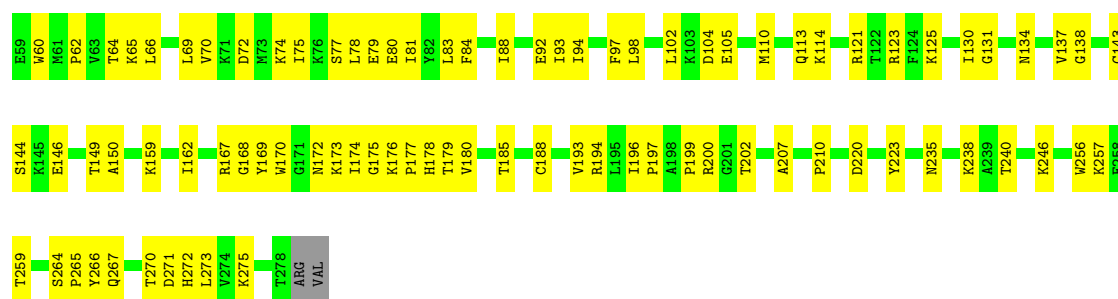
- Molecule 65: 40S ribosomal protein S3a

Chain SB: 69% 31%



- Molecule 66: 40S ribosomal protein S2

Chain SC: 60% 39%



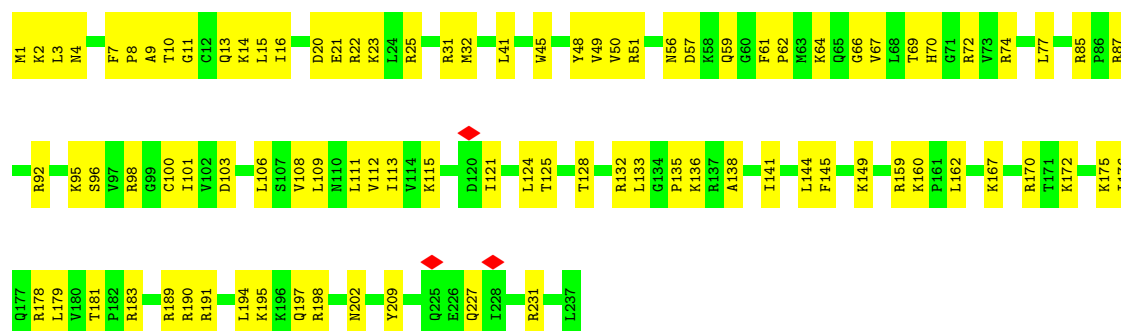
- Molecule 67: Small ribosomal subunit protein eS4, X isoform

Chain SE: 70% 30%



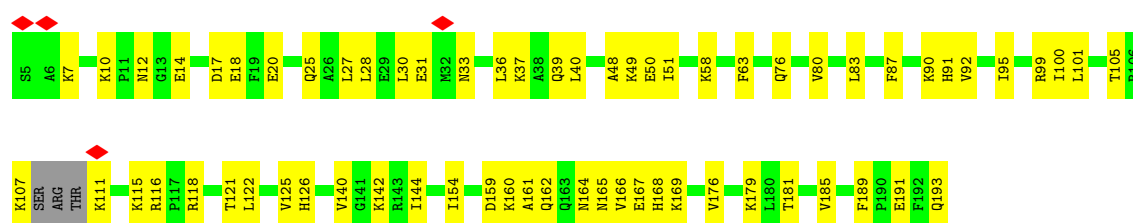
- Molecule 68: 40S ribosomal protein S6

Chain SG:  62% 38%



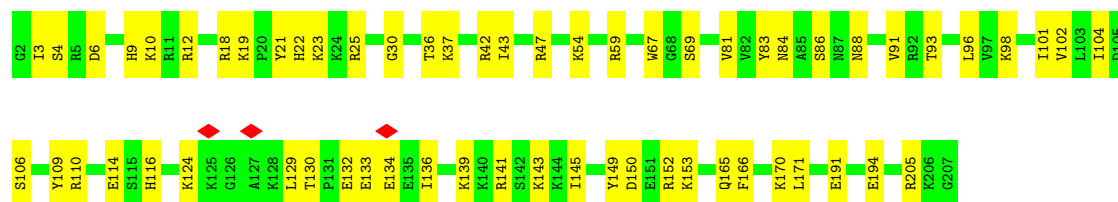
- Molecule 69: Small ribosomal subunit protein eS7

Chain SH:  64% 34%



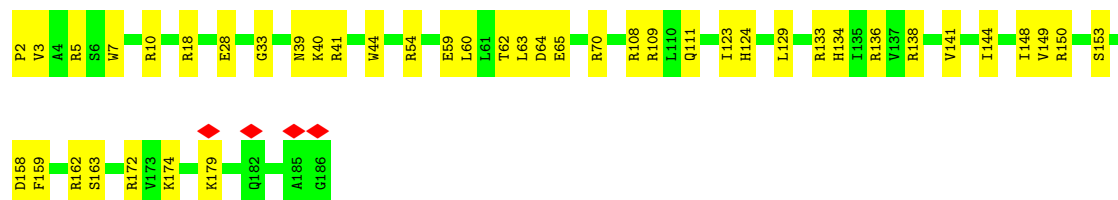
- Molecule 70: 40S ribosomal protein S8

Chain SI:  70% 30%



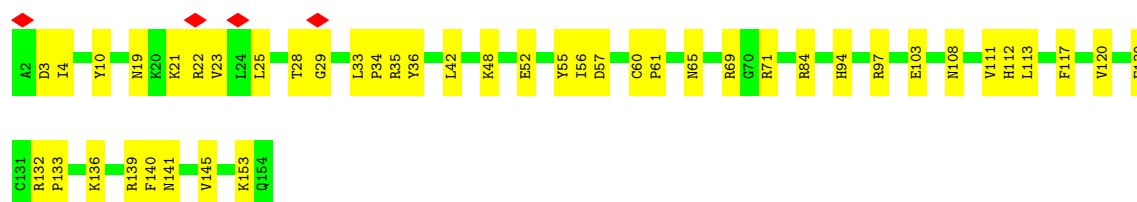
- Molecule 71: 40S ribosomal protein S9

Chain SJ:  77% 23%

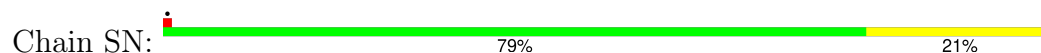


- Molecule 72: 40S ribosomal protein S11

Chain SL:  71% 29%



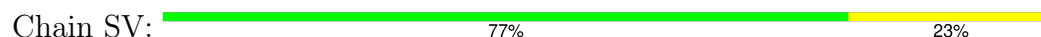
- Molecule 73: 40S ribosomal protein S13



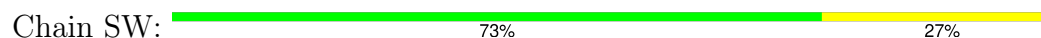
- Molecule 74: Small ribosomal subunit protein uS11



- Molecule 75: Small ribosomal subunit protein eS21



- Molecule 76: 40S ribosomal protein S15a

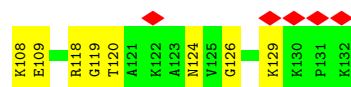
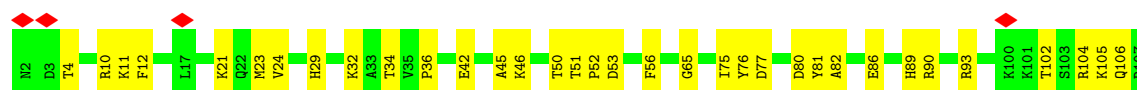


- Molecule 77: 40S ribosomal protein S23

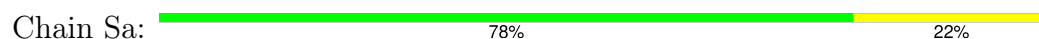




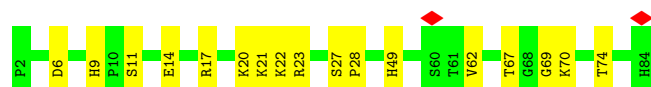
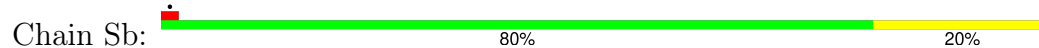
- Molecule 78: 40S ribosomal protein S24



- Molecule 79: 40S ribosomal protein S26



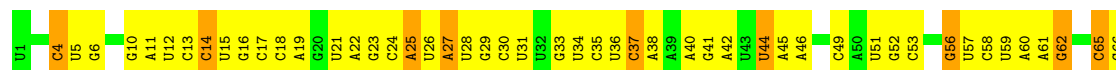
- Molecule 80: Small ribosomal subunit protein eS27



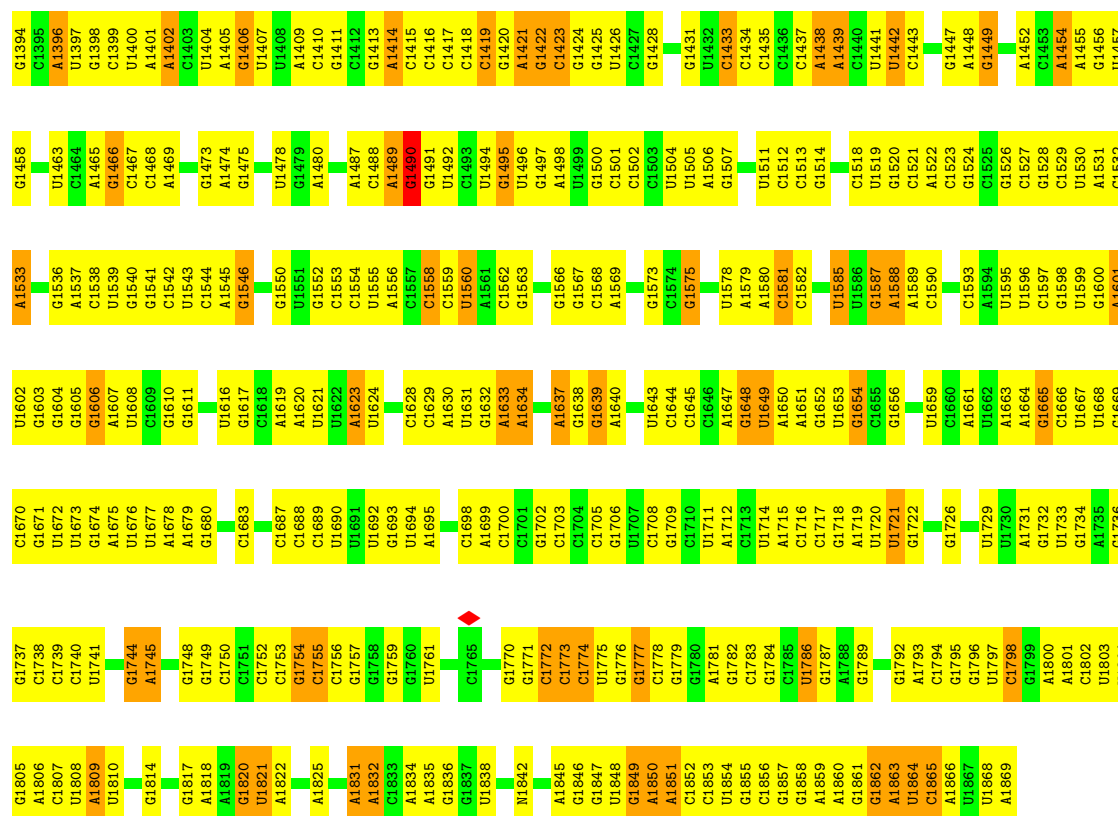
- Molecule 81: Small ribosomal subunit protein eS30



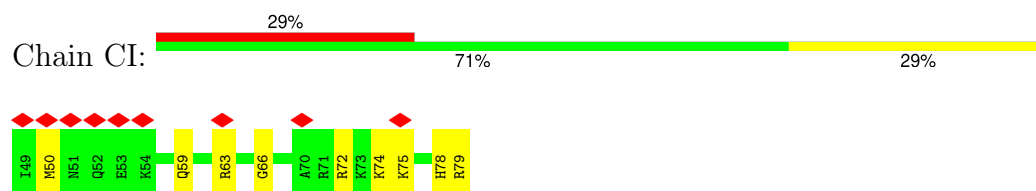
- Molecule 82: 18S rRNA [Homo sapiens]







● Molecule 83: Transcription factor BTF3



## 4 Experimental information

| Property                             | Value                     | Source    |
|--------------------------------------|---------------------------|-----------|
| EM reconstruction method             | SINGLE PARTICLE           | Depositor |
| Imposed symmetry                     | POINT, Not provided       |           |
| Number of particles used             | 7052                      | Depositor |
| Resolution determination method      | FSC 0.143 CUT-OFF         | Depositor |
| CTF correction method                | NONE                      | Depositor |
| Microscope                           | FEI TECNAI F30            | Depositor |
| Voltage (kV)                         | 300                       | Depositor |
| Electron dose ( $e^-/\text{\AA}^2$ ) | 50                        | Depositor |
| Minimum defocus (nm)                 | 1200                      | Depositor |
| Maximum defocus (nm)                 | 2500                      | Depositor |
| Magnification                        | Not provided              |           |
| Image detector                       | GATAN K3 (6k x 4k)        | Depositor |
| Maximum map value                    | 0.487                     | Depositor |
| Minimum map value                    | -0.199                    | Depositor |
| Average map value                    | 0.000                     | Depositor |
| Map value standard deviation         | 0.032                     | Depositor |
| Recommended contour level            | 0.0714                    | Depositor |
| Map size ( $\text{\AA}$ )            | 546.816, 546.816, 546.816 | wwPDB     |
| Map dimensions                       | 512, 512, 512             | wwPDB     |
| Map angles ( $^\circ$ )              | 90.0, 90.0, 90.0          | wwPDB     |
| Pixel spacing ( $\text{\AA}$ )       | 1.068, 1.068, 1.068       | Depositor |

## 5 Model quality

### 5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: 6MZ, A2M, 4AC, OMU, 1MA, B8N, SPM, PSU, MG, 3HE, HMT, UR3, SPD, MA6, 5MC, OMC, UY1, ZN, OMG, G7M

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 5$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mol | Chain | Bond lengths |             | Bond angles |             |
|-----|-------|--------------|-------------|-------------|-------------|
|     |       | RMSZ         | # $ Z  > 5$ | RMSZ        | # $ Z  > 5$ |
| 1   | Pt    | 0.15         | 0/1761      | 0.29        | 0/2741      |
| 2   | L5    | 0.23         | 0/85098     | 0.31        | 0/132762    |
| 3   | L7    | 0.22         | 0/2861      | 0.28        | 0/4459      |
| 4   | L8    | 0.22         | 0/3631      | 0.32        | 0/5657      |
| 5   | LA    | 0.22         | 0/1936      | 0.41        | 0/2596      |
| 6   | LB    | 0.21         | 0/3306      | 0.38        | 0/4424      |
| 7   | LC    | 0.21         | 0/2981      | 0.39        | 0/4002      |
| 8   | LD    | 0.18         | 0/2428      | 0.36        | 0/3252      |
| 9   | LE    | 0.20         | 0/1973      | 0.44        | 0/2645      |
| 10  | LF    | 0.21         | 0/1905      | 0.36        | 0/2539      |
| 11  | LG    | 0.20         | 0/1960      | 0.41        | 0/2637      |
| 12  | LH    | 0.20         | 0/1537      | 0.35        | 0/2066      |
| 13  | LI    | 0.20         | 0/1751      | 0.36        | 0/2340      |
| 14  | LJ    | 0.30         | 0/1385      | 0.48        | 0/1852      |
| 15  | LL    | 0.19         | 0/1732      | 0.36        | 0/2315      |
| 16  | LM    | 0.21         | 0/1161      | 0.39        | 0/1554      |
| 17  | LN    | 0.21         | 0/1746      | 0.36        | 0/2338      |
| 18  | LO    | 0.21         | 0/1682      | 0.39        | 0/2250      |
| 19  | LP    | 0.21         | 0/1268      | 0.38        | 0/1701      |
| 20  | LQ    | 0.21         | 0/1537      | 0.36        | 0/2052      |
| 21  | LR    | 0.20         | 0/1582      | 0.37        | 0/2091      |
| 22  | LS    | 0.20         | 0/1493      | 0.36        | 0/2003      |
| 23  | LT    | 0.21         | 0/1326      | 0.37        | 0/1770      |
| 24  | LU    | 0.21         | 0/839       | 0.44        | 0/1126      |
| 25  | LV    | 0.20         | 0/993       | 0.39        | 0/1332      |
| 26  | LW    | 0.19         | 0/959       | 0.39        | 0/1270      |
| 27  | LX    | 0.20         | 0/1002      | 0.36        | 0/1345      |
| 28  | LY    | 0.22         | 0/1132      | 0.39        | 0/1504      |
| 29  | LZ    | 0.19         | 0/1130      | 0.40        | 0/1507      |
| 30  | La    | 0.20         | 0/1191      | 0.38        | 0/1591      |
| 31  | Lb    | 0.18         | 0/889       | 0.40        | 0/1175      |

| Mol | Chain | Bond lengths |         | Bond angles |         |
|-----|-------|--------------|---------|-------------|---------|
|     |       | RMSZ         | # Z  >5 | RMSZ        | # Z  >5 |
| 32  | Lc    | 0.21         | 0/774   | 0.35        | 0/1038  |
| 33  | Ld    | 0.20         | 0/903   | 0.37        | 0/1216  |
| 34  | Le    | 0.43         | 0/1071  | 0.53        | 0/1429  |
| 35  | Lf    | 0.21         | 0/895   | 0.36        | 0/1198  |
| 36  | Lg    | 0.20         | 0/916   | 0.35        | 0/1220  |
| 37  | Lh    | 0.18         | 0/1023  | 0.34        | 0/1351  |
| 38  | Li    | 0.18         | 0/843   | 0.34        | 0/1115  |
| 39  | Lj    | 0.19         | 0/720   | 0.39        | 0/952   |
| 40  | Lk    | 0.20         | 0/575   | 0.43        | 0/761   |
| 41  | Ll    | 0.20         | 0/454   | 0.32        | 0/599   |
| 42  | Lm    | 0.19         | 0/435   | 0.40        | 0/575   |
| 43  | Ln    | 0.20         | 0/231   | 0.31        | 0/294   |
| 44  | Lo    | 0.20         | 0/876   | 0.35        | 0/1156  |
| 45  | Lp    | 0.20         | 0/718   | 0.36        | 0/953   |
| 46  | Lr    | 0.20         | 0/1017  | 0.37        | 0/1364  |
| 47  | Ls    | 0.16         | 0/1519  | 0.38        | 0/2052  |
| 48  | Lt    | 0.19         | 0/1009  | 0.52        | 0/1363  |
| 49  | SD    | 0.16         | 0/1793  | 0.34        | 0/2414  |
| 50  | SF    | 0.17         | 0/1516  | 0.36        | 0/2037  |
| 51  | SK    | 0.18         | 0/851   | 0.46        | 0/1147  |
| 52  | SM    | 0.16         | 0/950   | 0.42        | 0/1275  |
| 53  | SP    | 0.18         | 0/1003  | 0.41        | 0/1342  |
| 54  | SQ    | 0.17         | 0/1160  | 0.43        | 0/1553  |
| 55  | SR    | 0.20         | 0/1105  | 0.47        | 0/1484  |
| 56  | SS    | 0.17         | 0/1216  | 0.38        | 0/1628  |
| 57  | ST    | 0.19         | 0/1131  | 0.41        | 0/1515  |
| 58  | SU    | 0.33         | 0/831   | 0.57        | 0/1115  |
| 59  | SZ    | 0.19         | 0/604   | 0.48        | 0/810   |
| 60  | Sc    | 0.18         | 0/508   | 0.43        | 0/680   |
| 61  | Sd    | 0.17         | 0/470   | 0.37        | 0/623   |
| 62  | Sf    | 0.19         | 0/560   | 0.48        | 0/745   |
| 63  | Sg    | 0.17         | 0/2493  | 0.39        | 0/3394  |
| 64  | SA    | 0.20         | 0/1778  | 0.38        | 0/2416  |
| 65  | SB    | 0.18         | 0/1765  | 0.39        | 0/2362  |
| 66  | SC    | 0.20         | 0/1744  | 0.39        | 0/2357  |
| 67  | SE    | 0.19         | 0/2118  | 0.39        | 0/2849  |
| 68  | SG    | 0.19         | 0/1946  | 0.42        | 0/2590  |
| 69  | SH    | 0.20         | 0/1519  | 0.45        | 0/2033  |
| 70  | SI    | 0.19         | 0/1715  | 0.39        | 0/2287  |
| 71  | SJ    | 0.16         | 0/1550  | 0.38        | 0/2069  |
| 72  | SL    | 0.19         | 0/1268  | 0.37        | 0/1696  |
| 73  | SN    | 0.19         | 0/1232  | 0.34        | 0/1656  |
| 74  | SO    | 0.21         | 0/1037  | 0.40        | 0/1391  |

| Mol | Chain | Bond lengths |                 | Bond angles |          |
|-----|-------|--------------|-----------------|-------------|----------|
|     |       | RMSZ         | # Z  >5         | RMSZ        | # Z  >5  |
| 75  | SV    | 0.21         | 0/643           | 0.39        | 0/860    |
| 76  | SW    | 0.21         | 0/1051          | 0.40        | 0/1406   |
| 77  | SX    | 0.18         | 0/1116          | 0.40        | 0/1490   |
| 78  | SY    | 0.17         | 0/1083          | 0.42        | 0/1438   |
| 79  | Sa    | 0.19         | 0/836           | 0.36        | 0/1121   |
| 80  | Sb    | 0.21         | 0/665           | 0.39        | 0/891    |
| 81  | Se    | 0.18         | 0/465           | 0.44        | 0/612    |
| 82  | S2    | 0.22         | 1/39756 (0.0%)  | 0.31        | 0/61939  |
| 83  | CI    | 0.16         | 0/247           | 0.30        | 0/323    |
| All | All   | 0.22         | 1/229879 (0.0%) | 0.34        | 0/337080 |

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 54  | SQ    | 0                   | 1                   |
| 58  | SU    | 0                   | 1                   |
| All | All   | 0                   | 2                   |

All (1) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z    | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|-------|------|-------------|----------|
| 82  | S2    | 172 | OMU  | O3'-P | 5.15 | 1.61        | 1.56     |

There are no bond angle outliers.

There are no chirality outliers.

All (2) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group   |
|-----|-------|-----|------|---------|
| 54  | SQ    | 107 | GLU  | Peptide |
| 58  | SU    | 96  | GLU  | Peptide |

## 5.2 Too-close contacts

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | Pt    | 1576  | 0        | 803      | 30      | 0            |
| 2   | L5    | 78444 | 0        | 39717    | 2020    | 0            |
| 3   | L7    | 2561  | 0        | 1295     | 59      | 0            |
| 4   | L8    | 3315  | 0        | 1685     | 96      | 0            |
| 5   | LA    | 1898  | 0        | 1993     | 58      | 0            |
| 6   | LB    | 3238  | 0        | 3376     | 89      | 0            |
| 7   | LC    | 2927  | 0        | 3104     | 57      | 0            |
| 8   | LD    | 2382  | 0        | 2410     | 49      | 0            |
| 9   | LE    | 1935  | 0        | 2096     | 50      | 0            |
| 10  | LF    | 1870  | 0        | 1996     | 46      | 0            |
| 11  | LG    | 1927  | 0        | 2074     | 37      | 0            |
| 12  | LH    | 1518  | 0        | 1601     | 41      | 0            |
| 13  | LI    | 1711  | 0        | 1749     | 37      | 0            |
| 14  | LJ    | 1362  | 0        | 1399     | 28      | 0            |
| 15  | LL    | 1701  | 0        | 1818     | 29      | 0            |
| 16  | LM    | 1138  | 0        | 1204     | 34      | 0            |
| 17  | LN    | 1701  | 0        | 1749     | 47      | 0            |
| 18  | LO    | 1650  | 0        | 1794     | 43      | 0            |
| 19  | LP    | 1242  | 0        | 1269     | 26      | 0            |
| 20  | LQ    | 1513  | 0        | 1628     | 43      | 0            |
| 21  | LR    | 1566  | 0        | 1729     | 37      | 0            |
| 22  | LS    | 1453  | 0        | 1490     | 24      | 0            |
| 23  | LT    | 1298  | 0        | 1366     | 30      | 0            |
| 24  | LU    | 825   | 0        | 850      | 18      | 0            |
| 25  | LV    | 979   | 0        | 1039     | 18      | 0            |
| 26  | LW    | 945   | 0        | 1003     | 26      | 0            |
| 27  | LX    | 985   | 0        | 1066     | 18      | 0            |
| 28  | LY    | 1115  | 0        | 1205     | 27      | 0            |
| 29  | LZ    | 1107  | 0        | 1182     | 29      | 0            |
| 30  | La    | 1162  | 0        | 1213     | 29      | 0            |
| 31  | Lb    | 876   | 0        | 948      | 24      | 0            |
| 32  | Lc    | 764   | 0        | 804      | 14      | 0            |
| 33  | Ld    | 888   | 0        | 930      | 18      | 0            |
| 34  | Le    | 1053  | 0        | 1147     | 19      | 0            |
| 35  | Lf    | 876   | 0        | 912      | 19      | 0            |
| 36  | Lg    | 906   | 0        | 998      | 17      | 0            |
| 37  | Lh    | 1015  | 0        | 1148     | 24      | 0            |
| 38  | Li    | 832   | 0        | 917      | 14      | 0            |
| 39  | Lj    | 705   | 0        | 737      | 25      | 0            |
| 40  | Lk    | 569   | 0        | 637      | 12      | 0            |
| 41  | Ll    | 444   | 0        | 483      | 14      | 0            |
| 42  | Lm    | 429   | 0        | 465      | 11      | 0            |
| 43  | Ln    | 230   | 0        | 276      | 12      | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 44  | Lo    | 862   | 0        | 929      | 14      | 0            |
| 45  | Lp    | 708   | 0        | 756      | 21      | 0            |
| 46  | Lr    | 1002  | 0        | 1068     | 18      | 0            |
| 47  | Ls    | 1496  | 0        | 1540     | 26      | 0            |
| 48  | Lt    | 998   | 0        | 1032     | 21      | 0            |
| 49  | SD    | 1765  | 0        | 1865     | 31      | 0            |
| 50  | SF    | 1495  | 0        | 1549     | 42      | 0            |
| 51  | SK    | 827   | 0        | 854      | 25      | 0            |
| 52  | SM    | 940   | 0        | 965      | 24      | 0            |
| 53  | SP    | 985   | 0        | 1031     | 33      | 0            |
| 54  | SQ    | 1142  | 0        | 1213     | 45      | 0            |
| 55  | SR    | 1090  | 0        | 1149     | 26      | 0            |
| 56  | SS    | 1198  | 0        | 1261     | 34      | 0            |
| 57  | ST    | 1112  | 0        | 1146     | 49      | 0            |
| 58  | SU    | 821   | 0        | 883      | 36      | 0            |
| 59  | SZ    | 598   | 0        | 656      | 11      | 0            |
| 60  | Sc    | 506   | 0        | 536      | 13      | 0            |
| 61  | Sd    | 459   | 0        | 452      | 17      | 0            |
| 62  | Sf    | 548   | 0        | 551      | 20      | 0            |
| 63  | Sg    | 2436  | 0        | 2393     | 79      | 0            |
| 64  | SA    | 1741  | 0        | 1746     | 61      | 0            |
| 65  | SB    | 1738  | 0        | 1809     | 46      | 0            |
| 66  | SC    | 1707  | 0        | 1791     | 60      | 0            |
| 67  | SE    | 2076  | 0        | 2177     | 58      | 0            |
| 68  | SG    | 1923  | 0        | 2089     | 83      | 0            |
| 69  | SH    | 1497  | 0        | 1590     | 49      | 0            |
| 70  | SI    | 1686  | 0        | 1772     | 49      | 0            |
| 71  | SJ    | 1525  | 0        | 1640     | 39      | 0            |
| 72  | SL    | 1247  | 0        | 1323     | 33      | 0            |
| 73  | SN    | 1208  | 0        | 1294     | 22      | 0            |
| 74  | SO    | 1024  | 0        | 1050     | 25      | 0            |
| 75  | SV    | 636   | 0        | 637      | 14      | 0            |
| 76  | SW    | 1034  | 0        | 1080     | 31      | 0            |
| 77  | SX    | 1098  | 0        | 1167     | 34      | 0            |
| 78  | SY    | 1065  | 0        | 1142     | 31      | 0            |
| 79  | Sa    | 821   | 0        | 870      | 17      | 0            |
| 80  | Sb    | 651   | 0        | 672      | 14      | 0            |
| 81  | Se    | 459   | 0        | 503      | 23      | 0            |
| 82  | S2    | 36953 | 0        | 18679    | 1030    | 0            |
| 83  | CI    | 247   | 0        | 282      | 17      | 0            |
| 84  | L5    | 177   | 0        | 0        | 0       | 0            |
| 84  | L7    | 3     | 0        | 0        | 0       | 0            |

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| Mol | Chain | Non-H  | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|--------|----------|----------|---------|--------------|
| 84  | L8    | 6      | 0        | 0        | 0       | 0            |
| 84  | LA    | 1      | 0        | 0        | 0       | 0            |
| 84  | LC    | 1      | 0        | 0        | 0       | 0            |
| 84  | LP    | 1      | 0        | 0        | 0       | 0            |
| 84  | LV    | 1      | 0        | 0        | 0       | 0            |
| 84  | Le    | 1      | 0        | 0        | 0       | 0            |
| 84  | S2    | 26     | 0        | 0        | 0       | 0            |
| 84  | SS    | 1      | 0        | 0        | 0       | 0            |
| 84  | Sa    | 1      | 0        | 0        | 0       | 0            |
| 85  | L5    | 98     | 0        | 182      | 8       | 0            |
| 86  | L5    | 90     | 0        | 171      | 18      | 0            |
| 86  | L8    | 10     | 0        | 19       | 1       | 0            |
| 87  | L5    | 39     | 0        | 36       | 10      | 0            |
| 88  | L5    | 20     | 0        | 23       | 1       | 0            |
| 89  | Lg    | 1      | 0        | 0        | 0       | 0            |
| 89  | Lj    | 1      | 0        | 0        | 0       | 0            |
| 89  | Lm    | 1      | 0        | 0        | 0       | 0            |
| 89  | Lo    | 1      | 0        | 0        | 0       | 0            |
| 89  | Lp    | 1      | 0        | 0        | 0       | 0            |
| 89  | Sa    | 1      | 0        | 0        | 0       | 0            |
| All | All   | 218437 | 0        | 162878   | 4831    | 0            |

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 13.

All (4831) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 87:L5:5294:HMT:C7 | 87:L5:5294:HMT:C8 | 1.79                     | 1.61              |
| 87:L5:5294:HMT:C7 | 87:L5:5294:HMT:C6 | 1.77                     | 1.56              |
| 2:L5:1996:C:H42   | 2:L5:2000:G:N2    | 1.58                     | 1.01              |
| 76:SW:2:VAL:N     | 82:S2:1091:C:HO2' | 1.57                     | 1.01              |
| 82:S2:1324:G:H1   | 82:S2:1504:U:H3   | 1.05                     | 1.00              |
| 2:L5:1996:C:N4    | 2:L5:2000:G:H22   | 1.58                     | 0.98              |
| 2:L5:4748:U:H3    | 2:L5:4952:G:H1    | 1.07                     | 0.96              |
| 2:L5:1095:A:H2    | 2:L5:1200:G:H1    | 1.06                     | 0.96              |
| 1:Pt:50:U:H3      | 1:Pt:64:G:H1      | 0.98                     | 0.95              |
| 82:S2:928:G:H1    | 82:S2:1013:U:H3   | 0.95                     | 0.95              |
| 2:L5:2007:G:H21   | 2:L5:2012:A:H62   | 1.01                     | 0.94              |
| 82:S2:1729:U:H3   | 82:S2:1805:G:H1   | 1.01                     | 0.92              |
| 82:S2:146:G:H1    | 82:S2:173:A:H61   | 1.05                     | 0.92              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:2845:A:H61    | 2:L5:3843:C:N4     | 1.69                     | 0.91              |
| 24:LU:116:GLN:O    | 83:CI:74:LYS:HA    | 1.71                     | 0.91              |
| 2:L5:2706:G:N7     | 83:CI:78:HIS:NE2   | 2.18                     | 0.91              |
| 2:L5:2706:G:C8     | 83:CI:78:HIS:NE2   | 2.37                     | 0.91              |
| 2:L5:184:U:H3      | 2:L5:253:G:H1      | 1.14                     | 0.90              |
| 2:L5:1095:A:C2     | 2:L5:1200:G:N1     | 2.39                     | 0.90              |
| 2:L5:4344:U:H3     | 2:L5:4368:G:H1     | 1.13                     | 0.89              |
| 2:L5:2620:G:H1     | 2:L5:2636:U:H3     | 1.15                     | 0.89              |
| 2:L5:2845:A:H61    | 2:L5:3843:C:H42    | 1.16                     | 0.89              |
| 33:Ld:70:LYS:NZ    | 83:CI:66:GLY:HA3   | 1.87                     | 0.87              |
| 2:L5:184:U:O2      | 2:L5:253:G:N2      | 2.07                     | 0.86              |
| 2:L5:3944:G:H1     | 2:L5:4069:U:H3     | 0.88                     | 0.86              |
| 2:L5:2007:G:N2     | 2:L5:2012:A:H62    | 1.74                     | 0.85              |
| 2:L5:1996:C:H42    | 2:L5:2000:G:H22    | 0.89                     | 0.85              |
| 82:S2:1748:G:H1    | 82:S2:1786:U:H3    | 0.88                     | 0.85              |
| 2:L5:4775:C:H41    | 2:L5:4859:C:H42    | 1.26                     | 0.84              |
| 2:L5:2845:A:N6     | 2:L5:3843:C:H42    | 1.76                     | 0.84              |
| 2:L5:312:G:H1      | 2:L5:325:U:H3      | 1.26                     | 0.83              |
| 4:L8:114:G:H1      | 4:L8:136:U:H3      | 1.26                     | 0.83              |
| 2:L5:2706:G:N7     | 83:CI:78:HIS:CD2   | 2.47                     | 0.83              |
| 82:S2:1417:C:H42   | 82:S2:1422:G:H22   | 1.23                     | 0.83              |
| 82:S2:1737:G:H1    | 82:S2:1797:U:H3    | 1.24                     | 0.83              |
| 82:S2:1776:G:N2    | 82:S2:1777:G:N7    | 2.26                     | 0.82              |
| 82:S2:533:A:H61    | 82:S2:550:C:H42    | 1.26                     | 0.82              |
| 82:S2:146:G:H1     | 82:S2:173:A:N6     | 1.78                     | 0.82              |
| 82:S2:1656:G:H1    | 82:S2:1668:U:H3    | 0.84                     | 0.82              |
| 12:LH:102:ASN:HB2  | 12:LH:115:ARG:HB2  | 1.61                     | 0.82              |
| 82:S2:940:U:H3     | 82:S2:1002:U:H3    | 1.27                     | 0.82              |
| 2:L5:664:G:N2      | 2:L5:666:G:O6      | 2.12                     | 0.81              |
| 2:L5:2619:G:H1     | 2:L5:2637:U:H3     | 1.25                     | 0.81              |
| 2:L5:2362:U:H2'    | 2:L5:2363:A2M:H8   | 1.61                     | 0.81              |
| 68:SG:183:ARG:HH12 | 82:S2:316:G:H5''   | 1.45                     | 0.81              |
| 2:L5:3946:G:H1     | 2:L5:4067:U:H3     | 0.86                     | 0.81              |
| 82:S2:1606:G:H1    | 82:S2:1632:G:HO2'  | 1.26                     | 0.81              |
| 2:L5:679:C:H2'     | 2:L5:680:G:H8      | 1.46                     | 0.80              |
| 2:L5:4546:A:N7     | 5:LA:215:ASN:ND2   | 2.30                     | 0.80              |
| 2:L5:4126:C:H5''   | 2:L5:4127:A:H5''   | 1.62                     | 0.80              |
| 26:LW:100:VAL:HG12 | 26:LW:104:GLN:HE22 | 1.46                     | 0.80              |
| 82:S2:1652:G:H1    | 82:S2:1672:U:H3    | 1.29                     | 0.80              |
| 2:L5:2092:G:O2'    | 2:L5:2262:G:N2     | 2.16                     | 0.79              |
| 2:L5:2486:G:N7     | 2:L5:2493:G:N1     | 2.31                     | 0.79              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:3780:G:H1     | 2:L5:3814:U:H3     | 1.29                     | 0.79              |
| 50:SF:134:VAL:HG12 | 50:SF:135:ARG:HG2  | 1.64                     | 0.78              |
| 2:L5:1759:G:H1     | 2:L5:1773:U:H3     | 1.29                     | 0.78              |
| 2:L5:1172:C:H42    | 2:L5:1188:C:H42    | 1.32                     | 0.77              |
| 2:L5:4694:G:H4'    | 12:LH:71:ARG:HH12  | 1.48                     | 0.77              |
| 82:S2:851:C:H5''   | 82:S2:852:G:H5'    | 1.67                     | 0.77              |
| 62:Sf:126:CYS:SG   | 62:Sf:144:CYS:N    | 2.56                     | 0.76              |
| 29:LZ:99:ASP:HB2   | 29:LZ:102:ARG:HE   | 1.49                     | 0.76              |
| 2:L5:1187:G:OP2    | 2:L5:1187:G:N2     | 2.17                     | 0.76              |
| 2:L5:2601:A:N6     | 2:L5:2744:A:OP2    | 2.18                     | 0.76              |
| 58:SU:20:ILE:HG22  | 58:SU:116:ILE:HG22 | 1.67                     | 0.76              |
| 33:Ld:70:LYS:HZ2   | 83:CI:66:GLY:HA3   | 1.49                     | 0.76              |
| 2:L5:1414:C:H2'    | 2:L5:1415:G:H8     | 1.50                     | 0.76              |
| 82:S2:1030:A:H2'   | 82:S2:1031:A2M:H8  | 1.68                     | 0.75              |
| 5:LA:29:LEU:O      | 5:LA:123:ARG:NH1   | 2.19                     | 0.75              |
| 14:LJ:13:ARG:HH12  | 14:LJ:155:HIS:HA   | 1.50                     | 0.75              |
| 82:S2:1096:G:H1    | 82:S2:1136:U:H3    | 1.34                     | 0.75              |
| 82:S2:110:U:O2     | 82:S2:351:G:N2     | 2.20                     | 0.75              |
| 82:S2:567:C:O2     | 82:S2:583:A:N6     | 2.19                     | 0.75              |
| 68:SG:11:GLY:HA2   | 82:S2:166:A2M:HM'1 | 1.69                     | 0.75              |
| 66:SC:196:ILE:HB   | 66:SC:223:TYR:HB2  | 1.68                     | 0.74              |
| 82:S2:1396:A:N7    | 82:S2:1449:G:O6    | 2.20                     | 0.74              |
| 2:L5:2112:G:H4'    | 2:L5:2251:G:H1     | 1.52                     | 0.74              |
| 65:SB:40:ASN:HD21  | 65:SB:76:ASN:HB2   | 1.51                     | 0.74              |
| 68:SG:77:LEU:HD12  | 68:SG:95:LYS:HD3   | 1.67                     | 0.74              |
| 4:L8:94:G:H21      | 39:Lj:82:THR:HB    | 1.53                     | 0.74              |
| 65:SB:122:GLU:HG2  | 65:SB:140:VAL:HG12 | 1.69                     | 0.74              |
| 67:SE:79:ASP:HB3   | 67:SE:82:TYR:HB2   | 1.67                     | 0.74              |
| 2:L5:3720:G:N1     | 2:L5:3733:A:C2     | 2.55                     | 0.74              |
| 47:Ls:91:THR:HG21  | 47:Ls:98:ILE:HG13  | 1.70                     | 0.74              |
| 2:L5:4419:U:OP1    | 2:L5:4475:G:N2     | 2.21                     | 0.74              |
| 48:Lt:65:GLN:HG3   | 48:Lt:67:ARG:H     | 1.51                     | 0.74              |
| 82:S2:1754:G:N7    | 82:S2:1779:G:N2    | 2.35                     | 0.74              |
| 82:S2:57:U:H3      | 82:S2:88:G:H1      | 1.35                     | 0.73              |
| 82:S2:149:A:H3'    | 82:S2:150:A:H8     | 1.53                     | 0.73              |
| 82:S2:323:C:H2'    | 82:S2:327:G:H1     | 1.54                     | 0.73              |
| 2:L5:1870:C:H2'    | 2:L5:1871:A2M:H8   | 1.69                     | 0.73              |
| 2:L5:2557:G:H1     | 2:L5:2570:U:H3     | 0.78                     | 0.73              |
| 58:SU:93:SER:OG    | 58:SU:95:SER:O     | 2.07                     | 0.73              |
| 2:L5:1441:C:N4     | 2:L5:2104:G:O6     | 2.20                     | 0.73              |
| 2:L5:1555:G:N7     | 45:Lp:4:ARG:NH2    | 2.37                     | 0.73              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 2:L5:1857:C:H2'   | 2:L5:1858:A:H8     | 1.54                     | 0.73              |
| 63:Sg:87:LEU:HB2  | 63:Sg:101:PHE:HB2  | 1.70                     | 0.73              |
| 2:L5:1509:C:H2'   | 2:L5:1510:G:H8     | 1.54                     | 0.72              |
| 2:L5:2554:U:O2    | 2:L5:2764:A:N7     | 2.22                     | 0.72              |
| 3:L7:92:C:H2'     | 3:L7:93:G:H8       | 1.54                     | 0.72              |
| 78:SY:119:GLY:HA2 | 82:S2:85:A:H5'     | 1.71                     | 0.72              |
| 2:L5:513:U:N3     | 2:L5:516:C:OP2     | 2.21                     | 0.72              |
| 68:SG:135:PRO:HG2 | 68:SG:141:ILE:HG22 | 1.71                     | 0.72              |
| 2:L5:4102:C:H1'   | 2:L5:4108:G:H1     | 1.55                     | 0.72              |
| 6:LB:291:TYR:OH   | 6:LB:315:ASN:ND2   | 2.23                     | 0.72              |
| 14:LJ:42:GLN:HG2  | 14:LJ:117:ILE:HD12 | 1.72                     | 0.72              |
| 2:L5:1702:C:H4'   | 7:LC:308:LYS:HD2   | 1.71                     | 0.72              |
| 2:L5:2475:G:N1    | 27:LX:51:THR:O     | 2.20                     | 0.72              |
| 2:L5:1759:G:N2    | 2:L5:1773:U:O2     | 2.22                     | 0.72              |
| 2:L5:4873:G:N7    | 18:LO:179:LYS:NZ   | 2.38                     | 0.72              |
| 2:L5:1555:G:O6    | 45:Lp:4:ARG:NH1    | 2.23                     | 0.71              |
| 56:SS:48:ALA:O    | 56:SS:66:ARG:NH2   | 2.23                     | 0.71              |
| 57:ST:23:LYS:HD3  | 57:ST:51:ASN:HD22  | 1.55                     | 0.71              |
| 69:SH:142:LYS:HB3 | 76:SW:54:ASP:HB3   | 1.70                     | 0.71              |
| 2:L5:109:G:OP2    | 15:LL:74:ARG:NH2   | 2.23                     | 0.71              |
| 82:S2:1422:G:H4'  | 82:S2:1423:C:H3'   | 1.70                     | 0.71              |
| 2:L5:2007:G:H21   | 2:L5:2012:A:N6     | 1.83                     | 0.71              |
| 47:Ls:58:ASN:ND2  | 47:Ls:84:GLY:O     | 2.18                     | 0.71              |
| 65:SB:103:MET:HG3 | 65:SB:215:VAL:HG12 | 1.71                     | 0.71              |
| 2:L5:382:G:N1     | 2:L5:385:A:OP2     | 2.24                     | 0.71              |
| 2:L5:4251:A:H5''  | 14:LJ:108:GLY:HA3  | 1.71                     | 0.71              |
| 82:S2:1854:U:H2'  | 82:S2:1855:G:H8    | 1.56                     | 0.71              |
| 2:L5:2520:C:O2    | 2:L5:2640:G:N2     | 2.23                     | 0.71              |
| 2:L5:4492:U:H5''  | 2:L5:4493:PSU:H5'' | 1.72                     | 0.71              |
| 2:L5:308:G:OP2    | 2:L5:308:G:N2      | 2.21                     | 0.71              |
| 82:S2:60:A:N3     | 82:S2:316:G:O2'    | 2.22                     | 0.70              |
| 82:S2:1010:G:H2'  | 82:S2:1011:A:H8    | 1.56                     | 0.70              |
| 2:L5:1095:A:H2    | 2:L5:1200:G:N1     | 1.80                     | 0.70              |
| 54:SQ:58:LEU:HB3  | 54:SQ:62:ARG:HD2   | 1.73                     | 0.70              |
| 2:L5:4153:C:H5''  | 27:LX:38:LYS:HD2   | 1.72                     | 0.70              |
| 59:SZ:99:LEU:HD21 | 59:SZ:102:LYS:HB2  | 1.74                     | 0.70              |
| 2:L5:500:G:H1'    | 2:L5:504:G:H3'     | 1.73                     | 0.70              |
| 2:L5:4369:A:H2'   | 2:L5:4370:OMG:H8   | 1.56                     | 0.70              |
| 20:LQ:154:LYS:NZ  | 20:LQ:159:PRO:O    | 2.24                     | 0.70              |
| 63:Sg:254:PRO:O   | 63:Sg:272:GLN:NE2  | 2.25                     | 0.70              |
| 63:Sg:152:SER:HG  | 63:Sg:168:CYS:HG   | 1.39                     | 0.70              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 82:S2:1220:A:N3    | 82:S2:1677:U:O2'   | 2.22                     | 0.70              |
| 2:L5:300:A:H2'     | 2:L5:301:G:H8      | 1.57                     | 0.70              |
| 68:SG:2:LYS:HB2    | 68:SG:108:VAL:HG12 | 1.73                     | 0.70              |
| 82:S2:1244:PSU:HN3 | 82:S2:1257:G:H1    | 1.39                     | 0.70              |
| 2:L5:4525:C:OP1    | 6:LB:246:ARG:NH2   | 2.19                     | 0.70              |
| 11:LG:178:GLY:O    | 11:LG:223:ARG:NH2  | 2.24                     | 0.70              |
| 82:S2:1536:G:H2'   | 82:S2:1537:A:H8    | 1.56                     | 0.70              |
| 2:L5:1445:U:O4     | 2:L5:2100:A:N6     | 2.24                     | 0.70              |
| 2:L5:330:G:N7      | 86:L5:5283:SPD:N1  | 2.40                     | 0.69              |
| 2:L5:3870:C:H2'    | 2:L5:3871:A:H8     | 1.56                     | 0.69              |
| 40:Lk:68:GLU:HG3   | 40:Lk:70:LYS:H     | 1.57                     | 0.69              |
| 64:SA:127:PRO:HG2  | 64:SA:152:SER:HB3  | 1.72                     | 0.69              |
| 2:L5:1306:C:H2'    | 2:L5:1307:A:H8     | 1.55                     | 0.69              |
| 2:L5:4301:U:OP2    | 2:L5:4303:C:N4     | 2.25                     | 0.69              |
| 52:SM:52:LEU:HD11  | 52:SM:62:VAL:HG12  | 1.73                     | 0.69              |
| 63:Sg:63:SER:HB2   | 82:S2:1398:G:H1'   | 1.73                     | 0.69              |
| 82:S2:1417:C:N3    | 82:S2:1422:G:N1    | 2.40                     | 0.69              |
| 2:L5:1095:A:N1     | 2:L5:1200:G:O6     | 2.25                     | 0.69              |
| 2:L5:3641:U:OP2    | 2:L5:3646:A:N6     | 2.25                     | 0.69              |
| 34:Le:67:LYS:HG2   | 34:Le:68:HIS:CD2   | 2.27                     | 0.69              |
| 2:L5:665:C:H4'     | 2:L5:666:G:H5'     | 1.73                     | 0.69              |
| 2:L5:2395:A:N6     | 2:L5:2820:C:O2     | 2.25                     | 0.69              |
| 2:L5:3937:C:H1'    | 17:LN:125:SER:HB3  | 1.73                     | 0.69              |
| 50:SF:51:HIS:O     | 54:SQ:50:LYS:NZ    | 2.25                     | 0.69              |
| 54:SQ:131:LYS:HB2  | 54:SQ:140:ARG:HH22 | 1.58                     | 0.69              |
| 2:L5:666:G:N7      | 2:L5:668:C:N4      | 2.39                     | 0.69              |
| 2:L5:4304:A:OP2    | 2:L5:4305:G:N2     | 2.26                     | 0.69              |
| 5:LA:104:VAL:HA    | 5:LA:107:MET:HE3   | 1.74                     | 0.69              |
| 68:SG:191:ARG:HH12 | 82:S2:312:G:H2'    | 1.57                     | 0.69              |
| 82:S2:516:A:N1     | 82:S2:643:A:O2'    | 2.24                     | 0.69              |
| 2:L5:331:G:N7      | 86:L5:5283:SPD:N6  | 2.40                     | 0.69              |
| 2:L5:1914:C:H4'    | 18:LO:89:PRO:HD3   | 1.75                     | 0.69              |
| 2:L5:1982:G:O2'    | 2:L5:2010:A:O2'    | 2.06                     | 0.69              |
| 2:L5:4353:PSU:H5'  | 2:L5:4354:U:H5'    | 1.74                     | 0.69              |
| 2:L5:4620:OMU:OP2  | 2:L5:4670:C:N4     | 2.26                     | 0.69              |
| 64:SA:89:LYS:HD2   | 64:SA:201:LEU:HG   | 1.74                     | 0.68              |
| 70:SI:133:GLU:HA   | 70:SI:136:ILE:HG12 | 1.75                     | 0.68              |
| 2:L5:4677:U:O2     | 2:L5:4713:G:N2     | 2.27                     | 0.68              |
| 51:SK:85:LEU:HD21  | 51:SK:89:ILE:HB    | 1.73                     | 0.68              |
| 57:ST:101:ARG:NH2  | 82:S2:1566:G:N7    | 2.41                     | 0.68              |
| 2:L5:64:A:H1'      | 2:L5:76:A:H1'      | 1.75                     | 0.68              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:4601:U:H2'    | 2:L5:4602:A:H8     | 1.57                     | 0.68              |
| 39:Lj:2:THR:HG22   | 39:Lj:4:GLY:H      | 1.58                     | 0.68              |
| 80:Sb:20:LYS:NZ    | 82:S2:1016:U:OP2   | 2.26                     | 0.68              |
| 82:S2:1808:U:H2'   | 82:S2:1809:A:H8    | 1.57                     | 0.68              |
| 48:Lt:117:ARG:HE   | 48:Lt:119:ARG:H    | 1.40                     | 0.68              |
| 2:L5:1704:C:O3'    | 10:LF:46:ARG:NH1   | 2.27                     | 0.68              |
| 2:L5:364:G:O6      | 39:Lj:55:ARG:NH2   | 2.27                     | 0.68              |
| 2:L5:1315:C:H2'    | 2:L5:1316:OMG:H8   | 1.58                     | 0.68              |
| 2:L5:1646:A:OP2    | 7:LC:80:ARG:NH1    | 2.26                     | 0.68              |
| 2:L5:1834:U:N3     | 23:LT:126:VAL:O    | 2.26                     | 0.68              |
| 6:LB:113:GLU:OE2   | 6:LB:169:ARG:NH1   | 2.26                     | 0.68              |
| 18:LO:34:VAL:HG22  | 18:LO:103:LYS:HB2  | 1.76                     | 0.68              |
| 19:LP:118:GLN:OE1  | 19:LP:120:ASN:ND2  | 2.27                     | 0.68              |
| 50:SF:127:ARG:HG2  | 50:SF:136:ARG:HE   | 1.59                     | 0.68              |
| 55:SR:59:LYS:NZ    | 82:S2:1456:G:OP1   | 2.27                     | 0.68              |
| 53:SP:81:ARG:NH1   | 53:SP:97:TYR:O     | 2.25                     | 0.68              |
| 82:S2:165:G:H2'    | 82:S2:166:A2M:H8   | 1.74                     | 0.68              |
| 2:L5:505:G:H1      | 2:L5:653:U:H3      | 1.40                     | 0.68              |
| 2:L5:1969:G:H4'    | 47:Ls:36:GLY:HA2   | 1.76                     | 0.68              |
| 2:L5:2626:U:O4     | 24:LU:97:ARG:NH1   | 2.27                     | 0.68              |
| 2:L5:4084:G:O6     | 5:LA:70:LYS:NZ     | 2.23                     | 0.68              |
| 73:SN:64:ARG:NH2   | 82:S2:919:A:OP2    | 2.27                     | 0.68              |
| 82:S2:1546:G:N2    | 82:S2:1670:C:O2    | 2.27                     | 0.68              |
| 2:L5:1982:G:O2'    | 2:L5:1984:A:N7     | 2.24                     | 0.68              |
| 2:L5:4107:G:N2     | 2:L5:4108:G:O6     | 2.25                     | 0.68              |
| 15:LL:64:VAL:HA    | 15:LL:67:HIS:HD2   | 1.57                     | 0.68              |
| 2:L5:4774:C:O2'    | 2:L5:4775:C:O2     | 2.10                     | 0.68              |
| 5:LA:114:CYS:HB3   | 5:LA:165:VAL:HB    | 1.75                     | 0.68              |
| 70:SI:91:VAL:HG11  | 70:SI:205:ARG:HH12 | 1.59                     | 0.68              |
| 78:SY:11:LYS:NZ    | 82:S2:832:G:O6     | 2.26                     | 0.68              |
| 2:L5:2622:G:O6     | 24:LU:81:ARG:NH2   | 2.27                     | 0.67              |
| 2:L5:86:U:O2'      | 30:La:65:ARG:NH2   | 2.24                     | 0.67              |
| 2:L5:137:G:H2'     | 2:L5:138:G:H8      | 1.59                     | 0.67              |
| 2:L5:1563:A:N6     | 82:S2:1028:A:N1    | 2.41                     | 0.67              |
| 2:L5:2279:A:O2'    | 34:Le:48:ARG:NH2   | 2.28                     | 0.67              |
| 2:L5:2284:G:OP1    | 30:La:7:LYS:NZ     | 2.27                     | 0.67              |
| 2:L5:3946:G:N2     | 2:L5:4067:U:O2     | 2.23                     | 0.67              |
| 82:S2:924:G:N2     | 82:S2:1018:U:O2    | 2.20                     | 0.67              |
| 2:L5:518:G:H1      | 2:L5:643:C:H2'     | 1.57                     | 0.67              |
| 10:LF:105:VAL:HG13 | 10:LF:136:VAL:HG12 | 1.75                     | 0.67              |
| 69:SH:105:THR:HG23 | 69:SH:107:LYS:H    | 1.58                     | 0.67              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 82:S2:1240:A:N3    | 82:S2:1267:C:O2'   | 2.25                     | 0.67              |
| 2:L5:1364:U:OP2    | 15:LL:36:ARG:NH2   | 2.24                     | 0.67              |
| 2:L5:2778:G:N2     | 4:L8:113:C:OP2     | 2.27                     | 0.67              |
| 7:LC:110:ARG:O     | 7:LC:113:ARG:NH1   | 2.24                     | 0.67              |
| 64:SA:128:ARG:NH2  | 64:SA:151:ASP:O    | 2.28                     | 0.67              |
| 68:SG:172:LYS:NZ   | 82:S2:67:C:OP2     | 2.25                     | 0.67              |
| 82:S2:90:G:OP1     | 82:S2:445:A:N6     | 2.23                     | 0.67              |
| 2:L5:327:U:O2'     | 38:Li:30:ARG:NH1   | 2.27                     | 0.67              |
| 13:LI:207:ASP:OD1  | 13:LI:210:ARG:NH1  | 2.28                     | 0.67              |
| 81:Se:41:ARG:NH2   | 82:S2:639:C:OP1    | 2.27                     | 0.67              |
| 2:L5:2582:A:OP1    | 36:Lg:76:ARG:NH1   | 2.28                     | 0.67              |
| 2:L5:4910:G:H4'    | 6:LB:95:THR:HG22   | 1.77                     | 0.67              |
| 19:LP:131:ARG:NH1  | 19:LP:137:ASN:OD1  | 2.27                     | 0.67              |
| 32:Lc:78:ASN:HD21  | 45:Lp:43:GLY:HA3   | 1.59                     | 0.67              |
| 57:ST:124:THR:HG23 | 57:ST:127:GLY:H    | 1.59                     | 0.67              |
| 64:SA:22:GLY:O     | 64:SA:24:HIS:ND1   | 2.28                     | 0.67              |
| 2:L5:432:U:O2'     | 85:L5:5292:SPM:N10 | 2.26                     | 0.67              |
| 9:LE:165:LEU:HD11  | 9:LE:176:THR:HG22  | 1.77                     | 0.67              |
| 66:SC:257:LYS:O    | 75:SV:16:LYS:NZ    | 2.28                     | 0.67              |
| 4:L8:19:C:H2'      | 4:L8:20:A:H8       | 1.60                     | 0.67              |
| 67:SE:192:ILE:N    | 67:SE:243:GLY:O    | 2.28                     | 0.67              |
| 2:L5:2749:C:H2'    | 2:L5:2750:G:H8     | 1.60                     | 0.66              |
| 2:L5:3944:G:O6     | 2:L5:4069:U:O4     | 2.13                     | 0.66              |
| 2:L5:4522:G:O2'    | 2:L5:4525:C:OP2    | 2.12                     | 0.66              |
| 82:S2:1664:A:O2'   | 82:S2:1666:C:N4    | 2.27                     | 0.66              |
| 50:SF:101:HIS:HB2  | 50:SF:108:PRO:HG3  | 1.77                     | 0.66              |
| 2:L5:1259:G:H2'    | 2:L5:1260:G:H8     | 1.59                     | 0.66              |
| 2:L5:2708:U:H1'    | 83:CI:79:ARG:HH22  | 1.61                     | 0.66              |
| 2:L5:3717:A:H2'    | 2:L5:3718:A2M:H8   | 1.76                     | 0.66              |
| 16:LM:15:VAL:HG22  | 16:LM:50:MET:HE1   | 1.76                     | 0.66              |
| 50:SF:84:GLY:O     | 82:S2:1673:U:O2'   | 2.13                     | 0.66              |
| 54:SQ:19:ALA:HB2   | 54:SQ:75:GLY:HA3   | 1.76                     | 0.66              |
| 73:SN:2:GLY:N      | 82:S2:923:G:OP1    | 2.29                     | 0.66              |
| 2:L5:2000:G:O2'    | 2:L5:2001:G:N7     | 2.29                     | 0.66              |
| 2:L5:2557:G:O6     | 2:L5:2570:U:O4     | 2.13                     | 0.66              |
| 77:SX:28:LYS:NZ    | 82:S2:1189:A:OP1   | 2.28                     | 0.66              |
| 82:S2:747:U:N3     | 82:S2:796:G:N1     | 2.44                     | 0.66              |
| 82:S2:1277:C:H2'   | 82:S2:1278:A:H8    | 1.60                     | 0.66              |
| 2:L5:121:A:H62     | 2:L5:152:U:H3      | 1.43                     | 0.66              |
| 3:L7:63:C:H5'      | 3:L7:64:G:H5''     | 1.77                     | 0.66              |
| 50:SF:124:ASP:OD1  | 50:SF:125:SER:N    | 2.28                     | 0.66              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:75:G:O2'      | 15:LL:101:ARG:NH1  | 2.25                     | 0.66              |
| 11:LG:57:TRP:O     | 11:LG:62:ARG:NH1   | 2.28                     | 0.66              |
| 87:L5:5294:HMT:C7  | 87:L5:5294:HMT:C16 | 2.69                     | 0.66              |
| 69:SH:31:GLU:HA    | 69:SH:37:LYS:HG3   | 1.78                     | 0.66              |
| 82:S2:300:U:H2'    | 82:S2:301:A:H8     | 1.60                     | 0.66              |
| 2:L5:3788:C:N4     | 2:L5:3812:C:OP2    | 2.29                     | 0.66              |
| 2:L5:5002:U:OP2    | 6:LB:385:LYS:NZ    | 2.29                     | 0.66              |
| 6:LB:10:ARG:NH1    | 6:LB:11:HIS:O      | 2.27                     | 0.66              |
| 22:LS:76:LYS:NZ    | 22:LS:100:LEU:O    | 2.28                     | 0.66              |
| 38:Li:2:ALA:N      | 38:Li:5:TYR:HH     | 1.94                     | 0.66              |
| 67:SE:121:TYR:HA   | 67:SE:163:ASP:HA   | 1.77                     | 0.66              |
| 73:SN:5:HIS:HB3    | 73:SN:117:LEU:HD13 | 1.78                     | 0.66              |
| 2:L5:1984:A:N6     | 2:L5:2010:A:O2'    | 2.28                     | 0.66              |
| 21:LR:39:GLN:OE1   | 21:LR:42:ARG:NH1   | 2.29                     | 0.66              |
| 63:Sg:107:ASP:HB2  | 63:Sg:125:ARG:HG3  | 1.77                     | 0.66              |
| 78:SY:124:ASN:HD22 | 82:S2:84:A:H5''    | 1.60                     | 0.66              |
| 79:Sa:6:ARG:NH1    | 82:S2:1147:C:OP1   | 2.26                     | 0.66              |
| 2:L5:4566:U:O2'    | 6:LB:234:ARG:NH1   | 2.28                     | 0.66              |
| 17:LN:114:ARG:NH1  | 17:LN:151:ILE:O    | 2.28                     | 0.66              |
| 34:Le:68:HIS:O     | 34:Le:75:ARG:HG2   | 1.96                     | 0.66              |
| 35:Lf:36:ARG:NH1   | 35:Lf:79:GLY:O     | 2.24                     | 0.66              |
| 82:S2:610:G:H2'    | 82:S2:611:G:H8     | 1.61                     | 0.66              |
| 2:L5:1735:U:OP2    | 85:L5:5257:SPM:N10 | 2.29                     | 0.65              |
| 78:SY:56:PHE:HE2   | 78:SY:82:ALA:HB1   | 1.61                     | 0.65              |
| 78:SY:90:ARG:HA    | 78:SY:93:ARG:HD2   | 1.77                     | 0.65              |
| 2:L5:2103:G:N7     | 2:L5:2104:G:N2     | 2.44                     | 0.65              |
| 2:L5:4092:G:N7     | 2:L5:4114:C:N4     | 2.45                     | 0.65              |
| 58:SU:79:ARG:NH2   | 82:S2:1669:G:OP1   | 2.30                     | 0.65              |
| 82:S2:649:PSU:H2'  | 82:S2:650:A:H8     | 1.61                     | 0.65              |
| 2:L5:1094:G:O6     | 2:L5:1201:U:O2     | 2.13                     | 0.65              |
| 2:L5:1366:G:H5''   | 15:LL:36:ARG:HH12  | 1.60                     | 0.65              |
| 2:L5:2295:C:H2'    | 2:L5:2296:G:H8     | 1.60                     | 0.65              |
| 2:L5:3615:G:H1'    | 26:LW:44:ARG:HD3   | 1.77                     | 0.65              |
| 4:L8:153:C:H2'     | 4:L8:154:G:H8      | 1.60                     | 0.65              |
| 2:L5:2008:U:N3     | 2:L5:2011:C:OP2    | 2.24                     | 0.65              |
| 2:L5:2695:A:OP1    | 40:Lk:35:LYS:NZ    | 2.26                     | 0.65              |
| 2:L5:2884:G:H2'    | 2:L5:2885:A:H8     | 1.59                     | 0.65              |
| 49:SD:40:ARG:HA    | 58:SU:108:PRO:HB3  | 1.78                     | 0.65              |
| 69:SH:154:ILE:HB   | 69:SH:185:VAL:HG22 | 1.79                     | 0.65              |
| 2:L5:4604:G:N2     | 2:L5:4607:A:OP2    | 2.29                     | 0.65              |
| 68:SG:136:LYS:NZ   | 68:SG:175:LYS:O    | 2.26                     | 0.65              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 82:S2:695:C:N4     | 82:S2:736:C:O2'    | 2.30                     | 0.65              |
| 2:L5:1818:G:OP2    | 2:L5:1818:G:N2     | 2.27                     | 0.65              |
| 2:L5:3666:C:OP1    | 5:LA:234:LYS:NZ    | 2.27                     | 0.65              |
| 4:L8:153:C:OP1     | 11:LG:185:LYS:NZ   | 2.29                     | 0.65              |
| 14:LJ:146:ARG:HG2  | 14:LJ:147:ARG:HG3  | 1.79                     | 0.65              |
| 2:L5:4415:A:O2'    | 13:LI:74:LYS:NZ    | 2.30                     | 0.65              |
| 16:LM:115:ALA:HB1  | 18:LO:192:TYR:HB3  | 1.77                     | 0.65              |
| 45:Lp:38:THR:HA    | 45:Lp:45:THR:HA    | 1.76                     | 0.65              |
| 82:S2:848:U:H2'    | 82:S2:849:A:H8     | 1.61                     | 0.65              |
| 2:L5:512:U:H3      | 2:L5:647:G:H1      | 1.45                     | 0.65              |
| 2:L5:919:C:OP1     | 16:LM:69:HIS:ND1   | 2.22                     | 0.65              |
| 2:L5:2446:C:O2'    | 2:L5:2745:A:N3     | 2.29                     | 0.65              |
| 50:SF:168:THR:OG1  | 50:SF:171:GLU:OE1  | 2.15                     | 0.65              |
| 68:SG:202:ASN:ND2  | 82:S2:125:C:OP1    | 2.30                     | 0.65              |
| 2:L5:1581:G:OP1    | 86:L5:5284:SPD:N10 | 2.30                     | 0.65              |
| 2:L5:1927:U:OP1    | 2:L5:1949:U:O2'    | 2.11                     | 0.65              |
| 9:LE:164:PHE:HA    | 9:LE:175:VAL:HG12  | 1.78                     | 0.65              |
| 18:LO:10:ASP:OD2   | 18:LO:37:ARG:NH2   | 2.29                     | 0.65              |
| 48:Lt:12:VAL:HG11  | 48:Lt:65:GLN:H     | 1.61                     | 0.65              |
| 60:Sc:29:GLN:HA    | 60:Sc:45:ASN:HA    | 1.79                     | 0.65              |
| 66:SC:72:ASP:OD2   | 66:SC:272:HIS:NE2  | 2.25                     | 0.65              |
| 82:S2:948:C:H2'    | 82:S2:949:G:H8     | 1.61                     | 0.65              |
| 82:S2:1362:U:H5''  | 82:S2:1363:C:H5    | 1.62                     | 0.65              |
| 82:S2:1383:A2M:H2' | 82:S2:1384:C:C6    | 2.32                     | 0.65              |
| 2:L5:1499:C:OP1    | 20:LQ:150:ARG:NH2  | 2.30                     | 0.65              |
| 2:L5:4177:C:H2'    | 2:L5:4178:A:H8     | 1.61                     | 0.65              |
| 2:L5:4340:U:N3     | 88:L5:5295:3HE:O1  | 2.30                     | 0.65              |
| 2:L5:2557:G:N2     | 2:L5:2570:U:O2     | 2.22                     | 0.64              |
| 9:LE:222:LEU:HB2   | 9:LE:237:LYS:HD2   | 1.78                     | 0.64              |
| 63:Sg:176:VAL:HG23 | 63:Sg:185:LYS:HB2  | 1.79                     | 0.64              |
| 82:S2:110:U:H3     | 82:S2:351:G:H1     | 1.43                     | 0.64              |
| 2:L5:2702:C:OP1    | 24:LU:101:ARG:NH2  | 2.28                     | 0.64              |
| 2:L5:4759:C:O2     | 18:LO:165:LYS:NZ   | 2.31                     | 0.64              |
| 66:SC:202:THR:HG23 | 71:SJ:54:ARG:HH22  | 1.62                     | 0.64              |
| 58:SU:19:ARG:HH11  | 58:SU:92:HIS:HB3   | 1.62                     | 0.64              |
| 69:SH:101:LEU:O    | 69:SH:116:ARG:NH1  | 2.28                     | 0.64              |
| 82:S2:924:G:O6     | 82:S2:1018:U:O4    | 2.15                     | 0.64              |
| 82:S2:1101:U:H2'   | 82:S2:1102:G:H8    | 1.62                     | 0.64              |
| 2:L5:500:G:OP1     | 2:L5:504:G:N2      | 2.31                     | 0.64              |
| 2:L5:3695:PSU:HN3  | 2:L5:3820:G:H1     | 1.43                     | 0.64              |
| 15:LL:91:ALA:HB1   | 15:LL:96:ILE:HB    | 1.79                     | 0.64              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 51:SK:31:LYS:HZ3  | 51:SK:39:ASN:N     | 1.96                     | 0.64              |
| 2:L5:1700:G:H5''  | 2:L5:1704:C:H42    | 1.62                     | 0.64              |
| 2:L5:2397:G:O6    | 36:Lg:4:ARG:NH2    | 2.27                     | 0.64              |
| 2:L5:4935:C:H2'   | 2:L5:4936:G:C8     | 2.33                     | 0.64              |
| 53:SP:59:ARG:HH21 | 53:SP:76:VAL:HG23  | 1.62                     | 0.64              |
| 69:SH:144:ILE:HB  | 76:SW:52:ILE:HB    | 1.80                     | 0.64              |
| 79:Sa:87:ARG:NH1  | 79:Sa:94:ASP:OD1   | 2.30                     | 0.64              |
| 82:S2:508:A:H3'   | 82:S2:509:OMG:H8   | 1.63                     | 0.64              |
| 82:S2:1748:G:O6   | 82:S2:1786:U:O4    | 2.16                     | 0.64              |
| 2:L5:1354:A:N6    | 2:L5:1503:A:O4'    | 2.31                     | 0.64              |
| 71:SJ:174:LYS:HD3 | 82:S2:560:A:H5'    | 1.80                     | 0.64              |
| 82:S2:1536:G:H2'  | 82:S2:1537:A:C8    | 2.33                     | 0.64              |
| 2:L5:1366:G:O6    | 15:LL:37:LYS:NZ    | 2.26                     | 0.64              |
| 2:L5:3823:G:N2    | 2:L5:3823:G:OP2    | 2.30                     | 0.64              |
| 2:L5:3848:U:H2'   | 2:L5:3849:A:H8     | 1.63                     | 0.64              |
| 2:L5:4473:A:O2'   | 42:Lm:122:ARG:NH2  | 2.31                     | 0.64              |
| 12:LH:44:GLU:OE2  | 16:LM:2:VAL:N      | 2.30                     | 0.64              |
| 2:L5:4225:G:OP1   | 13:LI:24:ARG:NH2   | 2.28                     | 0.64              |
| 49:SD:99:ILE:HG23 | 49:SD:173:ARG:HH21 | 1.61                     | 0.64              |
| 52:SM:52:LEU:HD23 | 52:SM:78:LYS:HE3   | 1.79                     | 0.64              |
| 67:SE:67:GLN:HG2  | 82:S2:502:C:H42    | 1.62                     | 0.64              |
| 2:L5:4761:G:OP2   | 18:LO:37:ARG:NH1   | 2.31                     | 0.64              |
| 61:Sd:12:ARG:NH1  | 82:S2:1513:C:OP1   | 2.27                     | 0.64              |
| 82:S2:928:G:H2'   | 82:S2:929:G:C8     | 2.33                     | 0.64              |
| 82:S2:1243:U:OP2  | 82:S2:1518:C:O2'   | 2.15                     | 0.64              |
| 2:L5:148:C:OP2    | 11:LG:197:LYS:NZ   | 2.25                     | 0.64              |
| 2:L5:4098:A:H2'   | 2:L5:4099:G:H4'    | 1.79                     | 0.64              |
| 2:L5:4489:G:H4'   | 86:L5:5288:SPD:H91 | 1.79                     | 0.64              |
| 61:Sd:17:GLY:O    | 61:Sd:27:ARG:NH1   | 2.30                     | 0.64              |
| 68:SG:1:MET:HE2   | 68:SG:106:LEU:HB2  | 1.80                     | 0.64              |
| 82:S2:1129:G:H3'  | 82:S2:1130:G:H21   | 1.63                     | 0.64              |
| 2:L5:381:U:H4'    | 2:L5:415:G:H5'     | 1.80                     | 0.63              |
| 2:L5:2033:A:OP1   | 13:LI:162:ARG:NH2  | 2.31                     | 0.63              |
| 2:L5:4699:U:H1'   | 2:L5:4700:A:H5''   | 1.80                     | 0.63              |
| 3:L7:7:G:OP1      | 8:LD:33:ARG:NH1    | 2.31                     | 0.63              |
| 56:SS:38:ARG:O    | 56:SS:42:HIS:ND1   | 2.26                     | 0.63              |
| 82:S2:1213:C:H2'  | 82:S2:1214:A:H8    | 1.61                     | 0.63              |
| 2:L5:1885:G:OP1   | 35:Lf:20:ASN:ND2   | 2.27                     | 0.63              |
| 35:Lf:45:LYS:HD2  | 35:Lf:105:LEU:HA   | 1.80                     | 0.63              |
| 53:SP:64:LYS:NZ   | 53:SP:88:GLU:O     | 2.32                     | 0.63              |
| 69:SH:165:ASN:O   | 69:SH:169:LYS:NZ   | 2.32                     | 0.63              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 77:SX:107:ARG:HG3  | 77:SX:110:HIS:HB3 | 1.80                     | 0.63              |
| 80:Sb:14:GLU:HA    | 80:Sb:17:ARG:HG2  | 1.80                     | 0.63              |
| 87:L5:5294:HMT:C7  | 87:L5:5294:HMT:N1 | 2.61                     | 0.63              |
| 49:SD:168:VAL:HG22 | 49:SD:189:MET:HA  | 1.81                     | 0.63              |
| 77:SX:8:ARG:HG3    | 82:S2:681:PSU:H5' | 1.79                     | 0.63              |
| 79:Sa:11:ALA:HB3   | 79:Sa:33:ASP:HB2  | 1.79                     | 0.63              |
| 82:S2:454:U:H2'    | 82:S2:455:A:H8    | 1.64                     | 0.63              |
| 2:L5:4954:G:H2'    | 2:L5:4955:A:H8    | 1.64                     | 0.63              |
| 8:LD:204:VAL:HB    | 8:LD:236:MET:HE1  | 1.80                     | 0.63              |
| 15:LL:23:ALA:HB3   | 17:LN:199:GLN:HA  | 1.80                     | 0.63              |
| 24:LU:44:GLN:HB2   | 24:LU:56:LEU:HD21 | 1.80                     | 0.63              |
| 66:SC:176:LYS:O    | 66:SC:200:ARG:NH2 | 2.32                     | 0.63              |
| 82:S2:1048:G:N1    | 82:S2:1069:U:OP2  | 2.28                     | 0.63              |
| 82:S2:1528:G:O2'   | 82:S2:1666:C:OP1  | 2.15                     | 0.63              |
| 2:L5:1994:C:H2'    | 2:L5:1995:G:C8    | 2.33                     | 0.63              |
| 2:L5:4897:G:OP1    | 16:LM:128:LYS:NZ  | 2.32                     | 0.63              |
| 12:LH:106:GLN:NE2  | 12:LH:113:GLU:OE2 | 2.32                     | 0.63              |
| 81:Se:8:ARG:HG2    | 81:Se:11:LYS:HD3  | 1.78                     | 0.63              |
| 2:L5:21:G:H5''     | 39:Lj:43:ARG:HG2  | 1.79                     | 0.63              |
| 2:L5:2093:A:N3     | 2:L5:2094:G:N1    | 2.47                     | 0.63              |
| 2:L5:2658:G:N2     | 2:L5:2676:A:OP2   | 2.32                     | 0.63              |
| 2:L5:3654:G:O2'    | 2:L5:3693:U:OP1   | 2.16                     | 0.63              |
| 2:L5:5047:C:O2'    | 2:L5:5050:C:OP2   | 2.16                     | 0.63              |
| 4:L8:62:A:OP2      | 37:Lh:51:ARG:NH2  | 2.29                     | 0.63              |
| 5:LA:95:GLN:O      | 5:LA:100:ASN:ND2  | 2.30                     | 0.63              |
| 56:SS:22:GLY:HA2   | 56:SS:56:ALA:HB3  | 1.80                     | 0.63              |
| 72:SL:108:ASN:ND2  | 82:S2:397:G:OP1   | 2.31                     | 0.63              |
| 82:S2:626:G:N2     | 82:S2:626:G:OP2   | 2.32                     | 0.63              |
| 82:S2:1560:U:O2    | 82:S2:1575:G:O6   | 2.16                     | 0.63              |
| 2:L5:1095:A:N1     | 2:L5:1200:G:C6    | 2.67                     | 0.63              |
| 2:L5:2891:U:OP2    | 21:LR:74:ARG:NE   | 2.26                     | 0.63              |
| 2:L5:4174:U:H2'    | 2:L5:4175:G:H8    | 1.63                     | 0.63              |
| 2:L5:4692:A:H62    | 2:L5:4696:C:H42   | 1.47                     | 0.63              |
| 20:LQ:46:VAL:HG13  | 20:LQ:49:LYS:HE2  | 1.81                     | 0.63              |
| 65:SB:52:THR:HG23  | 65:SB:57:ILE:HA   | 1.81                     | 0.63              |
| 73:SN:14:SER:HB3   | 82:S2:1016:U:H5'' | 1.78                     | 0.63              |
| 82:S2:1050:A:H62   | 82:S2:1068:G:H21  | 1.46                     | 0.63              |
| 1:Pt:29:C:H2'      | 1:Pt:30:G:H8      | 1.62                     | 0.63              |
| 2:L5:223:G:N3      | 7:LC:223:ASN:ND2  | 2.47                     | 0.63              |
| 2:L5:1305:C:OP1    | 86:L5:5286:SPD:N1 | 2.31                     | 0.63              |
| 2:L5:1982:G:N2     | 2:L5:2009:A:O2'   | 2.31                     | 0.63              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:3774:A:H2'    | 2:L5:3775:A:C8     | 2.34                     | 0.63              |
| 2:L5:3930:U:H3     | 2:L5:4180:G:H1     | 1.47                     | 0.63              |
| 2:L5:4272:G:OP2    | 2:L5:4272:G:N2     | 2.25                     | 0.63              |
| 18:LO:54:TYR:OH    | 18:LO:73:PHE:O     | 2.17                     | 0.63              |
| 53:SP:130:ARG:HD3  | 53:SP:131:PRO:HD2  | 1.81                     | 0.63              |
| 54:SQ:130:LYS:NZ   | 54:SQ:131:LYS:O    | 2.31                     | 0.63              |
| 82:S2:1372:U:OP1   | 82:S2:1385:G:N2    | 2.29                     | 0.63              |
| 82:S2:1417:C:H42   | 82:S2:1422:G:N2    | 1.94                     | 0.63              |
| 82:S2:1417:C:O2    | 82:S2:1422:G:O6    | 2.17                     | 0.63              |
| 2:L5:2517:A:H5'    | 36:Lg:62:LYS:HD3   | 1.80                     | 0.63              |
| 2:L5:2599:G:N2     | 2:L5:2747:U:O4     | 2.32                     | 0.63              |
| 56:SS:134:GLN:NE2  | 82:S2:1608:U:OP1   | 2.31                     | 0.63              |
| 62:Sf:92:LYS:NZ    | 82:S2:1271:C:OP1   | 2.32                     | 0.63              |
| 64:SA:110:ASN:HB3  | 64:SA:113:GLN:HE22 | 1.64                     | 0.63              |
| 68:SG:92:ARG:O     | 82:S2:453:C:O2'    | 2.17                     | 0.63              |
| 82:S2:1616:U:H2'   | 82:S2:1617:G:C8    | 2.34                     | 0.63              |
| 2:L5:452:A:H62     | 2:L5:1293:G:H5''   | 1.63                     | 0.62              |
| 11:LG:51:LEU:N     | 27:LX:41:ARG:O     | 2.30                     | 0.62              |
| 19:LP:109:VAL:HA   | 19:LP:112:LEU:HD13 | 1.80                     | 0.62              |
| 58:SU:20:ILE:HG23  | 58:SU:97:ILE:HD12  | 1.80                     | 0.62              |
| 2:L5:62:A:N3       | 2:L5:77:U:O2'      | 2.26                     | 0.62              |
| 2:L5:1667:G:N1     | 2:L5:2281:U:OP2    | 2.28                     | 0.62              |
| 2:L5:1669:A:N3     | 2:L5:1852:U:O2'    | 2.29                     | 0.62              |
| 2:L5:2378:G:N2     | 2:L5:2381:A:OP2    | 2.29                     | 0.62              |
| 2:L5:4541:G:N2     | 2:L5:4544:A:OP2    | 2.29                     | 0.62              |
| 11:LG:103:ARG:NH2  | 11:LG:192:ARG:O    | 2.31                     | 0.62              |
| 82:S2:165:G:OP2    | 82:S2:165:G:N2     | 2.31                     | 0.62              |
| 2:L5:28:C:OP1      | 17:LN:187:SER:OG   | 2.17                     | 0.62              |
| 21:LR:172:ARG:NH1  | 82:S2:909:G:OP1    | 2.33                     | 0.62              |
| 53:SP:37:TYR:O     | 56:SS:88:LYS:NZ    | 2.31                     | 0.62              |
| 63:Sg:164:ILE:HG22 | 63:Sg:178:ASN:HA   | 1.80                     | 0.62              |
| 82:S2:924:G:H1     | 82:S2:1018:U:H3    | 0.72                     | 0.62              |
| 82:S2:1165:G:OP2   | 82:S2:1165:G:N2    | 2.31                     | 0.62              |
| 2:L5:72:C:H5       | 15:LL:67:HIS:HD1   | 1.46                     | 0.62              |
| 2:L5:150:U:OP2     | 11:LG:200:THR:OG1  | 2.17                     | 0.62              |
| 2:L5:700:G:N1      | 2:L5:701:G:C6      | 2.67                     | 0.62              |
| 2:L5:1516:G:H2'    | 2:L5:1518:A:H62    | 1.65                     | 0.62              |
| 2:L5:2460:A:OP2    | 86:L5:5291:SPD:N10 | 2.31                     | 0.62              |
| 4:L8:47:C:H1'      | 4:L8:61:A:H2'      | 1.80                     | 0.62              |
| 82:S2:647:U:H2'    | 82:S2:648:A:H8     | 1.64                     | 0.62              |
| 82:S2:1421:A:H62   | 82:S2:1424:G:H1'   | 1.64                     | 0.62              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 82:S2:1581:C:H5'  | 82:S2:1582:C:H5    | 1.65                     | 0.62              |
| 2:L5:1996:C:O3'   | 47:Ls:44:ARG:NH1   | 2.32                     | 0.62              |
| 2:L5:2296:G:O2'   | 7:LC:242:PRO:O     | 2.17                     | 0.62              |
| 8:LD:232:THR:OG1  | 8:LD:234:ASP:OD1   | 2.15                     | 0.62              |
| 1:Pt:20(A):U:O4'  | 14:LJ:58:ARG:NH2   | 2.33                     | 0.62              |
| 2:L5:3880:G:H2'   | 2:L5:3881:G:C8     | 2.35                     | 0.62              |
| 2:L5:4736:C:H2'   | 2:L5:4737:G:H8     | 1.65                     | 0.62              |
| 4:L8:142:U:OP1    | 17:LN:38:ARG:NH2   | 2.30                     | 0.62              |
| 47:Ls:17:ILE:HD12 | 47:Ls:54:LEU:HD21  | 1.81                     | 0.62              |
| 68:SG:49:VAL:HB   | 68:SG:115:LYS:HG2  | 1.81                     | 0.62              |
| 82:S2:1259:A:N6   | 82:S2:1519:U:O5'   | 2.32                     | 0.62              |
| 2:L5:1514:U:H2'   | 2:L5:1515:A:C8     | 2.35                     | 0.62              |
| 2:L5:2406:G:N7    | 41:Ll:2:SER:N      | 2.48                     | 0.62              |
| 2:L5:2519:U:O2'   | 2:L5:2530:U:O2     | 2.18                     | 0.62              |
| 2:L5:4322:G:N2    | 2:L5:4325:A:OP2    | 2.29                     | 0.62              |
| 2:L5:4767:C:H2'   | 2:L5:4768:G:H8     | 1.63                     | 0.62              |
| 50:SF:60:ARG:HD2  | 82:S2:1679:A:H2'   | 1.80                     | 0.62              |
| 82:S2:1228:A:H2'  | 82:S2:1229:G:C8    | 2.35                     | 0.62              |
| 2:L5:4452:U:H5'   | 87:L5:5294:HMT:H7  | 1.81                     | 0.62              |
| 29:LZ:11:VAL:HG12 | 29:LZ:82:PRO:HA    | 1.82                     | 0.62              |
| 54:SQ:26:LYS:NZ   | 82:S2:1409:A:OP1   | 2.27                     | 0.62              |
| 68:SG:85:ARG:O    | 68:SG:87:ARG:NH1   | 2.33                     | 0.62              |
| 68:SG:162:LEU:HG  | 68:SG:167:LYS:HE3  | 1.81                     | 0.62              |
| 2:L5:85:G:O2'     | 2:L5:97:G:O6       | 2.17                     | 0.62              |
| 2:L5:267:G:H2'    | 2:L5:268:G:H8      | 1.65                     | 0.62              |
| 2:L5:1194:G:H2'   | 2:L5:1195:G:C8     | 2.34                     | 0.62              |
| 64:SA:102:ARG:NH1 | 82:S2:1378:A:OP2   | 2.33                     | 0.62              |
| 21:LR:25:ASP:OD2  | 83:Cl:72:ARG:NH2   | 2.31                     | 0.61              |
| 32:Lc:38:ILE:HD11 | 32:Lc:46:VAL:HG21  | 1.80                     | 0.61              |
| 49:SD:28:GLU:OE2  | 49:SD:65:ARG:NH2   | 2.33                     | 0.61              |
| 58:SU:104:ILE:HB  | 58:SU:106:ILE:HG12 | 1.82                     | 0.61              |
| 71:SJ:40:LYS:NZ   | 82:S2:641:A:OP1    | 2.26                     | 0.61              |
| 76:SW:111:MET:HE1 | 76:SW:119:LYS:HD2  | 1.81                     | 0.61              |
| 82:S2:509:OMG:H2' | 82:S2:510:G:H8     | 1.65                     | 0.61              |
| 2:L5:700:G:C6     | 2:L5:701:G:O6      | 2.53                     | 0.61              |
| 2:L5:2295:C:O2'   | 7:LC:45:ARG:NH2    | 2.33                     | 0.61              |
| 2:L5:3865:A:H61   | 2:L5:3881:G:H1     | 1.47                     | 0.61              |
| 2:L5:4305:G:N7    | 23:LT:87:LYS:NZ    | 2.44                     | 0.61              |
| 2:L5:4472:G:O2'   | 42:Lm:100:TYR:O    | 2.18                     | 0.61              |
| 12:LH:104:VAL:HB  | 12:LH:113:GLU:HB2  | 1.81                     | 0.61              |
| 1:Pt:33:U:OP2     | 54:SQ:146:ARG:NH1  | 2.33                     | 0.61              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:Pt:47:U:O2'      | 1:Pt:50:U:OP1      | 2.17                     | 0.61              |
| 2:L5:4748:U:O2     | 2:L5:4952:G:N2     | 2.27                     | 0.61              |
| 29:LZ:46:ILE:HA    | 29:LZ:70:SER:HA    | 1.81                     | 0.61              |
| 33:Ld:85:ARG:NH2   | 33:Ld:118:GLN:O    | 2.30                     | 0.61              |
| 52:SM:63:LYS:HD3   | 52:SM:64:LEU:HD22  | 1.82                     | 0.61              |
| 70:SI:150:ASP:HA   | 70:SI:153:LYS:HG2  | 1.82                     | 0.61              |
| 82:S2:432:G:H2'    | 82:S2:433:A:H8     | 1.66                     | 0.61              |
| 82:S2:830:A:OP2    | 82:S2:846:G:N2     | 2.32                     | 0.61              |
| 82:S2:1533:A:H62   | 82:S2:1602:U:H3    | 1.47                     | 0.61              |
| 2:L5:325:U:H3'     | 38:Li:28:ARG:HH21  | 1.65                     | 0.61              |
| 2:L5:1351:G:O6     | 20:LQ:55:ARG:NH1   | 2.30                     | 0.61              |
| 2:L5:1382:G:H2'    | 2:L5:1383:G:H8     | 1.65                     | 0.61              |
| 2:L5:4094:G:N2     | 2:L5:4115:G:OP2    | 2.34                     | 0.61              |
| 4:L8:13:G:O2'      | 19:LP:121:LYS:O    | 2.18                     | 0.61              |
| 16:LM:100:ARG:NH1  | 18:LO:197:LYS:O    | 2.34                     | 0.61              |
| 28:LY:2:LYS:HD2    | 28:LY:7:VAL:HG23   | 1.82                     | 0.61              |
| 54:SQ:8:GLN:HG3    | 54:SQ:27:ARG:HE    | 1.65                     | 0.61              |
| 58:SU:98:VAL:HB    | 58:SU:99:LYS:NZ    | 2.16                     | 0.61              |
| 82:S2:588:G:OP2    | 82:S2:588:G:N2     | 2.30                     | 0.61              |
| 2:L5:24:G:N7       | 39:Lj:46:LYS:NZ    | 2.48                     | 0.61              |
| 2:L5:1992:U:H4'    | 2:L5:1993:C:H5''   | 1.82                     | 0.61              |
| 2:L5:2764:A:H2'    | 2:L5:2765:A:H8     | 1.65                     | 0.61              |
| 20:LQ:151:HIS:ND1  | 20:LQ:164:LYS:O    | 2.33                     | 0.61              |
| 31:Lb:109:ARG:HA   | 31:Lb:112:ILE:HG12 | 1.83                     | 0.61              |
| 49:SD:40:ARG:NH2   | 58:SU:106:ILE:O    | 2.33                     | 0.61              |
| 71:SJ:63:LEU:O     | 71:SJ:70:ARG:NH1   | 2.33                     | 0.61              |
| 77:SX:17:ARG:NH2   | 82:S2:658:U:O2     | 2.32                     | 0.61              |
| 2:L5:386:A:O2'     | 28:LY:87:ARG:NH1   | 2.33                     | 0.61              |
| 22:LS:9:GLU:HB3    | 22:LS:67:VAL:HB    | 1.82                     | 0.61              |
| 55:SR:109:LEU:HD13 | 64:SA:52:LYS:HB2   | 1.81                     | 0.61              |
| 63:Sg:247:TRP:HB3  | 63:Sg:258:ILE:HD11 | 1.82                     | 0.61              |
| 78:SY:119:GLY:O    | 82:S2:84:A:O2'     | 2.16                     | 0.61              |
| 82:S2:114:G:N1     | 82:S2:350:C:O2     | 2.33                     | 0.61              |
| 82:S2:291:G:H2'    | 82:S2:292:A:C8     | 2.35                     | 0.61              |
| 2:L5:1270:A:O2'    | 2:L5:1439:C:O2     | 2.16                     | 0.61              |
| 2:L5:1396:G:N7     | 30:La:110:LYS:NZ   | 2.48                     | 0.61              |
| 2:L5:1906:U:H2'    | 2:L5:1907:A:H8     | 1.64                     | 0.61              |
| 2:L5:4129:G:O6     | 2:L5:4156:G:N2     | 2.33                     | 0.61              |
| 3:L7:35:U:O2       | 3:L7:45:U:O2'      | 2.16                     | 0.61              |
| 4:L8:90:C:H1'      | 28:LY:24:HIS:HB3   | 1.83                     | 0.61              |
| 4:L8:148:A:H2'     | 4:L8:149:G:C8      | 2.36                     | 0.61              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 6:LB:315:ASN:OD1   | 6:LB:326:VAL:N     | 2.31                     | 0.61              |
| 19:LP:19:GLY:N     | 19:LP:146:ILE:O    | 2.31                     | 0.61              |
| 50:SF:127:ARG:HE   | 50:SF:136:ARG:HH21 | 1.49                     | 0.61              |
| 57:ST:12:GLN:NE2   | 82:S2:1593:C:O2    | 2.32                     | 0.61              |
| 2:L5:2756:G:O6     | 29:LZ:51:ARG:NH2   | 2.34                     | 0.61              |
| 2:L5:2846:G:H2'    | 2:L5:2847:G:H8     | 1.66                     | 0.61              |
| 2:L5:3697:U:H5''   | 2:L5:3698:G:H5'    | 1.83                     | 0.61              |
| 2:L5:3898:G:H5'    | 6:LB:254:ILE:HG13  | 1.81                     | 0.61              |
| 2:L5:4617:G:OP2    | 6:LB:358:ARG:NH2   | 2.33                     | 0.61              |
| 47:Ls:68:HIS:O     | 47:Ls:71:ASN:ND2   | 2.33                     | 0.61              |
| 58:SU:54:VAL:HB    | 58:SU:88:LEU:HB2   | 1.83                     | 0.61              |
| 69:SH:191:GLU:O    | 69:SH:193:GLN:NE2  | 2.28                     | 0.61              |
| 82:S2:1027:A:H3'   | 82:S2:1028:A:H8    | 1.66                     | 0.61              |
| 82:S2:1337:4AC:H2' | 82:S2:1338:G:H8    | 1.65                     | 0.61              |
| 82:S2:1656:G:O6    | 82:S2:1668:U:O4    | 2.19                     | 0.61              |
| 2:L5:945:U:O2      | 7:LC:343:GLN:NE2   | 2.34                     | 0.61              |
| 2:L5:2017:A:O2'    | 2:L5:2018:C:O5'    | 2.19                     | 0.61              |
| 4:L8:90:C:H2'      | 4:L8:91:A:C8       | 2.35                     | 0.61              |
| 13:LI:101:LYS:NZ   | 13:LI:102:MET:O    | 2.31                     | 0.61              |
| 66:SC:238:LYS:NZ   | 82:S2:1355:C:O2'   | 2.27                     | 0.61              |
| 70:SI:43:ILE:HD13  | 82:S2:305:U:H1'    | 1.82                     | 0.61              |
| 70:SI:54:LYS:NZ    | 82:S2:381:C:OP2    | 2.33                     | 0.61              |
| 76:SW:107:SER:HB2  | 82:S2:860:G:H21    | 1.66                     | 0.61              |
| 82:S2:1112:U:O2    | 82:S2:1121:G:O6    | 2.18                     | 0.61              |
| 2:L5:73:A:N7       | 15:LL:103:ARG:NH2  | 2.48                     | 0.61              |
| 2:L5:108:A:O2'     | 2:L5:334:A:N6      | 2.33                     | 0.61              |
| 2:L5:4185:G:OP1    | 5:LA:2:GLY:N       | 2.34                     | 0.61              |
| 2:L5:4523:A2M:H5'' | 2:L5:4524:G:H5'    | 1.82                     | 0.61              |
| 13:LI:14:ASN:O     | 13:LI:128:ARG:NH2  | 2.32                     | 0.61              |
| 28:LY:67:ILE:O     | 28:LY:84:ARG:NH2   | 2.29                     | 0.61              |
| 47:Ls:31:GLY:HA2   | 47:Ls:86:VAL:HA    | 1.83                     | 0.61              |
| 2:L5:120:A:N1      | 2:L5:148:C:O2'     | 2.33                     | 0.60              |
| 2:L5:935:A:N7      | 16:LM:46:ARG:NH2   | 2.49                     | 0.60              |
| 2:L5:1188:C:H2'    | 2:L5:1189:G:H8     | 1.66                     | 0.60              |
| 2:L5:1390:G:N2     | 2:L5:1393:G:OP2    | 2.32                     | 0.60              |
| 2:L5:1509:C:H5''   | 30:La:2:PRO:HD3    | 1.83                     | 0.60              |
| 4:L8:21:C:OP1      | 7:LC:195:LYS:NZ    | 2.31                     | 0.60              |
| 12:LH:92:MET:HG2   | 12:LH:181:VAL:HG22 | 1.82                     | 0.60              |
| 14:LJ:16:ARG:HH21  | 14:LJ:137:PRO:HA   | 1.66                     | 0.60              |
| 52:SM:96:ARG:NH2   | 52:SM:100:PRO:O    | 2.34                     | 0.60              |
| 2:L5:63:G:H22      | 2:L5:333:U:H2'     | 1.65                     | 0.60              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:L5:1548:G:O2'   | 2:L5:2812:A:N3    | 2.31                     | 0.60              |
| 3:L7:28:C:O2'     | 3:L7:54:A:N1      | 2.34                     | 0.60              |
| 6:LB:90:VAL:HG23  | 6:LB:163:ILE:HD11 | 1.83                     | 0.60              |
| 71:SJ:108:ARG:NH2 | 71:SJ:149:VAL:O   | 2.29                     | 0.60              |
| 14:LJ:99:PHE:HB2  | 14:LJ:159:LYS:HE3 | 1.82                     | 0.60              |
| 24:LU:65:ARG:HG2  | 24:LU:67:LYS:H    | 1.66                     | 0.60              |
| 64:SA:85:ARG:NH1  | 64:SA:203:PHE:O   | 2.33                     | 0.60              |
| 2:L5:280:G:H5''   | 17:LN:14:LYS:HE2  | 1.83                     | 0.60              |
| 2:L5:369:G:N2     | 2:L5:372:A:OP2    | 2.26                     | 0.60              |
| 2:L5:2485:U:O4    | 2:L5:2489:C:O2'   | 2.18                     | 0.60              |
| 3:L7:75:G:N2      | 3:L7:100:A:OP2    | 2.31                     | 0.60              |
| 6:LB:10:ARG:NH2   | 6:LB:265:SER:O    | 2.35                     | 0.60              |
| 34:Le:45:VAL:HG22 | 34:Le:52:GLN:HB3  | 1.83                     | 0.60              |
| 48:Lt:114:ARG:NH2 | 48:Lt:126:SER:OG  | 2.35                     | 0.60              |
| 54:SQ:78:VAL:HG12 | 82:S2:1673:U:H5'' | 1.82                     | 0.60              |
| 63:Sg:120:ILE:O   | 63:Sg:132:TRP:N   | 2.34                     | 0.60              |
| 2:L5:3946:G:O6    | 2:L5:4067:U:O4    | 2.19                     | 0.60              |
| 2:L5:4670:C:O2'   | 2:L5:4672:A:OP2   | 2.18                     | 0.60              |
| 2:L5:4893:A:OP1   | 18:LO:188:LYS:NZ  | 2.34                     | 0.60              |
| 13:LI:184:MET:HA  | 13:LI:187:LYS:HE2 | 1.82                     | 0.60              |
| 36:Lg:41:ALA:O    | 36:Lg:52:ARG:NH1  | 2.28                     | 0.60              |
| 50:SF:19:LEU:HD11 | 50:SF:50:PRO:HD3  | 1.83                     | 0.60              |
| 58:SU:46:LYS:HE2  | 58:SU:100:GLN:HB3 | 1.82                     | 0.60              |
| 79:Sa:5:ARG:HH21  | 82:S2:1864:U:H3'  | 1.65                     | 0.60              |
| 82:S2:795:A:H2'   | 82:S2:796:G:C8    | 2.37                     | 0.60              |
| 2:L5:423:G:OP1    | 19:LP:62:ARG:NH1  | 2.35                     | 0.60              |
| 2:L5:512:U:O4     | 2:L5:647:G:O6     | 2.19                     | 0.60              |
| 2:L5:2335:C:H2'   | 2:L5:2336:G:H8    | 1.67                     | 0.60              |
| 2:L5:3660:C:OP1   | 5:LA:241:ARG:NH2  | 2.27                     | 0.60              |
| 2:L5:3661:G:N7    | 5:LA:152:SER:OG   | 2.34                     | 0.60              |
| 2:L5:3951:G:H1'   | 2:L5:4062:A:H61   | 1.67                     | 0.60              |
| 25:LV:13:LYS:NZ   | 25:LV:59:ASP:OD1  | 2.35                     | 0.60              |
| 56:SS:27:ALA:HB2  | 56:SS:52:LEU:HD12 | 1.82                     | 0.60              |
| 82:S2:112:U:H3    | 82:S2:350:C:H42   | 1.48                     | 0.60              |
| 2:L5:735:G:H5''   | 16:LM:70:GLN:HG3  | 1.84                     | 0.60              |
| 2:L5:2492:C:H2'   | 2:L5:2493:G:H8    | 1.65                     | 0.60              |
| 2:L5:2691:U:O2'   | 40:Lk:4:LYS:NZ    | 2.32                     | 0.60              |
| 2:L5:3819:G:H2'   | 2:L5:3820:G:H8    | 1.67                     | 0.60              |
| 9:LE:243:THR:HG22 | 9:LE:245:GLN:H    | 1.66                     | 0.60              |
| 26:LW:7:SER:HB2   | 26:LW:13:ILE:HD11 | 1.83                     | 0.60              |
| 40:Lk:8:ILE:HD11  | 40:Lk:56:LEU:HD13 | 1.83                     | 0.60              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 82:S2:300:U:H2'    | 82:S2:301:A:C8     | 2.37                     | 0.60              |
| 82:S2:640:A:H2'    | 82:S2:641:A:C8     | 2.37                     | 0.60              |
| 82:S2:1417:C:N4    | 82:S2:1422:G:H22   | 1.98                     | 0.60              |
| 5:LA:181:LYS:HB2   | 5:LA:184:ARG:HG3   | 1.84                     | 0.60              |
| 33:Ld:50:ARG:NH1   | 33:Ld:62:VAL:O     | 2.34                     | 0.60              |
| 76:SW:2:VAL:N      | 82:S2:1091:C:O2'   | 2.32                     | 0.60              |
| 82:S2:885:U:O2     | 82:S2:901:G:O6     | 2.19                     | 0.60              |
| 2:L5:20:U:H3'      | 2:L5:21:G:H8       | 1.66                     | 0.60              |
| 2:L5:1194:G:H2'    | 2:L5:1195:G:H8     | 1.67                     | 0.60              |
| 2:L5:2448:G:O2'    | 5:LA:21:LYS:NZ     | 2.29                     | 0.60              |
| 2:L5:2755:A:OP2    | 29:LZ:51:ARG:NH1   | 2.35                     | 0.60              |
| 2:L5:3633:C:H2'    | 2:L5:3634:G:C8     | 2.36                     | 0.60              |
| 2:L5:3945:A:H2'    | 2:L5:3946:G:C8     | 2.36                     | 0.60              |
| 2:L5:4717:A:OP2    | 6:LB:30:LYS:NZ     | 2.28                     | 0.60              |
| 18:LO:126:VAL:HG13 | 18:LO:127:VAL:HG13 | 1.84                     | 0.60              |
| 71:SJ:136:ARG:HA   | 71:SJ:141:VAL:HA   | 1.84                     | 0.60              |
| 82:S2:1398:G:H22   | 82:S2:1448:A:H2    | 1.49                     | 0.60              |
| 82:S2:1808:U:H2'   | 82:S2:1809:A:C8    | 2.36                     | 0.60              |
| 2:L5:1646:A:O2'    | 39:Lj:49:TRP:O     | 2.20                     | 0.60              |
| 2:L5:2407:G:OP2    | 2:L5:2407:G:N2     | 2.28                     | 0.60              |
| 2:L5:2486:G:O6     | 2:L5:2493:G:O6     | 2.19                     | 0.60              |
| 4:L8:8:U:H2'       | 4:L8:9:A:H8        | 1.67                     | 0.60              |
| 23:LT:18:PRO:HB2   | 23:LT:21:LYS:HD2   | 1.84                     | 0.60              |
| 49:SD:32:ASP:OD2   | 49:SD:65:ARG:NH1   | 2.35                     | 0.60              |
| 63:Sg:68:ASP:HB3   | 63:Sg:111:VAL:HG22 | 1.83                     | 0.60              |
| 2:L5:2553:A:N6     | 2:L5:2765:A:OP2    | 2.25                     | 0.59              |
| 2:L5:3633:C:OP1    | 85:L5:5290:SPM:N10 | 2.34                     | 0.59              |
| 10:LF:238:ASP:O    | 10:LF:241:ASN:ND2  | 2.34                     | 0.59              |
| 15:LL:80:GLU:OE2   | 15:LL:113:ASN:ND2  | 2.35                     | 0.59              |
| 45:Lp:42:CYS:HB3   | 45:Lp:60:CYS:SG    | 2.41                     | 0.59              |
| 65:SB:186:ASN:HA   | 65:SB:189:ILE:HD12 | 1.84                     | 0.59              |
| 72:SL:33:LEU:HD12  | 72:SL:34:PRO:HD2   | 1.83                     | 0.59              |
| 82:S2:671:A:H4'    | 82:S2:672:A:H5''   | 1.83                     | 0.59              |
| 82:S2:925:G:H1     | 82:S2:1017:U:H3    | 1.48                     | 0.59              |
| 82:S2:1585:U:O2'   | 82:S2:1587:G:OP2   | 2.20                     | 0.59              |
| 82:S2:1719:A:N6    | 82:S2:1814:G:O2'   | 2.35                     | 0.59              |
| 2:L5:1826:G:H4'    | 31:Lb:43:MET:HE3   | 1.83                     | 0.59              |
| 7:LC:237:ILE:HD12  | 7:LC:240:LEU:HB2   | 1.84                     | 0.59              |
| 7:LC:327:LYS:O     | 10:LF:47:ARG:NH1   | 2.32                     | 0.59              |
| 57:ST:38:LYS:NZ    | 82:S2:1628:C:OP1   | 2.33                     | 0.59              |
| 2:L5:748:G:O6      | 22:LS:98:ARG:NH2   | 2.35                     | 0.59              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 2:L5:1258:G:H2'   | 2:L5:1259:G:C8     | 2.37                     | 0.59              |
| 2:L5:1696:C:H2'   | 2:L5:1697:G:C4     | 2.37                     | 0.59              |
| 2:L5:2832:A:H2'   | 2:L5:2833:A:H8     | 1.66                     | 0.59              |
| 4:L8:39:G:O2'     | 4:L8:104:A:N1      | 2.30                     | 0.59              |
| 4:L8:130:C:H2'    | 4:L8:131:G:H8      | 1.67                     | 0.59              |
| 46:Lr:16:PHE:HB3  | 46:Lr:27:THR:H     | 1.68                     | 0.59              |
| 63:Sg:129:ILE:HB  | 63:Sg:142:VAL:HB   | 1.84                     | 0.59              |
| 71:SJ:124:HIS:HD2 | 81:Se:31:ARG:HE    | 1.50                     | 0.59              |
| 2:L5:2484:A:H62   | 2:L5:2494:U:H3     | 1.49                     | 0.59              |
| 2:L5:4076:G:OP1   | 11:LG:73:ARG:NE    | 2.34                     | 0.59              |
| 9:LE:282:TYR:HB2  | 9:LE:285:LYS:HD2   | 1.84                     | 0.59              |
| 58:SU:98:VAL:HB   | 58:SU:99:LYS:HZ2   | 1.68                     | 0.59              |
| 70:SI:116:HIS:O   | 70:SI:152:ARG:NH2  | 2.29                     | 0.59              |
| 82:S2:528:A:H2'   | 82:S2:529:A:C8     | 2.38                     | 0.59              |
| 82:S2:1777:G:H2'  | 82:S2:1778:C:H6    | 1.67                     | 0.59              |
| 2:L5:387:G:HO2'   | 2:L5:412:G:H1      | 1.48                     | 0.59              |
| 2:L5:1866:U:OP1   | 13:LI:4:ARG:NH1    | 2.36                     | 0.59              |
| 2:L5:1971:C:O2    | 47:Ls:41:GLN:NE2   | 2.35                     | 0.59              |
| 2:L5:4667:C:OP1   | 6:LB:224:LYS:NZ    | 2.28                     | 0.59              |
| 4:L8:52:A:H5'     | 41:Ll:21:ARG:HD3   | 1.82                     | 0.59              |
| 8:LD:193:GLU:OE2  | 8:LD:197:LYS:NZ    | 2.33                     | 0.59              |
| 14:LJ:95:ARG:HD3  | 14:LJ:175:LEU:HB2  | 1.83                     | 0.59              |
| 26:LW:101:ARG:NH2 | 68:SG:145:PHE:O    | 2.33                     | 0.59              |
| 56:SS:109:GLU:HA  | 56:SS:112:GLU:HG2  | 1.85                     | 0.59              |
| 62:Sf:144:CYS:HB2 | 62:Sf:146:LEU:HD23 | 1.85                     | 0.59              |
| 2:L5:1683:PSU:H2' | 2:L5:1684:A:H8     | 1.68                     | 0.59              |
| 2:L5:2333:G:OP1   | 4:L8:20:A:O2'      | 2.18                     | 0.59              |
| 2:L5:4466:C:H2'   | 2:L5:4467:A:H8     | 1.68                     | 0.59              |
| 2:L5:4990:C:H5''  | 2:L5:4991:U:H5''   | 1.84                     | 0.59              |
| 4:L8:3:A:O2'      | 19:LP:61:ARG:NH1   | 2.33                     | 0.59              |
| 4:L8:9:A:H2'      | 4:L8:10:G:H8       | 1.66                     | 0.59              |
| 17:LN:146:PRO:HB2 | 37:Lh:104:THR:HG23 | 1.85                     | 0.59              |
| 54:SQ:32:ILE:HG21 | 54:SQ:39:LEU:HD22  | 1.85                     | 0.59              |
| 56:SS:8:LYS:HZ1   | 56:SS:60:THR:HA    | 1.66                     | 0.59              |
| 58:SU:64:THR:HA   | 58:SU:79:ARG:HA    | 1.84                     | 0.59              |
| 67:SE:56:LEU:N    | 67:SE:60:GLU:OE1   | 2.32                     | 0.59              |
| 82:S2:527:C:H2'   | 82:S2:528:A:C8     | 2.37                     | 0.59              |
| 82:S2:1231:C:O2'  | 82:S2:1253:A:N6    | 2.36                     | 0.59              |
| 2:L5:5022:U:N3    | 2:L5:5025:C:N3     | 2.44                     | 0.59              |
| 21:LR:182:GLU:HG3 | 21:LR:185:ILE:HD13 | 1.84                     | 0.59              |
| 54:SQ:4:LYS:HE3   | 82:S2:1423:C:H41   | 1.67                     | 0.59              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 64:SA:77:ILE:HG13  | 64:SA:99:ILE:HB   | 1.83                     | 0.59              |
| 64:SA:184:ARG:HE   | 64:SA:191:ARG:HA  | 1.67                     | 0.59              |
| 82:S2:1031:A2M:H2' | 82:S2:1032:C:C6   | 2.38                     | 0.59              |
| 2:L5:1961:G:N2     | 2:L5:2024:G:O2'   | 2.29                     | 0.59              |
| 2:L5:5006:U:H4'    | 2:L5:5007:A:H5'   | 1.85                     | 0.59              |
| 2:L5:5027:C:H41    | 70:SI:170:LYS:HD3 | 1.68                     | 0.59              |
| 4:L8:40:A:OP2      | 4:L8:104:A:N6     | 2.35                     | 0.59              |
| 26:LW:123:LYS:HD2  | 82:S2:320:G:H5''  | 1.84                     | 0.59              |
| 49:SD:8:LYS:HG2    | 58:SU:61:LEU:HD11 | 1.85                     | 0.59              |
| 82:S2:482:G:N1     | 82:S2:485:A:OP2   | 2.35                     | 0.59              |
| 82:S2:600:G:H2'    | 82:S2:601:OMG:H8  | 1.67                     | 0.59              |
| 82:S2:752:G:OP2    | 82:S2:752:G:N2    | 2.33                     | 0.59              |
| 2:L5:374:G:OP2     | 39:Lj:56:ARG:NH1  | 2.28                     | 0.59              |
| 4:L8:5:U:H2'       | 4:L8:6:C:H6       | 1.68                     | 0.59              |
| 11:LG:148:GLU:OE2  | 38:Li:36:HIS:NE2  | 2.31                     | 0.59              |
| 12:LH:95:VAL:HG12  | 42:Lm:82:LEU:HD13 | 1.84                     | 0.59              |
| 54:SQ:140:ARG:HB2  | 82:S2:1644:C:H4'  | 1.84                     | 0.59              |
| 68:SG:74:ARG:NH1   | 68:SG:96:SER:OG   | 2.36                     | 0.59              |
| 72:SL:35:ARG:NH2   | 72:SL:55:TYR:O    | 2.35                     | 0.59              |
| 82:S2:543:C:H3'    | 82:S2:544:G:H8    | 1.67                     | 0.59              |
| 2:L5:2020:U:H2'    | 2:L5:2021:G:H8    | 1.67                     | 0.59              |
| 2:L5:4239:A:H2'    | 2:L5:4240:G:C8    | 2.38                     | 0.59              |
| 18:LO:3:GLU:OE1    | 18:LO:5:GLN:NE2   | 2.35                     | 0.59              |
| 58:SU:40:ILE:O     | 58:SU:44:LYS:HG2  | 2.03                     | 0.59              |
| 63:Sg:87:LEU:HD21  | 63:Sg:122:SER:HB3 | 1.84                     | 0.59              |
| 67:SE:45:ILE:HG13  | 67:SE:61:VAL:HG11 | 1.85                     | 0.59              |
| 2:L5:3822:PSU:OP1  | 85:L5:5290:SPM:N5 | 2.36                     | 0.58              |
| 2:L5:4911:A:OP1    | 6:LB:97:ARG:NH2   | 2.36                     | 0.58              |
| 2:L5:4993:G:H22    | 2:L5:5058:A:H2    | 1.51                     | 0.58              |
| 4:L8:141:C:H2'     | 4:L8:142:U:C6     | 2.37                     | 0.58              |
| 8:LD:107:ARG:NH1   | 8:LD:169:GLY:O    | 2.33                     | 0.58              |
| 43:Ln:17:ARG:NH1   | 82:S2:1173:A:OP1  | 2.36                     | 0.58              |
| 66:SC:200:ARG:O    | 71:SJ:54:ARG:NH2  | 2.34                     | 0.58              |
| 69:SH:20:GLU:HG2   | 69:SH:48:ALA:HB3  | 1.84                     | 0.58              |
| 82:S2:1337:4AC:H2' | 82:S2:1338:G:C8   | 2.38                     | 0.58              |
| 82:S2:1402:A:N6    | 82:S2:1441:U:O2'  | 2.36                     | 0.58              |
| 2:L5:293:G:OP1     | 85:L5:5263:SPM:N1 | 2.35                     | 0.58              |
| 63:Sg:283:PRO:O    | 63:Sg:285:GLN:NE2 | 2.37                     | 0.58              |
| 80:Sb:49:HIS:ND1   | 80:Sb:69:GLY:O    | 2.36                     | 0.58              |
| 80:Sb:62:VAL:HG23  | 80:Sb:74:THR:HG21 | 1.86                     | 0.58              |
| 82:S2:1797:U:H2'   | 82:S2:1798:C:C6   | 2.38                     | 0.58              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:267:G:H2'     | 2:L5:268:G:C8      | 2.37                     | 0.58              |
| 2:L5:441:G:H2'     | 2:L5:442:G:H8      | 1.67                     | 0.58              |
| 2:L5:697:G:H2'     | 2:L5:698:G:H8      | 1.68                     | 0.58              |
| 2:L5:1532:G:OP2    | 39:Lj:31:LYS:NZ    | 2.36                     | 0.58              |
| 2:L5:1645:C:H2'    | 2:L5:1646:A:H8     | 1.68                     | 0.58              |
| 2:L5:2554:U:C2     | 2:L5:2764:A:N7     | 2.70                     | 0.58              |
| 2:L5:3893:C:H2'    | 2:L5:3894:A:H8     | 1.67                     | 0.58              |
| 3:L7:112:U:H2'     | 3:L7:113:G:H8      | 1.67                     | 0.58              |
| 6:LB:292:LEU:HB2   | 6:LB:298:LEU:HD12  | 1.84                     | 0.58              |
| 26:LW:80:ARG:NH2   | 68:SG:8:PRO:O      | 2.36                     | 0.58              |
| 66:SC:64:THR:HG22  | 66:SC:66:LEU:H     | 1.69                     | 0.58              |
| 66:SC:78:LEU:HD12  | 66:SC:81:ILE:HD12  | 1.84                     | 0.58              |
| 67:SE:134:LYS:N    | 82:S2:298:G:OP1    | 2.34                     | 0.58              |
| 73:SN:70:LYS:NZ    | 82:S2:1020:A:OP2   | 2.36                     | 0.58              |
| 82:S2:28:U:H2'     | 82:S2:29:G:H8      | 1.68                     | 0.58              |
| 82:S2:1289:U:H2'   | 82:S2:1290:G:C8    | 2.38                     | 0.58              |
| 2:L5:208:A:N3      | 2:L5:232:G:O2'     | 2.35                     | 0.58              |
| 2:L5:2299:G:O6     | 7:LC:188:ARG:NH2   | 2.35                     | 0.58              |
| 2:L5:2739:C:N4     | 5:LA:177:LYS:O     | 2.31                     | 0.58              |
| 30:La:93:ASN:HD21  | 30:La:97:ALA:HB3   | 1.68                     | 0.58              |
| 49:SD:138:VAL:HG13 | 49:SD:182:LEU:HD21 | 1.86                     | 0.58              |
| 54:SQ:67:ASP:OD2   | 54:SQ:69:ARG:NH1   | 2.36                     | 0.58              |
| 58:SU:20:ILE:HA    | 58:SU:116:ILE:HA   | 1.85                     | 0.58              |
| 66:SC:113:GLN:OE1  | 82:S2:10:G:O2'     | 2.20                     | 0.58              |
| 2:L5:2631:U:O4     | 24:LU:51:GLY:N     | 2.36                     | 0.58              |
| 2:L5:4775:C:H41    | 2:L5:4859:C:N4     | 2.00                     | 0.58              |
| 23:LT:119:ALA:HA   | 23:LT:122:LYS:HE3  | 1.85                     | 0.58              |
| 63:Sg:82:SER:OG    | 63:Sg:83:TRP:N     | 2.37                     | 0.58              |
| 68:SG:4:ASN:ND2    | 82:S2:154:U:O2     | 2.36                     | 0.58              |
| 68:SG:183:ARG:NH2  | 82:S2:316:G:OP2    | 2.35                     | 0.58              |
| 82:S2:432:G:H2'    | 82:S2:433:A:C8     | 2.39                     | 0.58              |
| 82:S2:1755:C:H2'   | 82:S2:1756:C:C6    | 2.38                     | 0.58              |
| 2:L5:1509:C:H2'    | 2:L5:1510:G:C8     | 2.38                     | 0.58              |
| 2:L5:1514:U:H2'    | 2:L5:1515:A:H8     | 1.69                     | 0.58              |
| 2:L5:1570:G:O6     | 45:Lp:2:ALA:N      | 2.37                     | 0.58              |
| 2:L5:1703:C:O2'    | 2:L5:1704:C:O4'    | 2.21                     | 0.58              |
| 2:L5:2693:G:OP2    | 2:L5:2694:G:O2'    | 2.21                     | 0.58              |
| 2:L5:2758:G:O2'    | 2:L5:2765:A:N3     | 2.34                     | 0.58              |
| 2:L5:4163:U:OP2    | 11:LG:53:ARG:NH2   | 2.37                     | 0.58              |
| 2:L5:5038:A:OP1    | 26:LW:61:LYS:NZ    | 2.31                     | 0.58              |
| 33:Ld:22:THR:HG23  | 33:Ld:122:VAL:HG13 | 1.85                     | 0.58              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 58:SU:18:HIS:ND1   | 58:SU:96:GLU:HG2   | 2.19                     | 0.58              |
| 62:Sf:147:THR:HG1  | 82:S2:1292:C:HO2'  | 1.52                     | 0.58              |
| 64:SA:145:ILE:HG23 | 64:SA:159:ILE:HB   | 1.84                     | 0.58              |
| 67:SE:27:PHE:O     | 82:S2:495:U:O2'    | 2.21                     | 0.58              |
| 82:S2:639:C:H2'    | 82:S2:640:A:C8     | 2.38                     | 0.58              |
| 2:L5:966:A:OP2     | 2:L5:2092:G:N2     | 2.37                     | 0.58              |
| 48:Lt:82:ILE:HG12  | 48:Lt:137:GLN:HG2  | 1.84                     | 0.58              |
| 50:SF:120:GLY:HA3  | 50:SF:146:ARG:HE   | 1.68                     | 0.58              |
| 67:SE:80:ILE:HG23  | 67:SE:81:THR:HG23  | 1.86                     | 0.58              |
| 77:SX:41:PHE:HB3   | 77:SX:44:ALA:HB3   | 1.85                     | 0.58              |
| 2:L5:713:C:O2      | 9:LE:130:LYS:NZ    | 2.36                     | 0.58              |
| 2:L5:1326:A2M:H2'  | 2:L5:1327:C:C6     | 2.39                     | 0.58              |
| 2:L5:1743:A:N1     | 2:L5:1789:C:O2'    | 2.31                     | 0.58              |
| 2:L5:2386:U:H2'    | 2:L5:2387:G:H8     | 1.69                     | 0.58              |
| 2:L5:2633:U:OP1    | 21:LR:64:ARG:NH1   | 2.37                     | 0.58              |
| 2:L5:2903:G:H1'    | 2:L5:2904:U:H5     | 1.69                     | 0.58              |
| 11:LG:165:GLU:OE2  | 17:LN:26:ARG:NH1   | 2.32                     | 0.58              |
| 64:SA:74:VAL:HG23  | 64:SA:121:LEU:HB3  | 1.86                     | 0.58              |
| 74:SO:147:ARG:HH22 | 82:S2:1854:U:P     | 2.27                     | 0.58              |
| 2:L5:1502:G:H1     | 20:LQ:89:ASP:HA    | 1.68                     | 0.58              |
| 2:L5:1563:A:H2'    | 2:L5:1564:A:C8     | 2.39                     | 0.58              |
| 2:L5:1795:A:N3     | 3:L7:79:U:O2'      | 2.36                     | 0.58              |
| 2:L5:1857:C:H2'    | 2:L5:1858:A:C8     | 2.38                     | 0.58              |
| 2:L5:2411:C:H2'    | 2:L5:2412:A:H8     | 1.68                     | 0.58              |
| 2:L5:2884:G:H2'    | 2:L5:2885:A:C8     | 2.38                     | 0.58              |
| 63:Sg:239:LEU:HD11 | 63:Sg:248:LEU:HD21 | 1.85                     | 0.58              |
| 82:S2:1146:C:O2'   | 82:S2:1150:A:N1    | 2.35                     | 0.58              |
| 2:L5:212:A:H2'     | 2:L5:213:G:H8      | 1.68                     | 0.58              |
| 2:L5:980:U:OP2     | 9:LE:46:ARG:NH2    | 2.36                     | 0.58              |
| 2:L5:4718:G:O2'    | 2:L5:4719:G:N2     | 2.37                     | 0.58              |
| 4:L8:28:C:H2'      | 4:L8:29:G:H8       | 1.68                     | 0.58              |
| 5:LA:116:LEU:HB3   | 5:LA:126:LEU:HB2   | 1.84                     | 0.58              |
| 6:LB:394:LYS:HA    | 6:LB:397:ILE:HG12  | 1.85                     | 0.58              |
| 12:LH:48:LEU:HB2   | 12:LH:54:ARG:HB2   | 1.86                     | 0.58              |
| 40:Lk:26:LYS:HB2   | 40:Lk:69:LEU:HD12  | 1.85                     | 0.58              |
| 82:S2:808:A:H2     | 82:S2:855:G:H22    | 1.49                     | 0.58              |
| 2:L5:433:A:N3      | 2:L5:3867:A2M:H4'  | 2.18                     | 0.57              |
| 2:L5:4524:G:OP1    | 2:L5:4559:A:N6     | 2.33                     | 0.57              |
| 3:L7:28:C:H1'      | 3:L7:54:A:H61      | 1.68                     | 0.57              |
| 15:LL:206:ASP:HA   | 15:LL:209:LYS:HD3  | 1.84                     | 0.57              |
| 69:SH:160:LYS:HD3  | 69:SH:189:PHE:HB3  | 1.86                     | 0.57              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 71:SJ:136:ARG:NH1 | 71:SJ:158:ASP:OD2  | 2.37                     | 0.57              |
| 76:SW:16:ASN:OD1  | 82:S2:1152:U:O2'   | 2.21                     | 0.57              |
| 77:SX:51:VAL:HA   | 77:SX:72:VAL:HG22  | 1.85                     | 0.57              |
| 82:S2:1099:G:H22  | 82:S2:1133:A:H2    | 1.52                     | 0.57              |
| 1:Pt:35:A:OP2     | 54:SQ:146:ARG:NH2  | 2.36                     | 0.57              |
| 2:L5:1333:A:H2'   | 2:L5:1334:A:H8     | 1.69                     | 0.57              |
| 2:L5:2288:G:O2'   | 2:L5:2290:C:O5'    | 2.18                     | 0.57              |
| 2:L5:2716:C:O3'   | 24:LU:107:LYS:NZ   | 2.37                     | 0.57              |
| 2:L5:2724:G:O2'   | 2:L5:2726:G:OP2    | 2.22                     | 0.57              |
| 2:L5:3664:G:H2'   | 2:L5:3665:G:H8     | 1.69                     | 0.57              |
| 2:L5:3917:A:H2'   | 2:L5:3918:G:H8     | 1.69                     | 0.57              |
| 2:L5:4594:U:H2'   | 2:L5:4595:G:H8     | 1.67                     | 0.57              |
| 66:SC:94:ILE:O    | 66:SC:98:LEU:N     | 2.24                     | 0.57              |
| 82:S2:907:G:H2'   | 82:S2:908:A:C8     | 2.39                     | 0.57              |
| 2:L5:5055:G:N2    | 33:Ld:118:GLN:OE1  | 2.31                     | 0.57              |
| 4:L8:39:G:OP1     | 37:Lh:86:LYS:NZ    | 2.37                     | 0.57              |
| 58:SU:52:GLY:HA3  | 82:S2:1401:A:H4'   | 1.86                     | 0.57              |
| 59:SZ:85:ARG:NH2  | 82:S2:1597:C:OP2   | 2.30                     | 0.57              |
| 82:S2:996:A:H2'   | 82:S2:997:A:C8     | 2.39                     | 0.57              |
| 82:S2:1203:G:H2'  | 82:S2:1204:A:C8    | 2.39                     | 0.57              |
| 2:L5:13:U:OP2     | 86:L8:202:SPD:N10  | 2.36                     | 0.57              |
| 2:L5:1973:G:H21   | 48:Lt:121:LEU:HD23 | 1.70                     | 0.57              |
| 2:L5:4520:G:N2    | 6:LB:253:CYS:SG    | 2.78                     | 0.57              |
| 68:SG:7:PHE:HD1   | 68:SG:113:ILE:HB   | 1.69                     | 0.57              |
| 70:SI:10:LYS:NZ   | 82:S2:370:G:O2'    | 2.37                     | 0.57              |
| 72:SL:36:TYR:OH   | 82:S2:294:U:OP1    | 2.17                     | 0.57              |
| 82:S2:17:C:H2'    | 82:S2:18:C:H6      | 1.69                     | 0.57              |
| 2:L5:966:A:H5''   | 2:L5:2092:G:H22    | 1.70                     | 0.57              |
| 2:L5:1569:U:H2'   | 2:L5:1570:G:H8     | 1.69                     | 0.57              |
| 2:L5:2521:G:H2'   | 2:L5:2522:G:H8     | 1.70                     | 0.57              |
| 2:L5:3886:G:OP1   | 18:LO:85:ARG:NH2   | 2.38                     | 0.57              |
| 29:LZ:21:ARG:NH2  | 29:LZ:47:ASP:OD1   | 2.37                     | 0.57              |
| 56:SS:121:ARG:HG3 | 56:SS:131:VAL:HB   | 1.87                     | 0.57              |
| 64:SA:118:GLU:HG3 | 66:SC:65:LYS:HE2   | 1.85                     | 0.57              |
| 69:SH:49:LYS:NZ   | 69:SH:50:GLU:O     | 2.37                     | 0.57              |
| 82:S2:23:G:H1     | 82:S2:651:PSU:HN3  | 1.50                     | 0.57              |
| 82:S2:145:G:H2'   | 82:S2:146:G:C8     | 2.40                     | 0.57              |
| 2:L5:3683:C:OP1   | 5:LA:132:ASN:ND2   | 2.29                     | 0.57              |
| 63:Sg:205:SER:HA  | 63:Sg:221:LEU:HB2  | 1.84                     | 0.57              |
| 67:SE:31:PRO:HA   | 67:SE:81:THR:HB    | 1.87                     | 0.57              |
| 71:SJ:41:ARG:N    | 82:S2:642:U:OP1    | 2.37                     | 0.57              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 82:S2:35:C:H2'     | 82:S2:36:U:C6     | 2.40                     | 0.57              |
| 82:S2:430:C:H2'    | 82:S2:431:G:H8    | 1.69                     | 0.57              |
| 82:S2:525:A:H2'    | 82:S2:526:A:C8    | 2.39                     | 0.57              |
| 82:S2:1348:G:H2'   | 82:S2:1349:G:H8   | 1.70                     | 0.57              |
| 82:S2:1441:U:O2    | 82:S2:1443:C:N4   | 2.31                     | 0.57              |
| 82:S2:1513:C:H2'   | 82:S2:1514:G:H8   | 1.68                     | 0.57              |
| 2:L5:268:G:H2'     | 2:L5:269:G:H8     | 1.69                     | 0.57              |
| 2:L5:749:G:N2      | 2:L5:912:G:O2'    | 2.37                     | 0.57              |
| 2:L5:1800:U:H2'    | 2:L5:1801:A:H8    | 1.69                     | 0.57              |
| 2:L5:1835:G:OP1    | 23:LT:129:LYS:NZ  | 2.31                     | 0.57              |
| 2:L5:1995:G:O2'    | 48:Lt:122:ALA:O   | 2.14                     | 0.57              |
| 2:L5:3688:U:H2'    | 2:L5:3689:G:H8    | 1.70                     | 0.57              |
| 11:LG:143:VAL:HG22 | 11:LG:203:ALA:HB2 | 1.86                     | 0.57              |
| 12:LH:51:LYS:HE2   | 12:LH:54:ARG:HH12 | 1.68                     | 0.57              |
| 50:SF:55:ARG:NH2   | 82:S2:1648:G:OP2  | 2.38                     | 0.57              |
| 2:L5:161:G:H2'     | 2:L5:162:A:H8     | 1.69                     | 0.57              |
| 2:L5:513:U:H3'     | 2:L5:514:U:H4'    | 1.85                     | 0.57              |
| 2:L5:2566:G:H2'    | 2:L5:2567:G:H8    | 1.69                     | 0.57              |
| 2:L5:3672:G:OP2    | 2:L5:3672:G:N2    | 2.37                     | 0.57              |
| 10:LF:227:PHE:N    | 10:LF:233:ALA:O   | 2.36                     | 0.57              |
| 19:LP:32:THR:HG23  | 19:LP:58:VAL:HG11 | 1.86                     | 0.57              |
| 44:Lo:55:ILE:HG21  | 44:Lo:57:ARG:HH21 | 1.67                     | 0.57              |
| 51:SK:50:GLN:HE22  | 82:S2:1276:A:H1'  | 1.70                     | 0.57              |
| 82:S2:468:A2M:H2'  | 82:S2:469:A:C8    | 2.40                     | 0.57              |
| 2:L5:1281:G:C6     | 9:LE:128:HIS:HB2  | 2.39                     | 0.57              |
| 2:L5:1785:C:OP1    | 13:LI:133:GLN:NE2 | 2.38                     | 0.57              |
| 2:L5:2034:G:O2'    | 22:LS:118:ARG:NH1 | 2.37                     | 0.57              |
| 2:L5:4936:G:OP2    | 9:LE:183:ARG:NH1  | 2.31                     | 0.57              |
| 57:ST:73:GLY:O     | 57:ST:94:ARG:NH2  | 2.36                     | 0.57              |
| 82:S2:751:G:H1'    | 82:S2:793:G:H21   | 1.69                     | 0.57              |
| 2:L5:1739:G:N3     | 2:L5:1742:A:N6    | 2.53                     | 0.57              |
| 2:L5:4174:U:H2'    | 2:L5:4175:G:C8    | 2.39                     | 0.57              |
| 35:Lf:29:LYS:HG3   | 35:Lf:83:MET:HE1  | 1.86                     | 0.57              |
| 63:Sg:120:ILE:HB   | 63:Sg:132:TRP:HB2 | 1.86                     | 0.57              |
| 69:SH:140:VAL:HG12 | 73:SN:19:ARG:HD3  | 1.87                     | 0.57              |
| 82:S2:511:U:H2'    | 82:S2:512:A:H8    | 1.70                     | 0.57              |
| 82:S2:1528:G:H2'   | 82:S2:1529:C:C6   | 2.40                     | 0.57              |
| 82:S2:1533:A:N6    | 82:S2:1602:U:H3   | 2.03                     | 0.57              |
| 2:L5:1655:C:OP2    | 30:La:26:ARG:NH1  | 2.38                     | 0.56              |
| 2:L5:2044:U:H3     | 2:L5:3871:A:H5''  | 1.68                     | 0.56              |
| 2:L5:2090:U:H4'    | 2:L5:2091:C:H3'   | 1.87                     | 0.56              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:2716:C:H2'    | 2:L5:2717:G:C8     | 2.40                     | 0.56              |
| 2:L5:4601:U:OP2    | 2:L5:4609:G:N1     | 2.35                     | 0.56              |
| 2:L5:4716:C:OP1    | 6:LB:276:HIS:ND1   | 2.35                     | 0.56              |
| 52:SM:91:LEU:HD12  | 52:SM:106:CYS:HB2  | 1.87                     | 0.56              |
| 57:ST:12:GLN:NE2   | 82:S2:1541:G:N3    | 2.53                     | 0.56              |
| 58:SU:85:HIS:ND1   | 82:S2:1447:G:OP1   | 2.38                     | 0.56              |
| 63:Sg:252:THR:HG21 | 63:Sg:257:LYS:HD2  | 1.86                     | 0.56              |
| 64:SA:180:ARG:HD3  | 64:SA:195:TRP:HB2  | 1.87                     | 0.56              |
| 66:SC:267:GLN:HA   | 66:SC:270:THR:HB   | 1.86                     | 0.56              |
| 77:SX:52:LEU:HD11  | 77:SX:73:GLN:HB2   | 1.87                     | 0.56              |
| 81:Se:31:ARG:NH2   | 82:S2:525:A:O3'    | 2.38                     | 0.56              |
| 82:S2:223:C:H2'    | 82:S2:224:A:C8     | 2.41                     | 0.56              |
| 82:S2:1659:U:O2    | 82:S2:1664:A:N7    | 2.38                     | 0.56              |
| 1:Pt:51:C:H2'      | 1:Pt:52:G:H8       | 1.70                     | 0.56              |
| 2:L5:490:C:H1'     | 2:L5:666:G:H1      | 1.70                     | 0.56              |
| 2:L5:1285:U:H1'    | 9:LE:130:LYS:HB3   | 1.87                     | 0.56              |
| 2:L5:1845:U:H2'    | 2:L5:1846:G:H8     | 1.70                     | 0.56              |
| 2:L5:2749:C:H2'    | 2:L5:2750:G:C8     | 2.40                     | 0.56              |
| 2:L5:2869:U:O2'    | 2:L5:2881:A:N7     | 2.32                     | 0.56              |
| 2:L5:2870:A:OP2    | 2:L5:2879:A:N6     | 2.36                     | 0.56              |
| 2:L5:4088:C:OP1    | 5:LA:37:ARG:NH1    | 2.38                     | 0.56              |
| 3:L7:85:G:H2'      | 3:L7:86:G:H8       | 1.70                     | 0.56              |
| 16:LM:11:ARG:NH1   | 16:LM:58:THR:O     | 2.38                     | 0.56              |
| 21:LR:176:ARG:NH2  | 82:S2:910:G:OP1    | 2.31                     | 0.56              |
| 33:Ld:88:LEU:HG    | 33:Ld:106:VAL:HG22 | 1.87                     | 0.56              |
| 47:Ls:26:LYS:HG3   | 47:Ls:194:ASP:HA   | 1.86                     | 0.56              |
| 47:Ls:29:ILE:HG22  | 47:Ls:88:PHE:HD1   | 1.71                     | 0.56              |
| 63:Sg:40:ILE:HB    | 63:Sg:59:LEU:HB2   | 1.87                     | 0.56              |
| 68:SG:20:ASP:HB3   | 68:SG:23:LYS:HB2   | 1.87                     | 0.56              |
| 69:SH:58:LYS:HB2   | 69:SH:90:LYS:HG2   | 1.87                     | 0.56              |
| 81:Se:8:ARG:NH1    | 82:S2:615:C:O3'    | 2.37                     | 0.56              |
| 82:S2:1287:A:N6    | 82:S2:1288:OMU:O2  | 2.38                     | 0.56              |
| 2:L5:2577:C:OP1    | 29:LZ:111:ARG:NH2  | 2.39                     | 0.56              |
| 2:L5:2615:C:O3'    | 21:LR:60:ARG:NH2   | 2.39                     | 0.56              |
| 2:L5:4459:U:H2'    | 2:L5:4460:U:C6     | 2.40                     | 0.56              |
| 2:L5:4460:U:H3     | 2:L5:4516:G:H1     | 1.51                     | 0.56              |
| 2:L5:5024:C:H41    | 2:L5:5028:G:H21    | 1.51                     | 0.56              |
| 10:LF:127:LYS:HB2  | 23:LT:133:ALA:HB3  | 1.87                     | 0.56              |
| 64:SA:80:ARG:HH21  | 64:SA:126:ASP:HB2  | 1.69                     | 0.56              |
| 70:SI:106:SER:HB3  | 70:SI:171:LEU:HG   | 1.86                     | 0.56              |
| 74:SO:141:ARG:HH22 | 74:SO:146:ARG:HB3  | 1.69                     | 0.56              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 82:S2:610:G:H2'   | 82:S2:611:G:C8     | 2.40                     | 0.56              |
| 2:L5:10:A:H2'     | 2:L5:11:G:C8       | 2.40                     | 0.56              |
| 2:L5:97:G:OP1     | 15:LL:16:LYS:NZ    | 2.31                     | 0.56              |
| 2:L5:347:A:H2'    | 2:L5:348:G:C8      | 2.40                     | 0.56              |
| 2:L5:468:U:O2     | 2:L5:686:A:N6      | 2.38                     | 0.56              |
| 2:L5:2073:C:H5''  | 10:LF:212:LYS:HB3  | 1.86                     | 0.56              |
| 48:Lt:50:THR:OG1  | 48:Lt:72:GLU:OE1   | 2.20                     | 0.56              |
| 53:SP:76:VAL:O    | 53:SP:95:GLY:N     | 2.33                     | 0.56              |
| 77:SX:124:LYS:NZ  | 82:S2:29:G:OP1     | 2.32                     | 0.56              |
| 82:S2:474:G:N2    | 82:S2:507:G:O2'    | 2.33                     | 0.56              |
| 82:S2:609:U:H2'   | 82:S2:610:G:H8     | 1.71                     | 0.56              |
| 2:L5:1332:C:H2'   | 2:L5:1333:A:H8     | 1.71                     | 0.56              |
| 2:L5:2274:C:H2'   | 2:L5:2275:G:C8     | 2.41                     | 0.56              |
| 2:L5:4212:A:N1    | 23:LT:3:ASN:ND2    | 2.50                     | 0.56              |
| 6:LB:50:LYS:HB2   | 6:LB:345:LEU:HD11  | 1.86                     | 0.56              |
| 6:LB:57:VAL:HB    | 6:LB:367:PHE:HB3   | 1.87                     | 0.56              |
| 26:LW:7:SER:OG    | 26:LW:8:PHE:N      | 2.38                     | 0.56              |
| 2:L5:679:C:H2'    | 2:L5:680:G:C8      | 2.36                     | 0.56              |
| 2:L5:1649:U:O3'   | 86:L5:5289:SPD:N1  | 2.38                     | 0.56              |
| 2:L5:1670:G:OP1   | 31:Lb:12:GLN:NE2   | 2.33                     | 0.56              |
| 2:L5:2318:G:N2    | 2:L5:2321:G:OP2    | 2.26                     | 0.56              |
| 2:L5:2348:G:OP1   | 2:L5:2351:OMC:N4   | 2.30                     | 0.56              |
| 2:L5:3707:U:H2'   | 2:L5:3708:C:C6     | 2.41                     | 0.56              |
| 6:LB:19:ARG:O     | 6:LB:234:ARG:NH2   | 2.38                     | 0.56              |
| 7:LC:86:ARG:NH1   | 7:LC:89:GLN:OE1    | 2.36                     | 0.56              |
| 39:Lj:2:THR:HB    | 39:Lj:6:SER:HB2    | 1.87                     | 0.56              |
| 65:SB:182:LYS:HD3 | 65:SB:231:LEU:HD23 | 1.87                     | 0.56              |
| 82:S2:490:C:O2'   | 82:S2:574:A:N1     | 2.36                     | 0.56              |
| 82:S2:1144:A:H2'  | 82:S2:1145:A:C8    | 2.40                     | 0.56              |
| 1:Pt:23:C:H2'     | 1:Pt:24:A:H8       | 1.71                     | 0.56              |
| 2:L5:1207:C:H2'   | 2:L5:1208:G:H8     | 1.71                     | 0.56              |
| 2:L5:1398:A:N1    | 2:L5:1419:G:O2'    | 2.38                     | 0.56              |
| 2:L5:2297:G:H4'   | 7:LC:242:PRO:HB2   | 1.87                     | 0.56              |
| 2:L5:2520:C:H1'   | 2:L5:2640:G:H21    | 1.71                     | 0.56              |
| 2:L5:3855:C:H2'   | 2:L5:3856:A:H8     | 1.70                     | 0.56              |
| 2:L5:4435:U:H2'   | 2:L5:4436:U:C2     | 2.41                     | 0.56              |
| 31:Lb:5:LYS:HE2   | 31:Lb:8:THR:HB     | 1.88                     | 0.56              |
| 57:ST:40:ALA:HB3  | 57:ST:43:LYS:HG2   | 1.88                     | 0.56              |
| 82:S2:1692:U:H2'  | 82:S2:1693:G:H8    | 1.70                     | 0.56              |
| 1:Pt:23:C:H2'     | 1:Pt:24:A:C8       | 2.41                     | 0.56              |
| 2:L5:1569:U:H2'   | 2:L5:1570:G:C8     | 2.40                     | 0.56              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:L5:4274:A:H2'   | 2:L5:4275:G:H8    | 1.70                     | 0.56              |
| 2:L5:4586:G:O6    | 2:L5:4717:A:N6    | 2.39                     | 0.56              |
| 4:L8:60:G:O6      | 4:L8:96:C:O2'     | 2.22                     | 0.56              |
| 34:Le:108:ARG:HD2 | 34:Le:128:ARG:HB2 | 1.87                     | 0.56              |
| 47:Ls:91:THR:OG1  | 47:Ls:93:GLU:OE1  | 2.23                     | 0.56              |
| 78:SY:34:THR:O    | 82:S2:570:C:O2'   | 2.23                     | 0.56              |
| 82:S2:391:C:H2'   | 82:S2:392:A:H8    | 1.71                     | 0.56              |
| 82:S2:1277:C:H2'  | 82:S2:1278:A:C8   | 2.39                     | 0.56              |
| 82:S2:1589:A:N3   | 82:S2:1653:U:O2'  | 2.39                     | 0.56              |
| 2:L5:1645:C:H2'   | 2:L5:1646:A:C8    | 2.39                     | 0.56              |
| 2:L5:2777:G:H5''  | 2:L5:2778:G:H5'   | 1.87                     | 0.56              |
| 2:L5:3824:A:H3'   | 2:L5:3825:A2M:H8  | 1.88                     | 0.56              |
| 9:LE:209:PRO:HB2  | 9:LE:212:LEU:HG   | 1.87                     | 0.56              |
| 18:LO:186:GLU:OE1 | 18:LO:186:GLU:N   | 2.38                     | 0.56              |
| 28:LY:76:LYS:HE2  | 41:LI:31:THR:HB   | 1.88                     | 0.56              |
| 62:Sf:95:ARG:HB2  | 82:S2:1304:U:H5'' | 1.88                     | 0.56              |
| 82:S2:889:U:OP2   | 82:S2:896:U:N3    | 2.39                     | 0.56              |
| 2:L5:3877:A:N3    | 2:L5:4401:G:O2'   | 2.35                     | 0.56              |
| 2:L5:4086:G:O6    | 11:LG:48:LYS:NZ   | 2.38                     | 0.56              |
| 2:L5:4601:U:H2'   | 2:L5:4602:A:C8    | 2.39                     | 0.56              |
| 2:L5:4981:G:H3'   | 2:L5:4982:A:H8    | 1.70                     | 0.56              |
| 12:LH:51:LYS:HZ1  | 12:LH:54:ARG:HH22 | 1.54                     | 0.56              |
| 20:LQ:155:ALA:O   | 20:LQ:158:THR:OG1 | 2.20                     | 0.56              |
| 80:Sb:67:THR:OG1  | 80:Sb:70:LYS:O    | 2.18                     | 0.56              |
| 2:L5:1718:C:O2'   | 10:LF:181:LYS:NZ  | 2.39                     | 0.55              |
| 2:L5:1939:A:H5'   | 2:L5:1940:G:H4'   | 1.88                     | 0.55              |
| 24:LU:22:THR:HA   | 24:LU:71:THR:HA   | 1.87                     | 0.55              |
| 71:SJ:162:ARG:NH1 | 82:S2:582:U:OP1   | 2.39                     | 0.55              |
| 76:SW:71:LYS:NZ   | 82:S2:1156:U:OP1  | 2.39                     | 0.55              |
| 77:SX:54:LYS:NZ   | 77:SX:94:ILE:O    | 2.35                     | 0.55              |
| 82:S2:455:A:H2'   | 82:S2:456:C:C6    | 2.41                     | 0.55              |
| 2:L5:280:G:N2     | 2:L5:306:A:OP2    | 2.33                     | 0.55              |
| 2:L5:1603:C:H2'   | 2:L5:1604:G:C8    | 2.41                     | 0.55              |
| 2:L5:2701:U:H3    | 2:L5:2715:G:H1    | 1.55                     | 0.55              |
| 26:LW:6:CYS:O     | 26:LW:30:GLN:NE2  | 2.39                     | 0.55              |
| 34:Le:22:ARG:O    | 34:Le:25:SER:OG   | 2.24                     | 0.55              |
| 50:SF:36:GLN:NE2  | 50:SF:37:ASP:OD1  | 2.39                     | 0.55              |
| 55:SR:96:ILE:HG21 | 64:SA:19:LEU:HB3  | 1.86                     | 0.55              |
| 57:ST:101:ARG:NH1 | 82:S2:1566:G:O6   | 2.26                     | 0.55              |
| 62:Sf:89:LYS:NZ   | 62:Sf:90:LYS:O    | 2.31                     | 0.55              |
| 78:SY:102:THR:OG1 | 78:SY:106:GLN:OE1 | 2.24                     | 0.55              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 82:S2:468:A2M:H2'  | 82:S2:469:A:H8     | 1.69                     | 0.55              |
| 82:S2:1392:U:H3    | 82:S2:1478:U:H3    | 1.52                     | 0.55              |
| 82:S2:1468:C:H2'   | 82:S2:1469:A:C8    | 2.41                     | 0.55              |
| 82:S2:1700:C:O2    | 82:S2:1834:A:N6    | 2.39                     | 0.55              |
| 2:L5:1760:G:N2     | 2:L5:1761:G:O6     | 2.39                     | 0.55              |
| 2:L5:2631:U:OP2    | 24:LU:48:LYS:NZ    | 2.37                     | 0.55              |
| 2:L5:3921:U:H1'    | 2:L5:4543:G:H21    | 1.71                     | 0.55              |
| 2:L5:4097:G:O6     | 2:L5:4098:A:N6     | 2.39                     | 0.55              |
| 2:L5:4466:C:H2'    | 2:L5:4467:A:C8     | 2.42                     | 0.55              |
| 11:LG:150:LYS:NZ   | 11:LG:177:MET:O    | 2.39                     | 0.55              |
| 18:LO:186:GLU:HA   | 18:LO:189:ILE:HB   | 1.88                     | 0.55              |
| 67:SE:139:LEU:HB3  | 67:SE:147:ILE:HG13 | 1.86                     | 0.55              |
| 68:SG:133:LEU:HD12 | 82:S2:65:C:C4      | 2.42                     | 0.55              |
| 82:S2:329:G:H2'    | 82:S2:330:G:C8     | 2.41                     | 0.55              |
| 82:S2:980:A:H2'    | 82:S2:981:A:C8     | 2.41                     | 0.55              |
| 2:L5:415:G:O6      | 4:L8:20:A:N6       | 2.39                     | 0.55              |
| 2:L5:3726:A:H2'    | 2:L5:3727:A:C8     | 2.41                     | 0.55              |
| 2:L5:4677:U:H3     | 2:L5:4714:C:H1'    | 1.72                     | 0.55              |
| 29:LZ:61:LYS:HE3   | 29:LZ:65:ARG:HD2   | 1.88                     | 0.55              |
| 57:ST:44:GLU:HG3   | 57:ST:45:LEU:HD12  | 1.89                     | 0.55              |
| 65:SB:147:ASN:OD1  | 65:SB:148:ASN:N    | 2.39                     | 0.55              |
| 67:SE:208:VAL:HG11 | 67:SE:225:ILE:HG13 | 1.88                     | 0.55              |
| 82:S2:16:G:H2'     | 82:S2:17:C:C6      | 2.42                     | 0.55              |
| 2:L5:287:U:H2'     | 2:L5:288:G:C8      | 2.41                     | 0.55              |
| 2:L5:1414:C:H2'    | 2:L5:1415:G:C8     | 2.38                     | 0.55              |
| 2:L5:2647:A:H3'    | 2:L5:2648:G:H8     | 1.72                     | 0.55              |
| 2:L5:3722:G:H2'    | 2:L5:3723:A:H8     | 1.71                     | 0.55              |
| 2:L5:4926:C:H5''   | 2:L5:4927:G:H21    | 1.72                     | 0.55              |
| 43:Ln:2:ARG:NE     | 82:S2:1842:4AC:OP2 | 2.33                     | 0.55              |
| 62:Sf:108:VAL:HB   | 62:Sf:113:LYS:H    | 1.71                     | 0.55              |
| 64:SA:137:ALA:HB1  | 64:SA:142:LEU:HB3  | 1.88                     | 0.55              |
| 69:SH:51:ILE:HG21  | 69:SH:179:LYS:HG2  | 1.88                     | 0.55              |
| 82:S2:628:A:N6     | 82:S2:1500:G:O2'   | 2.39                     | 0.55              |
| 2:L5:394:G:N2      | 2:L5:397:G:OP2     | 2.24                     | 0.55              |
| 2:L5:1655:C:HO2'   | 2:L5:4391:G:HO2'   | 1.51                     | 0.55              |
| 2:L5:2045:G:O6     | 2:L5:3870:C:O2'    | 2.24                     | 0.55              |
| 2:L5:2298:U:OP1    | 7:LC:204:ARG:NE    | 2.40                     | 0.55              |
| 2:L5:2570:U:H2'    | 2:L5:2571:C:C6     | 2.42                     | 0.55              |
| 2:L5:3893:C:H2'    | 2:L5:3894:A:C8     | 2.42                     | 0.55              |
| 9:LE:178:PRO:HD2   | 9:LE:181:LEU:HD12  | 1.89                     | 0.55              |
| 22:LS:147:ASP:HB3  | 22:LS:150:ILE:HB   | 1.87                     | 0.55              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 53:SP:98:ASN:OD1   | 53:SP:101:THR:N    | 2.32                     | 0.55              |
| 57:ST:111:LYS:HZ2  | 57:ST:126:GLN:HG3  | 1.71                     | 0.55              |
| 78:SY:80:ASP:OD1   | 78:SY:81:TYR:N     | 2.39                     | 0.55              |
| 82:S2:1562:C:H2'   | 82:S2:1563:G:H8    | 1.71                     | 0.55              |
| 2:L5:55:G:OP2      | 39:Lj:43:ARG:NH1   | 2.38                     | 0.55              |
| 2:L5:1333:A:H2'    | 2:L5:1334:A:C8     | 2.41                     | 0.55              |
| 2:L5:1503:A:H1'    | 2:L5:1504:G:C8     | 2.41                     | 0.55              |
| 2:L5:2285:A:H2'    | 2:L5:2286:G:H8     | 1.71                     | 0.55              |
| 2:L5:3661:G:H4'    | 2:L5:3662:A:H5'    | 1.89                     | 0.55              |
| 2:L5:3661:G:N2     | 2:L5:3681:G:O2'    | 2.37                     | 0.55              |
| 2:L5:4237:C:H2'    | 2:L5:4238:G:C8     | 2.42                     | 0.55              |
| 5:LA:45:VAL:HG22   | 5:LA:61:VAL:HG22   | 1.88                     | 0.55              |
| 5:LA:80:GLU:HB2    | 5:LA:170:ALA:HA    | 1.89                     | 0.55              |
| 50:SF:27:ASP:OD1   | 50:SF:107:ASN:ND2  | 2.39                     | 0.55              |
| 61:Sd:10:HIS:NE2   | 82:S2:1261:C:O2    | 2.39                     | 0.55              |
| 66:SC:185:THR:O    | 66:SC:246:LYS:NZ   | 2.24                     | 0.55              |
| 67:SE:73:ASP:OD2   | 67:SE:122:LYS:NZ   | 2.34                     | 0.55              |
| 72:SL:120:VAL:HG22 | 72:SL:145:VAL:HG11 | 1.88                     | 0.55              |
| 80:Sb:6:ASP:OD1    | 80:Sb:9:HIS:N      | 2.35                     | 0.55              |
| 82:S2:71:G:N2      | 82:S2:73:C:OP1     | 2.39                     | 0.55              |
| 2:L5:1326:A2M:OP2  | 2:L5:4445:U:O2'    | 2.24                     | 0.55              |
| 2:L5:2458:C:O2'    | 2:L5:3671:G:N3     | 2.37                     | 0.55              |
| 2:L5:3680:U:OP1    | 5:LA:54:ARG:NH2    | 2.32                     | 0.55              |
| 2:L5:4080:C:H2'    | 2:L5:4081:G:H8     | 1.71                     | 0.55              |
| 2:L5:4128:A:O2'    | 11:LG:33:GLU:O     | 2.25                     | 0.55              |
| 2:L5:4619:U:H2'    | 2:L5:4620:OMU:H6   | 1.88                     | 0.55              |
| 2:L5:4767:C:H2'    | 2:L5:4768:G:C8     | 2.41                     | 0.55              |
| 4:L8:14:U:H5''     | 19:LP:123:PRO:HG3  | 1.88                     | 0.55              |
| 4:L8:67:U:H2'      | 4:L8:68:G:H8       | 1.72                     | 0.55              |
| 10:LF:171:ASP:OD1  | 10:LF:172:ASN:N    | 2.40                     | 0.55              |
| 50:SF:127:ARG:HG2  | 50:SF:136:ARG:HB2  | 1.88                     | 0.55              |
| 67:SE:122:LYS:N    | 67:SE:162:ILE:O    | 2.40                     | 0.55              |
| 68:SG:23:LYS:HE3   | 68:SG:41:LEU:HA    | 1.88                     | 0.55              |
| 68:SG:159:ARG:NH1  | 82:S2:76:U:O2'     | 2.40                     | 0.55              |
| 82:S2:98:C:OP2     | 82:S2:426:A:O2'    | 2.18                     | 0.55              |
| 2:L5:1511:U:H2'    | 2:L5:1512:G:H8     | 1.72                     | 0.55              |
| 2:L5:1687:U:H2'    | 2:L5:1688:G:C8     | 2.42                     | 0.55              |
| 2:L5:2486:G:C8     | 2:L5:2493:G:N2     | 2.69                     | 0.55              |
| 4:L8:8:U:H2'       | 4:L8:9:A:C8        | 2.41                     | 0.55              |
| 8:LD:86:TYR:HE1    | 8:LD:247:ILE:HG13  | 1.71                     | 0.55              |
| 55:SR:109:LEU:HG   | 55:SR:111:PHE:HD2  | 1.71                     | 0.55              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 70:SI:22:HIS:ND1  | 70:SI:23:LYS:O    | 2.33                     | 0.55              |
| 82:S2:186:C:H2'   | 82:S2:187:G:C8    | 2.42                     | 0.55              |
| 82:S2:380:G:N1    | 82:S2:383:G:OP2   | 2.23                     | 0.55              |
| 82:S2:1393:G:H2'  | 82:S2:1394:G:C8   | 2.42                     | 0.55              |
| 82:S2:1817:G:H2'  | 82:S2:1818:A:C8   | 2.41                     | 0.55              |
| 1:Pt:33:U:N3      | 1:Pt:36:C:OP2     | 2.36                     | 0.55              |
| 2:L5:88:A:N7      | 20:LQ:173:LYS:NZ  | 2.55                     | 0.55              |
| 2:L5:2609:G:H1    | 2:L5:2730:U:H3    | 1.55                     | 0.55              |
| 2:L5:4066:U:H2'   | 2:L5:4067:U:H6    | 1.70                     | 0.55              |
| 2:L5:4710:C:H2'   | 2:L5:4711:C:C6    | 2.42                     | 0.55              |
| 9:LE:281:ILE:HD12 | 9:LE:286:LEU:HD11 | 1.89                     | 0.55              |
| 57:ST:91:HIS:NE2  | 82:S2:1665:G:OP1  | 2.34                     | 0.55              |
| 65:SB:99:ASN:OD1  | 65:SB:100:PHE:N   | 2.36                     | 0.55              |
| 82:S2:26:U:H2'    | 82:S2:27:A2M:H8   | 1.88                     | 0.55              |
| 82:S2:155:G:H2'   | 82:S2:156:G:H8    | 1.72                     | 0.55              |
| 82:S2:207:G:H3'   | 82:S2:208:G:H8    | 1.71                     | 0.55              |
| 82:S2:981:A:H2'   | 82:S2:982:G:C8    | 2.42                     | 0.55              |
| 82:S2:1128:C:H2'  | 82:S2:1129:G:H8   | 1.72                     | 0.55              |
| 82:S2:1419:C:H41  | 82:S2:1421:A:H2   | 1.55                     | 0.55              |
| 2:L5:248:C:O2     | 28:LY:121:ARG:NH2 | 2.40                     | 0.54              |
| 2:L5:1584:G:O6    | 86:L5:5284:SPD:N1 | 2.40                     | 0.54              |
| 2:L5:2652:G:N2    | 45:Lp:59:SER:O    | 2.38                     | 0.54              |
| 10:LF:41:MET:HE2  | 31:Lb:113:ALA:HB2 | 1.88                     | 0.54              |
| 23:LT:119:ALA:O   | 23:LT:123:GLY:N   | 2.40                     | 0.54              |
| 36:Lg:105:LYS:HA  | 36:Lg:108:LYS:HE3 | 1.88                     | 0.54              |
| 37:Lh:88:THR:HB   | 37:Lh:91:MET:HB2  | 1.89                     | 0.54              |
| 53:SP:108:LYS:HB2 | 53:SP:111:MET:HG3 | 1.90                     | 0.54              |
| 64:SA:176:TRP:NE1 | 64:SA:197:VAL:O   | 2.36                     | 0.54              |
| 82:S2:17:C:O2'    | 82:S2:1194:A:N1   | 2.32                     | 0.54              |
| 82:S2:35:C:H2'    | 82:S2:36:U:H6     | 1.72                     | 0.54              |
| 82:S2:52:G:H2'    | 82:S2:53:C:H6     | 1.72                     | 0.54              |
| 82:S2:191:A:N6    | 82:S2:208:G:O2'   | 2.40                     | 0.54              |
| 2:L5:382:G:O2'    | 2:L5:407:A:N6     | 2.40                     | 0.54              |
| 2:L5:950:G:H2'    | 2:L5:951:G:H8     | 1.72                     | 0.54              |
| 2:L5:963:G:N2     | 2:L5:2093:A:N1    | 2.55                     | 0.54              |
| 2:L5:1332:C:H2'   | 2:L5:1333:A:C8    | 2.43                     | 0.54              |
| 2:L5:1367:C:O2'   | 2:L5:1369:C:OP2   | 2.24                     | 0.54              |
| 2:L5:1471:U:H2'   | 2:L5:1472:C:H6    | 1.72                     | 0.54              |
| 2:L5:2017:A:O2'   | 2:L5:2018:C:H6    | 1.90                     | 0.54              |
| 2:L5:4239:A:H2'   | 2:L5:4240:G:H8    | 1.72                     | 0.54              |
| 2:L5:4567:G:H5'   | 6:LB:20:LYS:HB3   | 1.87                     | 0.54              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:4967:A:P      | 6:LB:126:LYS:H     | 2.30                     | 0.54              |
| 4:L8:62:A:OP1      | 37:Lh:52:LYS:NZ    | 2.40                     | 0.54              |
| 19:LP:54:GLN:HA    | 19:LP:83:TRP:CD1   | 2.42                     | 0.54              |
| 53:SP:31:GLU:HA    | 53:SP:34:MET:HE2   | 1.89                     | 0.54              |
| 57:ST:104:LEU:HD22 | 57:ST:121:ARG:HD2  | 1.87                     | 0.54              |
| 74:SO:149:ARG:NH1  | 82:S2:1064:C:O3'   | 2.39                     | 0.54              |
| 77:SX:105:PHE:HD1  | 77:SX:121:LYS:HB3  | 1.72                     | 0.54              |
| 82:S2:162:C:H2'    | 82:S2:163:U:O4'    | 2.08                     | 0.54              |
| 2:L5:102:G:O2'     | 2:L5:1381:U:O2'    | 2.22                     | 0.54              |
| 2:L5:162:A:H2'     | 2:L5:163:A:H8      | 1.72                     | 0.54              |
| 2:L5:1091:C:H2'    | 2:L5:1092:G:C8     | 2.41                     | 0.54              |
| 2:L5:1603:C:H2'    | 2:L5:1604:G:H8     | 1.71                     | 0.54              |
| 2:L5:1837:A:OP2    | 23:LT:130:ARG:NH1  | 2.34                     | 0.54              |
| 2:L5:1895:G:OP1    | 10:LF:96:ARG:NH2   | 2.41                     | 0.54              |
| 2:L5:3723:A:H2'    | 2:L5:3724:A:H8     | 1.72                     | 0.54              |
| 2:L5:4743:G:H2'    | 2:L5:4744:A:C8     | 2.42                     | 0.54              |
| 6:LB:29:VAL:HG12   | 6:LB:31:SER:H      | 1.72                     | 0.54              |
| 22:LS:95:ARG:NH2   | 22:LS:112:ASP:OD2  | 2.41                     | 0.54              |
| 26:LW:80:ARG:NH1   | 82:S2:167:G:O2'    | 2.40                     | 0.54              |
| 37:Lh:4:ILE:HG13   | 37:Lh:56:ARG:HH11  | 1.72                     | 0.54              |
| 43:Ln:1:MET:HG3    | 82:S2:1706:G:H5'   | 1.88                     | 0.54              |
| 50:SF:59:LYS:HB3   | 50:SF:62:ARG:HG3   | 1.89                     | 0.54              |
| 56:SS:142:ARG:NH2  | 82:S2:1634:A:O2'   | 2.40                     | 0.54              |
| 67:SE:75:LYS:NZ    | 82:S2:122:G:OP1    | 2.37                     | 0.54              |
| 71:SJ:134:HIS:NE2  | 82:S2:561:A:O2'    | 2.36                     | 0.54              |
| 72:SL:111:VAL:HG12 | 72:SL:140:PHE:HB2  | 1.90                     | 0.54              |
| 82:S2:40:A:H3'     | 82:S2:486:A:H62    | 1.73                     | 0.54              |
| 82:S2:52:G:H2'     | 82:S2:53:C:C6      | 2.42                     | 0.54              |
| 82:S2:1845:A:H2'   | 82:S2:1846:G:H8    | 1.72                     | 0.54              |
| 2:L5:261:G:H2'     | 2:L5:262:G:C8      | 2.42                     | 0.54              |
| 2:L5:275:C:H2'     | 2:L5:276:C:C6      | 2.42                     | 0.54              |
| 2:L5:2019:C:H2'    | 2:L5:2020:U:C6     | 2.42                     | 0.54              |
| 2:L5:2258:C:N3     | 9:LE:90:ALA:N      | 2.46                     | 0.54              |
| 2:L5:4113:U:H4'    | 2:L5:4115:G:C6     | 2.42                     | 0.54              |
| 9:LE:264:ILE:HD11  | 9:LE:267:LEU:HD22  | 1.88                     | 0.54              |
| 14:LJ:43:LEU:HA    | 14:LJ:117:ILE:HD11 | 1.89                     | 0.54              |
| 26:LW:56:ARG:HE    | 26:LW:61:LYS:HB2   | 1.73                     | 0.54              |
| 66:SC:264:SER:H    | 66:SC:267:GLN:HE21 | 1.56                     | 0.54              |
| 82:S2:146:G:H2'    | 82:S2:147:A:C8     | 2.42                     | 0.54              |
| 82:S2:373:G:H2'    | 82:S2:374:G:H8     | 1.72                     | 0.54              |
| 2:L5:307:A:N3      | 2:L5:310:G:O2'     | 2.41                     | 0.54              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 2:L5:2448:G:OP2    | 2:L5:2510:G:N1    | 2.28                     | 0.54              |
| 2:L5:3848:U:H2'    | 2:L5:3849:A:C8    | 2.41                     | 0.54              |
| 2:L5:3870:C:H2'    | 2:L5:3871:A:C8    | 2.41                     | 0.54              |
| 10:LF:147:LEU:O    | 10:LF:151:ASN:ND2 | 2.35                     | 0.54              |
| 14:LJ:16:ARG:O     | 14:LJ:135:GLY:N   | 2.40                     | 0.54              |
| 50:SF:101:HIS:ND1  | 50:SF:106:GLU:O   | 2.41                     | 0.54              |
| 61:Sd:31:ILE:HB    | 61:Sd:36:LEU:HD23 | 1.89                     | 0.54              |
| 64:SA:177:MET:SD   | 64:SA:180:ARG:NH2 | 2.81                     | 0.54              |
| 81:Se:58:ASN:ND2   | 82:S2:608:C:O4'   | 2.41                     | 0.54              |
| 82:S2:17:C:H2'     | 82:S2:18:C:C6     | 2.41                     | 0.54              |
| 2:L5:10:A:H2'      | 2:L5:11:G:H8      | 1.72                     | 0.54              |
| 2:L5:444:G:H2'     | 2:L5:445:U:H6     | 1.71                     | 0.54              |
| 2:L5:2353:U:H2'    | 2:L5:2354:G:H8    | 1.73                     | 0.54              |
| 2:L5:2555:G:H2'    | 2:L5:2556:G:H8    | 1.73                     | 0.54              |
| 2:L5:3585:G:H2'    | 2:L5:3586:G:H8    | 1.73                     | 0.54              |
| 2:L5:3607:U:H2'    | 2:L5:3608:A:C8    | 2.43                     | 0.54              |
| 2:L5:3619:G:H22    | 2:L5:3624:A:H1'   | 1.72                     | 0.54              |
| 2:L5:3683:C:O2'    | 5:LA:174:ARG:NH2  | 2.40                     | 0.54              |
| 2:L5:4301:U:H1'    | 23:LT:7:LYS:HZ2   | 1.72                     | 0.54              |
| 16:LM:5:ARG:NE     | 16:LM:59:ASP:OD1  | 2.29                     | 0.54              |
| 30:La:35:ALA:O     | 30:La:41:HIS:ND1  | 2.40                     | 0.54              |
| 56:SS:85:ASN:OD1   | 56:SS:97:GLN:NE2  | 2.39                     | 0.54              |
| 68:SG:189:ARG:HD2  | 82:S2:331:C:H5''  | 1.90                     | 0.54              |
| 69:SH:37:LYS:HA    | 69:SH:40:LEU:HB3  | 1.90                     | 0.54              |
| 69:SH:162:GLN:HE22 | 69:SH:166:VAL:HB  | 1.72                     | 0.54              |
| 81:Se:35:ARG:HH22  | 82:S2:527:C:P     | 2.30                     | 0.54              |
| 82:S2:534:G:H2'    | 82:S2:535:G:H8    | 1.72                     | 0.54              |
| 2:L5:286:U:H3      | 2:L5:301:G:H1     | 1.55                     | 0.54              |
| 2:L5:667:A:H5''    | 2:L5:668:C:H5''   | 1.90                     | 0.54              |
| 2:L5:2067:C:OP1    | 35:Lf:85:ARG:NH2  | 2.39                     | 0.54              |
| 2:L5:4424:A:H5'    | 42:Lm:125:LYS:HE3 | 1.89                     | 0.54              |
| 5:LA:13:GLY:O      | 5:LA:17:ARG:HG3   | 2.08                     | 0.54              |
| 34:Le:105:SER:HA   | 34:Le:108:ARG:HG2 | 1.89                     | 0.54              |
| 37:Lh:13:LYS:N     | 37:Lh:16:GLU:OE2  | 2.38                     | 0.54              |
| 38:Li:100:ALA:HA   | 38:Li:103:LYS:HZ3 | 1.73                     | 0.54              |
| 43:Ln:15:ARG:HG2   | 43:Ln:18:ARG:HH22 | 1.72                     | 0.54              |
| 55:SR:60:ARG:HA    | 55:SR:63:ARG:HG2  | 1.89                     | 0.54              |
| 59:SZ:80:ARG:O     | 82:S2:1598:G:O2'  | 2.24                     | 0.54              |
| 82:S2:388:U:H2'    | 82:S2:389:A:C8    | 2.43                     | 0.54              |
| 82:S2:866:PSU:H2'  | 82:S2:867:OMG:C8  | 2.43                     | 0.54              |
| 82:S2:1639:G7M:H2' | 82:S2:1640:A:C8   | 2.43                     | 0.54              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 82:S2:1858:G:H2'   | 82:S2:1859:A:H8   | 1.72                     | 0.54              |
| 2:L5:729:G:H5''    | 10:LF:76:ARG:HD2  | 1.89                     | 0.54              |
| 2:L5:1839:U:H2'    | 2:L5:1840:G:C8    | 2.43                     | 0.54              |
| 2:L5:2303:C:H5''   | 34:Le:104:SER:HB3 | 1.90                     | 0.54              |
| 2:L5:4878:C:H2'    | 2:L5:4879:C:C6    | 2.42                     | 0.54              |
| 3:L7:38:U:N3       | 3:L7:41:G:OP2     | 2.27                     | 0.54              |
| 20:LQ:61:LEU:HD13  | 20:LQ:141:GLY:HA2 | 1.90                     | 0.54              |
| 21:LR:44:LEU:HD22  | 21:LR:49:LEU:HD12 | 1.89                     | 0.54              |
| 48:Lt:76:SER:OG    | 48:Lt:116:MET:SD  | 2.63                     | 0.54              |
| 51:SK:8:ARG:NH2    | 82:S2:1314:U:O2'  | 2.40                     | 0.54              |
| 60:Sc:17:VAL:HA    | 60:Sc:30:VAL:HG12 | 1.89                     | 0.54              |
| 72:SL:103:GLU:HG3  | 77:SX:11:ARG:HB2  | 1.90                     | 0.54              |
| 73:SN:124:ARG:NH2  | 82:S2:1024:A:OP2  | 2.28                     | 0.54              |
| 79:Sa:70:LYS:NZ    | 82:S2:988:C:OP2   | 2.40                     | 0.54              |
| 82:S2:223:C:H2'    | 82:S2:224:A:H8    | 1.73                     | 0.54              |
| 82:S2:1228:A:H2'   | 82:S2:1229:G:H8   | 1.72                     | 0.54              |
| 2:L5:239:C:H5'     | 28:LY:33:PRO:HD3  | 1.90                     | 0.54              |
| 2:L5:1341:U:H2'    | 2:L5:1342:A:H8    | 1.73                     | 0.54              |
| 2:L5:1683:PSU:OP1  | 30:La:44:ASN:ND2  | 2.41                     | 0.54              |
| 2:L5:2775:C:H2'    | 2:L5:2776:G:C8    | 2.43                     | 0.54              |
| 2:L5:4935:C:H2'    | 2:L5:4936:G:H8    | 1.71                     | 0.54              |
| 8:LD:17:GLN:NE2    | 23:LT:22:HIS:O    | 2.36                     | 0.54              |
| 57:ST:83:GLN:OE1   | 57:ST:93:SER:OG   | 2.21                     | 0.54              |
| 62:Sf:138:ARG:NH2  | 82:S2:1292:C:N3   | 2.50                     | 0.54              |
| 68:SG:191:ARG:HH22 | 82:S2:312:G:H5''  | 1.73                     | 0.54              |
| 77:SX:57:VAL:O     | 77:SX:67:ARG:N    | 2.38                     | 0.54              |
| 82:S2:159:A2M:H2   | 82:S2:467:G:H21   | 1.73                     | 0.54              |
| 2:L5:284:G:H2'     | 2:L5:285:G:H8     | 1.72                     | 0.54              |
| 2:L5:1241:C:O2'    | 31:Lb:120:ARG:O   | 2.25                     | 0.54              |
| 2:L5:1243:C:H2'    | 2:L5:1244:G:H8    | 1.73                     | 0.54              |
| 2:L5:1538:U:H2'    | 2:L5:1539:G:H8    | 1.72                     | 0.54              |
| 2:L5:2780:C:H2'    | 2:L5:2781:G:H8    | 1.73                     | 0.54              |
| 2:L5:3607:U:H2'    | 2:L5:3608:A:H8    | 1.73                     | 0.54              |
| 2:L5:3668:C:OP1    | 5:LA:8:GLN:NE2    | 2.31                     | 0.54              |
| 2:L5:4727:A:OP1    | 6:LB:133:TYR:N    | 2.40                     | 0.54              |
| 2:L5:4878:C:H2'    | 2:L5:4879:C:H6    | 1.73                     | 0.54              |
| 10:LF:213:LEU:HD22 | 10:LF:248:ASN:HB3 | 1.90                     | 0.54              |
| 48:Lt:77:ALA:HB3   | 48:Lt:80:LEU:HB2  | 1.89                     | 0.54              |
| 69:SH:12:ASN:ND2   | 69:SH:14:GLU:OE2  | 2.41                     | 0.54              |
| 76:SW:24:GLN:NE2   | 76:SW:64:ASN:OD1  | 2.41                     | 0.54              |
| 82:S2:573:U:N3     | 82:S2:576:A2M:OP2 | 2.36                     | 0.54              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 82:S2:598:G:H2'    | 82:S2:599:A:C8    | 2.43                     | 0.54              |
| 82:S2:1103:C:H2'   | 82:S2:1104:G:C8   | 2.43                     | 0.54              |
| 2:L5:441:G:H2'     | 2:L5:442:G:C8     | 2.43                     | 0.53              |
| 2:L5:1175:A:H2     | 2:L5:1185:G:H22   | 1.56                     | 0.53              |
| 2:L5:1996:C:N3     | 2:L5:2000:G:N1    | 2.47                     | 0.53              |
| 2:L5:2781:G:O2'    | 41:L1:3:SER:O     | 2.26                     | 0.53              |
| 2:L5:4088:C:H2'    | 2:L5:4089:G:H8    | 1.73                     | 0.53              |
| 2:L5:4095:G:N7     | 2:L5:4096:C:N4    | 2.55                     | 0.53              |
| 2:L5:4277:G:H5''   | 23:LT:17:ARG:HG2  | 1.90                     | 0.53              |
| 2:L5:4759:C:H2'    | 2:L5:4760:G:C8    | 2.43                     | 0.53              |
| 57:ST:108:GLU:OE2  | 57:ST:121:ARG:NH1 | 2.40                     | 0.53              |
| 66:SC:104:ASP:OD1  | 66:SC:105:GLU:N   | 2.41                     | 0.53              |
| 82:S2:1221:G:H2'   | 82:S2:1222:G:C8   | 2.43                     | 0.53              |
| 82:S2:1230:C:H2'   | 82:S2:1231:C:H6   | 1.72                     | 0.53              |
| 2:L5:270:U:H2'     | 2:L5:271:C:C6     | 2.43                     | 0.53              |
| 2:L5:276:C:H3'     | 38:Li:29:ARG:HH12 | 1.72                     | 0.53              |
| 2:L5:739:G:HO2'    | 2:L5:740:G:H8     | 1.56                     | 0.53              |
| 2:L5:2286:G:H2'    | 2:L5:2287:G:H8    | 1.73                     | 0.53              |
| 2:L5:2408:U:O2'    | 2:L5:2410:C:N4    | 2.41                     | 0.53              |
| 4:L8:153:C:H2'     | 4:L8:154:G:C8     | 2.42                     | 0.53              |
| 25:LV:35:LYS:HB2   | 25:LV:67:LYS:HG3  | 1.90                     | 0.53              |
| 26:LW:73:ARG:NH2   | 82:S2:1749:G:O6   | 2.38                     | 0.53              |
| 49:SD:211:VAL:O    | 55:SR:20:TYR:OH   | 2.21                     | 0.53              |
| 51:SK:14:LEU:HD22  | 51:SK:35:LEU:HD23 | 1.91                     | 0.53              |
| 65:SB:40:ASN:ND2   | 65:SB:76:ASN:HB2  | 2.22                     | 0.53              |
| 66:SC:207:ALA:HB2  | 82:S2:4:C:H4'     | 1.90                     | 0.53              |
| 68:SG:181:THR:HG22 | 68:SG:183:ARG:H   | 1.72                     | 0.53              |
| 71:SJ:134:HIS:HE2  | 82:S2:561:A:HO2'  | 1.51                     | 0.53              |
| 74:SO:75:MET:HG3   | 74:SO:118:ALA:HB2 | 1.90                     | 0.53              |
| 79:Sa:37:LYS:HG2   | 79:Sa:72:HIS:HD2  | 1.73                     | 0.53              |
| 82:S2:864:A:H2'    | 82:S2:865:A:H8    | 1.72                     | 0.53              |
| 82:S2:1330:G:N7    | 82:S2:1492:U:H3'  | 2.24                     | 0.53              |
| 82:S2:1351:G:O2'   | 82:S2:1378:A:N1   | 2.36                     | 0.53              |
| 2:L5:1701:A:H5'    | 7:LC:304:ALA:HB3  | 1.89                     | 0.53              |
| 2:L5:4775:C:H2'    | 2:L5:4776:G:C8    | 2.43                     | 0.53              |
| 2:L5:4954:G:H2'    | 2:L5:4955:A:C8    | 2.42                     | 0.53              |
| 8:LD:62:CYS:HB3    | 8:LD:105:LEU:HD22 | 1.90                     | 0.53              |
| 18:LO:9:LEU:HD23   | 18:LO:118:MET:HB2 | 1.90                     | 0.53              |
| 55:SR:16:ILE:HD11  | 55:SR:54:VAL:HG21 | 1.90                     | 0.53              |
| 59:SZ:42:ASP:OD1   | 59:SZ:42:ASP:N    | 2.41                     | 0.53              |
| 68:SG:59:GLN:OE1   | 68:SG:72:ARG:NH2  | 2.42                     | 0.53              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:Pt:29:C:H2'      | 1:Pt:30:G:C8       | 2.43                     | 0.53              |
| 2:L5:1890:G:N2     | 2:L5:1890:G:OP2    | 2.42                     | 0.53              |
| 2:L5:4504:C:H2'    | 2:L5:4505:C:C6     | 2.44                     | 0.53              |
| 2:L5:4507:A:H2'    | 2:L5:4508:C:C6     | 2.43                     | 0.53              |
| 3:L7:9:C:OP2       | 3:L7:10:C:N4       | 2.39                     | 0.53              |
| 9:LE:141:ARG:NH1   | 9:LE:191:GLN:O     | 2.42                     | 0.53              |
| 53:SP:18:ARG:HE    | 56:SS:88:LYS:HE2   | 1.73                     | 0.53              |
| 69:SH:111:LYS:HE3  | 82:S2:796:G:H21    | 1.72                     | 0.53              |
| 82:S2:49:C:N4      | 82:S2:473:A:OP2    | 2.34                     | 0.53              |
| 82:S2:325:C:N3     | 82:S2:326:C:O2'    | 2.40                     | 0.53              |
| 82:S2:534:G:H2'    | 82:S2:535:G:C8     | 2.43                     | 0.53              |
| 82:S2:629:A:O2'    | 82:S2:631:U:OP1    | 2.26                     | 0.53              |
| 82:S2:634:A:H2'    | 82:S2:635:G:H8     | 1.74                     | 0.53              |
| 82:S2:1801:A:H2'   | 82:S2:1802:C:C6    | 2.43                     | 0.53              |
| 2:L5:126:C:H2'     | 2:L5:127:G:H8      | 1.73                     | 0.53              |
| 2:L5:1461:C:H2'    | 2:L5:1462:A:C8     | 2.43                     | 0.53              |
| 2:L5:1825:A:H2'    | 2:L5:1826:G:C8     | 2.44                     | 0.53              |
| 2:L5:1982:G:H2'    | 2:L5:1983:A:O4'    | 2.08                     | 0.53              |
| 4:L8:155:C:OP1     | 11:LG:89:ARG:NH1   | 2.42                     | 0.53              |
| 40:Lk:23:VAL:HA    | 40:Lk:36:VAL:HA    | 1.90                     | 0.53              |
| 54:SQ:139:ALA:HB2  | 82:S2:1650:A:H5''  | 1.90                     | 0.53              |
| 65:SB:128:LYS:HD2  | 65:SB:132:GLY:HA2  | 1.90                     | 0.53              |
| 66:SC:210:PRO:HB3  | 66:SC:240:THR:HG21 | 1.90                     | 0.53              |
| 67:SE:125:LYS:O    | 67:SE:142:HIS:N    | 2.41                     | 0.53              |
| 82:S2:430:C:H2'    | 82:S2:431:G:C8     | 2.43                     | 0.53              |
| 82:S2:1533:A:N6    | 82:S2:1602:U:C2    | 2.77                     | 0.53              |
| 82:S2:1821:U:H2'   | 82:S2:1822:A:C8    | 2.43                     | 0.53              |
| 2:L5:956:A:H1'     | 2:L5:2076:G:H5''   | 1.90                     | 0.53              |
| 2:L5:1503:A:H4'    | 2:L5:1504:G:H5'    | 1.91                     | 0.53              |
| 2:L5:2274:C:H2'    | 2:L5:2275:G:H8     | 1.73                     | 0.53              |
| 2:L5:2305:U:C2     | 34:Le:106:LYS:HD3  | 2.43                     | 0.53              |
| 2:L5:2555:G:H2'    | 2:L5:2556:G:C8     | 2.43                     | 0.53              |
| 2:L5:3861:A:H2'    | 2:L5:3862:A:H8     | 1.74                     | 0.53              |
| 21:LR:127:VAL:HG12 | 21:LR:132:PHE:HD2  | 1.73                     | 0.53              |
| 68:SG:31:ARG:NH1   | 82:S2:1745:A:O3'   | 2.41                     | 0.53              |
| 82:S2:110:U:H2'    | 82:S2:111:A:C8     | 2.44                     | 0.53              |
| 82:S2:576:A2M:HM'2 | 82:S2:577:U:H5'    | 1.90                     | 0.53              |
| 82:S2:874:G:H2'    | 82:S2:875:A:H8     | 1.74                     | 0.53              |
| 2:L5:1294:A:H1'    | 2:L5:1296:G:N1     | 2.24                     | 0.53              |
| 2:L5:5057:C:H2'    | 2:L5:5058:A:C8     | 2.44                     | 0.53              |
| 3:L7:48:G:OP1      | 8:LD:226:TYR:OH    | 2.25                     | 0.53              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 4:L8:150:C:N4      | 11:LG:52:THR:O     | 2.42                     | 0.53              |
| 25:LV:48:ARG:HG2   | 25:LV:51:ARG:CZ    | 2.39                     | 0.53              |
| 51:SK:1:MET:N      | 82:S2:1315:U:OP1   | 2.35                     | 0.53              |
| 66:SC:167:ARG:HB3  | 66:SC:177:PRO:HB2  | 1.91                     | 0.53              |
| 82:S2:5:U:H2'      | 82:S2:6:G:H8       | 1.73                     | 0.53              |
| 82:S2:639:C:H2'    | 82:S2:640:A:H8     | 1.74                     | 0.53              |
| 82:S2:1354:G:N2    | 82:S2:1357:A:OP2   | 2.41                     | 0.53              |
| 82:S2:1849:G:H2'   | 82:S2:1850:MA6:H8  | 1.91                     | 0.53              |
| 2:L5:139:G:H2'     | 2:L5:140:G:H8      | 1.73                     | 0.53              |
| 2:L5:452:A:N6      | 2:L5:1293:G:H5''   | 2.23                     | 0.53              |
| 2:L5:2078:C:H2'    | 2:L5:2079:G:C8     | 2.44                     | 0.53              |
| 2:L5:2775:C:H2'    | 2:L5:2776:G:H8     | 1.73                     | 0.53              |
| 2:L5:4622:A:H2'    | 2:L5:4623:OMG:H8   | 1.72                     | 0.53              |
| 4:L8:28:C:H2'      | 4:L8:29:G:C8       | 2.43                     | 0.53              |
| 4:L8:30:U:H2'      | 4:L8:31:G:C8       | 2.44                     | 0.53              |
| 4:L8:114:G:N2      | 4:L8:136:U:O2      | 2.34                     | 0.53              |
| 29:LZ:76:ASN:HD21  | 29:LZ:78:ASN:HD22  | 1.57                     | 0.53              |
| 34:Le:78:LEU:HB3   | 46:Lr:20:ARG:HD2   | 1.90                     | 0.53              |
| 51:SK:31:LYS:NZ    | 51:SK:40:VAL:H     | 2.07                     | 0.53              |
| 57:ST:74:SER:O     | 57:ST:78:ILE:HD12  | 2.08                     | 0.53              |
| 67:SE:100:ARG:HB2  | 67:SE:114:ILE:HD13 | 1.89                     | 0.53              |
| 72:SL:3:ASP:OD1    | 72:SL:4:ILE:N      | 2.41                     | 0.53              |
| 77:SX:9:THR:HG22   | 82:S2:681:PSU:H4'  | 1.91                     | 0.53              |
| 82:S2:649:PSU:H2'  | 82:S2:650:A:C8     | 2.42                     | 0.53              |
| 82:S2:1203:G:H2'   | 82:S2:1204:A:H8    | 1.72                     | 0.53              |
| 2:L5:216:C:OP2     | 2:L5:219:G:O2'     | 2.26                     | 0.53              |
| 2:L5:1281:G:OP1    | 7:LC:316:LYS:NZ    | 2.32                     | 0.53              |
| 2:L5:1628:C:H2'    | 2:L5:1629:G:C8     | 2.44                     | 0.53              |
| 2:L5:1787:A:H2'    | 2:L5:1788:A:C8     | 2.43                     | 0.53              |
| 2:L5:4088:C:H2'    | 2:L5:4089:G:C8     | 2.44                     | 0.53              |
| 2:L5:4991:U:H2'    | 2:L5:4992:G:C8     | 2.44                     | 0.53              |
| 4:L8:144:U:H2'     | 4:L8:145:C:C6      | 2.44                     | 0.53              |
| 9:LE:112:MET:O     | 46:Lr:87:ARG:NE    | 2.30                     | 0.53              |
| 67:SE:45:ILE:HD12  | 67:SE:80:ILE:HD11  | 1.91                     | 0.53              |
| 67:SE:192:ILE:HG12 | 67:SE:243:GLY:HA3  | 1.91                     | 0.53              |
| 82:S2:533:A:H61    | 82:S2:550:C:N4     | 2.04                     | 0.53              |
| 2:L5:162:A:H2'     | 2:L5:163:A:C8      | 2.44                     | 0.53              |
| 2:L5:299:C:H2'     | 2:L5:300:A:C8      | 2.44                     | 0.53              |
| 2:L5:399:G:H2'     | 2:L5:400:A2M:H8    | 1.91                     | 0.53              |
| 2:L5:1997:U:H4'    | 47:Ls:44:ARG:HH12  | 1.73                     | 0.53              |
| 2:L5:2102:G:H1'    | 2:L5:2103:G:C8     | 2.43                     | 0.53              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:2110:C:N4     | 2:L5:2111:G:O6     | 2.42                     | 0.53              |
| 2:L5:2572:C:O2'    | 29:LZ:112:ARG:NH2  | 2.42                     | 0.53              |
| 2:L5:4474:A:OP2    | 2:L5:4476:C:N4     | 2.41                     | 0.53              |
| 2:L5:4621:C:H2'    | 2:L5:4622:A:H8     | 1.72                     | 0.53              |
| 2:L5:5037:U:H2'    | 2:L5:5038:A:C8     | 2.44                     | 0.53              |
| 5:LA:137:ILE:HD11  | 5:LA:149:LYS:HB2   | 1.91                     | 0.53              |
| 27:LX:113:VAL:HG13 | 27:LX:117:TYR:HD2  | 1.74                     | 0.53              |
| 50:SF:171:GLU:OE2  | 59:SZ:106:GLN:NE2  | 2.41                     | 0.53              |
| 66:SC:169:TYR:OH   | 66:SC:175:GLY:O    | 2.23                     | 0.53              |
| 73:SN:93:LYS:HE2   | 73:SN:151:ALA:HB2  | 1.91                     | 0.53              |
| 82:S2:1468:C:H2'   | 82:S2:1469:A:H8    | 1.73                     | 0.53              |
| 82:S2:1532:C:H3'   | 82:S2:1637:A:H62   | 1.73                     | 0.53              |
| 2:L5:1523:A:N3     | 2:L5:4389:C:O2'    | 2.39                     | 0.52              |
| 2:L5:1985:G:N2     | 2:L5:2003:G:O2'    | 2.42                     | 0.52              |
| 2:L5:2317:C:OP1    | 34:Le:14:LYS:NZ    | 2.42                     | 0.52              |
| 2:L5:2386:U:H2'    | 2:L5:2387:G:C8     | 2.44                     | 0.52              |
| 2:L5:2613:C:OP1    | 36:Lg:24:ARG:NH2   | 2.42                     | 0.52              |
| 2:L5:2716:C:H2'    | 2:L5:2717:G:H8     | 1.73                     | 0.52              |
| 2:L5:4274:A:H2'    | 2:L5:4275:G:C8     | 2.44                     | 0.52              |
| 2:L5:4992:G:H2'    | 2:L5:4993:G:C8     | 2.44                     | 0.52              |
| 17:LN:38:ARG:HB2   | 17:LN:62:TYR:CZ    | 2.44                     | 0.52              |
| 20:LQ:88:ASP:HB2   | 20:LQ:109:ALA:HB2  | 1.90                     | 0.52              |
| 49:SD:146:ARG:NH1  | 82:S2:1489:A:N3    | 2.57                     | 0.52              |
| 51:SK:61:GLN:HB3   | 51:SK:68:TYR:HB2   | 1.90                     | 0.52              |
| 72:SL:57:ASP:OD1   | 72:SL:84:ARG:NH1   | 2.42                     | 0.52              |
| 82:S2:520:A:O2'    | 82:S2:825:A:N3     | 2.41                     | 0.52              |
| 82:S2:1101:U:H2'   | 82:S2:1102:G:C8    | 2.41                     | 0.52              |
| 82:S2:1143:A:O3'   | 82:S2:1355:C:N4    | 2.42                     | 0.52              |
| 82:S2:1275:G:H22   | 82:S2:1506:A:P     | 2.32                     | 0.52              |
| 82:S2:1740:C:H2'   | 82:S2:1741:U:C6    | 2.44                     | 0.52              |
| 2:L5:229:G:H2'     | 2:L5:230:G:C8      | 2.44                     | 0.52              |
| 2:L5:1086:C:H2'    | 2:L5:1087:A:H8     | 1.73                     | 0.52              |
| 2:L5:1618:G:OP1    | 39:Lj:13:ASN:ND2   | 2.40                     | 0.52              |
| 2:L5:2411:C:H2'    | 2:L5:2412:A:C8     | 2.44                     | 0.52              |
| 2:L5:4475:G:O6     | 42:Lm:125:LYS:NZ   | 2.43                     | 0.52              |
| 2:L5:4592:C:H2'    | 2:L5:4593:C:C6     | 2.44                     | 0.52              |
| 2:L5:4775:C:H2'    | 2:L5:4776:G:H8     | 1.74                     | 0.52              |
| 9:LE:119:GLU:HG3   | 34:Le:7:LEU:HD22   | 1.90                     | 0.52              |
| 12:LH:137:SER:HB3  | 12:LH:143:GLU:HB3  | 1.91                     | 0.52              |
| 28:LY:67:ILE:HD12  | 28:LY:107:THR:HG21 | 1.91                     | 0.52              |
| 44:Lo:11:PHE:HA    | 44:Lo:18:HIS:HA    | 1.91                     | 0.52              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 53:SP:100:LYS:HB2  | 82:S2:1240:A:C6    | 2.44                     | 0.52              |
| 66:SC:83:LEU:O     | 75:SV:15:ARG:NE    | 2.43                     | 0.52              |
| 66:SC:178:HIS:HB2  | 66:SC:220:ASP:HB2  | 1.90                     | 0.52              |
| 70:SI:141:ARG:HB3  | 70:SI:145:ILE:HB   | 1.91                     | 0.52              |
| 75:SV:20:SER:HB3   | 75:SV:59:ILE:HD11  | 1.91                     | 0.52              |
| 2:L5:35:U:H4'      | 2:L5:1525:A:C2     | 2.44                     | 0.52              |
| 2:L5:436:C:H2'     | 2:L5:437:G:H8      | 1.74                     | 0.52              |
| 2:L5:1088:C:H2'    | 2:L5:1089:G:H8     | 1.74                     | 0.52              |
| 2:L5:2028:C:H2'    | 2:L5:2029:A:H8     | 1.74                     | 0.52              |
| 2:L5:2745:A:H2'    | 2:L5:2746:A:H8     | 1.74                     | 0.52              |
| 2:L5:4638:U:H2'    | 2:L5:4639:G:N3     | 2.25                     | 0.52              |
| 2:L5:4868:G:O2'    | 2:L5:4872:G:OP1    | 2.27                     | 0.52              |
| 2:L5:4893:A:H3'    | 2:L5:4894:A:H8     | 1.74                     | 0.52              |
| 23:LT:35:LYS:N     | 23:LT:38:ASP:OD2   | 2.42                     | 0.52              |
| 40:Lk:24:LYS:O     | 40:Lk:35:LYS:N     | 2.40                     | 0.52              |
| 47:Ls:143:ILE:HD12 | 47:Ls:158:VAL:HG11 | 1.91                     | 0.52              |
| 67:SE:212:ASP:OD1  | 67:SE:216:ASN:N    | 2.37                     | 0.52              |
| 71:SJ:7:TRP:HB3    | 82:S2:38:A:H4'     | 1.91                     | 0.52              |
| 77:SX:41:PHE:HZ    | 77:SX:102:VAL:HG23 | 1.75                     | 0.52              |
| 82:S2:672:A:N6     | 82:S2:1027:A:OP1   | 2.33                     | 0.52              |
| 2:L5:697:G:H2'     | 2:L5:698:G:C8      | 2.45                     | 0.52              |
| 2:L5:1088:C:H2'    | 2:L5:1089:G:C8     | 2.45                     | 0.52              |
| 2:L5:1695:U:O2'    | 2:L5:1719:A:N3     | 2.41                     | 0.52              |
| 2:L5:1800:U:H2'    | 2:L5:1801:A:C8     | 2.45                     | 0.52              |
| 2:L5:2088:A:OP2    | 20:LQ:37:ARG:NH2   | 2.40                     | 0.52              |
| 2:L5:2353:U:H2'    | 2:L5:2354:G:C8     | 2.44                     | 0.52              |
| 2:L5:2692:U:H2'    | 2:L5:2693:G:O4'    | 2.08                     | 0.52              |
| 3:L7:60:G:H2'      | 3:L7:61:G:H8       | 1.73                     | 0.52              |
| 50:SF:86:LYS:HD3   | 82:S2:1674:G:H5''  | 1.92                     | 0.52              |
| 52:SM:110:VAL:O    | 52:SM:112:LYS:NZ   | 2.42                     | 0.52              |
| 60:Sc:14:VAL:HA    | 60:Sc:32:VAL:HA    | 1.89                     | 0.52              |
| 61:Sd:21:CYS:HB3   | 61:Sd:26:ASN:H     | 1.75                     | 0.52              |
| 62:Sf:117:LEU:HD12 | 62:Sf:118:ARG:HD3  | 1.90                     | 0.52              |
| 69:SH:83:LEU:HB3   | 69:SH:92:VAL:HG21  | 1.92                     | 0.52              |
| 82:S2:509:OMG:H2'  | 82:S2:510:G:C8     | 2.44                     | 0.52              |
| 82:S2:654:A:OP2    | 82:S2:655:A:O2'    | 2.22                     | 0.52              |
| 82:S2:888:U:H4'    | 82:S2:889:U:H5'    | 1.90                     | 0.52              |
| 82:S2:1092:G:H2'   | 82:S2:1093:A:H8    | 1.75                     | 0.52              |
| 82:S2:1568:C:H2'   | 82:S2:1569:A:C8    | 2.45                     | 0.52              |
| 2:L5:169:G:O6      | 2:L5:170:C:N4      | 2.42                     | 0.52              |
| 2:L5:229:G:H2'     | 2:L5:230:G:H8      | 1.74                     | 0.52              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:256:G:H2'     | 2:L5:257:C:C6      | 2.45                     | 0.52              |
| 2:L5:1370:G:O6     | 7:LC:239:LYS:NZ    | 2.42                     | 0.52              |
| 2:L5:1577:G:OP1    | 45:Lp:17:ARG:NH2   | 2.41                     | 0.52              |
| 2:L5:1648:C:OP1    | 86:L5:5289:SPD:N10 | 2.42                     | 0.52              |
| 2:L5:2021:G:OP1    | 47:Ls:58:ASN:N     | 2.42                     | 0.52              |
| 2:L5:2521:G:H2'    | 2:L5:2522:G:C8     | 2.45                     | 0.52              |
| 2:L5:4156:G:H5''   | 2:L5:4157:A:H2'    | 1.91                     | 0.52              |
| 4:L8:19:C:H2'      | 4:L8:20:A:C8       | 2.42                     | 0.52              |
| 7:LC:110:ARG:HB2   | 17:LN:204:ARG:HH21 | 1.74                     | 0.52              |
| 11:LG:157:ILE:HA   | 11:LG:201:THR:HG22 | 1.92                     | 0.52              |
| 23:LT:39:ILE:HG13  | 23:LT:102:ARG:HE   | 1.74                     | 0.52              |
| 28:LY:47:MET:HE3   | 28:LY:48:PRO:HD2   | 1.92                     | 0.52              |
| 42:Lm:79:GLU:OE2   | 42:Lm:82:LEU:N     | 2.38                     | 0.52              |
| 52:SM:57:ASP:OD1   | 82:S2:1285:G:N1    | 2.42                     | 0.52              |
| 56:SS:14:ARG:HH11  | 56:SS:19:ASN:HB3   | 1.74                     | 0.52              |
| 67:SE:211:LYS:HD3  | 67:SE:215:GLY:HA2  | 1.91                     | 0.52              |
| 72:SL:97:ARG:NH1   | 82:S2:852:G:O2'    | 2.42                     | 0.52              |
| 73:SN:66:VAL:HG13  | 73:SN:67:THR:HG23  | 1.92                     | 0.52              |
| 77:SX:128:VAL:HG13 | 77:SX:133:LEU:HD11 | 1.92                     | 0.52              |
| 82:S2:177:G:H22    | 82:S2:313:A:H5'    | 1.74                     | 0.52              |
| 82:S2:598:G:H2'    | 82:S2:599:A:H8     | 1.74                     | 0.52              |
| 82:S2:835:C:O2     | 82:S2:837:A:N6     | 2.42                     | 0.52              |
| 2:L5:94:A:H5''     | 30:La:34:ASN:HB2   | 1.90                     | 0.52              |
| 2:L5:184:U:O2'     | 2:L5:189:G:O4'     | 2.28                     | 0.52              |
| 2:L5:439:G:O3'     | 35:Lf:91:ASN:ND2   | 2.43                     | 0.52              |
| 2:L5:1177:U:O2'    | 8:LD:286:SER:OG    | 2.24                     | 0.52              |
| 2:L5:1315:C:H2'    | 2:L5:1316:OMG:C8   | 2.42                     | 0.52              |
| 2:L5:1327:C:H2'    | 2:L5:1328:G:C8     | 2.44                     | 0.52              |
| 2:L5:1600:A:H5'    | 19:LP:133:HIS:HA   | 1.91                     | 0.52              |
| 2:L5:3684:G:H2'    | 2:L5:3685:C:C6     | 2.45                     | 0.52              |
| 2:L5:3908:A:N7     | 2:L5:4449:A:N6     | 2.57                     | 0.52              |
| 2:L5:4383:U:H2'    | 2:L5:4384:U:C6     | 2.44                     | 0.52              |
| 2:L5:4762:A:OP2    | 18:LO:12:ARG:NH1   | 2.42                     | 0.52              |
| 8:LD:37:VAL:HG12   | 8:LD:50:ARG:HD3    | 1.90                     | 0.52              |
| 9:LE:223:ARG:HB3   | 9:LE:224:LYS:HB2   | 1.91                     | 0.52              |
| 44:Lo:33:LEU:HA    | 44:Lo:38:LYS:HG2   | 1.91                     | 0.52              |
| 51:SK:60:GLU:HB2   | 51:SK:69:TRP:CD1   | 2.44                     | 0.52              |
| 55:SR:29:HIS:HA    | 55:SR:32:LYS:HG2   | 1.91                     | 0.52              |
| 70:SI:36:THR:HG22  | 70:SI:96:LEU:HD12  | 1.90                     | 0.52              |
| 82:S2:146:G:H2'    | 82:S2:147:A:H8     | 1.75                     | 0.52              |
| 82:S2:941:C:H2'    | 82:S2:942:G:C8     | 2.44                     | 0.52              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 82:S2:1096:G:H2'  | 82:S2:1097:G:C8    | 2.45                     | 0.52              |
| 82:S2:1289:U:H2'  | 82:S2:1290:G:H8    | 1.75                     | 0.52              |
| 82:S2:1410:C:H2'  | 82:S2:1411:G:H8    | 1.75                     | 0.52              |
| 82:S2:1474:A:H2'  | 82:S2:1475:G:O4'   | 2.09                     | 0.52              |
| 2:L5:66:A:O2'     | 2:L5:326:C:O2      | 2.25                     | 0.52              |
| 2:L5:1335:G:H21   | 7:LC:95:MET:HB2    | 1.74                     | 0.52              |
| 2:L5:2812:A:H2'   | 2:L5:2813:A:C8     | 2.45                     | 0.52              |
| 2:L5:2832:A:OP1   | 33:Ld:47:LYS:NZ    | 2.31                     | 0.52              |
| 10:LF:236:ARG:HD3 | 10:LF:239:GLN:HB2  | 1.92                     | 0.52              |
| 52:SM:82:ASN:OD1  | 52:SM:83:LYS:N     | 2.43                     | 0.52              |
| 52:SM:86:GLY:HA2  | 52:SM:89:VAL:HG12  | 1.90                     | 0.52              |
| 57:ST:114:GLU:OE1 | 57:ST:114:GLU:N    | 2.43                     | 0.52              |
| 58:SU:56:MET:HB2  | 58:SU:86:LYS:HG3   | 1.90                     | 0.52              |
| 68:SG:22:ARG:HG3  | 68:SG:25:ARG:HH22  | 1.75                     | 0.52              |
| 82:S2:807:G:H2'   | 82:S2:808:A:H8     | 1.75                     | 0.52              |
| 2:L5:151:G:OP2    | 17:LN:4:TYR:OH     | 2.25                     | 0.52              |
| 2:L5:746:A:H2'    | 2:L5:747:A:C8      | 2.45                     | 0.52              |
| 2:L5:1705:G:H2'   | 2:L5:1706:A:O4'    | 2.09                     | 0.52              |
| 2:L5:1932:A:OP1   | 18:LO:49:ARG:NH2   | 2.32                     | 0.52              |
| 2:L5:2059:C:H2'   | 2:L5:2060:G:H8     | 1.75                     | 0.52              |
| 2:L5:4186:A:H2'   | 2:L5:4187:G:H8     | 1.75                     | 0.52              |
| 2:L5:4692:A:H62   | 2:L5:4696:C:N4     | 2.07                     | 0.52              |
| 29:LZ:91:LEU:HD23 | 29:LZ:117:LYS:HG3  | 1.91                     | 0.52              |
| 68:SG:170:ARG:HA  | 82:S2:72:C:H42     | 1.74                     | 0.52              |
| 68:SG:178:ARG:NH2 | 82:S2:145:G:OP2    | 2.42                     | 0.52              |
| 70:SI:81:VAL:HG22 | 70:SI:102:VAL:HG12 | 1.92                     | 0.52              |
| 74:SO:135:ILE:O   | 82:S2:943:U:O2'    | 2.27                     | 0.52              |
| 82:S2:1255:G:OP1  | 82:S2:1256:G:O2'   | 2.11                     | 0.52              |
| 2:L5:158:A:N1     | 2:L5:276:C:O2'     | 2.35                     | 0.52              |
| 2:L5:161:G:H2'    | 2:L5:162:A:C8      | 2.44                     | 0.52              |
| 2:L5:1323:A2M:H2' | 2:L5:1324:A:C8     | 2.45                     | 0.52              |
| 2:L5:1820:C:O2'   | 2:L5:1821:G:N7     | 2.43                     | 0.52              |
| 2:L5:2611:A:H5'   | 2:L5:2688:G:H4'    | 1.91                     | 0.52              |
| 2:L5:4093:G:H3'   | 2:L5:4094:G:H8     | 1.73                     | 0.52              |
| 9:LE:223:ARG:NH2  | 9:LE:234:ASP:O     | 2.43                     | 0.52              |
| 21:LR:72:LYS:O    | 21:LR:74:ARG:NH1   | 2.43                     | 0.52              |
| 46:Lr:49:VAL:HG23 | 46:Lr:64:ILE:HG22  | 1.92                     | 0.52              |
| 68:SG:98:ARG:NH2  | 68:SG:103:ASP:OD1  | 2.43                     | 0.52              |
| 68:SG:136:LYS:HB2 | 82:S2:65:C:H41     | 1.74                     | 0.52              |
| 74:SO:28:PHE:HZ   | 79:Sa:58:VAL:HG21  | 1.74                     | 0.52              |
| 82:S2:62:G:O2'    | 82:S2:172:OMU:OP1  | 2.24                     | 0.52              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 82:S2:1115:U:O2'   | 82:S2:1117:C:OP2   | 2.28                     | 0.52              |
| 82:S2:1410:C:H2'   | 82:S2:1411:G:C8    | 2.44                     | 0.52              |
| 82:S2:1692:U:H2'   | 82:S2:1693:G:C8    | 2.44                     | 0.52              |
| 82:S2:1736:G:H2'   | 82:S2:1737:G:H8    | 1.75                     | 0.52              |
| 2:L5:6:C:H2'       | 2:L5:7:C:C6        | 2.44                     | 0.52              |
| 2:L5:323:C:H2'     | 2:L5:324:A:H8      | 1.75                     | 0.52              |
| 2:L5:4510:A:H2'    | 2:L5:4511:A:C8     | 2.45                     | 0.52              |
| 2:L5:4964:C:H2'    | 2:L5:4965:U:C6     | 2.44                     | 0.52              |
| 7:LC:141:GLY:O     | 7:LC:182:LYS:NZ    | 2.39                     | 0.52              |
| 7:LC:266:THR:N     | 7:LC:269:LYS:O     | 2.41                     | 0.52              |
| 10:LF:122:PHE:HE1  | 10:LF:145:PRO:HG3  | 1.75                     | 0.52              |
| 53:SP:86:LEU:HB2   | 53:SP:89:MET:HE2   | 1.91                     | 0.52              |
| 62:Sf:133:ALA:HB3  | 62:Sf:140:TYR:HB3  | 1.92                     | 0.52              |
| 67:SE:36:HIS:NE2   | 67:SE:143:ASP:OD1  | 2.43                     | 0.52              |
| 68:SG:194:LEU:HD13 | 68:SG:197:GLN:NE2  | 2.25                     | 0.52              |
| 72:SL:65:ASN:HB2   | 82:S2:294:U:C4     | 2.45                     | 0.52              |
| 82:S2:368:U:H3'    | 82:S2:369:C:H2'    | 1.93                     | 0.52              |
| 82:S2:698:G:H2'    | 82:S2:733:C:C4     | 2.46                     | 0.52              |
| 82:S2:1201:U:H2'   | 82:S2:1202:U:C6    | 2.45                     | 0.52              |
| 1:Pt:4:U:H2'       | 1:Pt:5:C:C6        | 2.45                     | 0.51              |
| 2:L5:711:A:H2'     | 2:L5:712:C:C6      | 2.45                     | 0.51              |
| 2:L5:1683:PSU:H2'  | 2:L5:1684:A:C8     | 2.45                     | 0.51              |
| 2:L5:1952:G:OP1    | 22:LS:139:ARG:NE   | 2.43                     | 0.51              |
| 2:L5:4975:G:O2'    | 2:L5:4977:A:N6     | 2.38                     | 0.51              |
| 17:LN:46:ASP:OD1   | 17:LN:47:LYS:N     | 2.42                     | 0.51              |
| 43:Ln:2:ARG:NH2    | 82:S2:1842:4AC:H5  | 2.24                     | 0.51              |
| 52:SM:28:HIS:CE1   | 52:SM:115:GLY:HA3  | 2.44                     | 0.51              |
| 55:SR:3:ARG:NH1    | 82:S2:1454:A:O5'   | 2.42                     | 0.51              |
| 65:SB:33:VAL:HA    | 65:SB:96:CYS:HB2   | 1.92                     | 0.51              |
| 66:SC:194:ARG:NH1  | 82:S2:1156:U:O4    | 2.43                     | 0.51              |
| 82:S2:1226:G:N1    | 82:S2:1639:G7M:OP2 | 2.41                     | 0.51              |
| 82:S2:1550:G:O2'   | 82:S2:1558:C:O2    | 2.26                     | 0.51              |
| 2:L5:400:A2M:H2'   | 2:L5:401:G:O4'     | 2.11                     | 0.51              |
| 2:L5:405:U:O2'     | 2:L5:407:A:N7      | 2.38                     | 0.51              |
| 2:L5:1449:C:H2'    | 2:L5:1450:C:H6     | 1.74                     | 0.51              |
| 2:L5:1461:C:H2'    | 2:L5:1462:A:H8     | 1.76                     | 0.51              |
| 2:L5:1526:G:H2'    | 2:L5:1527:A:H8     | 1.73                     | 0.51              |
| 2:L5:3758:U:H2'    | 2:L5:3765:G:N2     | 2.26                     | 0.51              |
| 2:L5:3796:U:O2'    | 82:S2:1720:U:O2'   | 2.21                     | 0.51              |
| 21:LR:157:ASP:OD1  | 21:LR:158:GLN:N    | 2.43                     | 0.51              |
| 48:Lt:19:GLY:HA2   | 48:Lt:48:LYS:NZ    | 2.25                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 51:SK:85:LEU:HD12  | 51:SK:86:PRO:HD2   | 1.91                     | 0.51              |
| 68:SG:66:GLY:HA2   | 82:S2:1745:A:H1'   | 1.92                     | 0.51              |
| 82:S2:106:C:H2'    | 82:S2:107:A:H8     | 1.74                     | 0.51              |
| 82:S2:587:A:H5'    | 82:S2:592:C:H41    | 1.75                     | 0.51              |
| 82:S2:1033:G:N2    | 82:S2:1080:A:O2'   | 2.40                     | 0.51              |
| 82:S2:1037:G:H4'   | 82:S2:1845:A:H4'   | 1.91                     | 0.51              |
| 82:S2:1729:U:O4    | 82:S2:1805:G:O6    | 2.28                     | 0.51              |
| 2:L5:318:A:H2'     | 2:L5:319:A:H8      | 1.75                     | 0.51              |
| 2:L5:1259:G:H2'    | 2:L5:1260:G:C8     | 2.44                     | 0.51              |
| 2:L5:1617:G:H1'    | 2:L5:2513:A:N6     | 2.25                     | 0.51              |
| 2:L5:2262:G:OP1    | 46:Lr:94:ARG:NH1   | 2.42                     | 0.51              |
| 2:L5:2683:C:H2'    | 2:L5:2684:C:H6     | 1.75                     | 0.51              |
| 2:L5:2739:C:OP2    | 45:Lp:33:GLN:NE2   | 2.41                     | 0.51              |
| 2:L5:2832:A:H2'    | 2:L5:2833:A:C8     | 2.45                     | 0.51              |
| 2:L5:4648:A:H2'    | 2:L5:4649:G:H8     | 1.75                     | 0.51              |
| 2:L5:4704:C:H4'    | 12:LH:129:ARG:HH22 | 1.75                     | 0.51              |
| 2:L5:4725:C:OP1    | 6:LB:103:LYS:NZ    | 2.43                     | 0.51              |
| 6:LB:17:LEU:O      | 6:LB:19:ARG:N      | 2.43                     | 0.51              |
| 44:Lo:45:GLN:OE1   | 44:Lo:52:THR:N     | 2.42                     | 0.51              |
| 82:S2:92:A:H61     | 82:S2:444:G:H1'    | 1.75                     | 0.51              |
| 82:S2:454:U:H2'    | 82:S2:455:A:C8     | 2.44                     | 0.51              |
| 2:L5:1309:C:H2'    | 2:L5:1310:C:C6     | 2.45                     | 0.51              |
| 2:L5:1393:G:O2'    | 2:L5:4352:U:OP1    | 2.27                     | 0.51              |
| 2:L5:1931:C:N4     | 2:L5:2040:A:O2'    | 2.43                     | 0.51              |
| 2:L5:2539:C:H2'    | 2:L5:2540:C:C6     | 2.46                     | 0.51              |
| 2:L5:2610:G:H2'    | 2:L5:2611:A:C8     | 2.44                     | 0.51              |
| 2:L5:2714:G:H2'    | 2:L5:2715:G:H8     | 1.75                     | 0.51              |
| 4:L8:98:C:OP1      | 27:LX:67:ARG:NH2   | 2.34                     | 0.51              |
| 6:LB:122:TRP:O     | 6:LB:127:LYS:NZ    | 2.32                     | 0.51              |
| 16:LM:71:LYS:O     | 16:LM:75:GLN:HG3   | 2.10                     | 0.51              |
| 17:LN:61:ILE:HD13  | 17:LN:133:ILE:HA   | 1.92                     | 0.51              |
| 29:LZ:7:PRO:HA     | 29:LZ:25:ILE:HG22  | 1.92                     | 0.51              |
| 30:La:103:VAL:HB   | 30:La:108:TYR:HB2  | 1.92                     | 0.51              |
| 66:SC:271:ASP:O    | 66:SC:275:LYS:HG3  | 2.10                     | 0.51              |
| 78:SY:42:GLU:HA    | 78:SY:52:PRO:HB3   | 1.91                     | 0.51              |
| 82:S2:822:U:H3     | 82:S2:826:A:H62    | 1.57                     | 0.51              |
| 82:S2:888:U:O2'    | 82:S2:898:U:N3     | 2.42                     | 0.51              |
| 82:S2:1031:A2M:H2' | 82:S2:1032:C:H6    | 1.74                     | 0.51              |
| 82:S2:1447:G:H2'   | 82:S2:1448:A:C8    | 2.46                     | 0.51              |
| 2:L5:1176:C:H42    | 2:L5:1184:A:H61    | 1.58                     | 0.51              |
| 2:L5:1190:C:H2'    | 2:L5:1191:C:C6     | 2.46                     | 0.51              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 2:L5:1730:U:H1'   | 23:LT:101:SER:HB3  | 1.92                     | 0.51              |
| 2:L5:1811:G:H21   | 31:Lb:57:MET:HE2   | 1.76                     | 0.51              |
| 2:L5:2295:C:H2'   | 2:L5:2296:G:C8     | 2.45                     | 0.51              |
| 2:L5:2380:G:N2    | 2:L5:2425:U:OP1    | 2.34                     | 0.51              |
| 2:L5:2739:C:O2    | 5:LA:188:LYS:NZ    | 2.42                     | 0.51              |
| 2:L5:3825:A2M:H2' | 2:L5:3826:C:O4'    | 2.10                     | 0.51              |
| 2:L5:4253:A:H5'   | 2:L5:4254:G:C8     | 2.46                     | 0.51              |
| 2:L5:4324:A:H2'   | 2:L5:4325:A:C8     | 2.45                     | 0.51              |
| 2:L5:4495:G:H2'   | 2:L5:4496:A:H8     | 1.76                     | 0.51              |
| 2:L5:4575:G:H2'   | 2:L5:4576:PSU:H6   | 1.76                     | 0.51              |
| 2:L5:5030:U:H2'   | 2:L5:5031:G:H8     | 1.75                     | 0.51              |
| 5:LA:206:PRO:HG3  | 5:LA:213:GLY:HA3   | 1.92                     | 0.51              |
| 8:LD:64:ILE:HD13  | 8:LD:109:LEU:HD22  | 1.92                     | 0.51              |
| 8:LD:239:MET:HG3  | 8:LD:242:LYS:HZ3   | 1.76                     | 0.51              |
| 16:LM:6:PHE:H     | 16:LM:11:ARG:NH2   | 2.08                     | 0.51              |
| 31:Lb:102:PRO:O   | 31:Lb:109:ARG:NH2  | 2.43                     | 0.51              |
| 58:SU:51:LYS:HD3  | 82:S2:1433:C:N4    | 2.25                     | 0.51              |
| 58:SU:51:LYS:HB3  | 58:SU:90:ASP:HB2   | 1.93                     | 0.51              |
| 63:Sg:152:SER:OG  | 63:Sg:168:CYS:SG   | 2.57                     | 0.51              |
| 76:SW:74:VAL:O    | 82:S2:1157:G:O2'   | 2.25                     | 0.51              |
| 82:S2:106:C:OP1   | 82:S2:431:G:O2'    | 2.25                     | 0.51              |
| 82:S2:601:OMG:H2' | 82:S2:602:G:C8     | 2.45                     | 0.51              |
| 2:L5:86:U:H2'     | 2:L5:87:A:C8       | 2.45                     | 0.51              |
| 2:L5:172:C:H4'    | 2:L5:173:C:H5'     | 1.93                     | 0.51              |
| 2:L5:217:C:OP2    | 2:L5:219:G:O2'     | 2.29                     | 0.51              |
| 2:L5:2422:OMC:P   | 19:LP:127:ARG:HH12 | 2.33                     | 0.51              |
| 2:L5:2706:G:C5    | 83:CI:78:HIS:CD2   | 2.98                     | 0.51              |
| 2:L5:4069:U:H2'   | 2:L5:4070:U:C6     | 2.45                     | 0.51              |
| 2:L5:4151:G:H2'   | 2:L5:4152:G:H8     | 1.75                     | 0.51              |
| 2:L5:5002:U:H2'   | 2:L5:5003:U:H6     | 1.76                     | 0.51              |
| 11:LG:102:TYR:OH  | 11:LG:211:ASP:OD2  | 2.19                     | 0.51              |
| 52:SM:19:GLN:HE22 | 52:SM:88:TRP:CG    | 2.29                     | 0.51              |
| 63:Sg:213:ASP:OD2 | 63:Sg:215:GLN:NE2  | 2.44                     | 0.51              |
| 63:Sg:216:ALA:N   | 63:Sg:230:LEU:O    | 2.44                     | 0.51              |
| 65:SB:134:LEU:HG  | 65:SB:218:LEU:HD12 | 1.93                     | 0.51              |
| 82:S2:15:U:H2'    | 82:S2:16:G:O4'     | 2.11                     | 0.51              |
| 82:S2:1457:U:H2'  | 82:S2:1458:G:H8    | 1.75                     | 0.51              |
| 82:S2:1554:C:OP2  | 82:S2:1555:U:O2'   | 2.28                     | 0.51              |
| 82:S2:1588:A:H2'  | 82:S2:1589:A:C8    | 2.46                     | 0.51              |
| 2:L5:93:G:H2'     | 2:L5:94:A:C8       | 2.46                     | 0.51              |
| 2:L5:959:G:O2'    | 2:L5:2263:A:N6     | 2.44                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:1514:U:OP1    | 15:LL:2:ALA:HB3    | 2.11                     | 0.51              |
| 2:L5:1825:A:H2'    | 2:L5:1826:G:H8     | 1.76                     | 0.51              |
| 2:L5:2543:A:H2     | 2:L5:2773:G:H22    | 1.59                     | 0.51              |
| 2:L5:4563:U:C2     | 2:L5:4564:A:C8     | 2.98                     | 0.51              |
| 16:LM:86:TRP:O     | 16:LM:89:THR:OG1   | 2.20                     | 0.51              |
| 37:Lh:107:GLN:O    | 37:Lh:111:GLU:HG3  | 2.11                     | 0.51              |
| 47:Ls:13:TYR:O     | 47:Ls:17:ILE:HG12  | 2.10                     | 0.51              |
| 53:SP:18:ARG:NE    | 53:SP:36:LEU:O     | 2.44                     | 0.51              |
| 54:SQ:110:ASP:OD1  | 54:SQ:111:ILE:HD12 | 2.11                     | 0.51              |
| 68:SG:57:ASP:HB3   | 68:SG:61:PHE:H     | 1.76                     | 0.51              |
| 78:SY:4:THR:H      | 78:SY:32:LYS:HZ3   | 1.58                     | 0.51              |
| 82:S2:222:U:H2'    | 82:S2:223:C:C6     | 2.46                     | 0.51              |
| 82:S2:1605:G:H2'   | 82:S2:1606:G:C4    | 2.46                     | 0.51              |
| 82:S2:1820:G:H2'   | 82:S2:1821:U:C6    | 2.46                     | 0.51              |
| 2:L5:444:G:H2'     | 2:L5:445:U:C6      | 2.46                     | 0.51              |
| 2:L5:678:C:H2'     | 2:L5:679:C:C6      | 2.45                     | 0.51              |
| 2:L5:2627:C:OP1    | 24:LU:92:LYS:NZ    | 2.32                     | 0.51              |
| 2:L5:4186:A:H2'    | 2:L5:4187:G:C8     | 2.46                     | 0.51              |
| 57:ST:47:PRO:HA    | 82:S2:1539:U:H4'   | 1.93                     | 0.51              |
| 63:Sg:18:VAL:O     | 63:Sg:287:THR:OG1  | 2.28                     | 0.51              |
| 64:SA:34:MET:HE1   | 64:SA:162:PRO:HB3  | 1.92                     | 0.51              |
| 66:SC:259:THR:HG21 | 75:SV:16:LYS:H     | 1.75                     | 0.51              |
| 68:SG:50:VAL:HA    | 68:SG:113:ILE:HA   | 1.92                     | 0.51              |
| 68:SG:190:ARG:NH2  | 82:S2:334:C:OP2    | 2.42                     | 0.51              |
| 78:SY:23:MET:HE1   | 78:SY:75:ILE:HG12  | 1.92                     | 0.51              |
| 82:S2:652:U:H2'    | 82:S2:653:A:C8     | 2.46                     | 0.51              |
| 82:S2:747:U:O2     | 82:S2:796:G:N2     | 2.43                     | 0.51              |
| 2:L5:74:G:H3'      | 2:L5:75:G:C8       | 2.46                     | 0.51              |
| 2:L5:325:U:H2'     | 2:L5:326:C:C6      | 2.46                     | 0.51              |
| 2:L5:440:U:O2'     | 35:Lf:91:ASN:O     | 2.24                     | 0.51              |
| 2:L5:957:G:C2      | 2:L5:1283:G:H2'    | 2.46                     | 0.51              |
| 2:L5:1340:OMC:OP1  | 30:La:6:ARG:NH1    | 2.33                     | 0.51              |
| 2:L5:1558:A:H2'    | 2:L5:1559:G:H8     | 1.76                     | 0.51              |
| 2:L5:2018:C:H2'    | 2:L5:2019:C:H6     | 1.76                     | 0.51              |
| 2:L5:2277:C:H2'    | 2:L5:2278:G:C8     | 2.46                     | 0.51              |
| 2:L5:2529:A:H2'    | 2:L5:2532:C:H41    | 1.75                     | 0.51              |
| 2:L5:4860:G:H5'    | 18:LO:169:ARG:HD2  | 1.93                     | 0.51              |
| 2:L5:4967:A:H2'    | 2:L5:4968:A:C8     | 2.46                     | 0.51              |
| 14:LJ:16:ARG:NH2   | 14:LJ:136:ARG:O    | 2.44                     | 0.51              |
| 21:LR:21:LYS:HE3   | 21:LR:55:VAL:HA    | 1.93                     | 0.51              |
| 27:LX:127:LEU:HD11 | 27:LX:135:LYS:HE3  | 1.93                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 39:Lj:28:HIS:HB3   | 39:Lj:31:LYS:HB2   | 1.92                     | 0.51              |
| 57:ST:82:ARG:NH1   | 82:S2:1654:G:OP1   | 2.44                     | 0.51              |
| 63:Sg:206:LEU:HD12 | 63:Sg:218:LEU:HD12 | 1.91                     | 0.51              |
| 64:SA:198:MET:HG2  | 64:SA:200:ASP:H    | 1.76                     | 0.51              |
| 68:SG:56:ASN:HB2   | 68:SG:108:VAL:HG22 | 1.92                     | 0.51              |
| 70:SI:3:ILE:O      | 70:SI:30:GLY:N     | 2.39                     | 0.51              |
| 71:SJ:39:ASN:HB2   | 82:S2:642:U:P      | 2.50                     | 0.51              |
| 82:S2:119:U:H2'    | 82:S2:120:U:H6     | 1.76                     | 0.51              |
| 82:S2:1523:C:H2'   | 82:S2:1524:G:H8    | 1.76                     | 0.51              |
| 82:S2:1792:G:H2'   | 82:S2:1793:A:H8    | 1.76                     | 0.51              |
| 1:Pt:4:U:H2'       | 1:Pt:5:C:H6        | 1.75                     | 0.51              |
| 2:L5:2459:G:N2     | 2:L5:2462:C:OP2    | 2.40                     | 0.51              |
| 2:L5:3736:A:H2'    | 2:L5:3737:A:C8     | 2.46                     | 0.51              |
| 2:L5:4070:U:H2'    | 2:L5:4071:U:C6     | 2.46                     | 0.51              |
| 3:L7:23:A:N3       | 3:L7:118:C:O2'     | 2.40                     | 0.51              |
| 4:L8:75:OMG:OP2    | 28:LY:74:TYR:OH    | 2.29                     | 0.51              |
| 7:LC:298:ILE:HD13  | 20:LQ:131:PRO:HB3  | 1.93                     | 0.51              |
| 9:LE:141:ARG:NH1   | 35:Lf:108:SER:O    | 2.44                     | 0.51              |
| 23:LT:102:ARG:O    | 23:LT:106:LEU:HG   | 2.11                     | 0.51              |
| 53:SP:57:LEU:HD21  | 53:SP:86:LEU:HD22  | 1.93                     | 0.51              |
| 63:Sg:32:LEU:HA    | 63:Sg:42:MET:HA    | 1.93                     | 0.51              |
| 66:SC:125:LYS:HA   | 66:SC:143:CYS:HA   | 1.93                     | 0.51              |
| 82:S2:1217:A:H2'   | 82:S2:1218:C:H6    | 1.75                     | 0.51              |
| 82:S2:1286:G:N2    | 82:S2:1312:G:O2'   | 2.43                     | 0.51              |
| 82:S2:1487:A:H2'   | 82:S2:1488:C:C6    | 2.45                     | 0.51              |
| 2:L5:139:G:H2'     | 2:L5:140:G:C8      | 2.46                     | 0.50              |
| 2:L5:212:A:H2'     | 2:L5:213:G:C8      | 2.46                     | 0.50              |
| 2:L5:1339:U:H2'    | 2:L5:1340:OMC:C6   | 2.47                     | 0.50              |
| 2:L5:1942:A:H2'    | 2:L5:1943:A:C8     | 2.46                     | 0.50              |
| 2:L5:2634:C:H2'    | 2:L5:2635:U:C6     | 2.46                     | 0.50              |
| 6:LB:222:VAL:O     | 6:LB:343:ARG:NH1   | 2.44                     | 0.50              |
| 10:LF:37:PHE:HZ    | 31:Lb:113:ALA:HB1  | 1.77                     | 0.50              |
| 21:LR:174:GLU:HA   | 21:LR:177:LEU:HB2  | 1.93                     | 0.50              |
| 29:LZ:88:ASP:OD1   | 29:LZ:88:ASP:N     | 2.38                     | 0.50              |
| 43:Ln:15:ARG:HG2   | 43:Ln:18:ARG:NH2   | 2.26                     | 0.50              |
| 44:Lo:74:GLU:HG3   | 44:Lo:76:ASN:H     | 1.76                     | 0.50              |
| 46:Lr:54:ALA:HA    | 46:Lr:61:VAL:HG23  | 1.91                     | 0.50              |
| 51:SK:55:ARG:NH1   | 51:SK:78:TYR:OH    | 2.44                     | 0.50              |
| 54:SQ:110:ASP:OD1  | 54:SQ:110:ASP:N    | 2.44                     | 0.50              |
| 64:SA:102:ARG:HH12 | 82:S2:1377:U:H3'   | 1.76                     | 0.50              |
| 67:SE:88:ASP:OD1   | 67:SE:122:LYS:NZ   | 2.35                     | 0.50              |

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| Atom-1              | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|---------------------|--------------------|--------------------------|-------------------|
| 67:SE:202:PRO:HB2   | 72:SL:42:LEU:HD23  | 1.91                     | 0.50              |
| 76:SW:30:CYS:SG     | 76:SW:31:SER:N     | 2.84                     | 0.50              |
| 78:SY:126:GLY:HA2   | 78:SY:129:LYS:HG2  | 1.93                     | 0.50              |
| 80:Sb:22:LYS:HA     | 82:S2:921:G:C6     | 2.46                     | 0.50              |
| 82:S2:463:C:O2'     | 82:S2:466:G:O6     | 2.17                     | 0.50              |
| 82:S2:1279:C:H2'    | 82:S2:1280:G:C8    | 2.46                     | 0.50              |
| 82:S2:1610:G:O6     | 82:S2:1630:A:N6    | 2.44                     | 0.50              |
| 1:Pt:51:C:H2'       | 1:Pt:52:G:C8       | 2.45                     | 0.50              |
| 2:L5:425:U:H2'      | 2:L5:426:A:H8      | 1.76                     | 0.50              |
| 2:L5:1721:G:H2'     | 2:L5:1722:C:C6     | 2.47                     | 0.50              |
| 2:L5:1787:A:O5'     | 85:L5:5257:SPM:N14 | 2.44                     | 0.50              |
| 12:LH:41:ILE:HG21   | 12:LH:73:ILE:HD11  | 1.94                     | 0.50              |
| 30:La:100:ILE:HG13  | 30:La:123:ILE:HB   | 1.92                     | 0.50              |
| 39:Lj:19:CYS:SG     | 39:Lj:34:CYS:HB2   | 2.51                     | 0.50              |
| 50:SF:61:PHE:CD2    | 60:Sc:51:ARG:HD3   | 2.45                     | 0.50              |
| 64:SA:30:LEU:HD21   | 64:SA:35:GLU:HA    | 1.93                     | 0.50              |
| 66:SC:169:TYR:HB2   | 66:SC:173:LYS:HG2  | 1.92                     | 0.50              |
| 82:S2:1239:U:N3     | 82:S2:1242:U:OP2   | 2.43                     | 0.50              |
| 82:S2:1367:PSU:HO2' | 82:S2:1466:G:HO2'  | 1.59                     | 0.50              |
| 2:L5:20:U:H3'       | 2:L5:21:G:C8       | 2.46                     | 0.50              |
| 2:L5:137:G:H2'      | 2:L5:138:G:C8      | 2.44                     | 0.50              |
| 2:L5:1519:C:H2'     | 2:L5:1520:C:C6     | 2.46                     | 0.50              |
| 2:L5:1558:A:H2'     | 2:L5:1559:G:C8     | 2.47                     | 0.50              |
| 2:L5:2019:C:H2'     | 2:L5:2020:U:H6     | 1.74                     | 0.50              |
| 2:L5:2059:C:H2'     | 2:L5:2060:G:C8     | 2.46                     | 0.50              |
| 2:L5:2286:G:H2'     | 2:L5:2287:G:C8     | 2.47                     | 0.50              |
| 2:L5:3721:U:H2'     | 2:L5:3722:G:H8     | 1.77                     | 0.50              |
| 12:LH:106:GLN:HB2   | 12:LH:111:LEU:HB3  | 1.93                     | 0.50              |
| 58:SU:87:ARG:HH22   | 82:S2:1447:G:P     | 2.34                     | 0.50              |
| 71:SJ:144:ILE:HG21  | 82:S2:824:C:C2     | 2.47                     | 0.50              |
| 82:S2:159:A2M:O5'   | 82:S2:159:A2M:H8   | 2.11                     | 0.50              |
| 82:S2:1217:A:H2'    | 82:S2:1218:C:C6    | 2.46                     | 0.50              |
| 82:S2:1255:G:H5''   | 82:S2:1256:G:H4'   | 1.94                     | 0.50              |
| 2:L5:86:U:OP2       | 2:L5:97:G:N1       | 2.32                     | 0.50              |
| 2:L5:271:C:H2'      | 2:L5:272:U:H6      | 1.75                     | 0.50              |
| 2:L5:1269:G:O2'     | 2:L5:1270:A:O4'    | 2.27                     | 0.50              |
| 2:L5:4736:C:H4'     | 2:L5:5068:G:C4     | 2.47                     | 0.50              |
| 24:LU:114:TYR:CE2   | 83:CI:50:MET:HG3   | 2.46                     | 0.50              |
| 54:SQ:72:VAL:HG11   | 54:SQ:80:GLN:HG3   | 1.93                     | 0.50              |
| 55:SR:128:PHE:CD2   | 55:SR:129:LYS:HG3  | 2.46                     | 0.50              |
| 63:Sg:80:SER:OG     | 63:Sg:90:TRP:NE1   | 2.37                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 64:SA:184:ARG:HG2  | 64:SA:189:ILE:HB   | 1.93                     | 0.50              |
| 68:SG:162:LEU:HD22 | 68:SG:172:LYS:HB2  | 1.94                     | 0.50              |
| 74:SO:104:ARG:O    | 74:SO:106:LYS:NZ   | 2.42                     | 0.50              |
| 82:S2:379:C:H2'    | 82:S2:380:G:C8     | 2.47                     | 0.50              |
| 82:S2:544:G:H2'    | 82:S2:545:A:C8     | 2.46                     | 0.50              |
| 82:S2:1010:G:H2'   | 82:S2:1011:A:C8    | 2.42                     | 0.50              |
| 82:S2:1139:C:H2'   | 82:S2:1140:G:O4'   | 2.11                     | 0.50              |
| 82:S2:1773:C:H2'   | 82:S2:1774:C:H5''  | 1.92                     | 0.50              |
| 2:L5:6:C:H2'       | 2:L5:7:C:H6        | 1.77                     | 0.50              |
| 2:L5:33:A:H3'      | 2:L5:47:A:H61      | 1.77                     | 0.50              |
| 2:L5:1291:G:H2'    | 2:L5:1292:C:H6     | 1.75                     | 0.50              |
| 2:L5:1368:A:H2'    | 2:L5:1369:C:O4'    | 2.12                     | 0.50              |
| 2:L5:1533:A:O5'    | 2:L5:1623:A:N6     | 2.44                     | 0.50              |
| 2:L5:1733:G:N3     | 2:L5:4214:A:H2'    | 2.26                     | 0.50              |
| 2:L5:1818:G:O2'    | 2:L5:1820:C:OP2    | 2.20                     | 0.50              |
| 2:L5:2364:OMG:H2'  | 2:L5:2365:OMC:C6   | 2.46                     | 0.50              |
| 2:L5:2458:C:H5''   | 17:LN:67:ARG:HD2   | 1.92                     | 0.50              |
| 4:L8:75:OMG:H2'    | 4:L8:76:C:C6       | 2.47                     | 0.50              |
| 7:LC:39:PHE:O      | 7:LC:43:ASN:ND2    | 2.33                     | 0.50              |
| 14:LJ:56:THR:OG1   | 14:LJ:64:ARG:N     | 2.37                     | 0.50              |
| 26:LW:80:ARG:HH22  | 82:S2:167:G:H4'    | 1.76                     | 0.50              |
| 28:LY:32:SER:OG    | 28:LY:101:PRO:O    | 2.23                     | 0.50              |
| 69:SH:7:LYS:HD3    | 69:SH:10:LYS:HB3   | 1.92                     | 0.50              |
| 75:SV:60:ARG:HA    | 75:SV:65:SER:HB2   | 1.92                     | 0.50              |
| 77:SX:130:LEU:HD23 | 77:SX:133:LEU:HD12 | 1.93                     | 0.50              |
| 82:S2:352:U:H2'    | 82:S2:353:C:C6     | 2.47                     | 0.50              |
| 82:S2:1317:C:H2'   | 82:S2:1318:G:C8    | 2.47                     | 0.50              |
| 2:L5:908:G:H2'     | 2:L5:909:A:H8      | 1.76                     | 0.50              |
| 2:L5:928:C:H2'     | 2:L5:929:A:C8      | 2.46                     | 0.50              |
| 2:L5:1273:G:C6     | 9:LE:73:TYR:HB2    | 2.46                     | 0.50              |
| 2:L5:1557:C:H2'    | 2:L5:1558:A:C8     | 2.46                     | 0.50              |
| 2:L5:1804:A:O2'    | 2:L5:1833:G:O6     | 2.26                     | 0.50              |
| 2:L5:2075:G:H2'    | 2:L5:2076:G:H8     | 1.76                     | 0.50              |
| 2:L5:2327:G:H2'    | 2:L5:2328:G:H8     | 1.76                     | 0.50              |
| 2:L5:2611:A:H2'    | 2:L5:2612:G:C8     | 2.47                     | 0.50              |
| 2:L5:3681:G:N1     | 5:LA:118:GLU:OE1   | 2.43                     | 0.50              |
| 2:L5:4625:C:H5'    | 6:LB:338:VAL:HA    | 1.93                     | 0.50              |
| 2:L5:5010:PSU:H2'  | 2:L5:5011:A:C8     | 2.46                     | 0.50              |
| 10:LF:88:LYS:HE2   | 10:LF:197:VAL:H    | 1.76                     | 0.50              |
| 49:SD:15:GLY:HA3   | 61:Sd:50:ILE:HG23  | 1.94                     | 0.50              |
| 50:SF:32:ASP:OD2   | 50:SF:34:SER:OG    | 2.27                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 50:SF:83:ASN:OD1   | 82:S2:1651:A:O2'   | 2.27                     | 0.50              |
| 54:SQ:141:TYR:OH   | 82:S2:1668:U:OP2   | 2.27                     | 0.50              |
| 56:SS:137:LYS:NZ   | 82:S2:1235:G:O6    | 2.32                     | 0.50              |
| 57:ST:6:VAL:HG12   | 57:ST:135:ALA:HB2  | 1.94                     | 0.50              |
| 58:SU:21:ARG:NH2   | 82:S2:1404:U:OP2   | 2.36                     | 0.50              |
| 66:SC:94:ILE:HD11  | 66:SC:159:LYS:HG2  | 1.94                     | 0.50              |
| 66:SC:193:VAL:HG11 | 66:SC:240:THR:HG22 | 1.92                     | 0.50              |
| 77:SX:68:LYS:NZ    | 82:S2:616:A:OP1    | 2.45                     | 0.50              |
| 82:S2:1802:C:H2'   | 82:S2:1803:U:C6    | 2.47                     | 0.50              |
| 82:S2:1862:G:H1'   | 82:S2:1863:A:H2'   | 1.94                     | 0.50              |
| 2:L5:493:G:O2'     | 2:L5:494:U:OP1     | 2.30                     | 0.50              |
| 2:L5:966:A:OP2     | 2:L5:2256:C:N4     | 2.45                     | 0.50              |
| 2:L5:2437:C:H1'    | 27:LX:125:ASN:HB3  | 1.92                     | 0.50              |
| 2:L5:2634:C:H2'    | 2:L5:2635:U:H6     | 1.76                     | 0.50              |
| 3:L7:75:G:O4'      | 22:LS:53:LYS:NZ    | 2.45                     | 0.50              |
| 4:L8:89:U:H2'      | 4:L8:90:C:C6       | 2.46                     | 0.50              |
| 5:LA:24:LYS:HG3    | 5:LA:49:ILE:HD12   | 1.94                     | 0.50              |
| 5:LA:101:VAL:HG22  | 5:LA:165:VAL:HG22  | 1.94                     | 0.50              |
| 8:LD:211:LEU:HB3   | 8:LD:219:TYR:HB2   | 1.94                     | 0.50              |
| 12:LH:107:GLU:N    | 12:LH:107:GLU:OE1  | 2.44                     | 0.50              |
| 16:LM:55:MET:O     | 22:LS:157:ARG:NH1  | 2.33                     | 0.50              |
| 21:LR:126:LYS:HB3  | 21:LR:131:VAL:HG21 | 1.94                     | 0.50              |
| 52:SM:87:GLU:HG3   | 52:SM:103:VAL:HG11 | 1.93                     | 0.50              |
| 56:SS:55:ARG:N     | 56:SS:58:GLU:OE2   | 2.37                     | 0.50              |
| 71:SJ:28:GLU:OE2   | 71:SJ:44:TRP:NE1   | 2.41                     | 0.50              |
| 82:S2:85:A:H2'     | 82:S2:86:C:H6      | 1.77                     | 0.50              |
| 82:S2:344:U:H2'    | 82:S2:345:U:C6     | 2.47                     | 0.50              |
| 82:S2:1199:A:H2'   | 82:S2:1200:A:C8    | 2.46                     | 0.50              |
| 82:S2:1353:A:H2'   | 82:S2:1354:G:C8    | 2.47                     | 0.50              |
| 82:S2:1598:G:N2    | 82:S2:1599:U:O4    | 2.39                     | 0.50              |
| 2:L5:921:C:H2'     | 2:L5:922:C:C6      | 2.47                     | 0.50              |
| 2:L5:978:G:H2'     | 2:L5:979:C:C6      | 2.47                     | 0.50              |
| 2:L5:1464:C:H2'    | 2:L5:1465:G:O4'    | 2.11                     | 0.50              |
| 2:L5:1672:U:H2'    | 2:L5:1673:U:C6     | 2.47                     | 0.50              |
| 2:L5:2877:G:H2'    | 2:L5:2878:G:O4'    | 2.12                     | 0.50              |
| 2:L5:3599:A:H2'    | 2:L5:3600:G:C8     | 2.46                     | 0.50              |
| 2:L5:4389:C:H2'    | 2:L5:4390:A:C8     | 2.47                     | 0.50              |
| 2:L5:4728:U:OP1    | 6:LB:132:LYS:NZ    | 2.45                     | 0.50              |
| 2:L5:4764:A:N1     | 12:LH:60:TRP:N     | 2.58                     | 0.50              |
| 2:L5:5002:U:H2'    | 2:L5:5003:U:C6     | 2.47                     | 0.50              |
| 3:L7:107:G:H2'     | 3:L7:108:G:H8      | 1.77                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 4:L8:90:C:H2'      | 4:L8:91:A:H8       | 1.75                     | 0.50              |
| 4:L8:130:C:H2'     | 4:L8:131:G:C8      | 2.46                     | 0.50              |
| 5:LA:107:MET:HB3   | 5:LA:111:THR:HG21  | 1.94                     | 0.50              |
| 32:Lc:99:PRO:HG3   | 32:Lc:104:ILE:HB   | 1.94                     | 0.50              |
| 53:SP:126:VAL:HG11 | 82:S2:1520:G:H21   | 1.77                     | 0.50              |
| 54:SQ:89:SER:OG    | 54:SQ:119:LEU:O    | 2.29                     | 0.50              |
| 56:SS:39:ARG:NE    | 82:S2:1629:C:OP1   | 2.34                     | 0.50              |
| 68:SG:21:GLU:O     | 68:SG:25:ARG:N     | 2.45                     | 0.50              |
| 70:SI:4:SER:OG     | 70:SI:6:ASP:OD2    | 2.23                     | 0.50              |
| 70:SI:19:LYS:HD3   | 82:S2:101:U:H5''   | 1.93                     | 0.50              |
| 82:S2:145:G:H2'    | 82:S2:146:G:H8     | 1.76                     | 0.50              |
| 82:S2:1558:C:H2'   | 82:S2:1559:C:C6    | 2.46                     | 0.50              |
| 2:L5:1587:G:C5     | 86:L5:5282:SPD:H82 | 2.47                     | 0.50              |
| 2:L5:1960:A:C8     | 47:Ls:63:LYS:HE2   | 2.47                     | 0.50              |
| 2:L5:2018:C:H2'    | 2:L5:2019:C:C6     | 2.47                     | 0.50              |
| 2:L5:2498:C:H2'    | 2:L5:2499:C:H6     | 1.76                     | 0.50              |
| 2:L5:3737:A:H3'    | 2:L5:3738:G:H8     | 1.77                     | 0.50              |
| 29:LZ:22:LYS:NZ    | 29:LZ:132:GLN:O    | 2.39                     | 0.50              |
| 62:Sf:110:GLU:HG2  | 62:Sf:113:LYS:HD3  | 1.94                     | 0.50              |
| 63:Sg:178:ASN:HB2  | 63:Sg:185:LYS:HD3  | 1.94                     | 0.50              |
| 64:SA:32:PHE:CD1   | 82:S2:1097:G:H4'   | 2.47                     | 0.50              |
| 64:SA:142:LEU:HD12 | 64:SA:143:PRO:HD2  | 1.94                     | 0.50              |
| 66:SC:131:GLY:HA3  | 66:SC:137:VAL:HA   | 1.94                     | 0.50              |
| 76:SW:4:MET:SD     | 82:S2:682:U:O2'    | 2.67                     | 0.50              |
| 82:S2:1103:C:H2'   | 82:S2:1104:G:H8    | 1.76                     | 0.50              |
| 82:S2:1171:G:O2'   | 82:S2:1187:G:O6    | 2.27                     | 0.50              |
| 2:L5:502:C:H3'     | 2:L5:503:C:H3'     | 1.93                     | 0.49              |
| 2:L5:1478:C:H2'    | 2:L5:1479:G:H8     | 1.75                     | 0.49              |
| 2:L5:2527:A:OP1    | 21:LR:38:ARG:NH2   | 2.30                     | 0.49              |
| 2:L5:2568:C:H2'    | 2:L5:2569:G:H8     | 1.76                     | 0.49              |
| 2:L5:2754:G:OP2    | 29:LZ:133:LYS:NZ   | 2.43                     | 0.49              |
| 2:L5:4149:C:OP1    | 29:LZ:59:LYS:N     | 2.39                     | 0.49              |
| 2:L5:4260:U:H2'    | 2:L5:4261:C:H6     | 1.77                     | 0.49              |
| 11:LG:78:PRO:HD3   | 11:LG:237:TRP:CE2  | 2.47                     | 0.49              |
| 27:LX:80:PRO:HA    | 27:LX:98:PHE:HA    | 1.94                     | 0.49              |
| 58:SU:63:ILE:O     | 58:SU:80:PHE:N     | 2.43                     | 0.49              |
| 67:SE:3:ARG:N      | 82:S2:93:PSU:OP1   | 2.45                     | 0.49              |
| 70:SI:84:ASN:OD1   | 70:SI:86:SER:N     | 2.40                     | 0.49              |
| 72:SL:133:PRO:O    | 82:S2:383:G:O2'    | 2.24                     | 0.49              |
| 73:SN:55:ARG:NH1   | 82:S2:1017:U:OP2   | 2.45                     | 0.49              |
| 82:S2:751:G:N1     | 82:S2:790:C:OP2    | 2.43                     | 0.49              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 82:S2:941:C:H2'   | 82:S2:942:G:H8     | 1.75                     | 0.49              |
| 2:L5:1178:G:H2'   | 8:LD:286:SER:HB3   | 1.94                     | 0.49              |
| 2:L5:1268:G:O6    | 31:Lb:111:ARG:NH2  | 2.45                     | 0.49              |
| 2:L5:1336:G:H2'   | 2:L5:2346:C:H42    | 1.77                     | 0.49              |
| 2:L5:2535:G:H2'   | 2:L5:2536:A:C8     | 2.47                     | 0.49              |
| 2:L5:4064:C:H2'   | 2:L5:4065:G:C8     | 2.46                     | 0.49              |
| 2:L5:4759:C:OP2   | 18:LO:171:LYS:NZ   | 2.39                     | 0.49              |
| 2:L5:4980:C:H3'   | 2:L5:4981:G:H21    | 1.76                     | 0.49              |
| 4:L8:5:U:H2'      | 4:L8:6:C:C6        | 2.45                     | 0.49              |
| 7:LC:33:ARG:HH21  | 20:LQ:22:ASP:HB2   | 1.76                     | 0.49              |
| 10:LF:137:GLU:HG3 | 10:LF:234:GLY:HA2  | 1.94                     | 0.49              |
| 11:LG:83:PHE:HA   | 11:LG:183:ILE:HD13 | 1.94                     | 0.49              |
| 15:LL:140:SER:HA  | 15:LL:143:GLU:HG2  | 1.94                     | 0.49              |
| 17:LN:169:ARG:HG3 | 17:LN:174:LEU:HD12 | 1.94                     | 0.49              |
| 21:LR:28:GLU:OE2  | 83:CI:75:LYS:HD2   | 2.12                     | 0.49              |
| 48:Lt:12:VAL:HG11 | 48:Lt:65:GLN:N     | 2.27                     | 0.49              |
| 54:SQ:80:GLN:O    | 54:SQ:84:ILE:HG13  | 2.12                     | 0.49              |
| 58:SU:74:SER:H    | 82:S2:1338:G:H4'   | 1.77                     | 0.49              |
| 62:Sf:124:ASP:OD1 | 62:Sf:124:ASP:N    | 2.43                     | 0.49              |
| 68:SG:2:LYS:HD3   | 68:SG:15:LEU:HD21  | 1.93                     | 0.49              |
| 73:SN:37:ILE:HG22 | 73:SN:75:LEU:HD21  | 1.94                     | 0.49              |
| 77:SX:22:TRP:NE1  | 82:S2:359:U:OP1    | 2.41                     | 0.49              |
| 82:S2:447:A:H1'   | 82:S2:449:A:O4'    | 2.12                     | 0.49              |
| 82:S2:1405:A:H2'  | 82:S2:1406:G:O4'   | 2.12                     | 0.49              |
| 82:S2:1674:G:O2'  | 82:S2:1675:A:O4'   | 2.27                     | 0.49              |
| 2:L5:1186:U:H2'   | 2:L5:1187:G:N3     | 2.28                     | 0.49              |
| 2:L5:1308:C:H2'   | 2:L5:1309:C:C6     | 2.48                     | 0.49              |
| 2:L5:2663:G:H2'   | 2:L5:2664:G:H8     | 1.77                     | 0.49              |
| 2:L5:2696:A:OP1   | 40:Lk:26:LYS:NZ    | 2.44                     | 0.49              |
| 2:L5:3808:OMC:H3' | 2:L5:3809:G:N2     | 2.28                     | 0.49              |
| 3:L7:49:A:H5''    | 8:LD:224:SER:HB2   | 1.95                     | 0.49              |
| 18:LO:180:GLN:NE2 | 18:LO:184:ASN:OD1  | 2.45                     | 0.49              |
| 23:LT:17:ARG:HB2  | 23:LT:22:HIS:CE1   | 2.48                     | 0.49              |
| 35:Lf:8:LYS:HB3   | 35:Lf:100:ARG:CZ   | 2.43                     | 0.49              |
| 64:SA:184:ARG:NE  | 64:SA:191:ARG:HD3  | 2.26                     | 0.49              |
| 65:SB:126:ASP:OD2 | 65:SB:136:ARG:NH2  | 2.37                     | 0.49              |
| 66:SC:144:SER:HB3 | 66:SC:150:ALA:HB2  | 1.93                     | 0.49              |
| 70:SI:143:LYS:NZ  | 82:S2:202:G:OP1    | 2.45                     | 0.49              |
| 71:SJ:124:HIS:CD2 | 81:Se:35:ARG:HD2   | 2.47                     | 0.49              |
| 78:SY:45:ALA:O    | 78:SY:50:THR:N     | 2.38                     | 0.49              |
| 82:S2:455:A:H2'   | 82:S2:456:C:H6     | 1.76                     | 0.49              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 82:S2:1240:A:H2'  | 82:S2:1241:A:C8   | 2.47                     | 0.49              |
| 82:S2:1605:G:N2   | 82:S2:1633:A:OP2  | 2.45                     | 0.49              |
| 82:S2:1845:A:H2'  | 82:S2:1846:G:C8   | 2.47                     | 0.49              |
| 2:L5:39:A:OP1     | 86:L5:5260:SPD:N1 | 2.44                     | 0.49              |
| 2:L5:68:U:OP1     | 17:LN:178:HIS:ND1 | 2.38                     | 0.49              |
| 2:L5:179:G:H2'    | 2:L5:180:C:C6     | 2.47                     | 0.49              |
| 2:L5:388:A:N6     | 2:L5:411:G:O2'    | 2.46                     | 0.49              |
| 2:L5:2275:G:H2'   | 2:L5:2276:A:C8    | 2.48                     | 0.49              |
| 2:L5:2285:A:H2'   | 2:L5:2286:G:C8    | 2.47                     | 0.49              |
| 2:L5:3872:A:H2'   | 2:L5:3873:G:C8    | 2.48                     | 0.49              |
| 2:L5:3899:OMG:HN1 | 2:L5:4562:C:H42   | 1.60                     | 0.49              |
| 2:L5:4716:C:H2'   | 2:L5:4717:A:H8    | 1.76                     | 0.49              |
| 25:LV:27:ASN:ND2  | 25:LV:100:ASP:OD2 | 2.43                     | 0.49              |
| 60:Sc:66:ARG:HH12 | 60:Sc:68:LEU:HD23 | 1.77                     | 0.49              |
| 68:SG:191:ARG:NH2 | 82:S2:312:G:H5''  | 2.28                     | 0.49              |
| 82:S2:352:U:H2'   | 82:S2:353:C:H6    | 1.78                     | 0.49              |
| 82:S2:1136:U:H2'  | 82:S2:1137:U:C6   | 2.48                     | 0.49              |
| 82:S2:1687:C:H2'  | 82:S2:1688:C:C6   | 2.48                     | 0.49              |
| 82:S2:1687:C:H2'  | 82:S2:1688:C:H6   | 1.77                     | 0.49              |
| 82:S2:1849:G:H2'  | 82:S2:1850:MA6:C8 | 2.43                     | 0.49              |
| 2:L5:153:G:H2'    | 2:L5:154:G:H8     | 1.78                     | 0.49              |
| 2:L5:1354:A:OP1   | 20:LQ:88:ASP:HB3  | 2.12                     | 0.49              |
| 2:L5:1504:G:H2'   | 2:L5:1505:C:C6    | 2.48                     | 0.49              |
| 2:L5:1877:G:H2'   | 2:L5:1878:G:C8    | 2.48                     | 0.49              |
| 2:L5:2823:G:H2'   | 2:L5:2824:OMC:C6  | 2.47                     | 0.49              |
| 2:L5:3852:A:N7    | 2:L5:3853:PSU:N1  | 2.59                     | 0.49              |
| 2:L5:4524:G:H2'   | 2:L5:4525:C:H6    | 1.77                     | 0.49              |
| 9:LE:91:THR:HA    | 9:LE:108:LYS:HA   | 1.93                     | 0.49              |
| 14:LJ:115:LEU:O   | 14:LJ:117:ILE:N   | 2.40                     | 0.49              |
| 48:Lt:81:ILE:HD13 | 48:Lt:113:ALA:HB1 | 1.94                     | 0.49              |
| 60:Sc:21:THR:N    | 60:Sc:27:CYS:O    | 2.40                     | 0.49              |
| 71:SJ:179:LYS:NZ  | 82:S2:585:C:OP1   | 2.45                     | 0.49              |
| 82:S2:350:C:O2'   | 82:S2:383:G:N1    | 2.30                     | 0.49              |
| 2:L5:142:G:H2'    | 2:L5:144:G:H8     | 1.78                     | 0.49              |
| 2:L5:226:G:N7     | 7:LC:184:TYR:OH   | 2.35                     | 0.49              |
| 2:L5:460:C:H2'    | 2:L5:461:G:H8     | 1.77                     | 0.49              |
| 2:L5:1621:A:H2'   | 2:L5:1622:U:C6    | 2.47                     | 0.49              |
| 2:L5:2674:A:OP1   | 32:Lc:92:CYS:N    | 2.44                     | 0.49              |
| 2:L5:2809:G:O2'   | 2:L5:4644:G:OP1   | 2.28                     | 0.49              |
| 2:L5:3872:A:H2'   | 2:L5:3873:G:H8    | 1.77                     | 0.49              |
| 2:L5:3907:G:N2    | 87:L5:5294:HMT:O8 | 2.45                     | 0.49              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 2:L5:4525:C:H5''   | 6:LB:245:HIS:HB3  | 1.95                     | 0.49              |
| 2:L5:4537:C:H2'    | 2:L5:4538:G:C8    | 2.47                     | 0.49              |
| 2:L5:4688:C:H2'    | 2:L5:4689:PSU:C6  | 2.47                     | 0.49              |
| 2:L5:4754:G:N1     | 2:L5:4880:C:N3    | 2.61                     | 0.49              |
| 2:L5:4945:G:C2     | 35:Lf:5:LEU:HD12  | 2.47                     | 0.49              |
| 13:LI:179:ASP:OD1  | 13:LI:180:GLU:N   | 2.45                     | 0.49              |
| 20:LQ:32:TYR:HD2   | 20:LQ:51:LEU:HD11 | 1.77                     | 0.49              |
| 32:Lc:64:ALA:O     | 32:Lc:68:LYS:N    | 2.45                     | 0.49              |
| 63:Sg:207:CYS:SG   | 63:Sg:219:TRP:HB2 | 2.53                     | 0.49              |
| 71:SJ:109:ARG:NH2  | 71:SJ:111:GLN:OE1 | 2.46                     | 0.49              |
| 82:S2:1213:C:H2'   | 82:S2:1214:A:C8   | 2.44                     | 0.49              |
| 82:S2:1232:PSU:H2' | 82:S2:1233:G:C8   | 2.48                     | 0.49              |
| 2:L5:908:G:H2'     | 2:L5:909:A:C8     | 2.48                     | 0.49              |
| 2:L5:2465:C:H2'    | 2:L5:2466:G:C8    | 2.48                     | 0.49              |
| 2:L5:2486:G:H8     | 2:L5:2493:G:H22   | 1.56                     | 0.49              |
| 2:L5:3642:A:H2'    | 39:Lj:3:LYS:HE3   | 1.95                     | 0.49              |
| 2:L5:3861:A:H2'    | 2:L5:3862:A:C8    | 2.47                     | 0.49              |
| 2:L5:4321:U:H2'    | 2:L5:4322:G:C8    | 2.47                     | 0.49              |
| 2:L5:4390:A:H2'    | 2:L5:4391:G:O4'   | 2.13                     | 0.49              |
| 2:L5:4630:G:H2'    | 2:L5:4631:G:H8    | 1.76                     | 0.49              |
| 2:L5:4704:C:H4'    | 12:LH:129:ARG:NH2 | 2.28                     | 0.49              |
| 2:L5:4723:A:H2'    | 2:L5:4724:A:C8    | 2.48                     | 0.49              |
| 6:LB:122:TRP:CE2   | 6:LB:127:LYS:HE3  | 2.48                     | 0.49              |
| 8:LD:217:ASP:N     | 8:LD:217:ASP:OD1  | 2.42                     | 0.49              |
| 25:LV:75:LYS:HE3   | 25:LV:77:HIS:CE1  | 2.48                     | 0.49              |
| 26:LW:105:ARG:NH2  | 68:SG:149:LYS:O   | 2.46                     | 0.49              |
| 32:Lc:34:THR:HG23  | 32:Lc:95:ALA:HB2  | 1.94                     | 0.49              |
| 37:Lh:10:ARG:NH1   | 37:Lh:63:GLN:OE1  | 2.43                     | 0.49              |
| 49:SD:45:ARG:NH1   | 49:SD:85:GLU:OE1  | 2.45                     | 0.49              |
| 51:SK:64:TRP:HB3   | 61:Sd:23:VAL:HA   | 1.94                     | 0.49              |
| 65:SB:114:VAL:O    | 82:S2:1869:A:N6   | 2.46                     | 0.49              |
| 67:SE:18:TRP:NE1   | 67:SE:41:CYS:O    | 2.37                     | 0.49              |
| 81:Se:36:MET:SD    | 81:Se:40:ARG:NE   | 2.73                     | 0.49              |
| 2:L5:351:C:OP2     | 7:LC:197:ARG:NH1  | 2.32                     | 0.49              |
| 2:L5:1979:A:N6     | 2:L5:1984:A:OP1   | 2.40                     | 0.49              |
| 2:L5:2284:G:H2'    | 2:L5:2285:A:H8    | 1.78                     | 0.49              |
| 2:L5:4246:G:H2'    | 2:L5:4247:G:H8    | 1.78                     | 0.49              |
| 2:L5:4323:A:H2'    | 2:L5:4324:A:C8    | 2.48                     | 0.49              |
| 2:L5:4537:C:H2'    | 2:L5:4538:G:H8    | 1.77                     | 0.49              |
| 2:L5:4736:C:H2'    | 2:L5:4737:G:C8    | 2.46                     | 0.49              |
| 3:L7:48:G:H5'      | 8:LD:226:TYR:HE1  | 1.78                     | 0.49              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 26:LW:100:VAL:O    | 26:LW:104:GLN:NE2  | 2.46                     | 0.49              |
| 55:SR:106:LEU:O    | 55:SR:111:PHE:N    | 2.46                     | 0.49              |
| 68:SG:176:ILE:HG12 | 68:SG:179:LEU:HD11 | 1.95                     | 0.49              |
| 82:S2:349:A:H2'    | 82:S2:350:C:C6     | 2.48                     | 0.49              |
| 82:S2:1324:G:N2    | 82:S2:1504:U:O2    | 2.31                     | 0.49              |
| 82:S2:1511:U:H2'   | 82:S2:1512:C:C6    | 2.48                     | 0.49              |
| 2:L5:1557:C:H2'    | 2:L5:1558:A:H8     | 1.78                     | 0.49              |
| 2:L5:1833:G:N2     | 2:L5:1835:G:O4'    | 2.46                     | 0.49              |
| 2:L5:2609:G:H2'    | 2:L5:2610:G:C8     | 2.47                     | 0.49              |
| 2:L5:2610:G:H2'    | 2:L5:2611:A:H8     | 1.78                     | 0.49              |
| 2:L5:2639:U:O2'    | 2:L5:2694:G:N7     | 2.46                     | 0.49              |
| 2:L5:2730:U:H2'    | 2:L5:2731:C:C6     | 2.48                     | 0.49              |
| 2:L5:3633:C:H2'    | 2:L5:3634:G:H8     | 1.76                     | 0.49              |
| 2:L5:3795:A:H2'    | 2:L5:3796:U:C6     | 2.47                     | 0.49              |
| 2:L5:4531:U:H4'    | 2:L5:4532:PSU:H5'' | 1.94                     | 0.49              |
| 2:L5:4565:C:OP1    | 18:LO:65:ASN:ND2   | 2.44                     | 0.49              |
| 2:L5:4636:PSU:OP1  | 33:Ld:35:GLY:N     | 2.36                     | 0.49              |
| 2:L5:4642:U:H2'    | 2:L5:4643:G:H8     | 1.78                     | 0.49              |
| 3:L7:58:A:H2'      | 3:L7:59:G:H8       | 1.77                     | 0.49              |
| 3:L7:114:U:H2'     | 3:L7:115:A:C8      | 2.48                     | 0.49              |
| 4:L8:67:U:H2'      | 4:L8:68:G:C8       | 2.47                     | 0.49              |
| 5:LA:180:LEU:HD21  | 45:Lp:22:LEU:HB3   | 1.94                     | 0.49              |
| 13:LI:43:VAL:HG21  | 13:LI:197:VAL:HG13 | 1.95                     | 0.49              |
| 18:LO:61:ARG:HA    | 18:LO:70:PRO:HD2   | 1.94                     | 0.49              |
| 38:Li:55:ARG:O     | 38:Li:59:GLU:HG2   | 2.13                     | 0.49              |
| 56:SS:87:GLN:O     | 82:S2:1611:G:O2'   | 2.27                     | 0.49              |
| 57:ST:6:VAL:O      | 57:ST:11:GLN:NE2   | 2.33                     | 0.49              |
| 62:Sf:107:LYS:O    | 62:Sf:115:SER:OG   | 2.31                     | 0.49              |
| 65:SB:90:ASP:HB2   | 65:SB:223:PHE:HZ   | 1.78                     | 0.49              |
| 76:SW:83:LEU:HD12  | 82:S2:805:U:H5''   | 1.94                     | 0.49              |
| 82:S2:588:G:H4'    | 82:S2:589:G:H5'    | 1.95                     | 0.49              |
| 82:S2:1208:A:H2'   | 82:S2:1209:A:H8    | 1.78                     | 0.49              |
| 2:L5:34:A:H2'      | 2:L5:35:U:C6       | 2.48                     | 0.49              |
| 2:L5:302:C:H2'     | 2:L5:303:C:H6      | 1.78                     | 0.49              |
| 2:L5:475:G:H2'     | 2:L5:476:G:C8      | 2.48                     | 0.49              |
| 2:L5:740:G:O6      | 2:L5:741:C:N4      | 2.46                     | 0.49              |
| 2:L5:1535:C:H42    | 2:L5:1636:U:H4'    | 1.77                     | 0.49              |
| 2:L5:1727:U:OP1    | 10:LF:131:ASN:ND2  | 2.44                     | 0.49              |
| 2:L5:1942:A:H4'    | 3:L7:88:A:N1       | 2.28                     | 0.49              |
| 2:L5:2387:G:H2'    | 2:L5:2388:A:H8     | 1.76                     | 0.49              |
| 2:L5:2491:C:O2'    | 2:L5:2492:C:O4'    | 2.20                     | 0.49              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:2638:G:N1     | 2:L5:2718:U:H2'    | 2.28                     | 0.49              |
| 2:L5:2848:G:O2'    | 2:L5:3838:U:O4     | 2.30                     | 0.49              |
| 2:L5:4076:G:H5'    | 11:LG:73:ARG:HG3   | 1.95                     | 0.49              |
| 2:L5:4896:G:H2'    | 2:L5:4897:G:C8     | 2.47                     | 0.49              |
| 6:LB:165:HIS:HB3   | 6:LB:180:LEU:HD23  | 1.95                     | 0.49              |
| 6:LB:302:ASN:HB2   | 6:LB:313:SER:HA    | 1.95                     | 0.49              |
| 12:LH:187:VAL:HG12 | 12:LH:188:GLN:HG3  | 1.95                     | 0.49              |
| 20:LQ:22:ASP:HB3   | 20:LQ:25:LEU:HB3   | 1.95                     | 0.49              |
| 54:SQ:3:SER:OG     | 54:SQ:4:LYS:N      | 2.45                     | 0.49              |
| 74:SO:85:CYS:HB3   | 74:SO:90:ILE:HB    | 1.95                     | 0.49              |
| 82:S2:1018:U:H2'   | 82:S2:1019:C:C6    | 2.48                     | 0.49              |
| 82:S2:1533:A:N6    | 82:S2:1602:U:N3    | 2.58                     | 0.49              |
| 1:Pt:3:C:H2'       | 1:Pt:4:U:C6        | 2.48                     | 0.48              |
| 2:L5:700:G:C6      | 2:L5:701:G:C6      | 3.01                     | 0.48              |
| 2:L5:2055:G:O5'    | 18:LO:130:LYS:NZ   | 2.41                     | 0.48              |
| 2:L5:3856:A:H5''   | 19:LP:83:TRP:O     | 2.13                     | 0.48              |
| 2:L5:4365:C:H2'    | 2:L5:4366:A:H8     | 1.78                     | 0.48              |
| 2:L5:4563:U:H2'    | 2:L5:4564:A:H8     | 1.78                     | 0.48              |
| 2:L5:4871:C:C4     | 22:LS:170:LYS:HD3  | 2.48                     | 0.48              |
| 3:L7:15:C:H2'      | 3:L7:16:A:C8       | 2.48                     | 0.48              |
| 3:L7:87:G:N2       | 3:L7:90:A:OP2      | 2.45                     | 0.48              |
| 7:LC:207:PRO:HB3   | 7:LC:249:PHE:CD2   | 2.48                     | 0.48              |
| 12:LH:113:GLU:HG2  | 12:LH:125:ARG:HG3  | 1.94                     | 0.48              |
| 20:LQ:72:LEU:HB2   | 20:LQ:75:ARG:HD2   | 1.95                     | 0.48              |
| 37:Lh:89:ARG:O     | 37:Lh:93:ARG:HG2   | 2.13                     | 0.48              |
| 66:SC:102:LEU:HD22 | 66:SC:130:ILE:HD12 | 1.95                     | 0.48              |
| 82:S2:1805:G:H2'   | 82:S2:1806:A:H8    | 1.78                     | 0.48              |
| 2:L5:1243:C:H2'    | 2:L5:1244:G:C8     | 2.48                     | 0.48              |
| 2:L5:1327:C:H2'    | 2:L5:1328:G:H8     | 1.78                     | 0.48              |
| 2:L5:1449:C:H2'    | 2:L5:1450:C:C6     | 2.48                     | 0.48              |
| 2:L5:1850:A:N3     | 2:L5:2283:G:O2'    | 2.44                     | 0.48              |
| 2:L5:2085:G:H2'    | 2:L5:2086:G:H8     | 1.77                     | 0.48              |
| 2:L5:2658:G:O2'    | 2:L5:2675:G:N2     | 2.45                     | 0.48              |
| 2:L5:4627:U:O2'    | 6:LB:55:HIS:ND1    | 2.34                     | 0.48              |
| 2:L5:5010:PSU:H2'  | 2:L5:5011:A:H8     | 1.77                     | 0.48              |
| 2:L5:5023:C:OP2    | 70:SI:124:LYS:NZ   | 2.46                     | 0.48              |
| 4:L8:65:A:O2'      | 37:Lh:10:ARG:NH2   | 2.45                     | 0.48              |
| 8:LD:181:PRO:HD2   | 8:LD:195:HIS:CD2   | 2.48                     | 0.48              |
| 11:LG:162:ASP:HB3  | 11:LG:163:PRO:HD3  | 1.94                     | 0.48              |
| 30:La:71:PRO:HG2   | 30:La:108:TYR:HA   | 1.95                     | 0.48              |
| 49:SD:225:GLU:N    | 63:Sg:187:ASN:O    | 2.36                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 54:SQ:100:VAL:HG22 | 54:SQ:101:ASP:H    | 1.77                     | 0.48              |
| 64:SA:106:GLY:N    | 64:SA:136:GLU:OE2  | 2.46                     | 0.48              |
| 67:SE:46:ILE:HG22  | 67:SE:49:ARG:HH21  | 1.77                     | 0.48              |
| 68:SG:160:LYS:HB3  | 68:SG:172:LYS:HB3  | 1.95                     | 0.48              |
| 77:SX:17:ARG:HH22  | 82:S2:659:G:N2     | 2.11                     | 0.48              |
| 82:S2:1649:U:H2'   | 82:S2:1650:A:H8    | 1.77                     | 0.48              |
| 2:L5:194:C:O2      | 28:LY:121:ARG:NH2  | 2.31                     | 0.48              |
| 2:L5:1304:C:H2'    | 2:L5:1305:C:C6     | 2.48                     | 0.48              |
| 2:L5:1847:C:H2'    | 2:L5:1848:C:C6     | 2.48                     | 0.48              |
| 2:L5:1949:U:H2'    | 2:L5:1950:U:C6     | 2.47                     | 0.48              |
| 2:L5:2735:G:H2'    | 2:L5:2736:G:H8     | 1.78                     | 0.48              |
| 2:L5:2876:OMG:C8   | 45:Lp:16:THR:HG22  | 2.49                     | 0.48              |
| 2:L5:3729:U:H2'    | 2:L5:3730:U:C6     | 2.48                     | 0.48              |
| 2:L5:3787:G:H1'    | 2:L5:3789:C:H41    | 1.78                     | 0.48              |
| 2:L5:4503:A:H2'    | 2:L5:4504:C:C6     | 2.48                     | 0.48              |
| 2:L5:4991:U:H2'    | 2:L5:4992:G:H8     | 1.78                     | 0.48              |
| 16:LM:28:VAL:HB    | 16:LM:37:LEU:HB3   | 1.95                     | 0.48              |
| 20:LQ:41:SER:HB3   | 20:LQ:44:ASN:ND2   | 2.28                     | 0.48              |
| 35:Lf:40:GLU:HA    | 35:Lf:43:LEU:HG    | 1.95                     | 0.48              |
| 36:Lg:64:LEU:HD23  | 36:Lg:67:LEU:HD12  | 1.96                     | 0.48              |
| 47:Ls:24:TYR:CG    | 47:Ls:90:PHE:HB3   | 2.48                     | 0.48              |
| 47:Ls:29:ILE:HG22  | 47:Ls:88:PHE:CD1   | 2.49                     | 0.48              |
| 53:SP:47:ARG:NE    | 82:S2:1619:A:OP1   | 2.27                     | 0.48              |
| 57:ST:47:PRO:HB3   | 82:S2:1540:G:H5'   | 1.95                     | 0.48              |
| 61:Sd:16:GLN:NE2   | 61:Sd:27:ARG:O     | 2.42                     | 0.48              |
| 65:SB:115:LYS:HG2  | 82:S2:1869:A:C5    | 2.49                     | 0.48              |
| 67:SE:29:PRO:HA    | 82:S2:496:C:H5'    | 1.94                     | 0.48              |
| 68:SG:15:LEU:HD22  | 82:S2:155:G:H4'    | 1.94                     | 0.48              |
| 72:SL:133:PRO:HG2  | 82:S2:383:G:H21    | 1.78                     | 0.48              |
| 82:S2:696:G:H21    | 82:S2:737:G:N2     | 2.10                     | 0.48              |
| 82:S2:1597:C:H4'   | 82:S2:1603:G:O6    | 2.13                     | 0.48              |
| 2:L5:268:G:H2'     | 2:L5:269:G:C8      | 2.48                     | 0.48              |
| 2:L5:519:C:H1'     | 2:L5:643:C:C2      | 2.49                     | 0.48              |
| 2:L5:1537:A:H2'    | 2:L5:1538:U:C6     | 2.48                     | 0.48              |
| 2:L5:1752:G:H2'    | 2:L5:1753:G:C8     | 2.49                     | 0.48              |
| 2:L5:3736:A:H2'    | 2:L5:3737:A:H8     | 1.78                     | 0.48              |
| 2:L5:4080:C:H2'    | 2:L5:4081:G:C8     | 2.48                     | 0.48              |
| 2:L5:4095:G:H2'    | 2:L5:4096:C:C6     | 2.49                     | 0.48              |
| 2:L5:4698:C:H3'    | 42:Lm:111:ARG:HH21 | 1.77                     | 0.48              |
| 2:L5:4753:U:H3'    | 35:Lf:4:ARG:HD3    | 1.95                     | 0.48              |
| 3:L7:92:C:H2'      | 3:L7:93:G:C8       | 2.40                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 4:L8:59:A:H4'      | 4:L8:60:G:H3'      | 1.96                     | 0.48              |
| 17:LN:6:TYR:CZ     | 38:Li:40:VAL:HG22  | 2.47                     | 0.48              |
| 23:LT:44:GLY:HA2   | 23:LT:95:HIS:HB3   | 1.94                     | 0.48              |
| 43:Ln:21:ARG:HH12  | 82:S2:1175:G:P     | 2.37                     | 0.48              |
| 50:SF:164:ARG:NH1  | 82:S2:1533:A:OP2   | 2.44                     | 0.48              |
| 54:SQ:11:GLN:NE2   | 82:S2:1407:U:O2'   | 2.34                     | 0.48              |
| 60:Sc:20:ARG:HA    | 60:Sc:28:THR:HA    | 1.94                     | 0.48              |
| 71:SJ:133:ARG:HH22 | 82:S2:581:U:P      | 2.36                     | 0.48              |
| 76:SW:115:GLU:HG2  | 76:SW:119:LYS:HE3  | 1.94                     | 0.48              |
| 81:Se:28:LYS:HG2   | 82:S2:525:A:OP2    | 2.13                     | 0.48              |
| 81:Se:58:ASN:N     | 82:S2:607:U:OP1    | 2.36                     | 0.48              |
| 82:S2:461:U:H2'    | 82:S2:462:OMC:C6   | 2.48                     | 0.48              |
| 82:S2:494:C:N4     | 82:S2:509:OMG:HN22 | 2.11                     | 0.48              |
| 2:L5:207:G:H2'     | 2:L5:208:A:C8      | 2.48                     | 0.48              |
| 2:L5:257:C:H2'     | 2:L5:258:G:C8      | 2.49                     | 0.48              |
| 2:L5:387:G:H1'     | 2:L5:411:G:H21     | 1.79                     | 0.48              |
| 2:L5:689:U:H2'     | 2:L5:690:C:C6      | 2.49                     | 0.48              |
| 2:L5:714:G:H2'     | 2:L5:715:G:H8      | 1.77                     | 0.48              |
| 2:L5:1526:G:N1     | 2:L5:1649:U:O4     | 2.47                     | 0.48              |
| 2:L5:1604:G:H2'    | 2:L5:1605:G:C8     | 2.49                     | 0.48              |
| 2:L5:2581:A:H1'    | 2:L5:2654:C:O2'    | 2.14                     | 0.48              |
| 2:L5:2857:A:H2'    | 2:L5:2858:A:O4'    | 2.13                     | 0.48              |
| 2:L5:3827:G:O2'    | 2:L5:3829:G:OP2    | 2.25                     | 0.48              |
| 2:L5:4897:G:H2'    | 2:L5:4898:G:H8     | 1.78                     | 0.48              |
| 13:LI:152:LEU:HB3  | 13:LI:165:ILE:HD12 | 1.94                     | 0.48              |
| 14:LJ:63:ARG:HH11  | 44:Lo:106:PHE:HB2  | 1.78                     | 0.48              |
| 20:LQ:50:ARG:HH21  | 20:LQ:140:SER:HB2  | 1.78                     | 0.48              |
| 29:LZ:50:PRO:HD3   | 29:LZ:68:ILE:HG12  | 1.95                     | 0.48              |
| 30:La:36:GLY:HA3   | 30:La:40:HIS:CE1   | 2.48                     | 0.48              |
| 47:Ls:47:LEU:HD11  | 47:Ls:51:ALA:HB3   | 1.95                     | 0.48              |
| 49:SD:5:ILE:HD12   | 49:SD:9:ARG:HB3    | 1.94                     | 0.48              |
| 50:SF:26:ASP:N     | 50:SF:26:ASP:OD1   | 2.45                     | 0.48              |
| 75:SV:11:LEU:HD23  | 75:SV:11:LEU:H     | 1.79                     | 0.48              |
| 77:SX:90:CYS:HA    | 77:SX:93:PHE:HD2   | 1.78                     | 0.48              |
| 82:S2:1384:C:H2'   | 82:S2:1385:G:H8    | 1.78                     | 0.48              |
| 2:L5:138:G:H2'     | 2:L5:139:G:H8      | 1.78                     | 0.48              |
| 2:L5:418:A:H4'     | 2:L5:2311:C:H5'    | 1.95                     | 0.48              |
| 2:L5:1411:C:H2'    | 2:L5:1412:G:C8     | 2.48                     | 0.48              |
| 2:L5:1510:G:H2'    | 2:L5:1511:U:C6     | 2.48                     | 0.48              |
| 2:L5:1545:G:H2'    | 2:L5:1546:C:C6     | 2.48                     | 0.48              |
| 2:L5:2495:U:H2'    | 2:L5:2496:G:C8     | 2.49                     | 0.48              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:L5:2671:C:H2'   | 2:L5:2672:C:C6    | 2.48                     | 0.48              |
| 2:L5:4420:U:H5''  | 2:L5:4421:C:H5    | 1.78                     | 0.48              |
| 3:L7:16:A:H2'     | 3:L7:17:C:C6      | 2.49                     | 0.48              |
| 12:LH:23:ARG:NH1  | 12:LH:41:ILE:O    | 2.33                     | 0.48              |
| 39:Lj:2:THR:O     | 39:Lj:7:SER:OG    | 2.23                     | 0.48              |
| 48:Lt:11:LYS:HG3  | 48:Lt:13:VAL:HG23 | 1.96                     | 0.48              |
| 55:SR:132:ARG:NH2 | 82:S2:1101:U:OP1  | 2.46                     | 0.48              |
| 66:SC:271:ASP:OD1 | 66:SC:272:HIS:N   | 2.45                     | 0.48              |
| 67:SE:63:LYS:O    | 67:SE:67:GLN:HG3  | 2.13                     | 0.48              |
| 82:S2:222:U:H2'   | 82:S2:223:C:H6    | 1.78                     | 0.48              |
| 82:S2:1189:A:H2'  | 82:S2:1190:A:H8   | 1.78                     | 0.48              |
| 82:S2:1222:G:H2'  | 82:S2:1223:A:C8   | 2.48                     | 0.48              |
| 82:S2:1567:G:H2'  | 82:S2:1568:C:C6   | 2.48                     | 0.48              |
| 2:L5:225:G:OP1    | 7:LC:222:ARG:NE   | 2.37                     | 0.48              |
| 2:L5:264:C:H2'    | 2:L5:265:C:C4     | 2.48                     | 0.48              |
| 2:L5:1380:G:H4'   | 2:L5:1381:U:H6    | 1.77                     | 0.48              |
| 2:L5:1426:G:N2    | 2:L5:1458:C:OP2   | 2.45                     | 0.48              |
| 2:L5:2084:C:C4    | 20:LQ:14:ARG:HD2  | 2.49                     | 0.48              |
| 2:L5:2412:A:H2'   | 2:L5:2413:U:C6    | 2.49                     | 0.48              |
| 2:L5:2699:C:H2'   | 2:L5:2700:G:C8    | 2.48                     | 0.48              |
| 2:L5:2763:U:H4'   | 2:L5:2764:A:H5''  | 1.95                     | 0.48              |
| 2:L5:4229:U:P     | 2:L5:4337:C:H41   | 2.36                     | 0.48              |
| 5:LA:20:VAL:HA    | 5:LA:23:ARG:HG3   | 1.96                     | 0.48              |
| 6:LB:46:PHE:CZ    | 6:LB:84:MET:HG2   | 2.48                     | 0.48              |
| 6:LB:317:LEU:HB3  | 6:LB:372:SER:HB2  | 1.96                     | 0.48              |
| 15:LL:127:PHE:HB2 | 37:Lh:118:LYS:HB3 | 1.95                     | 0.48              |
| 33:Ld:54:MET:HE3  | 33:Ld:60:PRO:HA   | 1.95                     | 0.48              |
| 39:Lj:28:HIS:O    | 39:Lj:32:SER:N    | 2.46                     | 0.48              |
| 50:SF:81:ARG:O    | 50:SF:85:LYS:NZ   | 2.35                     | 0.48              |
| 52:SM:23:LYS:O    | 52:SM:27:ILE:HG12 | 2.14                     | 0.48              |
| 53:SP:25:LEU:HA   | 53:SP:28:MET:HB2  | 1.96                     | 0.48              |
| 66:SC:60:TRP:CE2  | 66:SC:92:GLU:HB2  | 2.48                     | 0.48              |
| 66:SC:75:ILE:HG22 | 66:SC:97:PHE:HZ   | 1.79                     | 0.48              |
| 78:SY:108:LYS:NZ  | 82:S2:506:G:OP1   | 2.43                     | 0.48              |
| 82:S2:138:C:OP2   | 82:S2:1774:C:O2'  | 2.24                     | 0.48              |
| 82:S2:382:C:H2'   | 82:S2:383:G:C8    | 2.49                     | 0.48              |
| 82:S2:563:G:O2'   | 82:S2:564:A:OP1   | 2.31                     | 0.48              |
| 82:S2:1189:A:H2'  | 82:S2:1190:A:C8   | 2.49                     | 0.48              |
| 82:S2:1304:U:H2'  | 82:S2:1305:C:C6   | 2.48                     | 0.48              |
| 82:S2:1348:G:H2'  | 82:S2:1349:G:C8   | 2.48                     | 0.48              |
| 82:S2:1777:G:H2'  | 82:S2:1778:C:C6   | 2.48                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:56:A:H4'      | 17:LN:157:LYS:HD2  | 1.95                     | 0.48              |
| 2:L5:190:G:H2'     | 2:L5:191:G:C8      | 2.49                     | 0.48              |
| 2:L5:959:G:C8      | 9:LE:123:ARG:HG2   | 2.49                     | 0.48              |
| 2:L5:1504:G:H2'    | 2:L5:1505:C:H6     | 1.79                     | 0.48              |
| 2:L5:2087:C:P      | 7:LC:303:ARG:HH22  | 2.37                     | 0.48              |
| 2:L5:2347:A:C4     | 34:Le:31:ILE:HD11  | 2.48                     | 0.48              |
| 2:L5:2419:C:H2'    | 2:L5:2420:A:H8     | 1.78                     | 0.48              |
| 2:L5:2520:C:H2'    | 2:L5:2521:G:H8     | 1.79                     | 0.48              |
| 2:L5:3899:OMG:HM23 | 2:L5:3899:OMG:H1'  | 1.70                     | 0.48              |
| 2:L5:3910:C:H2'    | 2:L5:3911:C:C6     | 2.49                     | 0.48              |
| 2:L5:4238:G:H2'    | 2:L5:4239:A:H8     | 1.79                     | 0.48              |
| 2:L5:4346:U:O2'    | 44:Lo:80:LYS:O     | 2.26                     | 0.48              |
| 2:L5:4742:G:OP1    | 2:L5:4900:C:N4     | 2.30                     | 0.48              |
| 2:L5:4763:U:O2'    | 22:LS:174:THR:OG1  | 2.27                     | 0.48              |
| 8:LD:209:ARG:O     | 8:LD:213:GLU:HG2   | 2.14                     | 0.48              |
| 15:LL:16:LYS:O     | 15:LL:21:ARG:NH2   | 2.43                     | 0.48              |
| 16:LM:100:ARG:HA   | 16:LM:103:LYS:HG2  | 1.95                     | 0.48              |
| 17:LN:37:HIS:O     | 17:LN:63:ARG:N     | 2.42                     | 0.48              |
| 19:LP:6:LEU:HD22   | 19:LP:116:HIS:ND1  | 2.29                     | 0.48              |
| 27:LX:129:ARG:NH2  | 27:LX:131:ASP:OD2  | 2.47                     | 0.48              |
| 34:Le:63:ASN:OD1   | 34:Le:64:LYS:N     | 2.47                     | 0.48              |
| 56:SS:12:ILE:HG22  | 56:SS:21:ASP:HA    | 1.95                     | 0.48              |
| 69:SH:18:GLU:OE1   | 69:SH:18:GLU:N     | 2.46                     | 0.48              |
| 74:SO:34:PHE:HA    | 74:SO:98:ARG:HB3   | 1.94                     | 0.48              |
| 78:SY:10:ARG:HA    | 82:S2:839:C:H41    | 1.79                     | 0.48              |
| 79:Sa:60:ASP:OD1   | 79:Sa:60:ASP:N     | 2.42                     | 0.48              |
| 82:S2:85:A:H2'     | 82:S2:86:C:C6      | 2.49                     | 0.48              |
| 82:S2:89:C:H2'     | 82:S2:90:G:C8      | 2.49                     | 0.48              |
| 82:S2:327:G:H5''   | 82:S2:328:U:C2     | 2.48                     | 0.48              |
| 82:S2:602:G:OP2    | 82:S2:603:C:O2'    | 2.30                     | 0.48              |
| 82:S2:747:U:O2     | 82:S2:796:G:C2     | 2.67                     | 0.48              |
| 2:L5:25:A:H2'      | 2:L5:26:C:H6       | 1.79                     | 0.48              |
| 2:L5:106:A:OP1     | 15:LL:39:ARG:NH1   | 2.45                     | 0.48              |
| 2:L5:192:G:H2'     | 2:L5:193:G:H8      | 1.79                     | 0.48              |
| 2:L5:424:U:H2'     | 2:L5:425:U:C6      | 2.49                     | 0.48              |
| 2:L5:1869:G:C6     | 86:L5:5285:SPD:H32 | 2.49                     | 0.48              |
| 2:L5:2568:C:H2'    | 2:L5:2569:G:C8     | 2.49                     | 0.48              |
| 2:L5:3666:C:H5''   | 5:LA:234:LYS:HE2   | 1.96                     | 0.48              |
| 2:L5:4064:C:H2'    | 2:L5:4065:G:H8     | 1.79                     | 0.48              |
| 2:L5:4196:OMG:HM23 | 2:L5:4196:OMG:H1'  | 1.72                     | 0.48              |
| 2:L5:4220:6MZ:O1P  | 2:L5:4220:6MZ:H8   | 2.14                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:4261:C:H2'    | 2:L5:4262:C:H6     | 1.79                     | 0.48              |
| 2:L5:4265:U:OP1    | 8:LD:12:TYR:OH     | 2.27                     | 0.48              |
| 2:L5:4369:A:H2'    | 2:L5:4370:OMG:C8   | 2.46                     | 0.48              |
| 2:L5:4499:OMG:C2   | 2:L5:4500:PSU:H1'  | 2.49                     | 0.48              |
| 2:L5:4605:A:H2'    | 2:L5:4606:G:O4'    | 2.14                     | 0.48              |
| 2:L5:4764:A:N6     | 12:LH:60:TRP:O     | 2.42                     | 0.48              |
| 4:L8:92:U:H2'      | 4:L8:93:C:O4'      | 2.14                     | 0.48              |
| 6:LB:74:GLU:OE1    | 6:LB:285:TYR:OH    | 2.29                     | 0.48              |
| 51:SK:32:HIS:CD2   | 51:SK:45:VAL:HG11  | 2.49                     | 0.48              |
| 64:SA:140:VAL:HG13 | 64:SA:142:LEU:HB2  | 1.95                     | 0.48              |
| 82:S2:149:A:H3'    | 82:S2:150:A:C8     | 2.41                     | 0.48              |
| 82:S2:444:G:N2     | 82:S2:447:A:OP2    | 2.46                     | 0.48              |
| 82:S2:1202:U:H2'   | 82:S2:1203:G:C8    | 2.49                     | 0.48              |
| 82:S2:1347:U:H3'   | 82:S2:1348:G:H21   | 1.79                     | 0.48              |
| 82:S2:1359:U:H2'   | 82:S2:1360:U:C6    | 2.49                     | 0.48              |
| 82:S2:1595:U:H2'   | 82:S2:1596:U:C6    | 2.49                     | 0.48              |
| 2:L5:342:G:H2'     | 2:L5:343:C:C6      | 2.48                     | 0.48              |
| 2:L5:1490:G:H2'    | 2:L5:1491:A:H8     | 1.78                     | 0.48              |
| 2:L5:4410:G:C6     | 2:L5:4433:G:C6     | 3.02                     | 0.48              |
| 2:L5:4452:U:H5'    | 87:L5:5294:HMT:H16 | 1.95                     | 0.48              |
| 20:LQ:99:LYS:HZ2   | 20:LQ:121:LEU:HD11 | 1.78                     | 0.48              |
| 31:Lb:65:MET:HG3   | 31:Lb:68:ARG:HH12  | 1.79                     | 0.48              |
| 52:SM:128:PHE:HA   | 52:SM:131:LYS:HG2  | 1.96                     | 0.48              |
| 53:SP:27:ASP:OD1   | 53:SP:27:ASP:N     | 2.44                     | 0.48              |
| 65:SB:98:THR:O     | 65:SB:232:HIS:NE2  | 2.45                     | 0.48              |
| 67:SE:247:THR:N    | 67:SE:250:GLU:OE2  | 2.42                     | 0.48              |
| 69:SH:87:PHE:HB3   | 69:SH:90:LYS:HD2   | 1.96                     | 0.48              |
| 70:SI:194:GLU:HG3  | 72:SL:10:TYR:CG    | 2.49                     | 0.48              |
| 75:SV:30:ALA:O     | 75:SV:60:ARG:HD3   | 2.14                     | 0.48              |
| 78:SY:29:HIS:HB2   | 78:SY:32:LYS:HB2   | 1.95                     | 0.48              |
| 82:S2:79:A:H2'     | 82:S2:80:G:O4'     | 2.14                     | 0.48              |
| 82:S2:1495:G:H2'   | 82:S2:1496:U:C6    | 2.49                     | 0.48              |
| 82:S2:1620:A:H1'   | 82:S2:1624:U:OP2   | 2.14                     | 0.48              |
| 1:Pt:50:U:O2       | 1:Pt:64:G:N2       | 2.32                     | 0.47              |
| 1:Pt:73:A:N3       | 13:LI:110:ARG:NH1  | 2.62                     | 0.47              |
| 2:L5:458:C:OP2     | 9:LE:114:ARG:NH2   | 2.47                     | 0.47              |
| 2:L5:1279:A:O2'    | 2:L5:1281:G:N7     | 2.46                     | 0.47              |
| 2:L5:2275:G:H2'    | 2:L5:2276:A:H8     | 1.78                     | 0.47              |
| 2:L5:3667:C:O2'    | 5:LA:8:GLN:O       | 2.32                     | 0.47              |
| 2:L5:4592:C:H2'    | 2:L5:4593:C:H6     | 1.78                     | 0.47              |
| 2:L5:4600:G:O2'    | 2:L5:4609:G:O6     | 2.32                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:4633:G:H21    | 2:L5:4665:A:H62    | 1.62                     | 0.47              |
| 2:L5:4678:G:N2     | 2:L5:4713:G:H1'    | 2.29                     | 0.47              |
| 2:L5:5044:A:H2'    | 2:L5:5045:G:H8     | 1.79                     | 0.47              |
| 3:L7:23:A:H2'      | 3:L7:24:C:C6       | 2.50                     | 0.47              |
| 8:LD:223:PHE:HB3   | 8:LD:226:TYR:HB2   | 1.95                     | 0.47              |
| 30:La:103:VAL:HA   | 30:La:106:SER:HB2  | 1.95                     | 0.47              |
| 42:Lm:88:LYS:HA    | 42:Lm:92:ASP:HB2   | 1.96                     | 0.47              |
| 47:Ls:77:LYS:HE2   | 47:Ls:193:PHE:HE1  | 1.78                     | 0.47              |
| 54:SQ:97:GLN:HB2   | 54:SQ:105:LYS:HG3  | 1.96                     | 0.47              |
| 63:Sg:159:ASN:HD21 | 63:Sg:161:SER:HB2  | 1.79                     | 0.47              |
| 63:Sg:207:CYS:HB3  | 63:Sg:221:LEU:HD21 | 1.95                     | 0.47              |
| 65:SB:23:ASP:N     | 65:SB:23:ASP:OD1   | 2.47                     | 0.47              |
| 82:S2:5:U:H2'      | 82:S2:6:G:C8       | 2.48                     | 0.47              |
| 82:S2:353:C:H2'    | 82:S2:354:OMU:H6   | 1.95                     | 0.47              |
| 82:S2:634:A:H2'    | 82:S2:635:G:C8     | 2.49                     | 0.47              |
| 82:S2:747:U:C2     | 82:S2:796:G:N1     | 2.82                     | 0.47              |
| 82:S2:902:G:O2'    | 82:S2:903:A:O4'    | 2.32                     | 0.47              |
| 82:S2:1039:C:H2'   | 82:S2:1040:G:H8    | 1.77                     | 0.47              |
| 82:S2:1328:OMG:H2' | 82:S2:1329:U:C6    | 2.49                     | 0.47              |
| 2:L5:358:C:H2'     | 2:L5:359:A:C8      | 2.50                     | 0.47              |
| 2:L5:683:C:H2'     | 2:L5:684:G:O4'     | 2.14                     | 0.47              |
| 2:L5:691:C:H2'     | 2:L5:692:A:C8      | 2.50                     | 0.47              |
| 2:L5:1721:G:H2'    | 2:L5:1722:C:H6     | 1.79                     | 0.47              |
| 2:L5:2354:G:H2'    | 2:L5:2355:G:H8     | 1.79                     | 0.47              |
| 2:L5:2566:G:H2'    | 2:L5:2567:G:C8     | 2.48                     | 0.47              |
| 2:L5:2699:C:H2'    | 2:L5:2700:G:H8     | 1.79                     | 0.47              |
| 2:L5:2835:A:O2'    | 6:LB:228:TYR:O     | 2.24                     | 0.47              |
| 2:L5:3723:A:H2'    | 2:L5:3724:A:C8     | 2.47                     | 0.47              |
| 2:L5:4977:A:H2'    | 2:L5:4978:G:C8     | 2.49                     | 0.47              |
| 4:L8:4:C:H2'       | 4:L8:5:U:H6        | 1.79                     | 0.47              |
| 8:LD:99:TYR:HE2    | 8:LD:164:LYS:HG3   | 1.79                     | 0.47              |
| 27:LX:90:ILE:HG12  | 27:LX:96:LEU:HD23  | 1.96                     | 0.47              |
| 56:SS:5:ILE:N      | 59:SZ:50:PHE:O     | 2.41                     | 0.47              |
| 56:SS:113:ARG:O    | 56:SS:117:ILE:HG12 | 2.13                     | 0.47              |
| 70:SI:9:HIS:CE1    | 70:SI:10:LYS:HG2   | 2.50                     | 0.47              |
| 78:SY:11:LYS:HB2   | 78:SY:24:VAL:HG12  | 1.96                     | 0.47              |
| 82:S2:381:C:H2'    | 82:S2:382:C:C6     | 2.49                     | 0.47              |
| 82:S2:845:G:H2'    | 82:S2:846:G:C8     | 2.49                     | 0.47              |
| 82:S2:1013:U:OP1   | 82:S2:1129:G:O2'   | 2.32                     | 0.47              |
| 82:S2:1431:G:H4'   | 82:S2:1434:C:H41   | 1.78                     | 0.47              |
| 82:S2:1667:U:H2'   | 82:S2:1668:U:C6    | 2.49                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:273:U:H2'     | 2:L5:274:C:H6      | 1.79                     | 0.47              |
| 2:L5:1176:C:H2'    | 2:L5:1177:U:C6     | 2.49                     | 0.47              |
| 2:L5:1264:C:H2'    | 2:L5:1265:G:C8     | 2.50                     | 0.47              |
| 2:L5:1270:A:H8     | 2:L5:2106:G:H21    | 1.62                     | 0.47              |
| 2:L5:3623:C:H3'    | 2:L5:3624:A:H8     | 1.78                     | 0.47              |
| 2:L5:3683:C:N3     | 5:LA:173:GLY:HA2   | 2.29                     | 0.47              |
| 2:L5:4920:C:H2'    | 2:L5:4921:C:H6     | 1.79                     | 0.47              |
| 8:LD:108:ARG:CZ    | 8:LD:253:TYR:HB2   | 2.44                     | 0.47              |
| 29:LZ:42:LEU:HA    | 29:LZ:74:VAL:HG22  | 1.97                     | 0.47              |
| 35:Lf:36:ARG:HB2   | 35:Lf:80:ASN:HA    | 1.95                     | 0.47              |
| 49:SD:29:LEU:HD22  | 49:SD:58:VAL:HG23  | 1.94                     | 0.47              |
| 49:SD:126:ILE:O    | 49:SD:129:SER:OG   | 2.27                     | 0.47              |
| 53:SP:100:LYS:HB2  | 82:S2:1240:A:C5    | 2.50                     | 0.47              |
| 63:Sg:289:LEU:HD11 | 63:Sg:298:LEU:HD21 | 1.95                     | 0.47              |
| 65:SB:97:LEU:HD23  | 65:SB:232:HIS:CG   | 2.49                     | 0.47              |
| 67:SE:9:LEU:HB2    | 67:SE:30:ARG:HD3   | 1.95                     | 0.47              |
| 68:SG:198:ARG:NH1  | 82:S2:126:G:OP2    | 2.39                     | 0.47              |
| 81:Se:39:ASN:HA    | 81:Se:43:VAL:HG12  | 1.95                     | 0.47              |
| 82:S2:511:U:H2'    | 82:S2:512:A:C8     | 2.47                     | 0.47              |
| 82:S2:959:G:H2'    | 82:S2:960:U:C6     | 2.49                     | 0.47              |
| 2:L5:1354:A:O5'    | 2:L5:1503:A:N6     | 2.47                     | 0.47              |
| 2:L5:1397:A:N1     | 2:L5:1498:G:O2'    | 2.44                     | 0.47              |
| 2:L5:3703:G:H2'    | 2:L5:3704:U:C6     | 2.49                     | 0.47              |
| 2:L5:4442:PSU:OP1  | 13:LI:115:MET:N    | 2.45                     | 0.47              |
| 6:LB:208:ASN:OD1   | 6:LB:209:GLN:N     | 2.47                     | 0.47              |
| 6:LB:299:ILE:HB    | 6:LB:313:SER:HB3   | 1.97                     | 0.47              |
| 17:LN:158:HIS:HB3  | 17:LN:161:MET:HB2  | 1.97                     | 0.47              |
| 24:LU:80:LYS:HG2   | 24:LU:110:TYR:CE2  | 2.50                     | 0.47              |
| 30:La:103:VAL:O    | 30:La:107:GLY:N    | 2.48                     | 0.47              |
| 55:SR:15:VAL:O     | 55:SR:18:GLU:HG2   | 2.14                     | 0.47              |
| 64:SA:42:LYS:HD2   | 64:SA:48:ILE:HD11  | 1.95                     | 0.47              |
| 68:SG:14:LYS:HE2   | 68:SG:16:ILE:HD11  | 1.97                     | 0.47              |
| 68:SG:31:ARG:HG3   | 68:SG:101:ILE:HG13 | 1.95                     | 0.47              |
| 71:SJ:150:ARG:HG3  | 82:S2:821:G:C6     | 2.49                     | 0.47              |
| 77:SX:105:PHE:CD1  | 77:SX:121:LYS:HB3  | 2.49                     | 0.47              |
| 79:Sa:12:LYS:NZ    | 82:S2:1086:G:OP2   | 2.45                     | 0.47              |
| 82:S2:441:C:H2'    | 82:S2:442:C:C6     | 2.49                     | 0.47              |
| 82:S2:1275:G:N2    | 82:S2:1506:A:OP2   | 2.36                     | 0.47              |
| 82:S2:1850:MA6:H8  | 82:S2:1850:MA6:O5' | 2.15                     | 0.47              |
| 82:S2:1857:G:H2'   | 82:S2:1858:G:H8    | 1.79                     | 0.47              |
| 2:L5:946:C:H2'     | 2:L5:947:C:H6      | 1.78                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:960:A:C8      | 9:LE:126:LEU:HD12  | 2.49                     | 0.47              |
| 2:L5:2362:U:H2'    | 2:L5:2363:A2M:C8   | 2.38                     | 0.47              |
| 2:L5:2782:U:OP2    | 41:Ll:10:LYS:NZ    | 2.41                     | 0.47              |
| 2:L5:4066:U:H2'    | 2:L5:4067:U:C6     | 2.48                     | 0.47              |
| 2:L5:4159:C:H2'    | 2:L5:4160:C:H6     | 1.79                     | 0.47              |
| 2:L5:4159:C:H2'    | 2:L5:4160:C:C6     | 2.50                     | 0.47              |
| 2:L5:4160:C:H2'    | 2:L5:4161:G:C8     | 2.50                     | 0.47              |
| 2:L5:4457:PSU:H1'  | 6:LB:252:ALA:HB3   | 1.96                     | 0.47              |
| 3:L7:64:G:H2'      | 3:L7:65:G:C8       | 2.48                     | 0.47              |
| 4:L8:66:A:H2'      | 4:L8:67:U:C6       | 2.50                     | 0.47              |
| 4:L8:70:G:O2'      | 4:L8:87:G:N2       | 2.47                     | 0.47              |
| 12:LH:11:ASP:OD1   | 12:LH:54:ARG:HG2   | 2.15                     | 0.47              |
| 16:LM:119:ARG:HG3  | 18:LO:189:ILE:HG23 | 1.97                     | 0.47              |
| 27:LX:124:VAL:HG22 | 27:LX:138:VAL:HG13 | 1.95                     | 0.47              |
| 29:LZ:12:LEU:HB2   | 29:LZ:81:MET:HB3   | 1.96                     | 0.47              |
| 45:Lp:70:THR:OG1   | 45:Lp:72:ASN:O     | 2.32                     | 0.47              |
| 54:SQ:12:VAL:HA    | 82:S2:1397:U:O4    | 2.14                     | 0.47              |
| 57:ST:60:THR:HG22  | 57:ST:75:MET:HE2   | 1.97                     | 0.47              |
| 63:Sg:163:PRO:HB2  | 63:Sg:179:LEU:HB2  | 1.97                     | 0.47              |
| 64:SA:164:ASN:OD1  | 64:SA:165:ASN:N    | 2.48                     | 0.47              |
| 64:SA:180:ARG:HB2  | 64:SA:195:TRP:CE3  | 2.50                     | 0.47              |
| 82:S2:543:C:H3'    | 82:S2:544:G:C8     | 2.48                     | 0.47              |
| 82:S2:1096:G:H2'   | 82:S2:1097:G:H8    | 1.80                     | 0.47              |
| 82:S2:1628:C:H2'   | 82:S2:1629:C:C6    | 2.49                     | 0.47              |
| 1:Pt:34:A:H5'      | 82:S2:1248:B8N:C4  | 2.43                     | 0.47              |
| 2:L5:57:G:H5''     | 17:LN:154:PRO:HB2  | 1.95                     | 0.47              |
| 2:L5:190:G:H2'     | 2:L5:191:G:H8      | 1.80                     | 0.47              |
| 2:L5:305:A:OP2     | 17:LN:15:GLN:NE2   | 2.37                     | 0.47              |
| 2:L5:1076:C:H2'    | 2:L5:1077:C:C6     | 2.50                     | 0.47              |
| 2:L5:1578:U:H2'    | 2:L5:1579:C:C6     | 2.50                     | 0.47              |
| 2:L5:2475:G:O2'    | 27:LX:53:ARG:NH1   | 2.47                     | 0.47              |
| 2:L5:2890:C:H42    | 2:L5:3611:A:H61    | 1.62                     | 0.47              |
| 2:L5:3687:A:O2'    | 5:LA:236:GLY:N     | 2.47                     | 0.47              |
| 2:L5:3688:U:H2'    | 2:L5:3689:G:C8     | 2.50                     | 0.47              |
| 2:L5:3867:A2M:H2'  | 2:L5:3868:G:C8     | 2.49                     | 0.47              |
| 2:L5:4188:U:H2'    | 2:L5:4189:U:C6     | 2.48                     | 0.47              |
| 2:L5:4565:C:H2'    | 2:L5:4566:U:H6     | 1.79                     | 0.47              |
| 6:LB:367:PHE:HB2   | 26:LW:1:MET:HB2    | 1.97                     | 0.47              |
| 16:LM:6:PHE:H      | 16:LM:11:ARG:HH21  | 1.62                     | 0.47              |
| 32:Lc:47:ILE:HD12  | 32:Lc:94:LEU:HD11  | 1.97                     | 0.47              |
| 39:Lj:85:LYS:HB3   | 39:Lj:85:LYS:HE3   | 1.69                     | 0.47              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 52:SM:19:GLN:HE22  | 52:SM:88:TRP:CD1  | 2.33                     | 0.47              |
| 63:Sg:44:LYS:HG2   | 63:Sg:56:GLN:HB2  | 1.96                     | 0.47              |
| 63:Sg:159:ASN:ND2  | 63:Sg:161:SER:HB2 | 2.29                     | 0.47              |
| 64:SA:172:GLY:HA3  | 64:SA:203:PHE:HD1 | 1.79                     | 0.47              |
| 69:SH:118:ARG:O    | 69:SH:121:THR:OG1 | 2.28                     | 0.47              |
| 82:S2:323:C:O2'    | 82:S2:325:C:N4    | 2.48                     | 0.47              |
| 82:S2:1399:C:H2'   | 82:S2:1400:U:H6   | 1.80                     | 0.47              |
| 2:L5:154:G:H2'     | 2:L5:155:C:C6     | 2.49                     | 0.47              |
| 2:L5:223:G:H4'     | 2:L5:225:G:N7     | 2.29                     | 0.47              |
| 2:L5:342:G:H2'     | 2:L5:343:C:H6     | 1.80                     | 0.47              |
| 2:L5:512:U:C4      | 2:L5:647:G:O6     | 2.68                     | 0.47              |
| 2:L5:758:G:H4'     | 12:LH:51:LYS:HE3  | 1.97                     | 0.47              |
| 2:L5:1241:C:H1'    | 31:Lb:120:ARG:N   | 2.29                     | 0.47              |
| 2:L5:1856:C:H2'    | 2:L5:1857:C:C6    | 2.49                     | 0.47              |
| 2:L5:2581:A:H2'    | 2:L5:2582:A:C8    | 2.49                     | 0.47              |
| 2:L5:2683:C:H2'    | 2:L5:2684:C:C6    | 2.50                     | 0.47              |
| 2:L5:2751:G:H2'    | 2:L5:2752:G:H8    | 1.80                     | 0.47              |
| 2:L5:2804:OMC:HM21 | 36:Lg:32:TYR:HE2  | 1.79                     | 0.47              |
| 2:L5:2864:A:H2'    | 2:L5:2865:U:C6    | 2.50                     | 0.47              |
| 2:L5:3759:A:N1     | 82:S2:1708:C:O2'  | 2.45                     | 0.47              |
| 2:L5:3805:U:H2'    | 2:L5:3806:G:H8    | 1.79                     | 0.47              |
| 2:L5:3844:PSU:H2'  | 2:L5:3845:A:C8    | 2.50                     | 0.47              |
| 2:L5:3844:PSU:H2'  | 2:L5:3845:A:H8    | 1.79                     | 0.47              |
| 2:L5:3848:U:O2'    | 2:L5:4634:U:O4    | 2.31                     | 0.47              |
| 2:L5:3945:A:H2'    | 2:L5:3946:G:H8    | 1.77                     | 0.47              |
| 2:L5:4391:G:OP1    | 7:LC:75:ARG:NH1   | 2.32                     | 0.47              |
| 2:L5:4458:C:H2'    | 2:L5:4459:U:C6    | 2.49                     | 0.47              |
| 2:L5:4481:U:H2'    | 2:L5:4482:U:H6    | 1.79                     | 0.47              |
| 2:L5:4561:C:H2'    | 2:L5:4562:C:H6    | 1.80                     | 0.47              |
| 2:L5:4887:C:H42    | 2:L5:4932:U:H3    | 1.61                     | 0.47              |
| 87:L5:5294:HMT:O8  | 87:L5:5294:HMT:O6 | 2.29                     | 0.47              |
| 4:L8:7:U:H2'       | 4:L8:8:U:C6       | 2.50                     | 0.47              |
| 4:L8:125:C:H1'     | 4:L8:126:C:H2'    | 1.96                     | 0.47              |
| 6:LB:92:TYR:HB3    | 6:LB:99:LEU:HD22  | 1.97                     | 0.47              |
| 6:LB:286:LYS:HB2   | 6:LB:365:LEU:HD11 | 1.96                     | 0.47              |
| 8:LD:89:LYS:HD2    | 8:LD:90:VAL:HB    | 1.97                     | 0.47              |
| 23:LT:50:LYS:HE2   | 23:LT:50:LYS:HB3  | 1.79                     | 0.47              |
| 37:Lh:88:THR:O     | 37:Lh:92:ARG:N    | 2.41                     | 0.47              |
| 50:SF:28:VAL:HG21  | 50:SF:109:LEU:HB2 | 1.96                     | 0.47              |
| 50:SF:100:ILE:HD11 | 50:SF:108:PRO:HB3 | 1.97                     | 0.47              |
| 51:SK:41:PRO:HG2   | 51:SK:44:HIS:CG   | 2.49                     | 0.47              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 54:SQ:77:HIS:O     | 54:SQ:81:ILE:HG12 | 2.15                     | 0.47              |
| 56:SS:62:ASP:OD1   | 56:SS:62:ASP:N    | 2.47                     | 0.47              |
| 57:ST:11:GLN:HB2   | 82:S2:1542:C:H4'  | 1.96                     | 0.47              |
| 58:SU:66:ARG:CZ    | 58:SU:75:LYS:HA   | 2.45                     | 0.47              |
| 67:SE:179:ASN:HA   | 67:SE:231:GLY:HA2 | 1.97                     | 0.47              |
| 68:SG:7:PHE:HD2    | 68:SG:10:THR:HG22 | 1.80                     | 0.47              |
| 68:SG:87:ARG:HA    | 68:SG:87:ARG:HD3  | 1.64                     | 0.47              |
| 69:SH:99:ARG:HH11  | 82:S2:913:A:P     | 2.38                     | 0.47              |
| 71:SJ:60:LEU:HD22  | 71:SJ:70:ARG:HA   | 1.96                     | 0.47              |
| 75:SV:73:ALA:HB1   | 75:SV:78:ILE:HB   | 1.97                     | 0.47              |
| 77:SX:90:CYS:HA    | 77:SX:93:PHE:CD2  | 2.50                     | 0.47              |
| 82:S2:373:G:H2'    | 82:S2:374:G:C8    | 2.50                     | 0.47              |
| 82:S2:433:A:H2'    | 82:S2:434:G:C8    | 2.50                     | 0.47              |
| 82:S2:484:A2M:H8   | 82:S2:484:A2M:O5' | 2.15                     | 0.47              |
| 82:S2:1004:PSU:H2' | 82:S2:1005:G:H8   | 1.80                     | 0.47              |
| 82:S2:1050:A:H62   | 82:S2:1068:G:N2   | 2.12                     | 0.47              |
| 82:S2:1532:C:O2'   | 82:S2:1601:A:N1   | 2.46                     | 0.47              |
| 2:L5:262:G:H2'     | 2:L5:263:G:H8     | 1.80                     | 0.47              |
| 2:L5:265:C:H1'     | 2:L5:266:C:H5''   | 1.97                     | 0.47              |
| 2:L5:447:C:H2'     | 2:L5:448:G:C8     | 2.50                     | 0.47              |
| 2:L5:1070:G:O2'    | 2:L5:1071:C:O5'   | 2.29                     | 0.47              |
| 2:L5:1346:C:H2'    | 2:L5:1347:G:C8    | 2.49                     | 0.47              |
| 2:L5:1350:C:H2'    | 2:L5:1351:G:C8    | 2.49                     | 0.47              |
| 2:L5:1847:C:H2'    | 2:L5:1848:C:H6    | 1.80                     | 0.47              |
| 2:L5:1995:G:H2'    | 2:L5:1996:C:C6    | 2.50                     | 0.47              |
| 2:L5:2638:G:H22    | 2:L5:2719:C:P     | 2.36                     | 0.47              |
| 2:L5:2689:C:H2'    | 2:L5:2690:C:C6    | 2.49                     | 0.47              |
| 2:L5:4240:G:H2'    | 2:L5:4241:C:C6    | 2.49                     | 0.47              |
| 3:L7:55:A:C4       | 3:L7:56:G:C8      | 3.03                     | 0.47              |
| 3:L7:75:G:H1'      | 3:L7:76:U:H5      | 1.79                     | 0.47              |
| 4:L8:9:A:H2'       | 4:L8:10:G:C8      | 2.48                     | 0.47              |
| 6:LB:154:LYS:HE2   | 6:LB:154:LYS:HB2  | 1.69                     | 0.47              |
| 13:LI:66:GLU:OE2   | 13:LI:69:ARG:NH2  | 2.27                     | 0.47              |
| 14:LJ:20:LEU:HD21  | 14:LJ:130:PHE:CD2 | 2.50                     | 0.47              |
| 23:LT:43:LYS:O     | 23:LT:58:HIS:ND1  | 2.48                     | 0.47              |
| 42:Lm:99:CYS:HB2   | 42:Lm:114:LYS:HE3 | 1.97                     | 0.47              |
| 51:SK:51:SER:OG    | 82:S2:1277:C:OP1  | 2.26                     | 0.47              |
| 52:SM:42:LEU:HD21  | 52:SM:50:CYS:SG   | 2.55                     | 0.47              |
| 55:SR:10:LYS:HG2   | 55:SR:53:TYR:CE2  | 2.50                     | 0.47              |
| 65:SB:144:LYS:HD3  | 65:SB:208:HIS:HB3 | 1.97                     | 0.47              |
| 77:SX:57:VAL:HB    | 77:SX:67:ARG:HB2  | 1.96                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 82:S2:1093:A:H2'   | 82:S2:1094:C:C6    | 2.49                     | 0.47              |
| 82:S2:1098:C:H2'   | 82:S2:1099:G:C8    | 2.50                     | 0.47              |
| 82:S2:1361:G:H1'   | 82:S2:1379:A:N7    | 2.30                     | 0.47              |
| 82:S2:1716:C:H2'   | 82:S2:1717:C:H6    | 1.80                     | 0.47              |
| 2:L5:292:G:O6      | 17:LN:181:HIS:ND1  | 2.44                     | 0.47              |
| 2:L5:295:A:C2      | 2:L5:317:A:H1'     | 2.50                     | 0.47              |
| 2:L5:737:C:C4      | 2:L5:739:G:H5''    | 2.50                     | 0.47              |
| 2:L5:965:G:H21     | 2:L5:2092:G:H1'    | 1.80                     | 0.47              |
| 2:L5:1281:G:H5'    | 7:LC:323:ARG:HB2   | 1.96                     | 0.47              |
| 2:L5:1669:A:H5''   | 31:Lb:15:LYS:HD2   | 1.96                     | 0.47              |
| 2:L5:1685:G:H2'    | 2:L5:1686:C:H6     | 1.78                     | 0.47              |
| 2:L5:2877:G:N2     | 2:L5:3824:A:O2'    | 2.40                     | 0.47              |
| 2:L5:3867:A2M:H2'  | 2:L5:3868:G:O4'    | 2.14                     | 0.47              |
| 2:L5:3877:A:O2'    | 2:L5:4400:G:N2     | 2.45                     | 0.47              |
| 2:L5:3911:C:H2'    | 2:L5:3912:U:H6     | 1.79                     | 0.47              |
| 2:L5:4593:C:H2'    | 2:L5:4594:U:H6     | 1.80                     | 0.47              |
| 2:L5:4940:C:H5'    | 2:L5:4941:G:H5''   | 1.96                     | 0.47              |
| 7:LC:315:LYS:HD2   | 10:LF:168:ALA:HB1  | 1.97                     | 0.47              |
| 9:LE:131:LYS:O     | 9:LE:136:HIS:NE2   | 2.48                     | 0.47              |
| 11:LG:159:HIS:CE1  | 11:LG:186:GLY:H    | 2.32                     | 0.47              |
| 16:LM:39:ASP:OD2   | 16:LM:70:GLN:NE2   | 2.48                     | 0.47              |
| 19:LP:94:MET:HE1   | 19:LP:146:ILE:HB   | 1.96                     | 0.47              |
| 45:Lp:36:LYS:HG2   | 45:Lp:48:LYS:HB3   | 1.97                     | 0.47              |
| 68:SG:121:ILE:HB   | 68:SG:125:THR:HG23 | 1.97                     | 0.47              |
| 70:SI:98:LYS:HD2   | 82:S2:377:G:H5'    | 1.97                     | 0.47              |
| 71:SJ:129:LEU:HD21 | 71:SJ:159:PHE:HE1  | 1.79                     | 0.47              |
| 77:SX:60:LYS:H     | 77:SX:114:ASP:HB2  | 1.80                     | 0.47              |
| 2:L5:301:G:H2'     | 2:L5:302:C:C6      | 2.49                     | 0.47              |
| 2:L5:354:U:H1'     | 7:LC:97:ARG:HG3    | 1.97                     | 0.47              |
| 2:L5:1334:A:H2'    | 2:L5:1335:G:H8     | 1.80                     | 0.47              |
| 2:L5:1341:U:H2'    | 2:L5:1342:A:C8     | 2.50                     | 0.47              |
| 2:L5:2864:A:H2'    | 2:L5:2865:U:H6     | 1.80                     | 0.47              |
| 2:L5:4886:C:H2'    | 2:L5:4887:C:C6     | 2.50                     | 0.47              |
| 3:L7:7:G:H5''      | 8:LD:22:ARG:HD3    | 1.97                     | 0.47              |
| 7:LC:262:GLU:HB3   | 7:LC:273:LEU:HD13  | 1.97                     | 0.47              |
| 12:LH:163:GLN:O    | 12:LH:166:THR:OG1  | 2.31                     | 0.47              |
| 22:LS:161:ARG:HD2  | 22:LS:164:LYS:HB2  | 1.96                     | 0.47              |
| 42:Lm:79:GLU:OE2   | 42:Lm:81:SER:OG    | 2.18                     | 0.47              |
| 46:Lr:107:ARG:NH1  | 46:Lr:108:MET:SD   | 2.88                     | 0.47              |
| 50:SF:201:LYS:HA   | 50:SF:204:ARG:HE   | 1.80                     | 0.47              |
| 54:SQ:11:GLN:HG2   | 54:SQ:24:HIS:HA    | 1.96                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 64:SA:63:ARG:HG3   | 64:SA:185:MET:HE1  | 1.97                     | 0.47              |
| 65:SB:214:LYS:HE2  | 65:SB:216:LYS:HE3  | 1.96                     | 0.47              |
| 68:SG:51:ARG:N     | 68:SG:112:VAL:O    | 2.42                     | 0.47              |
| 68:SG:132:ARG:NH2  | 82:S2:152:U:O4'    | 2.48                     | 0.47              |
| 82:S2:1198:G:H2'   | 82:S2:1199:A:H8    | 1.80                     | 0.47              |
| 82:S2:1279:C:H2'   | 82:S2:1280:G:H8    | 1.80                     | 0.47              |
| 2:L5:76:A:H5'      | 15:LL:101:ARG:NH1  | 2.30                     | 0.46              |
| 2:L5:262:G:H2'     | 2:L5:263:G:C8      | 2.50                     | 0.46              |
| 2:L5:467:U:C4      | 2:L5:468:U:H1'     | 2.50                     | 0.46              |
| 2:L5:1084:C:H2'    | 2:L5:1085:C:C6     | 2.50                     | 0.46              |
| 2:L5:1567:U:H2'    | 2:L5:1568:C:C6     | 2.50                     | 0.46              |
| 2:L5:2273:G:H2'    | 2:L5:2274:C:C6     | 2.50                     | 0.46              |
| 2:L5:2324:C:H2'    | 2:L5:2325:C:C6     | 2.49                     | 0.46              |
| 2:L5:3602:C:H2'    | 2:L5:3603:G:C8     | 2.50                     | 0.46              |
| 2:L5:3660:C:H2'    | 2:L5:3682:A:H61    | 1.80                     | 0.46              |
| 2:L5:4188:U:H2'    | 2:L5:4189:U:H6     | 1.81                     | 0.46              |
| 2:L5:5046:U:P      | 33:Ld:83:ARG:HH12  | 2.39                     | 0.46              |
| 9:LE:72:LYS:HD3    | 31:Lb:119:CYS:HB3  | 1.97                     | 0.46              |
| 10:LF:243:LEU:O    | 10:LF:247:MET:HB2  | 2.14                     | 0.46              |
| 24:LU:36:ALA:HB1   | 24:LU:65:ARG:HD2   | 1.97                     | 0.46              |
| 28:LY:60:GLY:O     | 28:LY:63:LYS:NZ    | 2.47                     | 0.46              |
| 49:SD:172:VAL:HG22 | 49:SD:185:LYS:HG2  | 1.97                     | 0.46              |
| 58:SU:21:ARG:HB3   | 58:SU:115:THR:OG1  | 2.15                     | 0.46              |
| 63:Sg:195:LEU:HA   | 63:Sg:211:GLY:HA3  | 1.96                     | 0.46              |
| 64:SA:111:GLN:HA   | 64:SA:116:PHE:CG   | 2.50                     | 0.46              |
| 66:SC:94:ILE:HD13  | 66:SC:162:ILE:HG13 | 1.97                     | 0.46              |
| 82:S2:21:U:H2'     | 82:S2:22:A:C8      | 2.50                     | 0.46              |
| 82:S2:375:U:H2'    | 82:S2:376:A:C8     | 2.50                     | 0.46              |
| 82:S2:878:G:H22    | 82:S2:908:A:H2     | 1.63                     | 0.46              |
| 82:S2:1365:G:H2'   | 82:S2:1366:G:H8    | 1.80                     | 0.46              |
| 82:S2:1605:G:H1'   | 82:S2:1634:A:H61   | 1.80                     | 0.46              |
| 82:S2:1656:G:N2    | 82:S2:1668:U:O2    | 2.33                     | 0.46              |
| 82:S2:1804:U:H2'   | 82:S2:1805:G:C8    | 2.50                     | 0.46              |
| 2:L5:67:C:N4       | 2:L5:325:U:O2'     | 2.48                     | 0.46              |
| 2:L5:481:G:H2'     | 2:L5:482:G:C8      | 2.49                     | 0.46              |
| 2:L5:1586:G:H2'    | 2:L5:1587:G:C8     | 2.51                     | 0.46              |
| 2:L5:1824:G:H2'    | 2:L5:1825:A:C8     | 2.50                     | 0.46              |
| 2:L5:2374:A:H5'    | 33:Ld:64:ILE:O     | 2.15                     | 0.46              |
| 2:L5:2385:U:H2'    | 2:L5:2386:U:H6     | 1.80                     | 0.46              |
| 2:L5:3825:A2M:HM'3 | 2:L5:3825:A2M:H1'  | 1.60                     | 0.46              |
| 2:L5:4716:C:H5''   | 6:LB:276:HIS:O     | 2.15                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 3:L7:64:G:H2'      | 3:L7:65:G:H8       | 1.79                     | 0.46              |
| 7:LC:10:VAL:HG13   | 7:LC:153:VAL:HG12  | 1.96                     | 0.46              |
| 16:LM:62:LEU:HD21  | 16:LM:82:ILE:HD11  | 1.95                     | 0.46              |
| 18:LO:168:TYR:CE2  | 18:LO:172:LYS:HD2  | 2.50                     | 0.46              |
| 62:Sf:102:VAL:HG22 | 62:Sf:104:LYS:HG2  | 1.97                     | 0.46              |
| 72:SL:56:ILE:O     | 72:SL:84:ARG:NH2   | 2.48                     | 0.46              |
| 78:SY:77:ASP:OD1   | 78:SY:77:ASP:N     | 2.48                     | 0.46              |
| 82:S2:287:U:H2'    | 82:S2:288:G:C8     | 2.51                     | 0.46              |
| 82:S2:853:C:C2     | 82:S2:854:A:C8     | 3.03                     | 0.46              |
| 82:S2:1198:G:H2'   | 82:S2:1199:A:C8    | 2.51                     | 0.46              |
| 82:S2:1647:A:N1    | 82:S2:1675:A:H5''  | 2.28                     | 0.46              |
| 2:L5:316:U:O2'     | 2:L5:317:A:N7      | 2.39                     | 0.46              |
| 2:L5:405:U:H2'     | 2:L5:406:C:H3'     | 1.97                     | 0.46              |
| 2:L5:958:G:C2      | 9:LE:124:LYS:HD2   | 2.50                     | 0.46              |
| 2:L5:1717:C:OP2    | 10:LF:200:ARG:NH2  | 2.49                     | 0.46              |
| 2:L5:4373:G:N7     | 44:Lo:61:LYS:NZ    | 2.57                     | 0.46              |
| 2:L5:4976:U:H1'    | 6:LB:343:ARG:HH21  | 1.80                     | 0.46              |
| 2:L5:5019:A:H2'    | 2:L5:5020:G:H8     | 1.80                     | 0.46              |
| 4:L8:22:U:OP1      | 28:LY:11:ARG:NE    | 2.38                     | 0.46              |
| 7:LC:230:LEU:HD21  | 7:LC:236:ASN:H     | 1.80                     | 0.46              |
| 13:LI:52:MET:HE2   | 13:LI:135:ILE:HG21 | 1.98                     | 0.46              |
| 13:LI:192:PRO:HA   | 13:LI:197:VAL:HG12 | 1.97                     | 0.46              |
| 17:LN:116:LEU:HD22 | 17:LN:135:ILE:HD11 | 1.97                     | 0.46              |
| 33:Ld:23:ARG:HG2   | 33:Ld:121:ASN:HA   | 1.97                     | 0.46              |
| 34:Le:89:LEU:HD13  | 34:Le:118:LEU:HD22 | 1.96                     | 0.46              |
| 40:Lk:24:LYS:HB2   | 40:Lk:35:LYS:HB2   | 1.97                     | 0.46              |
| 48:Lt:37:LEU:HA    | 48:Lt:40:LYS:HE3   | 1.97                     | 0.46              |
| 66:SC:64:THR:HG22  | 66:SC:66:LEU:N     | 2.29                     | 0.46              |
| 66:SC:188:CYS:SG   | 66:SC:238:LYS:HD2  | 2.55                     | 0.46              |
| 67:SE:253:ASP:N    | 67:SE:253:ASP:OD1  | 2.48                     | 0.46              |
| 80:Sb:23:ARG:NH1   | 80:Sb:27:SER:O     | 2.48                     | 0.46              |
| 82:S2:17:C:H4'     | 82:S2:1166:G:C8    | 2.50                     | 0.46              |
| 82:S2:419:G:H2'    | 82:S2:420:G:C8     | 2.51                     | 0.46              |
| 82:S2:600:G:H2'    | 82:S2:601:OMG:C8   | 2.50                     | 0.46              |
| 82:S2:1051:G:H2'   | 82:S2:1052:A:H8    | 1.80                     | 0.46              |
| 82:S2:1233:G:N3    | 82:S2:1252:C:O2'   | 2.48                     | 0.46              |
| 82:S2:1415:C:H2'   | 82:S2:1416:C:C6    | 2.51                     | 0.46              |
| 82:S2:1417:C:O2    | 82:S2:1422:G:C6    | 2.68                     | 0.46              |
| 82:S2:1831:A:O2'   | 82:S2:1832:6MZ:O5' | 2.22                     | 0.46              |
| 82:S2:1846:G:H2'   | 82:S2:1847:G:H8    | 1.80                     | 0.46              |
| 2:L5:408:A:O2'     | 2:L5:411:G:OP2     | 2.29                     | 0.46              |

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| Atom-1              | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|---------------------|--------------------|--------------------------|-------------------|
| 2:L5:459:C:H5'      | 9:LE:110:ARG:HA    | 1.97                     | 0.46              |
| 2:L5:480:C:H2'      | 2:L5:481:G:C8      | 2.51                     | 0.46              |
| 2:L5:1430:C:P       | 20:LQ:135:GLY:H    | 2.38                     | 0.46              |
| 2:L5:2101:C:H2'     | 2:L5:2102:G:C8     | 2.50                     | 0.46              |
| 2:L5:2352:U:H2'     | 2:L5:2353:U:C6     | 2.51                     | 0.46              |
| 2:L5:2632:PSU:C4    | 2:L5:2633:U:C5     | 3.04                     | 0.46              |
| 2:L5:2748:C:H2'     | 2:L5:2749:C:C6     | 2.50                     | 0.46              |
| 2:L5:2890:C:H2'     | 2:L5:2891:U:C6     | 2.50                     | 0.46              |
| 2:L5:3932:U:H2'     | 2:L5:3933:G:C8     | 2.51                     | 0.46              |
| 2:L5:4103:C:H4'     | 2:L5:4104:G:C8     | 2.51                     | 0.46              |
| 2:L5:4237:C:H2'     | 2:L5:4238:G:H8     | 1.79                     | 0.46              |
| 2:L5:4354:U:O4      | 30:La:61:TYR:N     | 2.45                     | 0.46              |
| 2:L5:4711:C:H2'     | 2:L5:4712:C:C6     | 2.51                     | 0.46              |
| 3:L7:110:G:H2'      | 3:L7:111:C:C6      | 2.50                     | 0.46              |
| 4:L8:96:C:H2'       | 4:L8:97:A:C8       | 2.50                     | 0.46              |
| 6:LB:58:ARG:HA      | 6:LB:366:LYS:HG3   | 1.96                     | 0.46              |
| 6:LB:117:ARG:HA     | 6:LB:177:LYS:HD2   | 1.98                     | 0.46              |
| 28:LY:116:LYS:O     | 28:LY:120:GLU:OE1  | 2.34                     | 0.46              |
| 57:ST:96:SER:HB3    | 57:ST:99:VAL:HB    | 1.97                     | 0.46              |
| 60:Sc:39:SER:HB2    | 79:Sa:51:ARG:HH22  | 1.80                     | 0.46              |
| 63:Sg:57:ARG:NH2    | 63:Sg:94:THR:O     | 2.49                     | 0.46              |
| 82:S2:871:U:O2'     | 82:S2:873:G:OP1    | 2.32                     | 0.46              |
| 82:S2:1383:A2M:HM'3 | 82:S2:1383:A2M:H1' | 1.51                     | 0.46              |
| 2:L5:287:U:H2'      | 2:L5:288:G:H8      | 1.80                     | 0.46              |
| 2:L5:302:C:H2'      | 2:L5:303:C:C6      | 2.50                     | 0.46              |
| 2:L5:362:A:H2       | 41:Ll:40:LYS:HG3   | 1.81                     | 0.46              |
| 2:L5:662:C:H2'      | 2:L5:663:G:C8      | 2.51                     | 0.46              |
| 2:L5:676:C:H2'      | 2:L5:677:G:H8      | 1.81                     | 0.46              |
| 2:L5:735:G:H2'      | 2:L5:736:C:C6      | 2.50                     | 0.46              |
| 2:L5:962:C:H1'      | 10:LF:32:ARG:NH1   | 2.31                     | 0.46              |
| 2:L5:1296:G:H2'     | 2:L5:1297:U:C6     | 2.51                     | 0.46              |
| 2:L5:1663:C:H1'     | 2:L5:2320:G:H21    | 1.80                     | 0.46              |
| 2:L5:1777:C:H2'     | 2:L5:1778:C:C6     | 2.51                     | 0.46              |
| 2:L5:2535:G:H2'     | 2:L5:2536:A:H8     | 1.79                     | 0.46              |
| 2:L5:3867:A2M:HM'3  | 2:L5:3867:A2M:H1'  | 1.46                     | 0.46              |
| 2:L5:4301:U:OP1     | 23:LT:78:LYS:NZ    | 2.44                     | 0.46              |
| 3:L7:28:C:OP2       | 8:LD:57:ASN:ND2    | 2.48                     | 0.46              |
| 4:L8:55:PSU:C4      | 4:L8:56:G:C8       | 3.04                     | 0.46              |
| 6:LB:107:ALA:HB2    | 6:LB:201:LEU:HD22  | 1.97                     | 0.46              |
| 8:LD:120:GLU:O      | 8:LD:248:ARG:NH1   | 2.48                     | 0.46              |
| 22:LS:86:SER:N      | 22:LS:89:GLY:O     | 2.41                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 30:La:66:ASN:HD22  | 30:La:66:ASN:N     | 2.14                     | 0.46              |
| 61:Sd:56:ASP:OXT   | 82:S2:1480:A:O2'   | 2.27                     | 0.46              |
| 63:Sg:230:LEU:HD11 | 63:Sg:259:TRP:CD1  | 2.51                     | 0.46              |
| 65:SB:65:ARG:H     | 65:SB:88:THR:HB    | 1.80                     | 0.46              |
| 66:SC:77:SER:OG    | 66:SC:79:GLU:OE1   | 2.33                     | 0.46              |
| 67:SE:59:ASP:O     | 67:SE:63:LYS:HG3   | 2.15                     | 0.46              |
| 82:S2:1550:G:H3'   | 82:S2:1579:A:H61   | 1.79                     | 0.46              |
| 82:S2:1731:A:H2'   | 82:S2:1732:G:C8    | 2.51                     | 0.46              |
| 2:L5:123:C:H2'     | 2:L5:124:C:H6      | 1.80                     | 0.46              |
| 2:L5:271:C:H2'     | 2:L5:272:U:C6      | 2.50                     | 0.46              |
| 2:L5:433:A:H2'     | 2:L5:434:A:O4'     | 2.16                     | 0.46              |
| 2:L5:500:G:N2      | 2:L5:504:G:HO2'    | 2.14                     | 0.46              |
| 2:L5:717:U:H2'     | 2:L5:718:C:C6      | 2.51                     | 0.46              |
| 2:L5:1264:C:H2'    | 2:L5:1265:G:H8     | 1.80                     | 0.46              |
| 2:L5:1328:G:H2'    | 2:L5:1329:G:C8     | 2.51                     | 0.46              |
| 2:L5:1346:C:H2'    | 2:L5:1347:G:H8     | 1.80                     | 0.46              |
| 2:L5:1396:G:O2'    | 2:L5:1468:C:O2'    | 2.30                     | 0.46              |
| 2:L5:1425:G:H3'    | 2:L5:1426:G:H8     | 1.80                     | 0.46              |
| 2:L5:1541:C:H5''   | 5:LA:21:LYS:HG2    | 1.97                     | 0.46              |
| 2:L5:2437:C:OP2    | 2:L5:2528:G:O2'    | 2.34                     | 0.46              |
| 2:L5:2878:G:OP2    | 2:L5:2879:A:O2'    | 2.26                     | 0.46              |
| 2:L5:3602:C:H2'    | 2:L5:3603:G:H8     | 1.81                     | 0.46              |
| 2:L5:4312:PSU:H2'  | 2:L5:4313:A:H8     | 1.79                     | 0.46              |
| 2:L5:4572:U:H2'    | 2:L5:4573:G:C8     | 2.51                     | 0.46              |
| 2:L5:4594:U:H2'    | 2:L5:4595:G:C8     | 2.48                     | 0.46              |
| 2:L5:4712:C:H2'    | 2:L5:4713:G:H8     | 1.80                     | 0.46              |
| 2:L5:4906:C:H2'    | 2:L5:4907:G:C8     | 2.51                     | 0.46              |
| 8:LD:66:TYR:HE2    | 8:LD:68:ARG:HE     | 1.62                     | 0.46              |
| 14:LJ:95:ARG:H     | 14:LJ:98:ASN:HD22  | 1.61                     | 0.46              |
| 18:LO:197:LYS:NZ   | 18:LO:203:VAL:O    | 2.49                     | 0.46              |
| 34:Le:103:VAL:O    | 34:Le:108:ARG:NH2  | 2.34                     | 0.46              |
| 50:SF:78:MET:HE3   | 82:S2:1222:G:H5''  | 1.98                     | 0.46              |
| 63:Sg:107:ASP:OD2  | 63:Sg:125:ARG:NH1  | 2.48                     | 0.46              |
| 65:SB:78:GLU:HG3   | 65:SB:79:VAL:H     | 1.81                     | 0.46              |
| 69:SH:126:HIS:CE1  | 69:SH:181:THR:HG23 | 2.50                     | 0.46              |
| 71:SJ:64:ASP:OD1   | 71:SJ:65:GLU:N     | 2.49                     | 0.46              |
| 82:S2:1202:U:H2'   | 82:S2:1203:G:H8    | 1.80                     | 0.46              |
| 82:S2:1221:G:O2'   | 82:S2:1676:U:O2    | 2.30                     | 0.46              |
| 82:S2:1643:U:H2'   | 82:S2:1644:C:C6    | 2.50                     | 0.46              |
| 82:S2:1805:G:H2'   | 82:S2:1806:A:C8    | 2.51                     | 0.46              |
| 82:S2:1846:G:H2'   | 82:S2:1847:G:C8    | 2.51                     | 0.46              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 2:L5:460:C:H2'    | 2:L5:461:G:C8      | 2.51                     | 0.46              |
| 2:L5:716:C:OP1    | 7:LC:317:ASN:HB2   | 2.16                     | 0.46              |
| 2:L5:1751:A:H2'   | 2:L5:1752:G:C8     | 2.50                     | 0.46              |
| 2:L5:1824:G:H5''  | 23:LT:35:LYS:HE2   | 1.98                     | 0.46              |
| 2:L5:1976:G:C8    | 2:L5:2002:A:H2'    | 2.51                     | 0.46              |
| 2:L5:2538:U:H2'   | 2:L5:2539:C:C6     | 2.51                     | 0.46              |
| 2:L5:2632:PSU:H2' | 2:L5:2633:U:C6     | 2.51                     | 0.46              |
| 2:L5:3606:U:H2'   | 2:L5:3607:U:C6     | 2.50                     | 0.46              |
| 2:L5:3863:C:H2'   | 2:L5:3864:C:C6     | 2.50                     | 0.46              |
| 2:L5:4769:G:H5''  | 18:LO:176:ARG:HD3  | 1.98                     | 0.46              |
| 5:LA:47:ASP:O     | 5:LA:60:LYS:N      | 2.35                     | 0.46              |
| 6:LB:27:GLY:HA2   | 6:LB:276:HIS:CD2   | 2.50                     | 0.46              |
| 10:LF:155:TYR:OH  | 10:LF:188:GLU:OE2  | 2.32                     | 0.46              |
| 20:LQ:15:ARG:HB3  | 20:LQ:52:PHE:HB3   | 1.97                     | 0.46              |
| 22:LS:69:GLU:HG3  | 22:LS:71:SER:H     | 1.81                     | 0.46              |
| 26:LW:102:LYS:HA  | 26:LW:105:ARG:HG2  | 1.98                     | 0.46              |
| 27:LX:64:SER:OG   | 37:Lh:82:ASP:OD2   | 2.30                     | 0.46              |
| 41:Ll:24:PRO:HB2  | 41:Ll:27:ILE:HG12  | 1.96                     | 0.46              |
| 43:Ln:11:ARG:NH2  | 82:S2:1184:G:OP1   | 2.41                     | 0.46              |
| 49:SD:192:TRP:NE1 | 49:SD:201:LYS:O    | 2.33                     | 0.46              |
| 50:SF:18:LYS:HD2  | 50:SF:22:LYS:HA    | 1.98                     | 0.46              |
| 57:ST:9:VAL:O     | 57:ST:11:GLN:NE2   | 2.46                     | 0.46              |
| 63:Sg:101:PHE:CE2 | 63:Sg:136:GLY:HA2  | 2.50                     | 0.46              |
| 65:SB:167:LYS:O   | 65:SB:171:ILE:HG12 | 2.15                     | 0.46              |
| 70:SI:67:TRP:CD1  | 70:SI:69:SER:HG    | 2.33                     | 0.46              |
| 71:SJ:133:ARG:NH1 | 82:S2:581:U:OP1    | 2.45                     | 0.46              |
| 72:SL:61:PRO:HG3  | 72:SL:141:ASN:HB3  | 1.98                     | 0.46              |
| 74:SO:149:ARG:HD2 | 82:S2:1065:G:OP1   | 2.16                     | 0.46              |
| 78:SY:120:THR:HA  | 82:S2:151:C:OP1    | 2.15                     | 0.46              |
| 79:Sa:85:ARG:NE   | 82:S2:1209:A:O2'   | 2.48                     | 0.46              |
| 80:Sb:11:SER:OG   | 80:Sb:14:GLU:OE1   | 2.32                     | 0.46              |
| 82:S2:1036:A:H4'  | 82:S2:1855:G:H21   | 1.80                     | 0.46              |
| 82:S2:1678:A:H2'  | 82:S2:1679:A:N3    | 2.30                     | 0.46              |
| 2:L5:72:C:OP1     | 38:Li:15:HIS:N     | 2.39                     | 0.46              |
| 2:L5:154:G:H2'    | 2:L5:155:C:H6      | 1.81                     | 0.46              |
| 2:L5:989:U:O2     | 2:L5:1064:G:N2     | 2.44                     | 0.46              |
| 2:L5:2811:G:O3'   | 21:LR:82:LYS:HB2   | 2.15                     | 0.46              |
| 2:L5:4192:A:H2'   | 2:L5:4193:C:C6     | 2.50                     | 0.46              |
| 4:L8:27:U:H2'     | 4:L8:28:C:C6       | 2.50                     | 0.46              |
| 5:LA:192:LYS:HB3  | 5:LA:193:ARG:CZ    | 2.46                     | 0.46              |
| 6:LB:303:ALA:HB3  | 6:LB:312:LYS:HG3   | 1.97                     | 0.46              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 8:LD:22:ARG:HE    | 8:LD:28:THR:HG1    | 1.61                     | 0.46              |
| 8:LD:179:ARG:HA   | 8:LD:179:ARG:HD3   | 1.68                     | 0.46              |
| 12:LH:116:ASN:ND2 | 12:LH:119:GLY:HA2  | 2.30                     | 0.46              |
| 15:LL:57:PRO:HG2  | 15:LL:73:GLY:HA3   | 1.98                     | 0.46              |
| 52:SM:60:MET:HA   | 52:SM:63:LYS:HB3   | 1.98                     | 0.46              |
| 54:SQ:34:VAL:HG13 | 54:SQ:70:VAL:HB    | 1.96                     | 0.46              |
| 55:SR:99:ASP:OD2  | 64:SA:42:LYS:NZ    | 2.37                     | 0.46              |
| 56:SS:64:VAL:O    | 56:SS:68:ILE:HG12  | 2.15                     | 0.46              |
| 64:SA:184:ARG:HG3 | 64:SA:189:ILE:HD12 | 1.98                     | 0.46              |
| 68:SG:67:VAL:HG12 | 68:SG:69:THR:HG22  | 1.97                     | 0.46              |
| 70:SI:42:ARG:HH21 | 70:SI:59:ARG:NH1   | 2.14                     | 0.46              |
| 82:S2:857:U:H2'   | 82:S2:858:A:C8     | 2.51                     | 0.46              |
| 82:S2:1795:G:H2'  | 82:S2:1796:G:H8    | 1.79                     | 0.46              |
| 2:L5:135:G:N7     | 37:Lh:97:LYS:HE3   | 2.30                     | 0.46              |
| 2:L5:136:C:N4     | 37:Lh:77:LYS:O     | 2.49                     | 0.46              |
| 2:L5:288:G:H2'    | 2:L5:289:C:C6      | 2.51                     | 0.46              |
| 2:L5:710:G:H2'    | 2:L5:711:A:H8      | 1.81                     | 0.46              |
| 2:L5:1094:G:C6    | 2:L5:1201:U:O2     | 2.69                     | 0.46              |
| 2:L5:1579:C:H2'   | 2:L5:1580:C:H6     | 1.81                     | 0.46              |
| 2:L5:2795:A:O4'   | 19:LP:130:TYR:OH   | 2.27                     | 0.46              |
| 2:L5:3689:G:O2'   | 2:L5:3818:UY1:OP2  | 2.29                     | 0.46              |
| 2:L5:3937:C:O2'   | 17:LN:124:ASP:OD1  | 2.33                     | 0.46              |
| 2:L5:4300:U:H2'   | 2:L5:4301:U:C6     | 2.51                     | 0.46              |
| 2:L5:4448:G:H5''  | 2:L5:4449:A:H5'    | 1.96                     | 0.46              |
| 3:L7:85:G:H2'     | 3:L7:86:G:C8       | 2.50                     | 0.46              |
| 9:LE:223:ARG:HH22 | 9:LE:238:GLU:HG3   | 1.80                     | 0.46              |
| 10:LF:241:ASN:O   | 10:LF:245:ARG:HG2  | 2.16                     | 0.46              |
| 24:LU:39:PHE:O    | 24:LU:43:LEU:HG    | 2.16                     | 0.46              |
| 25:LV:16:ILE:HD11 | 25:LV:56:GLY:HA3   | 1.98                     | 0.46              |
| 26:LW:97:LYS:O    | 26:LW:99:GLU:N     | 2.46                     | 0.46              |
| 56:SS:125:HIS:CD2 | 56:SS:131:VAL:HG11 | 2.50                     | 0.46              |
| 64:SA:216:ALA:O   | 64:SA:220:LYS:HG2  | 2.16                     | 0.46              |
| 66:SC:235:ASN:ND2 | 82:S2:1355:C:O2    | 2.29                     | 0.46              |
| 68:SG:7:PHE:CE2   | 68:SG:9:ALA:HB3    | 2.51                     | 0.46              |
| 68:SG:14:LYS:HD3  | 68:SG:124:LEU:HD12 | 1.98                     | 0.46              |
| 68:SG:178:ARG:NH2 | 82:S2:144:U:H3'    | 2.30                     | 0.46              |
| 72:SL:71:ARG:NE   | 82:S2:352:U:O2     | 2.45                     | 0.46              |
| 77:SX:28:LYS:O    | 77:SX:32:LEU:HB2   | 2.15                     | 0.46              |
| 82:S2:19:A:H4'    | 82:S2:621:C:H5'    | 1.97                     | 0.46              |
| 82:S2:30:C:H2'    | 82:S2:31:U:C6      | 2.50                     | 0.46              |
| 82:S2:34:U:H2'    | 82:S2:35:C:C6      | 2.51                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 82:S2:1457:U:H2'   | 82:S2:1458:G:C8    | 2.50                     | 0.46              |
| 2:L5:269:G:H2'     | 2:L5:270:U:C6      | 2.51                     | 0.46              |
| 2:L5:381:U:H2'     | 2:L5:382:G:O4'     | 2.16                     | 0.46              |
| 2:L5:935:A:O2'     | 16:LM:44:GLN:O     | 2.22                     | 0.46              |
| 2:L5:1096:C:H2'    | 2:L5:1097:C:C6     | 2.51                     | 0.46              |
| 2:L5:1278:C:H2'    | 2:L5:1279:A:O4'    | 2.16                     | 0.46              |
| 2:L5:2067:C:H2'    | 2:L5:2068:C:C6     | 2.51                     | 0.46              |
| 2:L5:2413:U:H2'    | 2:L5:2414:G:C8     | 2.51                     | 0.46              |
| 2:L5:2533:C:H2'    | 2:L5:2534:C:C6     | 2.51                     | 0.46              |
| 2:L5:2638:G:H4'    | 36:Lg:24:ARG:HD3   | 1.98                     | 0.46              |
| 2:L5:3841:OMC:HM23 | 2:L5:3841:OMC:H1'  | 1.73                     | 0.46              |
| 2:L5:4277:G:H2'    | 2:L5:4278:C:C6     | 2.51                     | 0.46              |
| 2:L5:4527:G:OP2    | 2:L5:4527:G:N2     | 2.30                     | 0.46              |
| 2:L5:4748:U:H2'    | 2:L5:4749:C:C6     | 2.51                     | 0.46              |
| 5:LA:96:LEU:HD21   | 5:LA:107:MET:HG2   | 1.98                     | 0.46              |
| 7:LC:13:GLU:OE1    | 7:LC:161:TYR:OH    | 2.24                     | 0.46              |
| 10:LF:60:GLU:HG2   | 10:LF:64:MET:HE2   | 1.97                     | 0.46              |
| 54:SQ:97:GLN:HE21  | 63:Sg:58:ALA:HB3   | 1.80                     | 0.46              |
| 56:SS:88:LYS:H     | 56:SS:95:TYR:HD1   | 1.64                     | 0.46              |
| 60:Sc:20:ARG:HD2   | 60:Sc:28:THR:HB    | 1.98                     | 0.46              |
| 61:Sd:14:PHE:HB2   | 82:S2:1661:A:H8    | 1.81                     | 0.46              |
| 62:Sf:107:LYS:NZ   | 62:Sf:108:VAL:O    | 2.48                     | 0.46              |
| 68:SG:160:LYS:O    | 68:SG:172:LYS:N    | 2.46                     | 0.46              |
| 68:SG:170:ARG:NH1  | 82:S2:71:G:N7      | 2.49                     | 0.46              |
| 70:SI:83:TYR:HB3   | 70:SI:101:ILE:HD11 | 1.97                     | 0.46              |
| 76:SW:28:ARG:HA    | 76:SW:60:LYS:HG2   | 1.98                     | 0.46              |
| 82:S2:89:C:H2'     | 82:S2:90:G:H8      | 1.80                     | 0.46              |
| 82:S2:342:C:C2     | 82:S2:343:A:C8     | 3.04                     | 0.46              |
| 82:S2:562:U:O4     | 82:S2:587:A:N7     | 2.48                     | 0.46              |
| 82:S2:1278:A:H2'   | 82:S2:1279:C:C6    | 2.51                     | 0.46              |
| 2:L5:113:A:OP2     | 2:L5:156:G:N2      | 2.38                     | 0.45              |
| 2:L5:252:C:H2'     | 2:L5:253:G:H8      | 1.81                     | 0.45              |
| 2:L5:318:A:H2'     | 2:L5:319:A:C8      | 2.51                     | 0.45              |
| 2:L5:1076:C:H2'    | 2:L5:1077:C:H6     | 1.80                     | 0.45              |
| 2:L5:1291:G:H2'    | 2:L5:1292:C:C6     | 2.50                     | 0.45              |
| 2:L5:2694:G:H5'    | 2:L5:2695:A:C2     | 2.50                     | 0.45              |
| 2:L5:2727:C:H2'    | 2:L5:2728:U:C6     | 2.51                     | 0.45              |
| 2:L5:2897:G:H2'    | 2:L5:2898:G:H8     | 1.81                     | 0.45              |
| 2:L5:4075:U:O2     | 2:L5:4076:G:O2'    | 2.31                     | 0.45              |
| 2:L5:4332:C:H2'    | 2:L5:4333:C:C6     | 2.51                     | 0.45              |
| 2:L5:4585:U:OP1    | 18:LO:74:ARG:N     | 2.47                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:4621:C:H2'    | 2:L5:4622:A:C8     | 2.51                     | 0.45              |
| 12:LH:88:PHE:CE2   | 12:LH:151:ILE:HB   | 2.51                     | 0.45              |
| 14:LJ:83:LEU:HD22  | 14:LJ:132:VAL:HG11 | 1.98                     | 0.45              |
| 49:SD:163:PRO:HA   | 49:SD:166:TYR:CZ   | 2.51                     | 0.45              |
| 50:SF:51:HIS:NE2   | 82:S2:1674:G:OP1   | 2.42                     | 0.45              |
| 51:SK:91:PRO:HB2   | 51:SK:94:LEU:HD23  | 1.98                     | 0.45              |
| 52:SM:49:LEU:HD21  | 52:SM:123:VAL:HG11 | 1.97                     | 0.45              |
| 64:SA:6:ASP:OD1    | 64:SA:6:ASP:N      | 2.46                     | 0.45              |
| 66:SC:77:SER:HB3   | 66:SC:80:GLU:HG3   | 1.97                     | 0.45              |
| 67:SE:146:THR:HG21 | 82:S2:122:G:H21    | 1.80                     | 0.45              |
| 70:SI:19:LYS:HD2   | 82:S2:102:A:P      | 2.57                     | 0.45              |
| 71:SJ:172:ARG:NH1  | 82:S2:563:G:N7     | 2.64                     | 0.45              |
| 73:SN:16:LEU:HD11  | 73:SN:62:GLN:HG3   | 1.97                     | 0.45              |
| 74:SO:45:THR:HA    | 74:SO:52:THR:HA    | 1.98                     | 0.45              |
| 82:S2:317:C:H2'    | 82:S2:318:A:C4     | 2.50                     | 0.45              |
| 82:S2:1069:U:H2'   | 82:S2:1070:A:H8    | 1.81                     | 0.45              |
| 2:L5:1679:A:N1     | 2:L5:4391:G:O2'    | 2.49                     | 0.45              |
| 2:L5:1819:G:H1'    | 8:LD:115:MET:HE1   | 1.99                     | 0.45              |
| 2:L5:1862:PSU:O3'  | 13:LI:15:LYS:NZ    | 2.49                     | 0.45              |
| 2:L5:2722:G:H2'    | 2:L5:2723:U:C6     | 2.51                     | 0.45              |
| 2:L5:2810:U:H5''   | 21:LR:70:ARG:NH2   | 2.31                     | 0.45              |
| 2:L5:4761:G:H2'    | 2:L5:4762:A:H8     | 1.82                     | 0.45              |
| 2:L5:4968:A:OP1    | 6:LB:120:LYS:N     | 2.49                     | 0.45              |
| 3:L7:120:U:H4'     | 8:LD:262:LYS:HG2   | 1.98                     | 0.45              |
| 17:LN:75:VAL:HG21  | 17:LN:80:THR:HG22  | 1.97                     | 0.45              |
| 31:Lb:110:ALA:O    | 31:Lb:114:LYS:HG3  | 2.16                     | 0.45              |
| 33:Ld:90:ARG:HD3   | 33:Ld:102:LEU:HD13 | 1.98                     | 0.45              |
| 38:Li:35:LYS:HE3   | 38:Li:35:LYS:HB3   | 1.78                     | 0.45              |
| 53:SP:100:LYS:HD3  | 82:S2:1240:A:C8    | 2.51                     | 0.45              |
| 54:SQ:125:ARG:HB2  | 82:S2:1648:G:H5''  | 1.98                     | 0.45              |
| 61:Sd:42:CYS:SG    | 82:S2:1495:G:N2    | 2.81                     | 0.45              |
| 62:Sf:103:LEU:HB2  | 62:Sf:105:TYR:CE2  | 2.52                     | 0.45              |
| 63:Sg:230:LEU:HD21 | 63:Sg:259:TRP:CE2  | 2.51                     | 0.45              |
| 65:SB:71:LEU:HA    | 65:SB:74:LEU:HB2   | 1.97                     | 0.45              |
| 67:SE:50:ASN:O     | 67:SE:53:LYS:NZ    | 2.30                     | 0.45              |
| 77:SX:63:ASN:OD1   | 82:S2:624:C:N4     | 2.43                     | 0.45              |
| 82:S2:27:A2M:HM'3  | 82:S2:27:A2M:H1'   | 1.44                     | 0.45              |
| 82:S2:445:A:H2'    | 82:S2:446:G:C8     | 2.51                     | 0.45              |
| 82:S2:750:C:H42    | 82:S2:793:G:H1'    | 1.80                     | 0.45              |
| 82:S2:917:U:H2'    | 82:S2:918:U:C6     | 2.52                     | 0.45              |
| 82:S2:1359:U:H2'   | 82:S2:1360:U:H6    | 1.81                     | 0.45              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 82:S2:1396:A:C5   | 82:S2:1449:G:O6    | 2.68                     | 0.45              |
| 82:S2:1859:A:H2'  | 82:S2:1860:A:C8    | 2.50                     | 0.45              |
| 2:L5:7:C:H2'      | 2:L5:8:U:C6        | 2.51                     | 0.45              |
| 2:L5:184:U:O2     | 2:L5:253:G:C2      | 2.70                     | 0.45              |
| 2:L5:946:C:H2'    | 2:L5:947:C:C6      | 2.51                     | 0.45              |
| 2:L5:1309:C:H2'   | 2:L5:1310:C:H6     | 1.81                     | 0.45              |
| 2:L5:1877:G:H2'   | 2:L5:1878:G:H8     | 1.81                     | 0.45              |
| 2:L5:1933:G:H2'   | 2:L5:1934:A:C8     | 2.51                     | 0.45              |
| 2:L5:3589:G:H2'   | 2:L5:3590:G:H8     | 1.81                     | 0.45              |
| 2:L5:4103:C:H4'   | 2:L5:4104:G:H8     | 1.81                     | 0.45              |
| 2:L5:4208:U:H2'   | 2:L5:4209:G:C8     | 2.51                     | 0.45              |
| 2:L5:4424:A:C4    | 2:L5:4425:G:C8     | 3.04                     | 0.45              |
| 2:L5:4622:A:H2'   | 2:L5:4623:OMG:C8   | 2.51                     | 0.45              |
| 2:L5:5004:C:H2'   | 2:L5:5005:G:O4'    | 2.16                     | 0.45              |
| 13:LI:36:LEU:HD11 | 13:LI:69:ARG:HD2   | 1.98                     | 0.45              |
| 50:SF:167:LYS:HA  | 59:SZ:71:ALA:HB1   | 1.97                     | 0.45              |
| 66:SC:134:ASN:O   | 66:SC:167:ARG:NH2  | 2.49                     | 0.45              |
| 66:SC:168:GLY:N   | 66:SC:179:THR:O    | 2.29                     | 0.45              |
| 70:SI:114:GLU:HB3 | 70:SI:136:ILE:HD12 | 1.98                     | 0.45              |
| 82:S2:1018:U:H2'  | 82:S2:1019:C:H6    | 1.80                     | 0.45              |
| 82:S2:1317:C:H2'  | 82:S2:1318:G:H8    | 1.81                     | 0.45              |
| 82:S2:1589:A:H2'  | 82:S2:1590:C:O4'   | 2.16                     | 0.45              |
| 82:S2:1726:G:C6   | 82:S2:1809:A:C6    | 3.04                     | 0.45              |
| 2:L5:117:C:H2'    | 2:L5:118:C:C6      | 2.51                     | 0.45              |
| 2:L5:455:C:O2'    | 2:L5:456:C:H5'     | 2.17                     | 0.45              |
| 2:L5:691:C:H2'    | 2:L5:692:A:H8      | 1.82                     | 0.45              |
| 2:L5:968:C:OP2    | 9:LE:110:ARG:NH2   | 2.49                     | 0.45              |
| 2:L5:1340:OMC:H2' | 2:L5:1341:U:C6     | 2.51                     | 0.45              |
| 2:L5:2525:U:P     | 21:LR:42:ARG:HH22  | 2.40                     | 0.45              |
| 2:L5:2609:G:H2'   | 2:L5:2610:G:H8     | 1.80                     | 0.45              |
| 2:L5:2706:G:C5    | 83:CI:78:HIS:NE2   | 2.83                     | 0.45              |
| 2:L5:2789:A:H1'   | 41:LI:45:ARG:HH22  | 1.81                     | 0.45              |
| 2:L5:2898:G:H2'   | 2:L5:2899:C:C6     | 2.52                     | 0.45              |
| 2:L5:3659:G:H2'   | 2:L5:3660:C:C6     | 2.51                     | 0.45              |
| 2:L5:3898:G:N2    | 6:LB:260:ALA:O     | 2.39                     | 0.45              |
| 2:L5:3910:C:H2'   | 2:L5:3911:C:H6     | 1.81                     | 0.45              |
| 2:L5:4250:G:O2'   | 14:LJ:107:PHE:O    | 2.34                     | 0.45              |
| 2:L5:4523:A2M:H2' | 2:L5:4559:A:N7     | 2.32                     | 0.45              |
| 2:L5:4523:A2M:H1' | 2:L5:4558:U:C4     | 2.50                     | 0.45              |
| 9:LE:150:LEU:HD12 | 9:LE:175:VAL:HG11  | 1.99                     | 0.45              |
| 25:LV:82:ILE:HB   | 25:LV:121:VAL:HG13 | 1.98                     | 0.45              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 48:Lt:130:LYS:HZ3 | 48:Lt:158:GLY:C    | 2.24                     | 0.45              |
| 63:Sg:228:TYR:CZ  | 63:Sg:264:LYS:HG2  | 2.52                     | 0.45              |
| 64:SA:33:GLN:OE1  | 64:SA:154:LEU:HB2  | 2.17                     | 0.45              |
| 68:SG:135:PRO:HG3 | 68:SG:144:LEU:HD13 | 1.99                     | 0.45              |
| 74:SO:74:ALA:HB1  | 74:SO:115:ALA:HB2  | 1.98                     | 0.45              |
| 82:S2:389:A:H2'   | 82:S2:390:C:C6     | 2.52                     | 0.45              |
| 82:S2:920:A:O2'   | 82:S2:922:A:O5'    | 2.34                     | 0.45              |
| 82:S2:944:A:H2'   | 82:S2:945:U:C6     | 2.51                     | 0.45              |
| 82:S2:945:U:H2'   | 82:S2:946:U:C6     | 2.51                     | 0.45              |
| 82:S2:1006:C:H2'  | 82:S2:1007:C:H6    | 1.80                     | 0.45              |
| 82:S2:1196:A:C2   | 82:S2:1197:G:H1'   | 2.52                     | 0.45              |
| 82:S2:1738:C:H2'  | 82:S2:1739:C:H6    | 1.80                     | 0.45              |
| 1:Pt:50:U:H2'     | 1:Pt:51:C:C6       | 2.52                     | 0.45              |
| 2:L5:436:C:H2'    | 2:L5:437:G:C8      | 2.51                     | 0.45              |
| 2:L5:475:G:H2'    | 2:L5:476:G:H8      | 1.81                     | 0.45              |
| 2:L5:713:C:H2'    | 2:L5:714:G:C8      | 2.52                     | 0.45              |
| 2:L5:1197:C:H2'   | 2:L5:1198:G:C8     | 2.51                     | 0.45              |
| 2:L5:1348:U:H2'   | 2:L5:1349:G:C8     | 2.51                     | 0.45              |
| 2:L5:1779:U:O4    | 2:L5:1780:A:N6     | 2.49                     | 0.45              |
| 2:L5:2686:G:O2'   | 2:L5:2688:G:N7     | 2.41                     | 0.45              |
| 2:L5:3777:G:H22   | 2:L5:3816:A:P      | 2.40                     | 0.45              |
| 2:L5:3808:OMC:H3' | 2:L5:3809:G:H21    | 1.82                     | 0.45              |
| 2:L5:3932:U:H2'   | 2:L5:3933:G:H8     | 1.82                     | 0.45              |
| 2:L5:3934:G:H2'   | 2:L5:3935:C:C6     | 2.52                     | 0.45              |
| 2:L5:4299:PSU:H2' | 2:L5:4300:U:C6     | 2.51                     | 0.45              |
| 2:L5:4420:U:H5''  | 2:L5:4421:C:C5     | 2.50                     | 0.45              |
| 4:L8:44:A:H2'     | 4:L8:45:C:C6       | 2.52                     | 0.45              |
| 14:LJ:96:LYS:N    | 14:LJ:175:LEU:O    | 2.49                     | 0.45              |
| 24:LU:114:TYR:CD2 | 83:CI:50:MET:HG3   | 2.50                     | 0.45              |
| 26:LW:104:GLN:O   | 26:LW:107:GLN:HG3  | 2.16                     | 0.45              |
| 58:SU:65:THR:O    | 58:SU:78:ASP:N     | 2.40                     | 0.45              |
| 60:Sc:66:ARG:NH1  | 60:Sc:68:LEU:HD23  | 2.31                     | 0.45              |
| 62:Sf:142:GLY:HA3 | 82:S2:1310:U:O4'   | 2.17                     | 0.45              |
| 74:SO:63:LYS:HD3  | 74:SO:63:LYS:HA    | 1.80                     | 0.45              |
| 82:S2:57:U:OP1    | 82:S2:504:G:O2'    | 2.35                     | 0.45              |
| 82:S2:109:PSU:H2' | 82:S2:110:U:C6     | 2.52                     | 0.45              |
| 82:S2:641:A:H2'   | 82:S2:642:U:C6     | 2.52                     | 0.45              |
| 82:S2:896:U:N3    | 82:S2:897:U:H5     | 2.15                     | 0.45              |
| 82:S2:1801:A:H2'  | 82:S2:1802:C:H6    | 1.81                     | 0.45              |
| 2:L5:1775:A:H3'   | 2:L5:1776:A:H8     | 1.80                     | 0.45              |
| 2:L5:2049:G:HO2'  | 2:L5:3884:PSU:HO2' | 1.62                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:2078:C:H2'    | 2:L5:2079:G:H8     | 1.80                     | 0.45              |
| 2:L5:3799:A:N3     | 2:L5:4506:C:O2'    | 2.32                     | 0.45              |
| 2:L5:4098:A:N6     | 2:L5:4099:G:H21    | 2.14                     | 0.45              |
| 2:L5:4139:G:N2     | 2:L5:4140:C:H41    | 2.14                     | 0.45              |
| 2:L5:4194:U:O3'    | 13:LI:116:ARG:NH2  | 2.37                     | 0.45              |
| 2:L5:4291:G:H4'    | 2:L5:4292:A:H5''   | 1.99                     | 0.45              |
| 2:L5:4458:C:OP1    | 6:LB:11:HIS:NE2    | 2.49                     | 0.45              |
| 2:L5:4584:A:H2'    | 2:L5:4585:U:O4'    | 2.16                     | 0.45              |
| 2:L5:4755:G:N7     | 9:LE:279:ASN:ND2   | 2.61                     | 0.45              |
| 2:L5:4859:C:H2'    | 2:L5:4860:G:C8     | 2.51                     | 0.45              |
| 2:L5:5014:A:H2'    | 2:L5:5015:G:O4'    | 2.16                     | 0.45              |
| 6:LB:213:GLN:NE2   | 6:LB:285:TYR:O     | 2.48                     | 0.45              |
| 8:LD:203:ASN:N     | 8:LD:203:ASN:OD1   | 2.46                     | 0.45              |
| 29:LZ:33:THR:C     | 29:LZ:35:ASP:H     | 2.23                     | 0.45              |
| 29:LZ:47:ASP:N     | 29:LZ:69:LYS:O     | 2.46                     | 0.45              |
| 57:ST:121:ARG:HH21 | 82:S2:1563:G:H5''  | 1.82                     | 0.45              |
| 59:SZ:86:ALA:HA    | 59:SZ:89:GLN:HE21  | 1.81                     | 0.45              |
| 63:Sg:133:ASN:OD1  | 63:Sg:137:VAL:N    | 2.34                     | 0.45              |
| 63:Sg:191:HIS:ND1  | 63:Sg:195:LEU:HD21 | 2.31                     | 0.45              |
| 65:SB:29:ASP:OD1   | 65:SB:29:ASP:N     | 2.50                     | 0.45              |
| 72:SL:22:ARG:NH1   | 72:SL:23:VAL:O     | 2.49                     | 0.45              |
| 75:SV:37:ALA:HB1   | 75:SV:46:PHE:CE1   | 2.51                     | 0.45              |
| 82:S2:674:C:H2'    | 82:S2:675:U:C6     | 2.51                     | 0.45              |
| 82:S2:1539:U:H2'   | 82:S2:1540:G:C8    | 2.52                     | 0.45              |
| 2:L5:110:C:OP1     | 15:LL:92:ARG:NH1   | 2.50                     | 0.45              |
| 2:L5:239:C:OP1     | 28:LY:46:SER:OG    | 2.33                     | 0.45              |
| 2:L5:252:C:H2'     | 2:L5:253:G:C8      | 2.52                     | 0.45              |
| 2:L5:1287:G:C2     | 9:LE:132:PRO:HG3   | 2.52                     | 0.45              |
| 2:L5:1507:C:H2'    | 2:L5:1508:A:C8     | 2.51                     | 0.45              |
| 2:L5:2389:A:H2'    | 2:L5:2390:G:C8     | 2.52                     | 0.45              |
| 2:L5:3661:G:C4     | 5:LA:150:LEU:HD13  | 2.52                     | 0.45              |
| 2:L5:3717:A:H2'    | 2:L5:3718:A2M:C8   | 2.43                     | 0.45              |
| 2:L5:3718:A2M:H2'  | 2:L5:3719:A:O4'    | 2.17                     | 0.45              |
| 2:L5:3920:PSU:H2'  | 2:L5:3921:U:C6     | 2.52                     | 0.45              |
| 2:L5:4362:A:H2'    | 2:L5:4363:A:H8     | 1.82                     | 0.45              |
| 6:LB:220:ILE:HG12  | 6:LB:278:THR:HG23  | 1.98                     | 0.45              |
| 7:LC:190:ARG:HH21  | 7:LC:199:ARG:HB3   | 1.82                     | 0.45              |
| 11:LG:180:PRO:HG3  | 11:LG:219:VAL:HG13 | 1.98                     | 0.45              |
| 25:LV:87:SER:HA    | 25:LV:97:TYR:HB3   | 1.99                     | 0.45              |
| 27:LX:69:ASN:ND2   | 27:LX:71:LEU:O     | 2.50                     | 0.45              |
| 28:LY:23:SER:HA    | 28:LY:26:ARG:HB2   | 1.99                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 49:SD:147:ALA:N    | 82:S2:1333:U:OP1   | 2.40                     | 0.45              |
| 49:SD:167:TYR:OH   | 49:SD:202:LYS:O    | 2.31                     | 0.45              |
| 51:SK:64:TRP:CD2   | 61:Sd:23:VAL:HG22  | 2.52                     | 0.45              |
| 55:SR:32:LYS:NZ    | 82:S2:1452:A:OP2   | 2.49                     | 0.45              |
| 68:SG:227:GLN:HB3  | 68:SG:231:ARG:HH21 | 1.80                     | 0.45              |
| 82:S2:93:PSU:H2'   | 82:S2:94:G:O4'     | 2.16                     | 0.45              |
| 82:S2:107:A:H2'    | 82:S2:108:G:C8     | 2.51                     | 0.45              |
| 82:S2:1129:G:H3'   | 82:S2:1130:G:N2    | 2.30                     | 0.45              |
| 82:S2:1318:G:H2'   | 82:S2:1319:U:C6    | 2.52                     | 0.45              |
| 2:L5:365:U:H2'     | 2:L5:366:A:H8      | 1.80                     | 0.45              |
| 2:L5:473:C:H2'     | 2:L5:474:C:C6      | 2.52                     | 0.45              |
| 2:L5:964:A:OP2     | 10:LF:29:LYS:NZ    | 2.49                     | 0.45              |
| 2:L5:1239:C:OP1    | 31:Lb:92:LYS:NZ    | 2.48                     | 0.45              |
| 2:L5:1253:G:H2'    | 2:L5:1256:G:H5'    | 1.98                     | 0.45              |
| 2:L5:1323:A2M:HM'3 | 2:L5:1323:A2M:H1'  | 1.44                     | 0.45              |
| 2:L5:1554:A:N6     | 2:L5:1573:G:O2'    | 2.50                     | 0.45              |
| 2:L5:1609:U:H2'    | 2:L5:1610:C:O4'    | 2.17                     | 0.45              |
| 2:L5:1727:U:H2'    | 2:L5:1728:U:C6     | 2.52                     | 0.45              |
| 2:L5:1895:G:H2'    | 2:L5:1896:A:O4'    | 2.17                     | 0.45              |
| 2:L5:2308:A:H4'    | 2:L5:2334:C:H4'    | 1.99                     | 0.45              |
| 2:L5:2389:A:H4'    | 33:Ld:70:LYS:HG3   | 1.99                     | 0.45              |
| 2:L5:2407:G:H8     | 2:L5:2783:A:H61    | 1.64                     | 0.45              |
| 2:L5:2539:C:H2'    | 2:L5:2540:C:H6     | 1.81                     | 0.45              |
| 2:L5:2557:G:H2'    | 2:L5:2558:C:C6     | 2.51                     | 0.45              |
| 2:L5:2611:A:H2'    | 2:L5:2612:G:H8     | 1.82                     | 0.45              |
| 2:L5:2691:U:H2'    | 2:L5:2692:U:C6     | 2.51                     | 0.45              |
| 2:L5:3722:G:H2'    | 2:L5:3723:A:C8     | 2.50                     | 0.45              |
| 2:L5:3793:U:H2'    | 2:L5:3794:C:C6     | 2.52                     | 0.45              |
| 2:L5:4393:G:H1     | 2:L5:4397:A:H62    | 1.65                     | 0.45              |
| 3:L7:17:C:H2'      | 3:L7:18:C:C6       | 2.52                     | 0.45              |
| 4:L8:48:A:O2'      | 4:L8:50:C:OP2      | 2.33                     | 0.45              |
| 5:LA:80:GLU:HG3    | 45:Lp:66:GLY:HA2   | 1.98                     | 0.45              |
| 8:LD:289:ARG:O     | 8:LD:292:GLU:HG3   | 2.17                     | 0.45              |
| 13:LI:150:GLU:OE2  | 13:LI:153:ARG:NH2  | 2.33                     | 0.45              |
| 16:LM:86:TRP:CE2   | 16:LM:92:ALA:HB2   | 2.52                     | 0.45              |
| 19:LP:13:LYS:HB3   | 19:LP:152:GLU:HB2  | 1.99                     | 0.45              |
| 43:Ln:2:ARG:HB3    | 43:Ln:5:TRP:CD1    | 2.52                     | 0.45              |
| 49:SD:55:THR:HA    | 49:SD:58:VAL:HG12  | 1.99                     | 0.45              |
| 53:SP:120:SER:O    | 53:SP:120:SER:OG   | 2.32                     | 0.45              |
| 56:SS:78:LYS:HD3   | 56:SS:78:LYS:HA    | 1.77                     | 0.45              |
| 58:SU:46:LYS:O     | 58:SU:48:LEU:HD12  | 2.17                     | 0.45              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 76:SW:79:PHE:N    | 76:SW:125:ILE:HG22 | 2.31                     | 0.45              |
| 82:S2:24:C:O2'    | 82:S2:25:A:H8      | 1.98                     | 0.45              |
| 82:S2:91:A:H5''   | 82:S2:92:A:H5''    | 1.99                     | 0.45              |
| 82:S2:525:A:H2'   | 82:S2:526:A:H8     | 1.80                     | 0.45              |
| 82:S2:647:U:H2'   | 82:S2:648:A:C8     | 2.49                     | 0.45              |
| 82:S2:666:U:H2'   | 82:S2:667:U:C6     | 2.52                     | 0.45              |
| 82:S2:1005:G:H2'  | 82:S2:1006:C:H6    | 1.81                     | 0.45              |
| 82:S2:1128:C:H2'  | 82:S2:1129:G:C8    | 2.51                     | 0.45              |
| 82:S2:1775:U:H2'  | 82:S2:1776:G:C2    | 2.51                     | 0.45              |
| 2:L5:397:G:C5     | 2:L5:398:A2M:H1'   | 2.52                     | 0.45              |
| 2:L5:1595:G:H1'   | 2:L5:1597:G:H21    | 1.82                     | 0.45              |
| 2:L5:2354:G:H2'   | 2:L5:2355:G:C8     | 2.52                     | 0.45              |
| 2:L5:2588:C:OP1   | 2:L5:2768:C:O2'    | 2.34                     | 0.45              |
| 2:L5:3951:G:H1'   | 2:L5:4062:A:N6     | 2.30                     | 0.45              |
| 2:L5:4279:A:H5'   | 2:L5:4281:A:H1'    | 1.98                     | 0.45              |
| 2:L5:4589:A:OP2   | 85:L5:5287:SPM:N1  | 2.47                     | 0.45              |
| 2:L5:4625:C:H2'   | 2:L5:4626:A:N3     | 2.32                     | 0.45              |
| 2:L5:4906:C:H2'   | 2:L5:4907:G:H8     | 1.82                     | 0.45              |
| 2:L5:4989:U:O2'   | 2:L5:4990:C:O5'    | 2.33                     | 0.45              |
| 3:L7:114:U:H2'    | 3:L7:115:A:H8      | 1.81                     | 0.45              |
| 7:LC:160:GLY:HA2  | 7:LC:215:ASN:HB2   | 1.99                     | 0.45              |
| 10:LF:217:ARG:O   | 10:LF:246:ARG:HB3  | 2.17                     | 0.45              |
| 13:LI:68:ALA:HB1  | 13:LI:155:ALA:HB1  | 1.98                     | 0.45              |
| 28:LY:53:ASP:HB3  | 28:LY:110:LYS:H    | 1.81                     | 0.45              |
| 51:SK:27:VAL:HB   | 51:SK:43:LEU:HD12  | 1.98                     | 0.45              |
| 55:SR:131:PRO:HA  | 65:SB:150:ILE:HG23 | 1.98                     | 0.45              |
| 57:ST:41:LYS:HD3  | 82:S2:1569:A:H5'   | 1.97                     | 0.45              |
| 64:SA:120:ARG:HD2 | 66:SC:266:TYR:HB3  | 1.98                     | 0.45              |
| 65:SB:136:ARG:NH2 | 82:S2:941:C:OP1    | 2.49                     | 0.45              |
| 70:SI:110:ARG:O   | 70:SI:114:GLU:OE1  | 2.34                     | 0.45              |
| 78:SY:36:PRO:HG3  | 82:S2:570:C:H4'    | 1.99                     | 0.45              |
| 78:SY:76:TYR:OH   | 78:SY:86:GLU:OE1   | 2.23                     | 0.45              |
| 82:S2:12:U:H1'    | 82:S2:1357:A:N3    | 2.32                     | 0.45              |
| 82:S2:94:G:HO2'   | 82:S2:508:A:HO2'   | 1.53                     | 0.45              |
| 82:S2:609:U:H2'   | 82:S2:610:G:C8     | 2.50                     | 0.45              |
| 82:S2:1172:U:H2'  | 82:S2:1173:A:H8    | 1.80                     | 0.45              |
| 82:S2:1802:C:H2'  | 82:S2:1803:U:H6    | 1.82                     | 0.45              |
| 2:L5:197:A:H2'    | 2:L5:198:A:C8      | 2.51                     | 0.45              |
| 2:L5:418:A:C2     | 4:L8:17:A:H1'      | 2.52                     | 0.45              |
| 2:L5:423:G:H21    | 19:LP:118:GLN:NE2  | 2.14                     | 0.45              |
| 2:L5:1068:G:H2'   | 2:L5:1069:G:C8     | 2.52                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:1877:G:P      | 31:Lb:14:ARG:HH21  | 2.40                     | 0.45              |
| 2:L5:2448:G:H2'    | 2:L5:2449:A:C8     | 2.52                     | 0.45              |
| 2:L5:3589:G:N2     | 2:L5:3590:G:N7     | 2.62                     | 0.45              |
| 2:L5:3834:C:H2'    | 2:L5:3835:C:H6     | 1.82                     | 0.45              |
| 2:L5:4347:G:H2'    | 2:L5:4348:A:C8     | 2.52                     | 0.45              |
| 2:L5:4653:C:H2'    | 2:L5:4654:C:C6     | 2.52                     | 0.45              |
| 87:L5:5294:HMT:C7  | 87:L5:5294:HMT:C9  | 2.94                     | 0.45              |
| 3:L7:83:A:H61      | 3:L7:93:G:H1       | 1.65                     | 0.45              |
| 3:L7:110:G:H2'     | 3:L7:111:C:H6      | 1.82                     | 0.45              |
| 6:LB:259:PRO:O     | 6:LB:261:ARG:NH1   | 2.50                     | 0.45              |
| 9:LE:217:PHE:HA    | 9:LE:246:ARG:NH2   | 2.32                     | 0.45              |
| 9:LE:223:ARG:HA    | 9:LE:224:LYS:HA    | 1.77                     | 0.45              |
| 10:LF:162:ILE:HD12 | 10:LF:167:ILE:HB   | 1.99                     | 0.45              |
| 20:LQ:62:SER:HA    | 20:LQ:87:THR:HB    | 1.99                     | 0.45              |
| 23:LT:52:MET:HG2   | 23:LT:95:HIS:CE1   | 2.52                     | 0.45              |
| 25:LV:21:PRO:HA    | 25:LV:54:ALA:HA    | 1.98                     | 0.45              |
| 50:SF:60:ARG:HE    | 82:S2:1679:A:P     | 2.39                     | 0.45              |
| 50:SF:72:LEU:HD12  | 50:SF:151:ILE:HG23 | 1.99                     | 0.45              |
| 51:SK:3:MET:HB2    | 51:SK:7:ASN:HD21   | 1.82                     | 0.45              |
| 55:SR:56:HIS:NE2   | 82:S2:1465:A:OP1   | 2.50                     | 0.45              |
| 66:SC:256:TRP:CE2  | 76:SW:68:ARG:HD3   | 2.51                     | 0.45              |
| 71:SJ:3:VAL:HB     | 71:SJ:5:ARG:HG2    | 1.99                     | 0.45              |
| 72:SL:132:ARG:HD3  | 82:S2:114:G:H5'    | 1.99                     | 0.45              |
| 74:SO:39:ASP:N     | 74:SO:69:SER:HB3   | 2.31                     | 0.45              |
| 82:S2:605:A:N3     | 82:S2:639:C:H1'    | 2.32                     | 0.45              |
| 82:S2:1005:G:H2'   | 82:S2:1006:C:C6    | 2.51                     | 0.45              |
| 82:S2:1230:C:H2'   | 82:S2:1231:C:C6    | 2.51                     | 0.45              |
| 2:L5:1207:C:H2'    | 2:L5:1208:G:C8     | 2.51                     | 0.44              |
| 2:L5:1479:G:H2'    | 2:L5:1480:C:C6     | 2.52                     | 0.44              |
| 2:L5:1736:A:H3'    | 2:L5:1737:A:H8     | 1.82                     | 0.44              |
| 2:L5:2822:G:H5''   | 21:LR:18:GLY:HA3   | 1.99                     | 0.44              |
| 2:L5:4219:A:H4'    | 31:Lb:7:HIS:HB3    | 1.99                     | 0.44              |
| 2:L5:4637:OMG:H1'  | 2:L5:4637:OMG:HM23 | 1.75                     | 0.44              |
| 2:L5:4977:A:H2'    | 2:L5:4978:G:H8     | 1.79                     | 0.44              |
| 3:L7:76:U:H2'      | 3:L7:77:A:C8       | 2.51                     | 0.44              |
| 6:LB:36:ASP:N      | 6:LB:36:ASP:OD1    | 2.49                     | 0.44              |
| 21:LR:168:GLU:HA   | 21:LR:171:LYS:HE3  | 1.99                     | 0.44              |
| 26:LW:81:ALA:HB2   | 26:LW:87:LEU:HG    | 1.99                     | 0.44              |
| 70:SI:139:LYS:HE2  | 70:SI:139:LYS:HB2  | 1.70                     | 0.44              |
| 72:SL:48:LYS:HD3   | 72:SL:52:GLU:OE2   | 2.17                     | 0.44              |
| 74:SO:33:ILE:HB    | 74:SO:97:LEU:HD23  | 1.98                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 82:S2:116:OMU:HM23 | 82:S2:116:OMU:H1'  | 1.69                     | 0.44              |
| 82:S2:159:A2M:H1'  | 82:S2:159:A2M:HM'3 | 1.43                     | 0.44              |
| 82:S2:387:C:H2'    | 82:S2:388:U:H6     | 1.81                     | 0.44              |
| 82:S2:925:G:H2'    | 82:S2:926:A:H8     | 1.82                     | 0.44              |
| 82:S2:1558:C:H2'   | 82:S2:1559:C:H6    | 1.80                     | 0.44              |
| 82:S2:1734:G:O2'   | 82:S2:1800:A:N6    | 2.44                     | 0.44              |
| 2:L5:513:U:O2      | 2:L5:515:C:H3'     | 2.17                     | 0.44              |
| 2:L5:677:G:H2'     | 2:L5:678:C:C6      | 2.52                     | 0.44              |
| 2:L5:1513:U:H2'    | 2:L5:1514:U:C6     | 2.52                     | 0.44              |
| 2:L5:2351:OMC:HM23 | 2:L5:2351:OMC:H1'  | 1.71                     | 0.44              |
| 2:L5:2523:G:H2'    | 2:L5:2524:U:C6     | 2.52                     | 0.44              |
| 2:L5:2607:C:O5'    | 21:LR:96:MET:HE1   | 2.17                     | 0.44              |
| 2:L5:2815:A2M:H2'  | 2:L5:2816:G:C8     | 2.52                     | 0.44              |
| 2:L5:3605:C:OP2    | 21:LR:71:ARG:NE    | 2.50                     | 0.44              |
| 2:L5:3610:A:H2'    | 2:L5:3611:A:H8     | 1.81                     | 0.44              |
| 2:L5:4543:G:H2'    | 2:L5:4544:A:C4     | 2.52                     | 0.44              |
| 2:L5:4750:G:H2'    | 2:L5:4751:G:H8     | 1.82                     | 0.44              |
| 12:LH:89:ARG:HD3   | 12:LH:91:LYS:HE3   | 2.00                     | 0.44              |
| 14:LJ:95:ARG:H     | 14:LJ:98:ASN:ND2   | 2.15                     | 0.44              |
| 17:LN:155:VAL:O    | 17:LN:162:ARG:NH2  | 2.43                     | 0.44              |
| 48:Lt:130:LYS:NZ   | 48:Lt:157:SER:O    | 2.51                     | 0.44              |
| 50:SF:142:SER:HB3  | 60:Sc:50:VAL:HG22  | 2.00                     | 0.44              |
| 57:ST:112:MET:HG3  | 57:ST:113:VAL:HG23 | 1.98                     | 0.44              |
| 63:Sg:54:ILE:HD12  | 63:Sg:55:PRO:HD2   | 1.99                     | 0.44              |
| 75:SV:17:CYS:HB2   | 75:SV:56:CYS:HB3   | 1.99                     | 0.44              |
| 79:Sa:24:THR:OG1   | 79:Sa:72:HIS:O     | 2.33                     | 0.44              |
| 79:Sa:88:SER:O     | 79:Sa:92:ARG:HG3   | 2.17                     | 0.44              |
| 82:S2:51:U:H2'     | 82:S2:52:G:H8      | 1.83                     | 0.44              |
| 82:S2:822:U:O4     | 82:S2:826:A:N7     | 2.49                     | 0.44              |
| 82:S2:946:U:H2'    | 82:S2:947:G:C8     | 2.51                     | 0.44              |
| 82:S2:958:G:H2'    | 82:S2:959:G:C8     | 2.52                     | 0.44              |
| 82:S2:1373:C:H2'   | 82:S2:1374:C:H6    | 1.82                     | 0.44              |
| 2:L5:335:A:H2'     | 2:L5:336:A:C4      | 2.52                     | 0.44              |
| 2:L5:347:A:N3      | 7:LC:50:GLN:NE2    | 2.65                     | 0.44              |
| 2:L5:1666:C:H2'    | 2:L5:1667:G:O4'    | 2.17                     | 0.44              |
| 2:L5:1764:G:H1'    | 2:L5:1770:A:C6     | 2.52                     | 0.44              |
| 2:L5:1952:G:H2'    | 2:L5:1953:U:H6     | 1.83                     | 0.44              |
| 2:L5:2082:G:H2'    | 2:L5:2083:C:C6     | 2.53                     | 0.44              |
| 2:L5:3787:G:H1'    | 2:L5:3789:C:N4     | 2.33                     | 0.44              |
| 2:L5:4082:G:H2'    | 2:L5:4083:U:C6     | 2.52                     | 0.44              |
| 2:L5:4105:A:H4'    | 2:L5:4106:G:N3     | 2.31                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:4123:C:H2'    | 2:L5:4124:G:C8     | 2.53                     | 0.44              |
| 2:L5:4178:A:H2'    | 2:L5:4179:G:C8     | 2.53                     | 0.44              |
| 2:L5:4238:G:H2'    | 2:L5:4239:A:C8     | 2.52                     | 0.44              |
| 2:L5:4299:PSU:H2'  | 2:L5:4300:U:H6     | 1.83                     | 0.44              |
| 2:L5:4590:A2M:HM'3 | 2:L5:4590:A2M:H1'  | 1.46                     | 0.44              |
| 3:L7:91:C:H2'      | 3:L7:92:C:C6       | 2.53                     | 0.44              |
| 8:LD:11:ALA:O      | 8:LD:15:ARG:HG3    | 2.17                     | 0.44              |
| 12:LH:24:THR:HA    | 12:LH:37:ASP:HA    | 2.00                     | 0.44              |
| 13:LI:135:ILE:HG22 | 13:LI:136:MET:HG3  | 1.98                     | 0.44              |
| 13:LI:208:LYS:HA   | 13:LI:211:VAL:HG22 | 1.99                     | 0.44              |
| 32:Lc:31:TYR:OH    | 32:Lc:59:GLU:OE1   | 2.32                     | 0.44              |
| 35:Lf:78:HIS:HB3   | 35:Lf:83:MET:HB3   | 2.00                     | 0.44              |
| 48:Lt:114:ARG:NH1  | 48:Lt:126:SER:O    | 2.33                     | 0.44              |
| 48:Lt:125:LEU:HB3  | 48:Lt:128:THR:HG23 | 1.99                     | 0.44              |
| 57:ST:113:VAL:HG22 | 57:ST:123:LEU:HD23 | 1.98                     | 0.44              |
| 64:SA:18:PHE:HD1   | 64:SA:23:THR:HG21  | 1.82                     | 0.44              |
| 65:SB:121:ILE:HG12 | 65:SB:161:VAL:HG13 | 1.99                     | 0.44              |
| 69:SH:51:ILE:HD11  | 69:SH:176:VAL:HG12 | 2.00                     | 0.44              |
| 74:SO:138:ASP:HB3  | 82:S2:984:C:O2'    | 2.17                     | 0.44              |
| 75:SV:42:VAL:HG23  | 75:SV:43:THR:HG23  | 2.00                     | 0.44              |
| 78:SY:51:THR:OG1   | 78:SY:53:ASP:OD1   | 2.25                     | 0.44              |
| 82:S2:942:G:H2'    | 82:S2:943:U:C6     | 2.52                     | 0.44              |
| 82:S2:1174:PSU:H2' | 82:S2:1175:G:H8    | 1.83                     | 0.44              |
| 82:S2:1215:C:H42   | 82:S2:1220:A:H61   | 1.66                     | 0.44              |
| 2:L5:193:G:H2'     | 2:L5:194:C:C6      | 2.53                     | 0.44              |
| 2:L5:307:A:H2'     | 2:L5:308:G:C4      | 2.52                     | 0.44              |
| 2:L5:364:G:H1'     | 2:L5:365:U:H5      | 1.82                     | 0.44              |
| 2:L5:752:G:O6      | 2:L5:912:G:N2      | 2.50                     | 0.44              |
| 2:L5:1732:C:H2'    | 2:L5:1733:G:C8     | 2.53                     | 0.44              |
| 2:L5:2072:C:H2'    | 2:L5:2073:C:H6     | 1.82                     | 0.44              |
| 2:L5:2095:A:H4'    | 2:L5:2096:G:H5'    | 1.99                     | 0.44              |
| 2:L5:2562:G:O2'    | 2:L5:2565:A:N6     | 2.51                     | 0.44              |
| 2:L5:2677:G:C5     | 2:L5:2678:A:C8     | 3.06                     | 0.44              |
| 2:L5:3896:C:H2'    | 2:L5:3897:G:C4     | 2.53                     | 0.44              |
| 2:L5:3911:C:H2'    | 2:L5:3912:U:C6     | 2.53                     | 0.44              |
| 2:L5:4986:G:H2'    | 2:L5:4987:C:C6     | 2.52                     | 0.44              |
| 7:LC:214:ASP:OD1   | 7:LC:216:GLY:N     | 2.51                     | 0.44              |
| 10:LF:29:LYS:HD2   | 10:LF:32:ARG:HH21  | 1.81                     | 0.44              |
| 11:LG:254:GLU:HA   | 11:LG:257:LYS:HG2  | 1.99                     | 0.44              |
| 17:LN:96:ARG:NH2   | 17:LN:100:SER:OG   | 2.37                     | 0.44              |
| 20:LQ:59:PRO:HG3   | 20:LQ:143:ARG:HA   | 1.99                     | 0.44              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 23:LT:33:ILE:O    | 23:LT:98:HIS:NE2  | 2.48                     | 0.44              |
| 53:SP:43:ARG:NH2  | 82:S2:1616:U:OP2  | 2.35                     | 0.44              |
| 57:ST:88:MET:HE3  | 82:S2:1665:G:C8   | 2.52                     | 0.44              |
| 64:SA:81:ASN:OD1  | 64:SA:82:THR:N    | 2.51                     | 0.44              |
| 69:SH:37:LYS:HD2  | 69:SH:40:LEU:HD23 | 1.99                     | 0.44              |
| 71:SJ:134:HIS:HA  | 71:SJ:163:SER:HB3 | 1.99                     | 0.44              |
| 75:SV:27:LYS:HD3  | 75:SV:27:LYS:HA   | 1.79                     | 0.44              |
| 82:S2:11:A:N3     | 82:S2:1357:A:O2'  | 2.42                     | 0.44              |
| 82:S2:299:A:H2'   | 82:S2:300:U:H6    | 1.82                     | 0.44              |
| 2:L5:138:G:H2'    | 2:L5:139:G:C8     | 2.52                     | 0.44              |
| 2:L5:284:G:H2'    | 2:L5:285:G:C8     | 2.50                     | 0.44              |
| 2:L5:654:C:O3'    | 7:LC:268:ARG:NH1  | 2.50                     | 0.44              |
| 2:L5:674:G:H2'    | 2:L5:675:C:C6     | 2.52                     | 0.44              |
| 2:L5:1494:U:H2'   | 2:L5:1495:G:C8    | 2.52                     | 0.44              |
| 2:L5:2080:U:H2'   | 2:L5:2081:C:C6    | 2.52                     | 0.44              |
| 2:L5:2413:U:H2'   | 2:L5:2414:G:H8    | 1.83                     | 0.44              |
| 2:L5:2430:C:H2'   | 2:L5:2431:A:H8    | 1.83                     | 0.44              |
| 2:L5:2443:G:P     | 2:L5:2516:G:H22   | 2.39                     | 0.44              |
| 2:L5:2849:A:O2'   | 2:L5:2855:G:N7    | 2.36                     | 0.44              |
| 2:L5:3599:A:H2'   | 2:L5:3600:G:H8    | 1.82                     | 0.44              |
| 2:L5:3601:C:H2'   | 2:L5:3602:C:C6    | 2.53                     | 0.44              |
| 2:L5:3798:U:N3    | 2:L5:3801:U:OP2   | 2.32                     | 0.44              |
| 2:L5:4194:U:H5''  | 31:Lb:3:LYS:HG2   | 1.98                     | 0.44              |
| 2:L5:4266:G:H4'   | 2:L5:4267:G:C4    | 2.53                     | 0.44              |
| 2:L5:4365:C:H2'   | 2:L5:4366:A:C8    | 2.53                     | 0.44              |
| 2:L5:4478:G:O2'   | 2:L5:4602:A:N1    | 2.43                     | 0.44              |
| 4:L8:75:OMG:HM23  | 4:L8:75:OMG:H1'   | 1.59                     | 0.44              |
| 9:LE:150:LEU:HD11 | 9:LE:164:PHE:HB2  | 1.99                     | 0.44              |
| 13:LI:211:VAL:O   | 13:LI:214:SER:OG  | 2.30                     | 0.44              |
| 17:LN:43:THR:OG1  | 17:LN:131:GLU:OE2 | 2.30                     | 0.44              |
| 20:LQ:32:TYR:HD1  | 20:LQ:35:LEU:HD12 | 1.83                     | 0.44              |
| 20:LQ:133:GLY:O   | 20:LQ:136:THR:OG1 | 2.22                     | 0.44              |
| 22:LS:99:ASP:OD1  | 22:LS:100:LEU:N   | 2.49                     | 0.44              |
| 26:LW:46:PRO:O    | 26:LW:52:THR:OG1  | 2.22                     | 0.44              |
| 46:Lr:96:MET:O    | 46:Lr:100:ASN:HB2 | 2.18                     | 0.44              |
| 53:SP:48:GLY:O    | 53:SP:50:ARG:NH1  | 2.51                     | 0.44              |
| 54:SQ:128:GLU:HG2 | 54:SQ:137:ALA:HB1 | 1.99                     | 0.44              |
| 67:SE:127:ARG:HG3 | 67:SE:142:HIS:HA  | 1.99                     | 0.44              |
| 76:SW:52:ILE:HG12 | 76:SW:61:ILE:HG12 | 1.98                     | 0.44              |
| 82:S2:66:G:H2'    | 82:S2:67:C:H4'    | 2.00                     | 0.44              |
| 82:S2:693:A:H2'   | 82:S2:694:G:C8    | 2.52                     | 0.44              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 82:S2:1135:C:H2'   | 82:S2:1136:U:H6   | 1.83                     | 0.44              |
| 82:S2:1533:A:H2    | 82:S2:1536:G:N3   | 2.16                     | 0.44              |
| 2:L5:125:C:H2'     | 2:L5:126:C:C6     | 2.52                     | 0.44              |
| 2:L5:288:G:H2'     | 2:L5:289:C:H6     | 1.82                     | 0.44              |
| 2:L5:325:U:H3'     | 38:Li:28:ARG:NH2  | 2.31                     | 0.44              |
| 2:L5:425:U:H2'     | 2:L5:426:A:C8     | 2.53                     | 0.44              |
| 2:L5:495:C:N4      | 2:L5:496:G:O6     | 2.50                     | 0.44              |
| 2:L5:505:G:C6      | 2:L5:654:C:C2     | 3.06                     | 0.44              |
| 2:L5:509:A:C6      | 30:La:105:ARG:HD3 | 2.53                     | 0.44              |
| 2:L5:1304:C:H2'    | 2:L5:1305:C:H6    | 1.82                     | 0.44              |
| 2:L5:1591:U:OP2    | 2:L5:2856:C:O2'   | 2.28                     | 0.44              |
| 2:L5:1624:G:C5     | 2:L5:1643:A:C8    | 3.06                     | 0.44              |
| 2:L5:1907:A:H2'    | 2:L5:1908:A:C8    | 2.53                     | 0.44              |
| 2:L5:2270:G:H2'    | 2:L5:2271:C:C6    | 2.52                     | 0.44              |
| 2:L5:2544:G:H22    | 4:L8:124:U:H5'    | 1.81                     | 0.44              |
| 2:L5:2654:C:H2'    | 2:L5:2655:C:H6    | 1.82                     | 0.44              |
| 2:L5:3688:U:OP2    | 5:LA:6:ARG:NH2    | 2.50                     | 0.44              |
| 2:L5:4125:C:H2'    | 2:L5:4126:C:C6    | 2.52                     | 0.44              |
| 2:L5:4207:C:OP2    | 23:LT:5:LYS:N     | 2.44                     | 0.44              |
| 2:L5:4433:G:H2'    | 2:L5:4434:C:C6    | 2.52                     | 0.44              |
| 2:L5:4620:OMU:OP1  | 25:LV:51:ARG:NH1  | 2.45                     | 0.44              |
| 2:L5:4637:OMG:H2'  | 2:L5:4638:U:C6    | 2.53                     | 0.44              |
| 2:L5:4929:C:OP1    | 16:LM:114:LYS:NZ  | 2.37                     | 0.44              |
| 2:L5:4978:G:O2'    | 2:L5:4981:G:N1    | 2.50                     | 0.44              |
| 7:LC:289:LEU:HD21  | 20:LQ:31:LEU:HB2  | 1.99                     | 0.44              |
| 44:Lo:8:ARG:O      | 44:Lo:21:HIS:N    | 2.49                     | 0.44              |
| 44:Lo:9:ARG:HA     | 44:Lo:20:PRO:HA   | 1.99                     | 0.44              |
| 45:Lp:23:ARG:HA    | 45:Lp:26:VAL:HG12 | 1.99                     | 0.44              |
| 50:SF:22:LYS:HG3   | 50:SF:23:TRP:CD2  | 2.53                     | 0.44              |
| 66:SC:180:VAL:HG23 | 66:SC:197:PRO:HG3 | 1.99                     | 0.44              |
| 68:SG:194:LEU:O    | 68:SG:198:ARG:HB2 | 2.17                     | 0.44              |
| 71:SJ:148:ILE:O    | 82:S2:821:G:N1    | 2.39                     | 0.44              |
| 82:S2:88:G:H2'     | 82:S2:89:C:C6     | 2.53                     | 0.44              |
| 82:S2:159:A2M:H8   | 82:S2:159:A2M:P   | 2.58                     | 0.44              |
| 82:S2:526:A:H2'    | 82:S2:527:C:C6    | 2.52                     | 0.44              |
| 82:S2:829:C:O2'    | 82:S2:845:G:N2    | 2.50                     | 0.44              |
| 82:S2:1386:A:H3'   | 82:S2:1387:G:H8   | 1.83                     | 0.44              |
| 2:L5:124:C:H2'     | 2:L5:125:C:H6     | 1.82                     | 0.44              |
| 2:L5:928:C:H2'     | 2:L5:929:A:H8     | 1.82                     | 0.44              |
| 2:L5:1391:A:N3     | 2:L5:4364:G:O2'   | 2.41                     | 0.44              |
| 2:L5:1438:U:H4'    | 10:LF:31:LYS:HE3  | 1.99                     | 0.44              |

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| Atom-1              | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|---------------------|--------------------|--------------------------|-------------------|
| 2:L5:1631:A:C2      | 5:LA:204:MET:HG2   | 2.53                     | 0.44              |
| 2:L5:1845:U:H2'     | 2:L5:1846:G:C8     | 2.51                     | 0.44              |
| 2:L5:1854:G:N2      | 2:L5:4394:A:O4'    | 2.49                     | 0.44              |
| 2:L5:2582:A:N3      | 2:L5:2654:C:H1'    | 2.31                     | 0.44              |
| 2:L5:2770:C:H2'     | 2:L5:2771:G:H8     | 1.83                     | 0.44              |
| 2:L5:3796:U:H2'     | 2:L5:3797:C:C6     | 2.53                     | 0.44              |
| 2:L5:3816:A:H2'     | 2:L5:3819:G:H21    | 1.81                     | 0.44              |
| 2:L5:4192:A:H2'     | 2:L5:4193:C:H6     | 1.83                     | 0.44              |
| 2:L5:4618:OMG:H1'   | 2:L5:4618:OMG:HM23 | 1.78                     | 0.44              |
| 3:L7:61:G:H2'       | 3:L7:62:U:C6       | 2.52                     | 0.44              |
| 4:L8:6:C:C2         | 4:L8:7:U:C5        | 3.06                     | 0.44              |
| 17:LN:38:ARG:HA     | 17:LN:62:TYR:HA    | 1.99                     | 0.44              |
| 47:Ls:120:GLU:HB3   | 47:Ls:163:THR:HG22 | 2.00                     | 0.44              |
| 54:SQ:17:LYS:NZ     | 82:S2:1674:G:N7    | 2.63                     | 0.44              |
| 57:ST:129:ARG:HD2   | 57:ST:133:ARG:NH2  | 2.33                     | 0.44              |
| 68:SG:133:LEU:HB2   | 82:S2:65:C:N3      | 2.33                     | 0.44              |
| 70:SI:132:GLU:O     | 70:SI:136:ILE:HG23 | 2.17                     | 0.44              |
| 70:SI:150:ASP:HA    | 70:SI:153:LYS:CG   | 2.47                     | 0.44              |
| 71:SJ:111:GLN:HE21  | 71:SJ:123:ILE:HG13 | 1.83                     | 0.44              |
| 73:SN:15:ALA:HB2    | 80:Sb:20:LYS:HD3   | 1.99                     | 0.44              |
| 74:SO:65:ASP:HB3    | 82:S2:963:A:OP1    | 2.17                     | 0.44              |
| 77:SX:21:LYS:HD2    | 77:SX:27:TYR:CE2   | 2.53                     | 0.44              |
| 82:S2:615:C:H2'     | 82:S2:616:A:C8     | 2.52                     | 0.44              |
| 82:S2:816:A:H2'     | 82:S2:817:G:O4'    | 2.18                     | 0.44              |
| 82:S2:944:A:H2'     | 82:S2:945:U:H6     | 1.82                     | 0.44              |
| 82:S2:1181:A:H2'    | 82:S2:1182:A:C8    | 2.53                     | 0.44              |
| 82:S2:1490:OMG:HM23 | 82:S2:1490:OMG:H1' | 1.80                     | 0.44              |
| 82:S2:1749:G:H2'    | 82:S2:1750:C:C6    | 2.53                     | 0.44              |
| 2:L5:364:G:H22      | 2:L5:376:A:P       | 2.40                     | 0.44              |
| 2:L5:491:G:H2'      | 2:L5:492:U:C6      | 2.52                     | 0.44              |
| 2:L5:1326:A2M:H2'   | 2:L5:1327:C:C5     | 2.52                     | 0.44              |
| 2:L5:1392:A:H2'     | 2:L5:1393:G:C8     | 2.52                     | 0.44              |
| 2:L5:1505:C:H2'     | 2:L5:1506:G:C8     | 2.52                     | 0.44              |
| 2:L5:1739:G:H2'     | 2:L5:1740:C:C6     | 2.53                     | 0.44              |
| 2:L5:4128:A:H1'     | 11:LG:35:ARG:HB2   | 1.98                     | 0.44              |
| 3:L7:58:A:H2'       | 3:L7:59:G:C8       | 2.53                     | 0.44              |
| 4:L8:43:A:H2'       | 4:L8:44:A:H8       | 1.82                     | 0.44              |
| 5:LA:48:ILE:HA      | 5:LA:59:ALA:HA     | 2.00                     | 0.44              |
| 6:LB:25:HIS:ND1     | 6:LB:274:TYR:OH    | 2.29                     | 0.44              |
| 8:LD:211:LEU:HD12   | 8:LD:223:PHE:HE2   | 1.83                     | 0.44              |
| 9:LE:161:ARG:NH1    | 9:LE:273:SER:OG    | 2.49                     | 0.44              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 12:LH:63:ASN:O     | 12:LH:67:LEU:HG   | 2.18                     | 0.44              |
| 13:LI:68:ALA:HA    | 13:LI:158:LYS:HG3 | 1.99                     | 0.44              |
| 25:LV:42:VAL:HB    | 25:LV:45:ILE:HG13 | 1.98                     | 0.44              |
| 46:Lr:38:PHE:O     | 46:Lr:45:HIS:NE2  | 2.43                     | 0.44              |
| 56:SS:15:VAL:HG12  | 56:SS:16:LEU:HG   | 2.00                     | 0.44              |
| 57:ST:62:ARG:NH2   | 82:S2:1543:U:OP2  | 2.42                     | 0.44              |
| 63:Sg:65:PHE:C     | 63:Sg:82:SER:HG   | 2.26                     | 0.44              |
| 69:SH:25:GLN:O     | 69:SH:28:LEU:HG   | 2.18                     | 0.44              |
| 72:SL:28:THR:HA    | 72:SL:29:GLY:HA2  | 1.66                     | 0.44              |
| 82:S2:118:C:H1'    | 82:S2:445:A:C6    | 2.53                     | 0.44              |
| 82:S2:468:A2M:HM'3 | 82:S2:468:A2M:H1' | 1.58                     | 0.44              |
| 82:S2:564:A:C2     | 82:S2:565:G:H1'   | 2.53                     | 0.44              |
| 82:S2:1610:G:H2'   | 82:S2:1611:G:C8   | 2.53                     | 0.44              |
| 2:L5:31:U:H2'      | 2:L5:32:G:O4'     | 2.18                     | 0.44              |
| 2:L5:166:C:H2'     | 2:L5:167:C:C6     | 2.53                     | 0.44              |
| 2:L5:221:C:H2'     | 2:L5:222:C:C6     | 2.53                     | 0.44              |
| 2:L5:294:G:OP2     | 2:L5:296:A:O2'    | 2.27                     | 0.44              |
| 2:L5:347:A:H2'     | 2:L5:348:G:H8     | 1.82                     | 0.44              |
| 2:L5:419:A:N3      | 2:L5:1332:C:O2'   | 2.49                     | 0.44              |
| 2:L5:443:G:OP1     | 35:Lf:68:ARG:NH2  | 2.51                     | 0.44              |
| 2:L5:1171:G:O6     | 2:L5:1190:C:N4    | 2.41                     | 0.44              |
| 2:L5:1813:U:OP1    | 31:Lb:56:LYS:NZ   | 2.41                     | 0.44              |
| 2:L5:1937:C:OP2    | 2:L5:1938:C:O2'   | 2.27                     | 0.44              |
| 2:L5:1998:A:O2'    | 2:L5:2019:C:O2'   | 2.23                     | 0.44              |
| 2:L5:2276:A:H2'    | 2:L5:2277:C:C6    | 2.53                     | 0.44              |
| 2:L5:2384:U:H2'    | 2:L5:2385:U:H6    | 1.83                     | 0.44              |
| 2:L5:2654:C:H2'    | 2:L5:2655:C:C6    | 2.53                     | 0.44              |
| 2:L5:3916:G:H2'    | 2:L5:3917:A:H8    | 1.83                     | 0.44              |
| 2:L5:4115:G:O2'    | 2:L5:4116:C:O5'   | 2.34                     | 0.44              |
| 2:L5:4263:C:H2'    | 2:L5:4264:G:O4'   | 2.17                     | 0.44              |
| 2:L5:4577:U:H2'    | 2:L5:4578:G:C8    | 2.52                     | 0.44              |
| 2:L5:4657:U:O2'    | 2:L5:4659:G:OP2   | 2.36                     | 0.44              |
| 2:L5:4723:A:H2'    | 2:L5:4724:A:H8    | 1.82                     | 0.44              |
| 2:L5:5027:C:O2'    | 2:L5:5028:G:H5''  | 2.18                     | 0.44              |
| 6:LB:380:GLN:N     | 6:LB:384:GLU:OE1  | 2.49                     | 0.44              |
| 13:LI:21:ARG:O     | 13:LI:24:ARG:NH1  | 2.48                     | 0.44              |
| 20:LQ:93:GLN:NE2   | 30:La:118:PRO:HD3 | 2.33                     | 0.44              |
| 32:Lc:20:LEU:O     | 32:Lc:24:SER:HB3  | 2.17                     | 0.44              |
| 41:LI:26:TRP:CD1   | 41:LI:26:TRP:H    | 2.36                     | 0.44              |
| 46:Lr:95:HIS:O     | 46:Lr:99:LYS:HB2  | 2.17                     | 0.44              |
| 53:SP:81:ARG:NH1   | 53:SP:120:SER:OG  | 2.50                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 54:SQ:116:ASP:HB3  | 54:SQ:119:LEU:HD12 | 2.00                     | 0.44              |
| 57:ST:21:PHE:CD1   | 57:ST:24:LYS:HE3   | 2.53                     | 0.44              |
| 68:SG:13:GLN:NE2   | 82:S2:153:G:N3     | 2.66                     | 0.44              |
| 69:SH:167:GLU:OE1  | 69:SH:167:GLU:N    | 2.47                     | 0.44              |
| 70:SI:37:LYS:NZ    | 70:SI:93:THR:HB    | 2.32                     | 0.44              |
| 82:S2:655:A:H4'    | 82:S2:656:G:H3'    | 2.00                     | 0.44              |
| 82:S2:807:G:H2'    | 82:S2:808:A:C8     | 2.52                     | 0.44              |
| 82:S2:1036:A:H5'   | 82:S2:1856:C:H1'   | 2.00                     | 0.44              |
| 82:S2:1051:G:H2'   | 82:S2:1052:A:C8    | 2.52                     | 0.44              |
| 82:S2:1736:G:H2'   | 82:S2:1737:G:C8    | 2.51                     | 0.44              |
| 82:S2:1738:C:H2'   | 82:S2:1739:C:C6    | 2.53                     | 0.44              |
| 1:Pt:3:C:H42       | 1:Pt:70:A:N6       | 2.16                     | 0.43              |
| 1:Pt:3:C:H42       | 1:Pt:70:A:H61      | 1.65                     | 0.43              |
| 2:L5:91:G:C6       | 86:L5:5260:SPD:H42 | 2.52                     | 0.43              |
| 2:L5:135:G:C2      | 37:Lh:96:ASN:HA    | 2.53                     | 0.43              |
| 2:L5:509:A:N6      | 30:La:102:ASP:O    | 2.38                     | 0.43              |
| 2:L5:1292:C:H3'    | 2:L5:1293:G:H21    | 1.83                     | 0.43              |
| 2:L5:1463:C:H2'    | 2:L5:1464:C:C6     | 2.53                     | 0.43              |
| 2:L5:1893:C:H2'    | 2:L5:1894:C:C6     | 2.53                     | 0.43              |
| 2:L5:2021:G:H5''   | 47:Ls:58:ASN:CG    | 2.43                     | 0.43              |
| 2:L5:2818:C:H2'    | 2:L5:2819:U:C6     | 2.52                     | 0.43              |
| 2:L5:2861:OMC:HM23 | 2:L5:2861:OMC:H1'  | 1.75                     | 0.43              |
| 2:L5:3763:A:H2'    | 2:L5:3764:U:H6     | 1.83                     | 0.43              |
| 2:L5:4476:C:O2'    | 2:L5:4478:G:OP2    | 2.28                     | 0.43              |
| 2:L5:4616:A:H2'    | 2:L5:4617:G:O4'    | 2.17                     | 0.43              |
| 10:LF:157:ARG:HD2  | 10:LF:213:LEU:HD23 | 1.98                     | 0.43              |
| 11:LG:160:ASP:OD1  | 11:LG:160:ASP:N    | 2.52                     | 0.43              |
| 12:LH:100:PRO:O    | 12:LH:116:ASN:HB3  | 2.18                     | 0.43              |
| 21:LR:25:ASP:OD2   | 83:CI:72:ARG:NH1   | 2.50                     | 0.43              |
| 28:LY:4:ASN:HB3    | 28:LY:7:VAL:HG22   | 2.00                     | 0.43              |
| 36:Lg:61:PRO:HA    | 36:Lg:64:LEU:HD12  | 1.99                     | 0.43              |
| 53:SP:94:VAL:O     | 53:SP:104:GLN:HA   | 2.18                     | 0.43              |
| 61:Sd:2:GLY:N      | 82:S2:1271:C:O2    | 2.50                     | 0.43              |
| 68:SG:170:ARG:HG3  | 82:S2:72:C:N3      | 2.33                     | 0.43              |
| 78:SY:21:LYS:HE2   | 78:SY:75:ILE:HD11  | 2.00                     | 0.43              |
| 81:Se:29:THR:HA    | 81:Se:33:LYS:HB2   | 1.99                     | 0.43              |
| 82:S2:1386:A:H2'   | 82:S2:1387:G:O4'   | 2.18                     | 0.43              |
| 82:S2:1693:G:H2'   | 82:S2:1694:U:C6    | 2.53                     | 0.43              |
| 82:S2:1745:A:H61   | 82:S2:1789:G:H2'   | 1.81                     | 0.43              |
| 82:S2:1778:C:H3'   | 82:S2:1779:G:H8    | 1.83                     | 0.43              |
| 2:L5:423:G:H2'     | 2:L5:424:U:C6      | 2.53                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:1280:C:O2'    | 7:LC:321:ASN:OD1   | 2.22                     | 0.43              |
| 2:L5:1326:A2M:HM'3 | 2:L5:1326:A2M:H1'  | 1.47                     | 0.43              |
| 2:L5:1516:G:O2'    | 15:LL:18:TRP:NE1   | 2.51                     | 0.43              |
| 2:L5:1865:G:P      | 13:LI:98:ARG:HH21  | 2.41                     | 0.43              |
| 2:L5:2085:G:H2'    | 2:L5:2086:G:C8     | 2.53                     | 0.43              |
| 2:L5:2375:A:H2'    | 2:L5:2376:A:H8     | 1.82                     | 0.43              |
| 2:L5:2476:G:H2'    | 2:L5:2477:A:H8     | 1.83                     | 0.43              |
| 2:L5:2498:C:H2'    | 2:L5:2499:C:C6     | 2.53                     | 0.43              |
| 2:L5:2745:A:H2'    | 2:L5:2746:A:C8     | 2.52                     | 0.43              |
| 2:L5:4072:C:H2'    | 2:L5:4073:A:H8     | 1.82                     | 0.43              |
| 2:L5:4113:U:H4'    | 2:L5:4115:G:C5     | 2.54                     | 0.43              |
| 2:L5:4260:U:H2'    | 2:L5:4261:C:C6     | 2.53                     | 0.43              |
| 2:L5:4742:G:H2'    | 2:L5:4743:G:C8     | 2.53                     | 0.43              |
| 2:L5:4933:C:H2'    | 2:L5:4934:A:C8     | 2.53                     | 0.43              |
| 2:L5:4934:A:H2'    | 2:L5:4935:C:C6     | 2.53                     | 0.43              |
| 2:L5:5038:A:H2'    | 2:L5:5039:U:C6     | 2.53                     | 0.43              |
| 4:L8:64:U:C2       | 4:L8:65:A:C8       | 3.07                     | 0.43              |
| 4:L8:108:A:C2      | 4:L8:112:G:C6      | 3.06                     | 0.43              |
| 6:LB:189:THR:O     | 6:LB:193:LYS:HG2   | 2.18                     | 0.43              |
| 9:LE:99:ASP:OD1    | 9:LE:99:ASP:N      | 2.51                     | 0.43              |
| 26:LW:96:GLN:HB3   | 26:LW:100:VAL:HB   | 2.00                     | 0.43              |
| 36:Lg:88:ARG:HA    | 36:Lg:91:ILE:HD12  | 2.00                     | 0.43              |
| 49:SD:132:LYS:HG3  | 49:SD:191:PRO:HA   | 1.98                     | 0.43              |
| 66:SC:60:TRP:CZ2   | 66:SC:62:PRO:HB3   | 2.53                     | 0.43              |
| 66:SC:138:GLY:HA3  | 66:SC:162:ILE:HD13 | 1.99                     | 0.43              |
| 69:SH:91:HIS:ND1   | 69:SH:169:LYS:HG2  | 2.33                     | 0.43              |
| 69:SH:118:ARG:HA   | 69:SH:121:THR:HG23 | 2.00                     | 0.43              |
| 70:SI:47:ARG:HH22  | 82:S2:446:G:P      | 2.41                     | 0.43              |
| 77:SX:104:GLY:O    | 82:S2:648:A:H4'    | 2.18                     | 0.43              |
| 82:S2:115:U:H2'    | 82:S2:116:OMU:C6   | 2.48                     | 0.43              |
| 82:S2:495:U:H2'    | 82:S2:496:C:O4'    | 2.16                     | 0.43              |
| 82:S2:689:U:H2'    | 82:S2:690:G:C4     | 2.53                     | 0.43              |
| 82:S2:930:C:H42    | 82:S2:1011:A:H62   | 1.66                     | 0.43              |
| 82:S2:1540:G:H2'   | 82:S2:1541:G:H8    | 1.83                     | 0.43              |
| 82:S2:1610:G:H2'   | 82:S2:1611:G:H8    | 1.83                     | 0.43              |
| 2:L5:25:A:C8       | 2:L5:341:G:C8      | 3.07                     | 0.43              |
| 2:L5:91:G:H5'      | 2:L5:93:G:N7       | 2.33                     | 0.43              |
| 2:L5:920:C:H2'     | 2:L5:921:C:C6      | 2.53                     | 0.43              |
| 2:L5:1306:C:H2'    | 2:L5:1307:A:C8     | 2.44                     | 0.43              |
| 2:L5:1526:G:H2'    | 2:L5:1527:A:C8     | 2.52                     | 0.43              |
| 2:L5:1807:C:H2'    | 2:L5:1808:C:C6     | 2.53                     | 0.43              |

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| Atom-1              | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|---------------------|--------------------|--------------------------|-------------------|
| 2:L5:1879:C:H2'     | 2:L5:1880:G:O4'    | 2.18                     | 0.43              |
| 2:L5:1977:C:O2'     | 2:L5:1978:C:OP1    | 2.32                     | 0.43              |
| 2:L5:2412:A:H5''    | 21:LR:6:LEU:HD22   | 2.00                     | 0.43              |
| 2:L5:2732:G:H2'     | 2:L5:2733:C:C6     | 2.52                     | 0.43              |
| 2:L5:3780:G:N2      | 2:L5:3814:U:O2     | 2.41                     | 0.43              |
| 2:L5:3916:G:H2'     | 2:L5:3917:A:C8     | 2.53                     | 0.43              |
| 2:L5:4262:C:H2'     | 2:L5:4263:C:H6     | 1.83                     | 0.43              |
| 4:L8:7:U:H2'        | 4:L8:8:U:H6        | 1.82                     | 0.43              |
| 4:L8:72:A:OP2       | 28:LY:51:LYS:HD3   | 2.18                     | 0.43              |
| 4:L8:90:C:HO2'      | 28:LY:24:HIS:HD1   | 1.62                     | 0.43              |
| 4:L8:133:G:H2'      | 4:L8:134:G:H8      | 1.83                     | 0.43              |
| 7:LC:334:THR:HG21   | 10:LF:51:TYR:OH    | 2.18                     | 0.43              |
| 9:LE:93:THR:HA      | 9:LE:106:VAL:HA    | 2.00                     | 0.43              |
| 9:LE:284:HIS:CE1    | 35:Lf:33:VAL:HG22  | 2.53                     | 0.43              |
| 13:LI:38:ARG:NH1    | 13:LI:45:GLU:OE1   | 2.34                     | 0.43              |
| 18:LO:124:LEU:HD23  | 18:LO:124:LEU:HA   | 1.74                     | 0.43              |
| 36:Lg:45:ALA:HB3    | 36:Lg:82:MET:HE2   | 2.00                     | 0.43              |
| 55:SR:52:GLY:O      | 55:SR:55:THR:OG1   | 2.30                     | 0.43              |
| 57:ST:104:LEU:O     | 57:ST:108:GLU:OE1  | 2.36                     | 0.43              |
| 65:SB:40:ASN:OD1    | 65:SB:41:ILE:HD12  | 2.18                     | 0.43              |
| 67:SE:137:PRO:HG3   | 68:SG:209:TYR:CZ   | 2.53                     | 0.43              |
| 69:SH:126:HIS:ND1   | 69:SH:181:THR:HG23 | 2.33                     | 0.43              |
| 75:SV:32:ILE:HG12   | 75:SV:60:ARG:HD2   | 2.01                     | 0.43              |
| 78:SY:105:LYS:O     | 78:SY:109:GLU:HG2  | 2.18                     | 0.43              |
| 82:S2:637:U:H2'     | 82:S2:638:C:C6     | 2.52                     | 0.43              |
| 82:S2:1043:G:H2'    | 82:S2:1044:G:O4'   | 2.18                     | 0.43              |
| 82:S2:1172:U:O2     | 82:S2:1188:A:N7    | 2.51                     | 0.43              |
| 82:S2:1295:A:H3'    | 82:S2:1296:U:H6    | 1.83                     | 0.43              |
| 82:S2:1328:OMG:HM23 | 82:S2:1328:OMG:H1' | 1.68                     | 0.43              |
| 82:S2:1865:C:H5'    | 82:S2:1866:A:C8    | 2.54                     | 0.43              |
| 2:L5:35:U:H4'       | 2:L5:1525:A:H2     | 1.83                     | 0.43              |
| 2:L5:1554:A:N6      | 2:L5:1573:G:H1'    | 2.34                     | 0.43              |
| 2:L5:1587:G:H2'     | 86:L5:5282:SPD:H71 | 2.00                     | 0.43              |
| 2:L5:1844:G:H5''    | 31:Lb:25:ARG:HH22  | 1.84                     | 0.43              |
| 2:L5:2094:G:O2'     | 2:L5:2095:A:N3     | 2.51                     | 0.43              |
| 2:L5:2708:U:H1'     | 83:CI:79:ARG:NH2   | 2.30                     | 0.43              |
| 2:L5:3606:U:H2'     | 2:L5:3607:U:H6     | 1.83                     | 0.43              |
| 2:L5:3667:C:H4'     | 5:LA:8:GLN:HA      | 2.00                     | 0.43              |
| 2:L5:4460:U:H2'     | 2:L5:4461:C:C6     | 2.52                     | 0.43              |
| 2:L5:4685:U:H2'     | 2:L5:4686:G:C8     | 2.53                     | 0.43              |
| 4:L8:154:G:H2'      | 4:L8:155:C:C6      | 2.53                     | 0.43              |

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| Atom-1             | Atom-2              | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|---------------------|--------------------------|-------------------|
| 6:LB:66:LYS:HB2    | 25:LV:14:PHE:CE2    | 2.52                     | 0.43              |
| 16:LM:24:LEU:HD11  | 16:LM:86:TRP:CD2    | 2.53                     | 0.43              |
| 25:LV:106:VAL:HG12 | 25:LV:112:MET:HA    | 1.99                     | 0.43              |
| 26:LW:107:GLN:HB2  | 26:LW:110:ARG:HH21  | 1.83                     | 0.43              |
| 28:LY:106:ILE:HG21 | 28:LY:109:LEU:HD23  | 2.01                     | 0.43              |
| 53:SP:126:VAL:HG11 | 82:S2:1520:G:N2     | 2.33                     | 0.43              |
| 55:SR:7:LYS:HG3    | 82:S2:1373:C:H5''   | 2.00                     | 0.43              |
| 56:SS:63:GLU:O     | 56:SS:67:VAL:HG23   | 2.19                     | 0.43              |
| 60:Sc:10:LYS:HE2   | 60:Sc:34:PHE:CD2    | 2.54                     | 0.43              |
| 66:SC:69:LEU:HD11  | 66:SC:273:LEU:HD11  | 2.00                     | 0.43              |
| 67:SE:125:LYS:NZ   | 67:SE:225:ILE:O     | 2.34                     | 0.43              |
| 71:SJ:18:ARG:HH22  | 82:S2:4:C:H1'       | 1.83                     | 0.43              |
| 78:SY:118:ARG:NH1  | 82:S2:85:A:H5''     | 2.32                     | 0.43              |
| 82:S2:26:U:H2'     | 82:S2:27:A2M:C8     | 2.49                     | 0.43              |
| 82:S2:201:C:H5''   | 82:S2:202:G:H21     | 1.83                     | 0.43              |
| 82:S2:990:A:H61    | 82:S2:1001:A:H61    | 1.66                     | 0.43              |
| 82:S2:1069:U:H2'   | 82:S2:1070:A:C8     | 2.53                     | 0.43              |
| 82:S2:1272:OMC:H1' | 82:S2:1272:OMC:HM23 | 1.72                     | 0.43              |
| 82:S2:1540:G:H2'   | 82:S2:1541:G:C8     | 2.53                     | 0.43              |
| 82:S2:1842:4AC:O2  | 82:S2:1857:G:N2     | 2.36                     | 0.43              |
| 1:Pt:3:C:H2'       | 1:Pt:4:U:H6         | 1.84                     | 0.43              |
| 2:L5:506:C:H2'     | 2:L5:507:G:H8       | 1.82                     | 0.43              |
| 2:L5:1084:C:H2'    | 2:L5:1085:C:H6      | 1.84                     | 0.43              |
| 2:L5:1630:A:H2     | 2:L5:3638:G:N3      | 2.17                     | 0.43              |
| 2:L5:1884:C:H2'    | 2:L5:1885:G:H8      | 1.82                     | 0.43              |
| 2:L5:2663:G:OP1    | 21:LR:118:HIS:HA    | 2.19                     | 0.43              |
| 2:L5:2703:G:OP1    | 24:LU:113:ARG:NH1   | 2.44                     | 0.43              |
| 2:L5:2803:U:H2'    | 2:L5:2804:OMC:H6    | 1.83                     | 0.43              |
| 2:L5:3653:A:P      | 2:L5:3653:A:H8      | 2.42                     | 0.43              |
| 2:L5:4742:G:H2'    | 2:L5:4743:G:H8      | 1.83                     | 0.43              |
| 4:L8:94:G:OP2      | 39:Lj:72:ARG:NH2    | 2.41                     | 0.43              |
| 8:LD:40:ASP:HB2    | 8:LD:43:LYS:HG3     | 2.01                     | 0.43              |
| 16:LM:51:PRO:HG2   | 16:LM:54:CYS:SG     | 2.59                     | 0.43              |
| 50:SF:40:ALA:HB3   | 50:SF:67:PRO:HA     | 1.99                     | 0.43              |
| 58:SU:38:ASP:OD1   | 58:SU:39:LEU:N      | 2.52                     | 0.43              |
| 63:Sg:57:ARG:HE    | 63:Sg:95:GLY:HA3    | 1.83                     | 0.43              |
| 68:SG:3:LEU:HD23   | 68:SG:109:LEU:HB3   | 2.01                     | 0.43              |
| 70:SI:149:TYR:OH   | 82:S2:190:G:OP1     | 2.31                     | 0.43              |
| 73:SN:102:LEU:HD13 | 73:SN:111:ALA:HB3   | 2.00                     | 0.43              |
| 74:SO:141:ARG:NH2  | 82:S2:1856:C:OP1    | 2.47                     | 0.43              |
| 82:S2:287:U:H2'    | 82:S2:288:G:H8      | 1.84                     | 0.43              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 82:S2:323:C:H2'   | 82:S2:327:G:N1    | 2.28                     | 0.43              |
| 82:S2:812:A:H2'   | 82:S2:813:A:C8    | 2.54                     | 0.43              |
| 82:S2:1644:C:H2'  | 82:S2:1645:C:C6   | 2.53                     | 0.43              |
| 2:L5:238:C:H2'    | 2:L5:239:C:C6     | 2.54                     | 0.43              |
| 2:L5:324:A:H2'    | 2:L5:325:U:C6     | 2.54                     | 0.43              |
| 2:L5:727:C:H5''   | 10:LF:69:ILE:HG21 | 2.01                     | 0.43              |
| 2:L5:1097:C:H2'   | 2:L5:1098:G:C8    | 2.54                     | 0.43              |
| 2:L5:1513:U:H2'   | 2:L5:1514:U:H6    | 1.83                     | 0.43              |
| 2:L5:1772:C:H2'   | 2:L5:1773:U:C6    | 2.53                     | 0.43              |
| 2:L5:2376:A:H2'   | 2:L5:2377:C:C6    | 2.53                     | 0.43              |
| 2:L5:2653:C:H2'   | 2:L5:2654:C:H6    | 1.84                     | 0.43              |
| 2:L5:2696:A:H62   | 40:Lk:35:LYS:NZ   | 2.17                     | 0.43              |
| 2:L5:2756:G:H2'   | 2:L5:2757:A:C8    | 2.54                     | 0.43              |
| 2:L5:2897:G:H2'   | 2:L5:2898:G:C8    | 2.53                     | 0.43              |
| 2:L5:3677:U:H5''  | 5:LA:18:ALA:HB2   | 2.01                     | 0.43              |
| 2:L5:3835:C:H2'   | 2:L5:3836:A:C8    | 2.54                     | 0.43              |
| 2:L5:3938:G:N2    | 2:L5:4171:C:OP2   | 2.47                     | 0.43              |
| 2:L5:4246:G:H2'   | 2:L5:4247:G:C8    | 2.53                     | 0.43              |
| 2:L5:4524:G:C2    | 6:LB:252:ALA:HB1  | 2.53                     | 0.43              |
| 2:L5:4887:C:H2'   | 2:L5:4888:U:O4'   | 2.19                     | 0.43              |
| 2:L5:4981:G:OP2   | 2:L5:4981:G:N2    | 2.45                     | 0.43              |
| 2:L5:5027:C:N4    | 70:SI:170:LYS:HD3 | 2.32                     | 0.43              |
| 6:LB:143:LYS:O    | 6:LB:147:GLU:HG2  | 2.19                     | 0.43              |
| 7:LC:24:LEU:HD12  | 7:LC:25:PRO:HD2   | 2.01                     | 0.43              |
| 11:LG:78:PRO:HA   | 11:LG:81:ASN:HB3  | 2.00                     | 0.43              |
| 21:LR:112:SER:OG  | 21:LR:114:LYS:HG3 | 2.18                     | 0.43              |
| 36:Lg:5:LEU:HD11  | 36:Lg:30:ILE:HG22 | 2.01                     | 0.43              |
| 38:Li:76:ARG:HA   | 38:Li:76:ARG:HD3  | 1.86                     | 0.43              |
| 51:SK:37:ASP:OD1  | 51:SK:37:ASP:N    | 2.46                     | 0.43              |
| 53:SP:79:HIS:CD2  | 82:S2:1298:G:C8   | 3.07                     | 0.43              |
| 58:SU:56:MET:HG3  | 58:SU:86:LYS:HE2  | 2.01                     | 0.43              |
| 65:SB:78:GLU:HG3  | 65:SB:79:VAL:N    | 2.33                     | 0.43              |
| 70:SI:21:TYR:CZ   | 70:SI:22:HIS:HD2  | 2.36                     | 0.43              |
| 71:SJ:174:LYS:NZ  | 82:S2:560:A:OP1   | 2.49                     | 0.43              |
| 76:SW:28:ARG:HB3  | 76:SW:29:PRO:HD3  | 2.00                     | 0.43              |
| 82:S2:674:C:H2'   | 82:S2:675:U:H6    | 1.83                     | 0.43              |
| 82:S2:1135:C:H2'  | 82:S2:1136:U:C6   | 2.54                     | 0.43              |
| 82:S2:1473:G:N2   | 82:S2:1475:G:H3'  | 2.33                     | 0.43              |
| 2:L5:400:A2M:HM'3 | 2:L5:400:A2M:H1'  | 1.47                     | 0.43              |
| 2:L5:951:G:H2'    | 2:L5:952:G:H8     | 1.84                     | 0.43              |
| 2:L5:1339:U:OP1   | 30:La:8:THR:OG1   | 2.36                     | 0.43              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 2:L5:1529:G:H2'   | 2:L5:1530:G:H8     | 1.83                     | 0.43              |
| 2:L5:1557:C:H4'   | 21:LR:128:LYS:HD3  | 1.99                     | 0.43              |
| 2:L5:1614:C:H2'   | 2:L5:1615:C:C6     | 2.54                     | 0.43              |
| 2:L5:1675:C:H5''  | 2:L5:4377:G:P      | 2.58                     | 0.43              |
| 2:L5:1730:U:H2'   | 2:L5:1731:C:C6     | 2.54                     | 0.43              |
| 2:L5:1788:A:H2'   | 13:LI:22:PHE:CZ    | 2.54                     | 0.43              |
| 2:L5:2276:A:H2'   | 2:L5:2277:C:H6     | 1.83                     | 0.43              |
| 2:L5:2315:G:N1    | 2:L5:2325:C:N3     | 2.67                     | 0.43              |
| 2:L5:2579:G:N2    | 2:L5:2582:A:OP2    | 2.30                     | 0.43              |
| 2:L5:2656:U:C4    | 2:L5:2657:G:C6     | 3.07                     | 0.43              |
| 2:L5:3597:G:H2'   | 2:L5:3598:C:H6     | 1.84                     | 0.43              |
| 2:L5:3896:C:H1'   | 6:LB:268:ARG:NH2   | 2.34                     | 0.43              |
| 2:L5:4070:U:H2'   | 2:L5:4071:U:H6     | 1.82                     | 0.43              |
| 2:L5:4600:G:H4'   | 2:L5:4601:U:O5'    | 2.18                     | 0.43              |
| 2:L5:4967:A:H2'   | 2:L5:4968:A:H8     | 1.83                     | 0.43              |
| 4:L8:4:C:H2'      | 4:L8:5:U:C6        | 2.54                     | 0.43              |
| 4:L8:121:G:H2'    | 4:L8:122:G:C8      | 2.54                     | 0.43              |
| 11:LG:180:PRO:HD3 | 11:LG:223:ARG:NH2  | 2.34                     | 0.43              |
| 15:LL:110:LEU:O   | 15:LL:114:VAL:HG13 | 2.19                     | 0.43              |
| 41:LI:28:ARG:HA   | 41:LI:33:ASN:ND2   | 2.34                     | 0.43              |
| 64:SA:5:LEU:HD11  | 75:SV:41:LYS:HD2   | 2.00                     | 0.43              |
| 72:SL:69:ARG:NH1  | 72:SL:130:GLU:HG2  | 2.34                     | 0.43              |
| 74:SO:55:ARG:NH2  | 82:S2:954:U:O2     | 2.50                     | 0.43              |
| 74:SO:113:GLN:OE1 | 79:Sa:46:GLU:N     | 2.51                     | 0.43              |
| 82:S2:497:C:H2'   | 82:S2:498:C:C6     | 2.53                     | 0.43              |
| 82:S2:1702:G:O6   | 82:S2:1836:G:N2    | 2.52                     | 0.43              |
| 82:S2:1720:U:H5'' | 82:S2:1721:U:H5''  | 2.01                     | 0.43              |
| 82:S2:1770:G:OP1  | 82:S2:1771:G:N2    | 2.41                     | 0.43              |
| 2:L5:654:C:O2'    | 2:L5:655:C:H5'     | 2.19                     | 0.43              |
| 2:L5:1238:A:O2'   | 10:LF:52:GLU:OE2   | 2.37                     | 0.43              |
| 2:L5:1662:C:H2'   | 2:L5:1663:C:C6     | 2.53                     | 0.43              |
| 2:L5:1976:G:N7    | 2:L5:2002:A:H2'    | 2.33                     | 0.43              |
| 2:L5:1994:C:H2'   | 2:L5:1995:G:H8     | 1.80                     | 0.43              |
| 2:L5:2317:C:H2'   | 2:L5:2318:G:C8     | 2.54                     | 0.43              |
| 2:L5:2492:C:H2'   | 2:L5:2493:G:C8     | 2.50                     | 0.43              |
| 2:L5:2640:G:H2'   | 2:L5:2641:A:C8     | 2.53                     | 0.43              |
| 2:L5:2662:G:H2'   | 2:L5:2663:G:C8     | 2.54                     | 0.43              |
| 2:L5:2779:C:H2'   | 2:L5:2780:C:H6     | 1.83                     | 0.43              |
| 2:L5:3683:C:O3'   | 5:LA:174:ARG:NH2   | 2.51                     | 0.43              |
| 2:L5:3799:A:H2'   | 2:L5:3800:A:C8     | 2.53                     | 0.43              |
| 3:L7:48:G:H2'     | 3:L7:49:A:C8       | 2.54                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 3:L7:57:C:H2'      | 3:L7:58:A:H8       | 1.84                     | 0.43              |
| 4:L8:26:C:H2'      | 4:L8:27:U:C6       | 2.54                     | 0.43              |
| 4:L8:77:A:H2'      | 4:L8:78:G:C8       | 2.54                     | 0.43              |
| 5:LA:150:LEU:HD11  | 5:LA:156:LYS:HD2   | 2.00                     | 0.43              |
| 9:LE:183:ARG:HA    | 9:LE:183:ARG:HD2   | 1.80                     | 0.43              |
| 15:LL:64:VAL:HA    | 15:LL:67:HIS:CD2   | 2.46                     | 0.43              |
| 16:LM:37:LEU:HD12  | 16:LM:37:LEU:HA    | 1.80                     | 0.43              |
| 17:LN:96:ARG:HH21  | 17:LN:100:SER:HG   | 1.60                     | 0.43              |
| 28:LY:31:SER:HA    | 28:LY:48:PRO:HA    | 2.00                     | 0.43              |
| 29:LZ:99:ASP:O     | 29:LZ:102:ARG:HG2  | 2.19                     | 0.43              |
| 53:SP:115:TYR:HB2  | 53:SP:118:GLU:HG3  | 2.00                     | 0.43              |
| 56:SS:92:ASP:OD1   | 56:SS:92:ASP:N     | 2.48                     | 0.43              |
| 65:SB:125:VAL:HG21 | 65:SB:173:THR:HG22 | 2.00                     | 0.43              |
| 69:SH:76:GLN:O     | 69:SH:80:VAL:HG23  | 2.18                     | 0.43              |
| 81:Se:56:ASN:OD1   | 82:S2:637:U:O2'    | 2.21                     | 0.43              |
| 82:S2:479:C:H2'    | 82:S2:480:G:C8     | 2.54                     | 0.43              |
| 82:S2:651:PSU:H2'  | 82:S2:652:U:C6     | 2.54                     | 0.43              |
| 82:S2:969:U:O2     | 82:S2:971:G:N1     | 2.51                     | 0.43              |
| 82:S2:996:A:H2'    | 82:S2:997:A:H8     | 1.81                     | 0.43              |
| 82:S2:1190:A:N3    | 82:S2:1714:U:O2'   | 2.49                     | 0.43              |
| 82:S2:1215:C:O2'   | 82:S2:1645:C:OP2   | 2.28                     | 0.43              |
| 82:S2:1347:U:H2'   | 82:S2:1348:G:N3    | 2.34                     | 0.43              |
| 82:S2:1361:G:OP2   | 82:S2:1362:U:O2'   | 2.31                     | 0.43              |
| 2:L5:227:A:H2'     | 2:L5:228:C:O4'     | 2.19                     | 0.43              |
| 2:L5:270:U:H2'     | 2:L5:271:C:H6      | 1.80                     | 0.43              |
| 2:L5:429:A:H2'     | 2:L5:430:G:C8      | 2.54                     | 0.43              |
| 2:L5:500:G:OP2     | 2:L5:503:C:H1'     | 2.19                     | 0.43              |
| 2:L5:505:G:O6      | 2:L5:653:U:O4      | 2.36                     | 0.43              |
| 2:L5:2375:A:H2'    | 2:L5:2376:A:C8     | 2.54                     | 0.43              |
| 2:L5:2423:A:H2'    | 2:L5:2424:OMG:C8   | 2.54                     | 0.43              |
| 2:L5:2787:A2M:H1'  | 2:L5:2787:A2M:HM'2 | 1.80                     | 0.43              |
| 2:L5:2891:U:H1'    | 2:L5:5016:A:C8     | 2.53                     | 0.43              |
| 2:L5:3763:A:N6     | 82:S2:1709:G:O2'   | 2.51                     | 0.43              |
| 2:L5:4140:C:O2     | 2:L5:4145:C:O2'    | 2.29                     | 0.43              |
| 2:L5:4193:C:H2'    | 2:L5:4194:U:O4'    | 2.18                     | 0.43              |
| 2:L5:4402:C:N3     | 2:L5:4403:PSU:N1   | 2.67                     | 0.43              |
| 2:L5:4540:C:H2'    | 2:L5:4541:G:C8     | 2.54                     | 0.43              |
| 2:L5:4578:G:H2'    | 2:L5:4579:PSU:C6   | 2.54                     | 0.43              |
| 2:L5:4645:C:OP2    | 21:LR:62:ARG:NH1   | 2.51                     | 0.43              |
| 2:L5:4913:G:H4'    | 2:L5:4914:C:O5'    | 2.19                     | 0.43              |
| 4:L8:18:U:H2'      | 4:L8:19:C:C6       | 2.53                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 5:LA:133:TYR:HB3   | 5:LA:168:VAL:HG12  | 2.00                     | 0.43              |
| 12:LH:165:THR:HG21 | 12:LH:179:ILE:HG13 | 2.01                     | 0.43              |
| 18:LO:142:ALA:HA   | 18:LO:145:VAL:HG12 | 2.00                     | 0.43              |
| 19:LP:17:SER:HB2   | 19:LP:98:ALA:HB2   | 2.01                     | 0.43              |
| 26:LW:119:LYS:O    | 26:LW:123:LYS:HB2  | 2.18                     | 0.43              |
| 27:LX:94:ASN:OD1   | 27:LX:146:ALA:N    | 2.49                     | 0.43              |
| 52:SM:17:ALA:O     | 52:SM:20:GLU:HG3   | 2.17                     | 0.43              |
| 57:ST:10:ASN:HB3   | 57:ST:13:GLU:OE2   | 2.19                     | 0.43              |
| 57:ST:35:ASP:OD1   | 57:ST:35:ASP:N     | 2.51                     | 0.43              |
| 59:SZ:106:GLN:HG3  | 59:SZ:108:ILE:HD11 | 2.01                     | 0.43              |
| 61:Sd:21:CYS:SG    | 61:Sd:39:CYS:N     | 2.85                     | 0.43              |
| 64:SA:110:ASN:ND2  | 82:S2:1350:U:O2    | 2.44                     | 0.43              |
| 66:SC:146:GLU:HB2  | 66:SC:149:THR:HB   | 2.00                     | 0.43              |
| 67:SE:101:LEU:HD12 | 67:SE:101:LEU:HA   | 1.86                     | 0.43              |
| 68:SG:10:THR:HA    | 68:SG:128:THR:HG23 | 2.00                     | 0.43              |
| 70:SI:106:SER:HB2  | 70:SI:166:PHE:CE1  | 2.53                     | 0.43              |
| 72:SL:112:HIS:HB3  | 72:SL:141:ASN:OD1  | 2.19                     | 0.43              |
| 78:SY:12:PHE:N     | 82:S2:841:G:N7     | 2.66                     | 0.43              |
| 82:S2:116:OMU:C2   | 82:S2:347:G:H1     | 2.32                     | 0.43              |
| 82:S2:1172:U:H2'   | 82:S2:1173:A:C8    | 2.54                     | 0.43              |
| 82:S2:1176:G:C6    | 82:S2:1177:PSU:C2  | 3.07                     | 0.43              |
| 82:S2:1221:G:H2'   | 82:S2:1222:G:H8    | 1.83                     | 0.43              |
| 82:S2:1617:G:N1    | 82:S2:1620:A:OP2   | 2.51                     | 0.43              |
| 2:L5:23:C:H2'      | 2:L5:24:G:O4'      | 2.19                     | 0.43              |
| 2:L5:53:C:H2'      | 2:L5:54:G:H8       | 1.84                     | 0.43              |
| 2:L5:192:G:O6      | 2:L5:250:C:N4      | 2.52                     | 0.43              |
| 2:L5:978:G:H2'     | 2:L5:979:C:H6      | 1.83                     | 0.43              |
| 2:L5:1431:C:H2'    | 2:L5:1432:G:O4'    | 2.19                     | 0.43              |
| 2:L5:1493:G:OP2    | 31:Lb:44:ARG:NH1   | 2.52                     | 0.43              |
| 2:L5:1846:G:H2'    | 2:L5:1847:C:C6     | 2.54                     | 0.43              |
| 2:L5:1876:U:H2'    | 2:L5:1877:G:C8     | 2.54                     | 0.43              |
| 2:L5:1985:G:H2'    | 2:L5:1986:U:C6     | 2.54                     | 0.43              |
| 2:L5:2264:C:P      | 46:Lr:112:ARG:HH21 | 2.42                     | 0.43              |
| 2:L5:2334:C:C5     | 7:LC:191:ALA:HB2   | 2.54                     | 0.43              |
| 2:L5:2663:G:H2'    | 2:L5:2664:G:C8     | 2.53                     | 0.43              |
| 2:L5:2689:C:H2'    | 2:L5:2690:C:H6     | 1.83                     | 0.43              |
| 2:L5:2852:U:N3     | 2:L5:2855:G:OP2    | 2.33                     | 0.43              |
| 2:L5:3763:A:H2'    | 2:L5:3764:U:C6     | 2.54                     | 0.43              |
| 2:L5:3917:A:H2'    | 2:L5:3918:G:C8     | 2.53                     | 0.43              |
| 2:L5:4291:G:H5'    | 2:L5:4293:PSU:C6   | 2.54                     | 0.43              |
| 2:L5:4622:A:H5''   | 6:LB:12:GLY:C      | 2.44                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:4629:U:C2     | 2:L5:4630:G:C8     | 3.07                     | 0.43              |
| 3:L7:2:U:H2'       | 3:L7:3:C:C6        | 2.54                     | 0.43              |
| 3:L7:4:U:H2'       | 3:L7:5:A:C8        | 2.54                     | 0.43              |
| 3:L7:76:U:H2'      | 3:L7:77:A:H8       | 1.84                     | 0.43              |
| 4:L8:129:C:H2'     | 4:L8:130:C:C6      | 2.54                     | 0.43              |
| 13:LI:84:GLY:O     | 13:LI:140:THR:OG1  | 2.22                     | 0.43              |
| 13:LI:88:ARG:N     | 13:LI:137:SER:O    | 2.46                     | 0.43              |
| 20:LQ:157:GLY:HA3  | 30:La:46:ASP:O     | 2.19                     | 0.43              |
| 21:LR:92:LYS:HG2   | 21:LR:96:MET:HE3   | 2.01                     | 0.43              |
| 36:Lg:107:LEU:O    | 36:Lg:110:GLN:HG3  | 2.19                     | 0.43              |
| 41:Ll:33:ASN:ND2   | 41:Ll:35:ILE:O     | 2.52                     | 0.43              |
| 56:SS:142:ARG:HH21 | 82:S2:1228:A:H4'   | 1.84                     | 0.43              |
| 62:Sf:108:VAL:HB   | 62:Sf:113:LYS:N    | 2.33                     | 0.43              |
| 62:Sf:108:VAL:HG12 | 62:Sf:114:ILE:HA   | 2.01                     | 0.43              |
| 63:Sg:10:THR:HB    | 63:Sg:306:LEU:HD21 | 2.00                     | 0.43              |
| 63:Sg:239:LEU:HD12 | 63:Sg:239:LEU:HA   | 1.84                     | 0.43              |
| 70:SI:165:GLN:HB3  | 70:SI:171:LEU:HD23 | 2.01                     | 0.43              |
| 72:SL:136:LYS:O    | 72:SL:139:ARG:NH2  | 2.51                     | 0.43              |
| 73:SN:29:THR:OG1   | 73:SN:31:ASP:OD1   | 2.33                     | 0.43              |
| 78:SY:65:GLY:H     | 82:S2:581:U:P      | 2.41                     | 0.43              |
| 82:S2:129:C:P      | 82:S2:214:U:H2'    | 2.59                     | 0.43              |
| 82:S2:1365:G:H2'   | 82:S2:1366:G:C8    | 2.54                     | 0.43              |
| 2:L5:126:C:H2'     | 2:L5:127:G:C8      | 2.53                     | 0.42              |
| 2:L5:467:U:N3      | 2:L5:468:U:O2'     | 2.52                     | 0.42              |
| 2:L5:710:G:H2'     | 2:L5:711:A:C8      | 2.54                     | 0.42              |
| 2:L5:1567:U:H2'    | 2:L5:1568:C:H6     | 1.84                     | 0.42              |
| 2:L5:2027:U:H2'    | 2:L5:2028:C:H6     | 1.84                     | 0.42              |
| 2:L5:2634:C:C2     | 2:L5:2635:U:C5     | 3.07                     | 0.42              |
| 2:L5:4144:C:C2     | 2:L5:4145:C:H5     | 2.37                     | 0.42              |
| 2:L5:4273:A:H2'    | 2:L5:4274:A:C8     | 2.54                     | 0.42              |
| 2:L5:4452:U:OP2    | 2:L5:4522:G:N1     | 2.39                     | 0.42              |
| 2:L5:4749:C:C2     | 2:L5:4952:G:C2     | 3.07                     | 0.42              |
| 2:L5:4891:G:H3'    | 2:L5:4892:A:H2     | 1.84                     | 0.42              |
| 2:L5:5050:C:HO2'   | 6:LB:321:VAL:HA    | 1.84                     | 0.42              |
| 4:L8:15:G:H2'      | 4:L8:16:G:C8       | 2.54                     | 0.42              |
| 5:LA:40:TYR:HA     | 5:LA:91:GLY:HA3    | 2.00                     | 0.42              |
| 5:LA:249:THR:HA    | 82:S2:1044:G:N7    | 2.34                     | 0.42              |
| 12:LH:93:ARG:NE    | 12:LH:142:ASP:O    | 2.49                     | 0.42              |
| 14:LJ:41:GLU:O     | 14:LJ:45:GLY:N     | 2.46                     | 0.42              |
| 16:LM:8:GLU:HB3    | 22:LS:151:LYS:HG3  | 2.01                     | 0.42              |
| 46:Lr:97:ILE:HD13  | 46:Lr:107:ARG:HA   | 2.00                     | 0.42              |

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| Atom-1              | Atom-2              | Interatomic distance (Å) | Clash overlap (Å) |
|---------------------|---------------------|--------------------------|-------------------|
| 54:SQ:132:PHE:CG    | 58:SU:77:TRP:HB2    | 2.54                     | 0.42              |
| 61:Sd:26:ASN:ND2    | 61:Sd:28:HIS:O      | 2.52                     | 0.42              |
| 63:Sg:183:LYS:HA    | 63:Sg:183:LYS:HD2   | 1.78                     | 0.42              |
| 65:SB:89:GLU:HB3    | 65:SB:223:PHE:CE1   | 2.53                     | 0.42              |
| 65:SB:141:GLY:HA3   | 65:SB:207:LEU:HD23  | 2.01                     | 0.42              |
| 65:SB:171:ILE:HG22  | 65:SB:174:ARG:HE    | 1.84                     | 0.42              |
| 66:SC:84:PHE:CE2    | 66:SC:265:PRO:HD3   | 2.54                     | 0.42              |
| 68:SG:194:LEU:HB3   | 68:SG:198:ARG:NH2   | 2.33                     | 0.42              |
| 73:SN:46:THR:O      | 73:SN:50:ILE:HG13   | 2.19                     | 0.42              |
| 80:Sb:11:SER:N      | 80:Sb:14:GLU:OE2    | 2.52                     | 0.42              |
| 81:Se:12:VAL:HG23   | 82:S2:616:A:H1'     | 2.01                     | 0.42              |
| 82:S2:211:G:H2'     | 82:S2:212:C:C6      | 2.54                     | 0.42              |
| 82:S2:919:A:OP2     | 82:S2:919:A:H8      | 2.02                     | 0.42              |
| 82:S2:1362:U:H5''   | 82:S2:1363:C:C5     | 2.48                     | 0.42              |
| 82:S2:1467:C:H2'    | 82:S2:1468:C:C6     | 2.53                     | 0.42              |
| 82:S2:1504:U:H2'    | 82:S2:1505:U:C6     | 2.54                     | 0.42              |
| 82:S2:1526:G:H2'    | 82:S2:1527:C:C6     | 2.54                     | 0.42              |
| 82:S2:1856:C:H2'    | 82:S2:1857:G:H8     | 1.84                     | 0.42              |
| 1:Pt:21:A:H61       | 1:Pt:46:G:H2'       | 1.85                     | 0.42              |
| 2:L5:197:A:N1       | 2:L5:225:G:O2'      | 2.37                     | 0.42              |
| 2:L5:321:U:O2       | 2:L5:4356:G:N2      | 2.46                     | 0.42              |
| 2:L5:457:G:OP1      | 9:LE:115:TYR:HB3    | 2.19                     | 0.42              |
| 2:L5:736:C:H2'      | 2:L5:737:C:C6       | 2.54                     | 0.42              |
| 2:L5:1478:C:H2'     | 2:L5:1479:G:C8      | 2.53                     | 0.42              |
| 2:L5:1507:C:H2'     | 2:L5:1508:A:H8      | 1.83                     | 0.42              |
| 2:L5:1619:G:H2'     | 2:L5:1620:U:O4'     | 2.19                     | 0.42              |
| 2:L5:1802:A:H5''    | 2:L5:1803:G:H5'     | 2.00                     | 0.42              |
| 2:L5:2072:C:H2'     | 2:L5:2073:C:C6      | 2.54                     | 0.42              |
| 2:L5:2338:C:OP1     | 46:Lr:19:LYS:NZ     | 2.45                     | 0.42              |
| 2:L5:2596:G:H2'     | 2:L5:2597:G:H8      | 1.83                     | 0.42              |
| 2:L5:2602:G:H2'     | 2:L5:2603:C:C6      | 2.55                     | 0.42              |
| 2:L5:2703:G:C6      | 2:L5:2714:G:C6      | 3.07                     | 0.42              |
| 2:L5:2715:G:H2'     | 2:L5:2716:C:C6      | 2.54                     | 0.42              |
| 2:L5:4356:G:H2'     | 2:L5:4357:G:H8      | 1.84                     | 0.42              |
| 2:L5:4410:G:C2      | 2:L5:4411:G:C8      | 3.06                     | 0.42              |
| 2:L5:4418:G:H1      | 2:L5:4421:C:H2'     | 1.84                     | 0.42              |
| 2:L5:4642:U:H2'     | 2:L5:4643:G:C8      | 2.54                     | 0.42              |
| 2:L5:4750:G:H2'     | 2:L5:4751:G:C8      | 2.54                     | 0.42              |
| 2:L5:5044:A:H2'     | 2:L5:5045:G:C8      | 2.53                     | 0.42              |
| 87:L5:5294:HMT:H25A | 87:L5:5294:HMT:H29A | 1.81                     | 0.42              |
| 7:LC:209:ILE:HB     | 7:LC:229:LEU:HG     | 2.01                     | 0.42              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 14:LJ:141:ILE:HG13 | 14:LJ:142:ALA:N   | 2.33                     | 0.42              |
| 23:LT:45:MET:HE3   | 23:LT:94:GLU:O    | 2.18                     | 0.42              |
| 26:LW:120:GLN:HE21 | 82:S2:323:C:N4    | 2.17                     | 0.42              |
| 37:Lh:79:LYS:O     | 37:Lh:84:ARG:NE   | 2.42                     | 0.42              |
| 40:Lk:24:LYS:N     | 40:Lk:35:LYS:O    | 2.46                     | 0.42              |
| 45:Lp:61:MET:HE3   | 45:Lp:61:MET:HB3  | 1.87                     | 0.42              |
| 48:Lt:16:ARG:HH21  | 48:Lt:61:LYS:HG3  | 1.84                     | 0.42              |
| 49:SD:131:ALA:HA   | 49:SD:191:PRO:HD3 | 2.01                     | 0.42              |
| 52:SM:40:LYS:NZ    | 82:S2:1311:C:OP1  | 2.31                     | 0.42              |
| 54:SQ:9:SER:HB3    | 54:SQ:26:LYS:HG3  | 2.01                     | 0.42              |
| 54:SQ:53:GLU:HB3   | 54:SQ:54:PRO:HD3  | 2.01                     | 0.42              |
| 65:SB:88:THR:HA    | 65:SB:98:THR:HG22 | 2.00                     | 0.42              |
| 66:SC:170:TRP:CE3  | 66:SC:199:PRO:HB3 | 2.54                     | 0.42              |
| 72:SL:21:LYS:HA    | 72:SL:21:LYS:HD2  | 1.86                     | 0.42              |
| 82:S2:517:OMC:H2'  | 82:S2:518:G:O4'   | 2.20                     | 0.42              |
| 82:S2:676:C:H2'    | 82:S2:677:G:O4'   | 2.19                     | 0.42              |
| 82:S2:1047:C:H2'   | 82:S2:1048:G:O4'  | 2.19                     | 0.42              |
| 82:S2:1380:C:H2'   | 82:S2:1381:G:C8   | 2.54                     | 0.42              |
| 82:S2:1562:C:H2'   | 82:S2:1563:G:C8   | 2.50                     | 0.42              |
| 82:S2:1842:4AC:C2  | 82:S2:1857:G:H22  | 2.30                     | 0.42              |
| 82:S2:1865:C:H5'   | 82:S2:1866:A:N7   | 2.34                     | 0.42              |
| 1:Pt:2:U:H2'       | 1:Pt:3:C:C6       | 2.54                     | 0.42              |
| 2:L5:129:C:N4      | 2:L5:140:G:O6     | 2.52                     | 0.42              |
| 2:L5:368:C:N4      | 2:L5:369:G:O6     | 2.52                     | 0.42              |
| 2:L5:685:C:H4'     | 2:L5:686:A:C4     | 2.54                     | 0.42              |
| 2:L5:726:G:H2'     | 2:L5:727:C:C6     | 2.54                     | 0.42              |
| 2:L5:958:G:N2      | 9:LE:124:LYS:HB3  | 2.34                     | 0.42              |
| 2:L5:1339:U:H2'    | 2:L5:1340:OMC:H6  | 1.82                     | 0.42              |
| 2:L5:1519:C:H2'    | 2:L5:1520:C:H6    | 1.83                     | 0.42              |
| 2:L5:1785:C:H2'    | 2:L5:1786:A:C8    | 2.54                     | 0.42              |
| 2:L5:1839:U:OP1    | 10:LF:124:LYS:NZ  | 2.45                     | 0.42              |
| 2:L5:1875:C:H2'    | 2:L5:1876:U:C6    | 2.54                     | 0.42              |
| 2:L5:1961:G:O2'    | 2:L5:2025:A:N6    | 2.52                     | 0.42              |
| 2:L5:1982:G:H1'    | 2:L5:2010:A:H4'   | 2.00                     | 0.42              |
| 2:L5:2693:G:H2'    | 2:L5:2694:G:N2    | 2.34                     | 0.42              |
| 2:L5:2720:C:H2'    | 2:L5:2721:G:O4'   | 2.19                     | 0.42              |
| 2:L5:2728:U:H2'    | 2:L5:2729:C:C6    | 2.54                     | 0.42              |
| 2:L5:2858:A:H2'    | 2:L5:2859:G:O4'   | 2.19                     | 0.42              |
| 2:L5:3703:G:H2'    | 2:L5:3704:U:H6    | 1.84                     | 0.42              |
| 2:L5:3712:A:C5     | 2:L5:3713:U:H1'   | 2.54                     | 0.42              |
| 2:L5:3729:U:H5''   | 44:Lo:34:TYR:OH   | 2.19                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:3834:C:H2'    | 2:L5:3835:C:C6     | 2.54                     | 0.42              |
| 2:L5:3851:PSU:H2'  | 2:L5:3852:A:O4'    | 2.18                     | 0.42              |
| 2:L5:4089:G:H2'    | 2:L5:4090:G:H8     | 1.85                     | 0.42              |
| 2:L5:4261:C:H2'    | 2:L5:4262:C:C6     | 2.54                     | 0.42              |
| 2:L5:4577:U:H2'    | 2:L5:4578:G:H8     | 1.83                     | 0.42              |
| 4:L8:140:C:H2'     | 4:L8:141:C:C6      | 2.55                     | 0.42              |
| 4:L8:150:C:N4      | 11:LG:57:TRP:HE1   | 2.18                     | 0.42              |
| 12:LH:4:ILE:HG12   | 12:LH:61:TRP:CH2   | 2.54                     | 0.42              |
| 17:LN:189:ARG:HB3  | 17:LN:193:ARG:NH1  | 2.33                     | 0.42              |
| 18:LO:70:PRO:HB2   | 18:LO:72:HIS:CE1   | 2.54                     | 0.42              |
| 21:LR:139:MET:HG2  | 21:LR:143:HIS:CE1  | 2.54                     | 0.42              |
| 22:LS:26:PRO:HB2   | 22:LS:28:TYR:CZ    | 2.54                     | 0.42              |
| 26:LW:35:LYS:HE3   | 26:LW:51:TRP:CH2   | 2.53                     | 0.42              |
| 32:Lc:78:ASN:OD1   | 32:Lc:78:ASN:N     | 2.52                     | 0.42              |
| 43:Ln:2:ARG:HH21   | 82:S2:1842:4AC:H5  | 1.84                     | 0.42              |
| 51:SK:26:ASP:OD1   | 51:SK:29:MET:N     | 2.52                     | 0.42              |
| 56:SS:128:GLY:O    | 56:SS:144:ARG:NH2  | 2.52                     | 0.42              |
| 64:SA:57:LYS:HD2   | 64:SA:57:LYS:HA    | 1.78                     | 0.42              |
| 65:SB:42:ARG:NH1   | 65:SB:232:HIS:O    | 2.38                     | 0.42              |
| 67:SE:139:LEU:HD22 | 67:SE:147:ILE:HD11 | 2.01                     | 0.42              |
| 67:SE:180:LEU:HB3  | 67:SE:229:GLY:HA3  | 2.02                     | 0.42              |
| 67:SE:204:SER:OG   | 67:SE:205:PHE:N    | 2.52                     | 0.42              |
| 69:SH:165:ASN:HA   | 69:SH:168:HIS:HE1  | 1.83                     | 0.42              |
| 71:SJ:59:GLU:O     | 71:SJ:62:THR:OG1   | 2.31                     | 0.42              |
| 81:Se:11:LYS:HG2   | 81:Se:15:GLN:OE1   | 2.18                     | 0.42              |
| 82:S2:37:C:H3'     | 82:S2:38:A:H8      | 1.84                     | 0.42              |
| 82:S2:354:OMU:HM23 | 82:S2:354:OMU:H1'  | 1.73                     | 0.42              |
| 82:S2:376:A:H2'    | 82:S2:377:G:H8     | 1.85                     | 0.42              |
| 82:S2:1253:A:OP2   | 82:S2:1526:G:N2    | 2.36                     | 0.42              |
| 82:S2:1676:U:H2'   | 82:S2:1677:U:O4'   | 2.20                     | 0.42              |
| 82:S2:1718:G:N2    | 82:S2:1814:G:H2'   | 2.34                     | 0.42              |
| 82:S2:1731:A:H2'   | 82:S2:1732:G:H8    | 1.84                     | 0.42              |
| 2:L5:44:A:N3       | 2:L5:94:A:H2       | 2.16                     | 0.42              |
| 2:L5:233:U:O2'     | 2:L5:234:G:H2'     | 2.20                     | 0.42              |
| 2:L5:1316:OMG:H2'  | 2:L5:1317:U:C6     | 2.54                     | 0.42              |
| 2:L5:1321:G:H22    | 2:L5:4445:U:H5'    | 1.84                     | 0.42              |
| 2:L5:1462:A:H2'    | 2:L5:1463:C:C6     | 2.54                     | 0.42              |
| 2:L5:1474:C:H2'    | 2:L5:1475:G:C8     | 2.54                     | 0.42              |
| 2:L5:1511:U:H2'    | 2:L5:1512:G:C8     | 2.51                     | 0.42              |
| 2:L5:1628:C:OP2    | 5:LA:9:ARG:HD2     | 2.20                     | 0.42              |
| 2:L5:1644:C:H2'    | 2:L5:1645:C:C6     | 2.55                     | 0.42              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 2:L5:1648:C:OP2    | 2:L5:1649:U:O2'   | 2.31                     | 0.42              |
| 2:L5:1662:C:H2'    | 2:L5:1663:C:H6    | 1.85                     | 0.42              |
| 2:L5:2027:U:H2'    | 2:L5:2028:C:C6    | 2.54                     | 0.42              |
| 2:L5:2565:A:H2'    | 2:L5:2566:G:O4'   | 2.19                     | 0.42              |
| 2:L5:2684:C:H2'    | 2:L5:2685:C:H6    | 1.84                     | 0.42              |
| 2:L5:4389:C:H2'    | 2:L5:4390:A:H8    | 1.82                     | 0.42              |
| 2:L5:4538:G:H2'    | 2:L5:4539:U:H6    | 1.83                     | 0.42              |
| 2:L5:4587:G:N1     | 2:L5:4716:C:N3    | 2.66                     | 0.42              |
| 2:L5:4623:OMG:HM23 | 2:L5:4623:OMG:H1' | 1.82                     | 0.42              |
| 4:L8:39:G:H1'      | 4:L8:103:A:N6     | 2.34                     | 0.42              |
| 36:Lg:43:LYS:HG3   | 36:Lg:52:ARG:NH1  | 2.33                     | 0.42              |
| 37:Lh:52:LYS:HA    | 37:Lh:52:LYS:HD3  | 1.90                     | 0.42              |
| 57:ST:3:GLY:HA3    | 82:S2:1416:C:O2   | 2.19                     | 0.42              |
| 62:Sf:103:LEU:HD12 | 62:Sf:105:TYR:CZ  | 2.54                     | 0.42              |
| 63:Sg:65:PHE:O     | 63:Sg:83:TRP:N    | 2.43                     | 0.42              |
| 64:SA:8:LEU:HD22   | 64:SA:59:LEU:HD11 | 2.01                     | 0.42              |
| 64:SA:10:MET:HE3   | 64:SA:55:TRP:HB2  | 2.02                     | 0.42              |
| 65:SB:136:ARG:O    | 65:SB:215:VAL:HA  | 2.20                     | 0.42              |
| 70:SI:141:ARG:HA   | 70:SI:141:ARG:CZ  | 2.49                     | 0.42              |
| 71:SJ:134:HIS:ND1  | 71:SJ:163:SER:HB2 | 2.35                     | 0.42              |
| 73:SN:17:PRO:HD3   | 80:Sb:28:PRO:HG3  | 2.00                     | 0.42              |
| 76:SW:57:ARG:HD2   | 82:S2:919:A:H4'   | 2.02                     | 0.42              |
| 76:SW:125:ILE:HD12 | 76:SW:125:ILE:HA  | 1.83                     | 0.42              |
| 81:Se:16:THR:OG1   | 82:S2:633:C:O2'   | 2.23                     | 0.42              |
| 82:S2:28:U:H2'     | 82:S2:29:G:C8     | 2.51                     | 0.42              |
| 82:S2:44:U:O2      | 82:S2:482:G:O2'   | 2.24                     | 0.42              |
| 82:S2:67:C:N4      | 82:S2:70:G:N7     | 2.67                     | 0.42              |
| 82:S2:77:A:H2'     | 82:S2:78:C:C6     | 2.54                     | 0.42              |
| 82:S2:822:U:OP2    | 82:S2:823:U:H5''  | 2.19                     | 0.42              |
| 82:S2:1253:A:H4'   | 82:S2:1254:C:H5'' | 2.01                     | 0.42              |
| 82:S2:1488:C:H3'   | 82:S2:1489:A:H4'  | 2.01                     | 0.42              |
| 82:S2:1733:U:H2'   | 82:S2:1734:G:O4'  | 2.19                     | 0.42              |
| 2:L5:371:A:H2'     | 2:L5:372:A:C8     | 2.54                     | 0.42              |
| 2:L5:737:C:C5      | 2:L5:739:G:H5''   | 2.55                     | 0.42              |
| 2:L5:1298:C:H2'    | 2:L5:1299:G:C8    | 2.54                     | 0.42              |
| 2:L5:1430:C:OP1    | 20:LQ:135:GLY:N   | 2.51                     | 0.42              |
| 2:L5:2419:C:H2'    | 2:L5:2420:A:C8    | 2.55                     | 0.42              |
| 2:L5:2594:C:H2'    | 2:L5:2595:C:C6    | 2.54                     | 0.42              |
| 2:L5:2885:A:H2'    | 2:L5:2886:U:C6    | 2.54                     | 0.42              |
| 2:L5:4089:G:H2'    | 2:L5:4090:G:C8    | 2.53                     | 0.42              |
| 2:L5:4459:U:H2'    | 2:L5:4460:U:H6    | 1.81                     | 0.42              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 2:L5:4674:C:H2'   | 2:L5:4675:U:C6     | 2.55                     | 0.42              |
| 2:L5:4691:A:OP1   | 12:LH:75:SER:OG    | 2.32                     | 0.42              |
| 4:L8:25:G:H2'     | 4:L8:26:C:C6       | 2.55                     | 0.42              |
| 4:L8:70:G:H1'     | 4:L8:88:A:N6       | 2.34                     | 0.42              |
| 10:LF:230:GLY:HA3 | 22:LS:3:ALA:HB2    | 2.00                     | 0.42              |
| 11:LG:176:LYS:HD3 | 38:Li:43:MET:HE1   | 2.01                     | 0.42              |
| 13:LI:36:LEU:O    | 13:LI:86:HIS:HD2   | 2.02                     | 0.42              |
| 29:LZ:32:GLY:HA2  | 29:LZ:36:ARG:O     | 2.20                     | 0.42              |
| 31:Lb:92:LYS:HG3  | 31:Lb:95:ARG:NH2   | 2.35                     | 0.42              |
| 49:SD:215:ASP:OD1 | 49:SD:216:GLU:N    | 2.48                     | 0.42              |
| 51:SK:2:LEU:HD21  | 82:S2:1289:U:H4'   | 2.01                     | 0.42              |
| 54:SQ:10:VAL:HG22 | 54:SQ:95:TYR:HD1   | 1.85                     | 0.42              |
| 57:ST:45:LEU:HD22 | 82:S2:1538:C:O2'   | 2.20                     | 0.42              |
| 57:ST:56:ARG:NE   | 82:S2:1541:G:OP1   | 2.38                     | 0.42              |
| 63:Sg:80:SER:HG   | 63:Sg:90:TRP:HE1   | 1.64                     | 0.42              |
| 66:SC:114:LYS:HD2 | 82:S2:1358:U:H5'   | 2.01                     | 0.42              |
| 67:SE:44:LEU:HD23 | 67:SE:82:TYR:HB3   | 2.00                     | 0.42              |
| 67:SE:234:PRO:HG3 | 67:SE:238:LEU:HD11 | 2.01                     | 0.42              |
| 70:SI:191:GLU:HG3 | 72:SL:19:ASN:ND2   | 2.34                     | 0.42              |
| 72:SL:153:LYS:HD3 | 72:SL:153:LYS:HA   | 1.85                     | 0.42              |
| 73:SN:110:ASP:O   | 73:SN:114:ARG:HG2  | 2.19                     | 0.42              |
| 74:SO:30:VAL:HG23 | 74:SO:47:LEU:HA    | 2.01                     | 0.42              |
| 81:Se:41:ARG:HG3  | 81:Se:42:PHE:CD1   | 2.55                     | 0.42              |
| 82:S2:40:A:H2'    | 82:S2:486:A:N7     | 2.35                     | 0.42              |
| 82:S2:92:A:N6     | 82:S2:444:G:H1'    | 2.34                     | 0.42              |
| 82:S2:158:A:H2'   | 82:S2:159:A2M:C8   | 2.49                     | 0.42              |
| 82:S2:1032:C:H2'  | 82:S2:1033:G:O4'   | 2.19                     | 0.42              |
| 82:S2:1270:G:H2'  | 82:S2:1271:C:H5''  | 2.02                     | 0.42              |
| 82:S2:1511:U:H2'  | 82:S2:1512:C:H6    | 1.83                     | 0.42              |
| 82:S2:1740:C:H42  | 82:S2:1794:C:N4    | 2.18                     | 0.42              |
| 2:L5:457:G:H2'    | 2:L5:458:C:H6      | 1.85                     | 0.42              |
| 2:L5:949:G:H2'    | 2:L5:950:G:H8      | 1.85                     | 0.42              |
| 2:L5:1081:C:C2'   | 2:L5:1082:C:H5'    | 2.50                     | 0.42              |
| 2:L5:1307:A:H2'   | 2:L5:1308:C:C6     | 2.54                     | 0.42              |
| 2:L5:1316:OMG:H2' | 2:L5:1317:U:H6     | 1.84                     | 0.42              |
| 2:L5:1317:U:H2'   | 2:L5:1318:C:C6     | 2.54                     | 0.42              |
| 2:L5:1505:C:H2'   | 2:L5:1506:G:H8     | 1.84                     | 0.42              |
| 2:L5:1529:G:H2'   | 2:L5:1530:G:C8     | 2.54                     | 0.42              |
| 2:L5:1910:G:O2'   | 2:L5:1917:A:N1     | 2.44                     | 0.42              |
| 2:L5:2581:A:O2'   | 2:L5:2582:A:O4'    | 2.30                     | 0.42              |
| 2:L5:2693:G:OP2   | 40:Lk:33:LYS:NZ    | 2.52                     | 0.42              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:L5:3920:PSU:H2' | 2:L5:3921:U:H6    | 1.84                     | 0.42              |
| 2:L5:4130:C:H2'   | 2:L5:4131:G:C8    | 2.55                     | 0.42              |
| 2:L5:4551:U:H2'   | 2:L5:4552:PSU:H6  | 1.85                     | 0.42              |
| 2:L5:4929:C:H2'   | 2:L5:4930:C:C6    | 2.54                     | 0.42              |
| 2:L5:5052:C:H2'   | 2:L5:5053:U:C6    | 2.55                     | 0.42              |
| 4:L8:91:A:H2'     | 4:L8:92:U:C6      | 2.54                     | 0.42              |
| 8:LD:197:LYS:HB3  | 8:LD:202:GLN:HB2  | 2.02                     | 0.42              |
| 18:LO:14:HIS:HD2  | 18:LO:123:ALA:HB3 | 1.85                     | 0.42              |
| 20:LQ:66:MET:HE1  | 20:LQ:86:ILE:HD13 | 2.01                     | 0.42              |
| 21:LR:19:LYS:HB2  | 21:LR:19:LYS:HE2  | 1.89                     | 0.42              |
| 32:Lc:49:ALA:HB1  | 32:Lc:77:ASN:HA   | 2.01                     | 0.42              |
| 34:Le:15:LYS:NZ   | 34:Le:61:GLY:O    | 2.40                     | 0.42              |
| 37:Lh:95:LEU:HB3  | 37:Lh:99:GLU:HG3  | 2.01                     | 0.42              |
| 43:Ln:12:ARG:HG2  | 43:Ln:15:ARG:HH21 | 1.83                     | 0.42              |
| 53:SP:22:LEU:HA   | 53:SP:25:LEU:HD12 | 2.02                     | 0.42              |
| 54:SQ:44:PRO:HB2  | 54:SQ:47:LEU:HD12 | 2.01                     | 0.42              |
| 55:SR:70:SER:HB3  | 55:SR:73:LEU:HB2  | 2.01                     | 0.42              |
| 70:SI:98:LYS:HB3  | 82:S2:377:G:H5'   | 2.02                     | 0.42              |
| 70:SI:141:ARG:NH2 | 82:S2:192:C:OP2   | 2.52                     | 0.42              |
| 72:SL:23:VAL:HG23 | 72:SL:25:LEU:HG   | 2.01                     | 0.42              |
| 72:SL:132:ARG:HB3 | 82:S2:114:G:C8    | 2.55                     | 0.42              |
| 79:Sa:98:PRO:HG2  | 82:S2:1868:U:O4   | 2.20                     | 0.42              |
| 82:S2:194:C:H2'   | 82:S2:195:C:H6    | 1.85                     | 0.42              |
| 82:S2:464:A:H5''  | 82:S2:465:A:C8    | 2.54                     | 0.42              |
| 82:S2:837:A:C2    | 82:S2:839:C:H5''  | 2.55                     | 0.42              |
| 82:S2:1711:U:H2'  | 82:S2:1712:A:H8   | 1.85                     | 0.42              |
| 82:S2:1795:G:H2'  | 82:S2:1796:G:C8   | 2.54                     | 0.42              |
| 2:L5:25:A:H61     | 2:L5:58:G:H1      | 1.67                     | 0.42              |
| 2:L5:156:G:N2     | 2:L5:157:U:O4     | 2.52                     | 0.42              |
| 2:L5:373:G:OP2    | 39:Lj:36:LYS:NZ   | 2.50                     | 0.42              |
| 2:L5:461:G:H2'    | 2:L5:462:G:C8     | 2.55                     | 0.42              |
| 2:L5:675:C:H2'    | 2:L5:676:C:C6     | 2.54                     | 0.42              |
| 2:L5:1601:A:OP1   | 39:Lj:5:THR:OG1   | 2.29                     | 0.42              |
| 2:L5:2098:G:H2'   | 2:L5:2099:G:C8    | 2.55                     | 0.42              |
| 2:L5:2328:G:H2'   | 2:L5:2329:U:C6    | 2.55                     | 0.42              |
| 2:L5:2461:G:OP1   | 17:LN:105:ARG:NE  | 2.49                     | 0.42              |
| 2:L5:2781:G:H4'   | 41:LI:5:LYS:HG3   | 2.00                     | 0.42              |
| 2:L5:3858:C:H2'   | 2:L5:3859:G:C8    | 2.55                     | 0.42              |
| 2:L5:3887:OMC:OP1 | 18:LO:82:ARG:NH1  | 2.38                     | 0.42              |
| 2:L5:4178:A:H2'   | 2:L5:4179:G:H8    | 1.85                     | 0.42              |
| 2:L5:4195:G:N2    | 13:LI:116:ARG:HA  | 2.35                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:4266:G:H4'    | 2:L5:4267:G:N3     | 2.35                     | 0.42              |
| 2:L5:4345:C:H2'    | 2:L5:4346:U:C6     | 2.55                     | 0.42              |
| 2:L5:4524:G:H2'    | 2:L5:4525:C:C6     | 2.55                     | 0.42              |
| 2:L5:4993:G:H2'    | 2:L5:4994:G:H8     | 1.84                     | 0.42              |
| 3:L7:3:C:H2'       | 3:L7:4:U:C6        | 2.54                     | 0.42              |
| 6:LB:86:VAL:HG12   | 6:LB:201:LEU:HD23  | 2.01                     | 0.42              |
| 7:LC:221:PHE:O     | 7:LC:222:ARG:HG2   | 2.19                     | 0.42              |
| 13:LI:207:ASP:HA   | 13:LI:210:ARG:HG2  | 2.02                     | 0.42              |
| 32:Lc:65:MET:HE3   | 32:Lc:65:MET:HB3   | 1.86                     | 0.42              |
| 50:SF:79:HIS:O     | 50:SF:81:ARG:N     | 2.48                     | 0.42              |
| 56:SS:35:GLY:HA2   | 82:S2:1630:A:O2'   | 2.19                     | 0.42              |
| 56:SS:102:GLY:HA2  | 56:SS:105:ASN:HD21 | 1.85                     | 0.42              |
| 65:SB:110:MET:HA   | 65:SB:113:MET:HE2  | 2.01                     | 0.42              |
| 70:SI:25:ARG:HH22  | 82:S2:434:G:P      | 2.43                     | 0.42              |
| 70:SI:88:ASN:C     | 70:SI:88:ASN:HD22  | 2.28                     | 0.42              |
| 77:SI:131:LEU:HD22 | 82:S2:30:C:H5'     | 2.01                     | 0.42              |
| 82:S2:51:U:H2'     | 82:S2:52:G:C8      | 2.54                     | 0.42              |
| 82:S2:440:G:OP1    | 82:S2:1798:C:O2'   | 2.31                     | 0.42              |
| 82:S2:689:U:O2'    | 82:S2:690:G:O4'    | 2.27                     | 0.42              |
| 82:S2:1024:A:H2'   | 82:S2:1025:U:C6    | 2.55                     | 0.42              |
| 82:S2:1425:G:H2'   | 82:S2:1426:U:C6    | 2.55                     | 0.42              |
| 2:L5:457:G:H2'     | 2:L5:458:C:C6      | 2.54                     | 0.42              |
| 2:L5:966:A:H5''    | 2:L5:2092:G:N2     | 2.34                     | 0.42              |
| 2:L5:1086:C:H2'    | 2:L5:1087:A:C8     | 2.55                     | 0.42              |
| 2:L5:1185:G:O2'    | 8:LD:278:ASP:OD2   | 2.29                     | 0.42              |
| 2:L5:1340:OMC:HN41 | 2:L5:1516:G:H1     | 1.68                     | 0.42              |
| 2:L5:1435:G:H2'    | 2:L5:1436:C:C6     | 2.55                     | 0.42              |
| 2:L5:1568:C:H2'    | 2:L5:1569:U:C6     | 2.55                     | 0.42              |
| 2:L5:1628:C:H2'    | 2:L5:1629:G:H8     | 1.83                     | 0.42              |
| 2:L5:1631:A:H2     | 5:LA:208:GLU:HG3   | 1.84                     | 0.42              |
| 2:L5:2037:C:H2'    | 2:L5:2038:U:C6     | 2.55                     | 0.42              |
| 2:L5:2263:A:O3'    | 46:Lr:112:ARG:NH2  | 2.51                     | 0.42              |
| 2:L5:2270:G:H2'    | 2:L5:2271:C:H6     | 1.84                     | 0.42              |
| 2:L5:2271:C:H2'    | 2:L5:2272:C:C6     | 2.55                     | 0.42              |
| 2:L5:2644:G:H2'    | 2:L5:2645:G:C8     | 2.55                     | 0.42              |
| 2:L5:2644:G:H2'    | 2:L5:2645:G:H8     | 1.85                     | 0.42              |
| 2:L5:4392:OMG:H2'  | 2:L5:4447:5MC:HM53 | 2.02                     | 0.42              |
| 2:L5:4771:C:H2'    | 2:L5:4772:C:C6     | 2.55                     | 0.42              |
| 2:L5:4774:C:O2'    | 2:L5:4775:C:O5'    | 2.36                     | 0.42              |
| 2:L5:4987:C:P      | 6:LB:116:ARG:HH22  | 2.42                     | 0.42              |
| 3:L7:70:G:C6       | 3:L7:106:G:C6      | 3.08                     | 0.42              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 8:LD:234:ASP:OD1   | 8:LD:235:MET:N    | 2.53                     | 0.42              |
| 10:LF:90:ALA:O     | 10:LF:123:VAL:N   | 2.39                     | 0.42              |
| 16:LM:42:CYS:HG    | 16:LM:77:TRP:CD1  | 2.37                     | 0.42              |
| 18:LO:108:ILE:HD12 | 18:LO:160:ARG:CZ  | 2.50                     | 0.42              |
| 27:LX:129:ARG:HD2  | 27:LX:135:LYS:HE2 | 2.01                     | 0.42              |
| 49:SD:16:ILE:HG21  | 61:Sd:22:ARG:NH1  | 2.35                     | 0.42              |
| 49:SD:193:ASP:CG   | 49:SD:196:GLY:H   | 2.28                     | 0.42              |
| 50:SF:34:SER:HA    | 60:Sc:55:VAL:HG23 | 2.02                     | 0.42              |
| 52:SM:80:ASP:OD1   | 52:SM:80:ASP:N    | 2.52                     | 0.42              |
| 52:SM:91:LEU:HD23  | 52:SM:91:LEU:HA   | 1.88                     | 0.42              |
| 53:SP:60:LEU:HD22  | 53:SP:89:MET:SD   | 2.59                     | 0.42              |
| 55:SR:48:ASN:OD1   | 55:SR:49:LYS:N    | 2.53                     | 0.42              |
| 57:ST:39:LEU:HD21  | 57:ST:52:TRP:CZ3  | 2.54                     | 0.42              |
| 57:ST:87:VAL:N     | 82:S2:1606:G:H5'' | 2.35                     | 0.42              |
| 57:ST:89:PRO:HG3   | 82:S2:1529:C:H4'  | 2.02                     | 0.42              |
| 63:Sg:218:LEU:HB2  | 63:Sg:228:TYR:HB3 | 2.02                     | 0.42              |
| 63:Sg:289:LEU:HD12 | 63:Sg:289:LEU:HA  | 1.90                     | 0.42              |
| 64:SA:147:LEU:HD12 | 64:SA:163:CYS:SG  | 2.60                     | 0.42              |
| 67:SE:122:LYS:HE2  | 67:SE:124:CYS:SG  | 2.59                     | 0.42              |
| 68:SG:62:PRO:HG3   | 82:S2:163:U:O2'   | 2.20                     | 0.42              |
| 69:SH:122:LEU:HD22 | 82:S2:688:U:H5'   | 2.02                     | 0.42              |
| 69:SH:162:GLN:NE2  | 69:SH:166:VAL:HB  | 2.35                     | 0.42              |
| 81:Se:41:ARG:HG3   | 81:Se:42:PHE:HD1  | 1.85                     | 0.42              |
| 82:S2:23:G:H2'     | 82:S2:24:C:C6     | 2.55                     | 0.42              |
| 82:S2:62:G:H5''    | 82:S2:315:C:O2'   | 2.19                     | 0.42              |
| 82:S2:140:C:H42    | 82:S2:313:A:H61   | 1.67                     | 0.42              |
| 82:S2:484:A2M:HM'3 | 82:S2:484:A2M:H1' | 1.52                     | 0.42              |
| 82:S2:656:G:N2     | 82:S2:663:C:H5''  | 2.35                     | 0.42              |
| 82:S2:948:C:H2'    | 82:S2:949:G:C8    | 2.48                     | 0.42              |
| 82:S2:952:G:H2'    | 82:S2:953:C:C6    | 2.55                     | 0.42              |
| 82:S2:994:C:H2'    | 82:S2:995:G:H8    | 1.85                     | 0.42              |
| 82:S2:1820:G:H2'   | 82:S2:1821:U:H6   | 1.84                     | 0.42              |
| 82:S2:1856:C:H2'   | 82:S2:1857:G:C8   | 2.55                     | 0.42              |
| 2:L5:99:A:H4'      | 17:LN:181:HIS:CD2 | 2.54                     | 0.42              |
| 2:L5:123:C:H2'     | 2:L5:124:C:C6     | 2.54                     | 0.42              |
| 2:L5:125:C:H2'     | 2:L5:126:C:H6     | 1.85                     | 0.42              |
| 2:L5:221:C:H2'     | 2:L5:222:C:H6     | 1.84                     | 0.42              |
| 2:L5:250:C:H2'     | 2:L5:251:C:C6     | 2.54                     | 0.42              |
| 2:L5:253:G:H2'     | 2:L5:254:G:C8     | 2.54                     | 0.42              |
| 2:L5:368:C:H2'     | 2:L5:369:G:C8     | 2.55                     | 0.42              |
| 2:L5:958:G:N2      | 2:L5:1285:U:OP1   | 2.38                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:1878:G:H2'    | 2:L5:1879:C:C6     | 2.55                     | 0.42              |
| 2:L5:1914:C:OP2    | 2:L5:1915:C:O2'    | 2.33                     | 0.42              |
| 2:L5:2004:U:C2     | 2:L5:2016:C:H1'    | 2.55                     | 0.42              |
| 2:L5:2274:C:O2     | 10:LF:165:LYS:NZ   | 2.38                     | 0.42              |
| 2:L5:2782:U:P      | 41:L1:10:LYS:HZ2   | 2.41                     | 0.42              |
| 2:L5:3730:U:H2'    | 2:L5:3731:C:C6     | 2.53                     | 0.42              |
| 2:L5:3792:OMG:H2'  | 2:L5:3793:U:C6     | 2.54                     | 0.42              |
| 2:L5:4077:A:N1     | 2:L5:4171:C:N4     | 2.66                     | 0.42              |
| 2:L5:4153:C:H2'    | 2:L5:4154:G:C8     | 2.54                     | 0.42              |
| 2:L5:4230:C:H2'    | 2:L5:4231:C:C6     | 2.55                     | 0.42              |
| 2:L5:4340:U:O2     | 86:L5:5260:SPD:N10 | 2.53                     | 0.42              |
| 2:L5:4538:G:H2'    | 2:L5:4539:U:C6     | 2.54                     | 0.42              |
| 9:LE:141:ARG:NH2   | 35:Lf:110:ILE:O    | 2.52                     | 0.42              |
| 13:LI:187:LYS:HE3  | 13:LI:189:CYS:SG   | 2.60                     | 0.42              |
| 14:LJ:15:LEU:HD12  | 14:LJ:165:TRP:HB2  | 2.02                     | 0.42              |
| 16:LM:104:MET:HG3  | 16:LM:108:ASP:HB2  | 2.01                     | 0.42              |
| 32:Lc:38:ILE:HG21  | 32:Lc:63:TYR:HB3   | 2.02                     | 0.42              |
| 42:Lm:96:CYS:HB3   | 42:Lm:101:ALA:H    | 1.84                     | 0.42              |
| 54:SQ:132:PHE:HB2  | 58:SU:77:TRP:CD1   | 2.55                     | 0.42              |
| 59:SZ:41:ARG:HA    | 59:SZ:41:ARG:HD2   | 1.81                     | 0.42              |
| 64:SA:148:CYS:SG   | 64:SA:157:VAL:HG11 | 2.60                     | 0.42              |
| 68:SG:133:LEU:HB2  | 82:S2:65:C:C2      | 2.55                     | 0.42              |
| 69:SH:118:ARG:HD3  | 69:SH:121:THR:HG21 | 2.01                     | 0.42              |
| 76:SW:18:GLU:HG2   | 76:SW:69:LEU:HB3   | 2.02                     | 0.42              |
| 76:SW:79:PHE:H     | 76:SW:125:ILE:HG22 | 1.85                     | 0.42              |
| 79:Sa:41:ILE:HD12  | 79:Sa:68:TYR:CD2   | 2.54                     | 0.42              |
| 82:S2:27:A2M:H2'   | 82:S2:28:U:C6      | 2.55                     | 0.42              |
| 82:S2:56:G:H2'     | 82:S2:57:U:C6      | 2.54                     | 0.42              |
| 82:S2:367:U:H4'    | 82:S2:371:A:C8     | 2.55                     | 0.42              |
| 82:S2:436:OMG:H5'' | 82:S2:473:A:H62    | 1.85                     | 0.42              |
| 82:S2:749:U:H2'    | 82:S2:750:C:H5''   | 2.02                     | 0.42              |
| 82:S2:1013:U:C2    | 82:S2:1014:G:C8    | 3.08                     | 0.42              |
| 82:S2:1455:A:H2'   | 82:S2:1456:G:H8    | 1.84                     | 0.42              |
| 82:S2:1651:A:H2'   | 82:S2:1652:G:H8    | 1.84                     | 0.42              |
| 83:CI:63:ARG:HD2   | 83:CI:63:ARG:HA    | 1.85                     | 0.42              |
| 1:Pt:11:U:H2'      | 1:Pt:12:G:C8       | 2.54                     | 0.42              |
| 2:L5:302:C:OP2     | 17:LN:128:LYS:NZ   | 2.53                     | 0.42              |
| 2:L5:473:C:H2'     | 2:L5:474:C:H6      | 1.85                     | 0.42              |
| 2:L5:1953:U:OP1    | 22:LS:94:TYR:HB3   | 2.20                     | 0.42              |
| 2:L5:1957:U:H2'    | 2:L5:1958:A:H8     | 1.84                     | 0.42              |
| 2:L5:2038:U:H2'    | 2:L5:2039:G:O4'    | 2.20                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:2079:G:H2'    | 2:L5:2080:U:C6     | 2.54                     | 0.42              |
| 2:L5:2542:G:N1     | 2:L5:2775:C:N3     | 2.68                     | 0.42              |
| 2:L5:2641:A:H2'    | 2:L5:2642:A:O4'    | 2.19                     | 0.42              |
| 2:L5:3744:OMG:HM23 | 2:L5:3744:OMG:H1'  | 1.61                     | 0.42              |
| 2:L5:3782:5MC:OP1  | 43:Ln:23:ARG:NH2   | 2.53                     | 0.42              |
| 2:L5:4470:G:H2'    | 2:L5:4471:PSU:O4'  | 2.20                     | 0.42              |
| 2:L5:4530:UR3:H2'  | 2:L5:4531:U:H2'    | 2.00                     | 0.42              |
| 2:L5:4648:A:H2'    | 2:L5:4649:G:C8     | 2.55                     | 0.42              |
| 2:L5:4679:G:H2'    | 2:L5:4680:G:C8     | 2.54                     | 0.42              |
| 2:L5:4951:G:H2'    | 2:L5:4952:G:H8     | 1.85                     | 0.42              |
| 2:L5:4967:A:OP1    | 6:LB:126:LYS:N     | 2.52                     | 0.42              |
| 2:L5:5060:A:OP2    | 2:L5:5060:A:H8     | 2.03                     | 0.42              |
| 8:LD:33:ARG:O      | 8:LD:37:VAL:HG22   | 2.20                     | 0.42              |
| 15:LL:58:ILE:HG13  | 15:LL:116:ARG:HD2  | 2.01                     | 0.42              |
| 17:LN:68:ARG:HD2   | 17:LN:128:LYS:HG3  | 2.02                     | 0.42              |
| 20:LQ:32:TYR:CD1   | 20:LQ:35:LEU:HD12  | 2.55                     | 0.42              |
| 25:LV:85:ARG:N     | 25:LV:101:ASN:OD1  | 2.42                     | 0.42              |
| 33:Ld:92:ARG:HA    | 33:Ld:102:LEU:HD23 | 2.01                     | 0.42              |
| 46:Lr:47:LYS:HB2   | 46:Lr:102:TYR:CZ   | 2.54                     | 0.42              |
| 58:SU:31:SER:O     | 58:SU:34:LYS:HG3   | 2.20                     | 0.42              |
| 69:SH:30:LEU:O     | 69:SH:33:ASN:ND2   | 2.53                     | 0.42              |
| 69:SH:159:ASP:C    | 69:SH:161:ALA:H    | 2.28                     | 0.42              |
| 70:SI:141:ARG:HD3  | 70:SI:145:ILE:HG21 | 2.01                     | 0.42              |
| 73:SN:93:LYS:HA    | 73:SN:150:VAL:HG21 | 2.01                     | 0.42              |
| 80:Sb:22:LYS:HD3   | 82:S2:921:G:N2     | 2.35                     | 0.42              |
| 82:S2:14:C:H2'     | 82:S2:15:U:H6      | 1.85                     | 0.42              |
| 82:S2:350:C:H2'    | 82:S2:351:G:O4'    | 2.20                     | 0.42              |
| 82:S2:838:G:C2     | 82:S2:840:C:H4'    | 2.55                     | 0.42              |
| 82:S2:943:U:H2'    | 82:S2:944:A:O4'    | 2.20                     | 0.42              |
| 1:Pt:24:A:H2'      | 1:Pt:25:C:H6       | 1.85                     | 0.41              |
| 2:L5:223:G:H4'     | 2:L5:225:G:C8      | 2.55                     | 0.41              |
| 2:L5:312:G:H2'     | 2:L5:313:U:C6      | 2.54                     | 0.41              |
| 2:L5:671:G:H2'     | 2:L5:672:C:C6      | 2.55                     | 0.41              |
| 2:L5:685:C:O2'     | 2:L5:686:A:N7      | 2.50                     | 0.41              |
| 2:L5:974:C:H41     | 2:L5:1281:G:H21    | 1.67                     | 0.41              |
| 2:L5:1377:G:H4'    | 2:L5:1378:C:H3'    | 2.02                     | 0.41              |
| 2:L5:1534:A2M:H8   | 39:Lj:15:THR:OG1   | 2.19                     | 0.41              |
| 2:L5:1582:PSU:H5'  | 86:L5:5284:SPD:H21 | 2.01                     | 0.41              |
| 2:L5:1636:U:H5''   | 2:L5:1637:A:H5'    | 2.02                     | 0.41              |
| 2:L5:1772:C:H2'    | 2:L5:1773:U:H6     | 1.85                     | 0.41              |
| 2:L5:2377:C:H2'    | 2:L5:2378:G:O4'    | 2.20                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:2436:U:H3'    | 27:LX:127:LEU:HD22 | 2.02                     | 0.41              |
| 2:L5:2807:A:H2'    | 2:L5:2808:G:H8     | 1.85                     | 0.41              |
| 2:L5:2838:G:H2'    | 2:L5:2839:PSU:H6   | 1.84                     | 0.41              |
| 2:L5:2888:G:H4'    | 2:L5:3620:G:H22    | 1.85                     | 0.41              |
| 2:L5:4362:A:H2'    | 2:L5:4363:A:C8     | 2.55                     | 0.41              |
| 2:L5:4578:G:H2'    | 2:L5:4579:PSU:H6   | 1.84                     | 0.41              |
| 2:L5:4892:A:H2'    | 2:L5:4893:A:O4'    | 2.20                     | 0.41              |
| 2:L5:5005:G:H22    | 2:L5:5041:G:H1'    | 1.85                     | 0.41              |
| 6:LB:116:ARG:HA    | 6:LB:122:TRP:CE3   | 2.54                     | 0.41              |
| 7:LC:144:ILE:HG13  | 7:LC:144:ILE:O     | 2.19                     | 0.41              |
| 11:LG:123:ALA:HA   | 11:LG:124:GLY:HA2  | 1.87                     | 0.41              |
| 12:LH:187:VAL:C    | 12:LH:189:GLN:H    | 2.28                     | 0.41              |
| 18:LO:12:ARG:HB2   | 18:LO:37:ARG:NE    | 2.35                     | 0.41              |
| 34:Le:126:ASN:HB2  | 34:Le:129:LEU:HD21 | 2.02                     | 0.41              |
| 54:SQ:73:LYS:NZ    | 82:S2:1585:U:O2    | 2.53                     | 0.41              |
| 63:Sg:22:ALA:HB1   | 63:Sg:71:ILE:HG23  | 2.01                     | 0.41              |
| 63:Sg:75:GLY:O     | 63:Sg:92:LEU:HD22  | 2.20                     | 0.41              |
| 63:Sg:291:TRP:CE2  | 63:Sg:298:LEU:HD13 | 2.54                     | 0.41              |
| 66:SC:114:LYS:HE2  | 82:S2:1202:U:H4'   | 2.02                     | 0.41              |
| 67:SE:36:HIS:ND1   | 67:SE:85:GLY:HA3   | 2.35                     | 0.41              |
| 67:SE:77:ARG:CZ    | 82:S2:121:OMU:H5'  | 2.49                     | 0.41              |
| 69:SH:122:LEU:HD11 | 82:S2:689:U:H3     | 1.83                     | 0.41              |
| 73:SN:54:LEU:HD23  | 73:SN:54:LEU:HA    | 1.89                     | 0.41              |
| 76:SW:11:LEU:HD12  | 76:SW:74:VAL:HB    | 2.02                     | 0.41              |
| 77:SX:28:LYS:HE2   | 77:SX:32:LEU:HD22  | 2.01                     | 0.41              |
| 82:S2:29:G:C6      | 82:S2:646:G:C6     | 3.08                     | 0.41              |
| 82:S2:341:C:H2'    | 82:S2:342:C:H6     | 1.85                     | 0.41              |
| 82:S2:610:G:C6     | 82:S2:634:A:C6     | 3.08                     | 0.41              |
| 82:S2:1051:G:OP1   | 82:S2:1847:G:O2'   | 2.38                     | 0.41              |
| 82:S2:1209:A:H2'   | 82:S2:1210:G:H8    | 1.84                     | 0.41              |
| 82:S2:1491:G:H2'   | 82:S2:1492:U:C6    | 2.55                     | 0.41              |
| 82:S2:1532:C:H3'   | 82:S2:1637:A:N6    | 2.34                     | 0.41              |
| 1:Pt:43:A:H2'      | 1:Pt:44:A:H8       | 1.84                     | 0.41              |
| 2:L5:163:A:H2'     | 2:L5:164:G:H8      | 1.86                     | 0.41              |
| 2:L5:198:A:O2'     | 2:L5:221:C:O2      | 2.35                     | 0.41              |
| 2:L5:326:C:H2'     | 2:L5:327:U:C6      | 2.55                     | 0.41              |
| 2:L5:930:G:H2'     | 2:L5:931:C:C6      | 2.55                     | 0.41              |
| 2:L5:1577:G:O2'    | 2:L5:1612:G:H4'    | 2.20                     | 0.41              |
| 2:L5:1806:G:H2'    | 2:L5:1807:C:H6     | 1.83                     | 0.41              |
| 2:L5:1812:C:H2'    | 2:L5:1813:U:C6     | 2.55                     | 0.41              |
| 2:L5:1933:G:H8     | 2:L5:1933:G:O5'    | 2.03                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:1940:G:H22    | 2:L5:4434:C:H5''   | 1.85                     | 0.41              |
| 2:L5:2083:C:OP2    | 20:LQ:14:ARG:NH2   | 2.53                     | 0.41              |
| 2:L5:2384:U:H2'    | 2:L5:2385:U:C6     | 2.55                     | 0.41              |
| 2:L5:2668:G:P      | 21:LR:103:ARG:HH22 | 2.43                     | 0.41              |
| 2:L5:2810:U:H5''   | 21:LR:70:ARG:HH22  | 1.85                     | 0.41              |
| 2:L5:3700:C:O2'    | 2:L5:3774:A:N3     | 2.46                     | 0.41              |
| 2:L5:3866:C:H2'    | 2:L5:3867:A2M:O4'  | 2.21                     | 0.41              |
| 2:L5:4236:G:H2'    | 2:L5:4237:C:C6     | 2.55                     | 0.41              |
| 2:L5:4545:G:H2'    | 2:L5:4546:A:H8     | 1.85                     | 0.41              |
| 2:L5:4730:C:N4     | 2:L5:4731:G:O6     | 2.53                     | 0.41              |
| 2:L5:4910:G:H1     | 18:LO:108:ILE:H    | 1.68                     | 0.41              |
| 8:LD:205:ALA:HB1   | 8:LD:233:PRO:HB3   | 2.02                     | 0.41              |
| 8:LD:208:MET:O     | 8:LD:212:MET:HG3   | 2.20                     | 0.41              |
| 10:LF:136:VAL:HG23 | 10:LF:140:ILE:HD13 | 2.02                     | 0.41              |
| 12:LH:17:ASP:OD1   | 12:LH:28:LYS:HE3   | 2.19                     | 0.41              |
| 14:LJ:141:ILE:HA   | 14:LJ:144:LYS:HD2  | 2.03                     | 0.41              |
| 17:LN:149:GLN:O    | 17:LN:152:THR:OG1  | 2.31                     | 0.41              |
| 17:LN:178:HIS:HA   | 17:LN:181:HIS:NE2  | 2.35                     | 0.41              |
| 22:LS:83:ARG:HG3   | 22:LS:125:GLN:HB2  | 2.02                     | 0.41              |
| 25:LV:45:ILE:HG21  | 25:LV:53:PRO:HB3   | 2.02                     | 0.41              |
| 25:LV:72:LEU:HA    | 25:LV:75:LYS:HE2   | 2.03                     | 0.41              |
| 44:Lo:74:GLU:HB3   | 44:Lo:77:CYS:HB3   | 2.02                     | 0.41              |
| 54:SQ:82:TYR:HA    | 54:SQ:85:ARG:HG2   | 2.02                     | 0.41              |
| 55:SR:99:ASP:O     | 55:SR:102:THR:OG1  | 2.35                     | 0.41              |
| 57:ST:76:THR:O     | 57:ST:80:GLY:N     | 2.53                     | 0.41              |
| 63:Sg:31:ILE:HG23  | 63:Sg:45:LEU:HD21  | 2.02                     | 0.41              |
| 64:SA:54:THR:HG21  | 64:SA:163:CYS:HB3  | 2.01                     | 0.41              |
| 67:SE:187:ALA:O    | 67:SE:245:ARG:NH1  | 2.49                     | 0.41              |
| 68:SG:70:HIS:HA    | 68:SG:98:ARG:NH1   | 2.36                     | 0.41              |
| 69:SH:164:ASN:OD1  | 69:SH:165:ASN:ND2  | 2.54                     | 0.41              |
| 82:S2:467:G:H2'    | 82:S2:468:A2M:H8   | 2.02                     | 0.41              |
| 82:S2:550:C:H2'    | 82:S2:551:U:C6     | 2.56                     | 0.41              |
| 82:S2:1438:A:H2'   | 82:S2:1439:A:C8    | 2.55                     | 0.41              |
| 82:S2:1689:C:H2'   | 82:S2:1690:U:H6    | 1.84                     | 0.41              |
| 82:S2:1847:G:H2'   | 82:S2:1848:U:C6    | 2.55                     | 0.41              |
| 2:L5:273:U:H2'     | 2:L5:274:C:C6      | 2.55                     | 0.41              |
| 2:L5:280:G:P       | 17:LN:44:ARG:HH12  | 2.43                     | 0.41              |
| 2:L5:406:C:O2'     | 2:L5:407:A:OP1     | 2.38                     | 0.41              |
| 2:L5:750:U:H1'     | 2:L5:917:A:C8      | 2.55                     | 0.41              |
| 2:L5:975:C:O3'     | 10:LF:47:ARG:NH2   | 2.53                     | 0.41              |
| 2:L5:1433:A:H3'    | 2:L5:1434:G:H8     | 1.84                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:2060:G:H4'    | 22:LS:118:ARG:HG3  | 2.02                     | 0.41              |
| 2:L5:2600:A:N6     | 2:L5:2745:A:OP2    | 2.49                     | 0.41              |
| 2:L5:2732:G:H2'    | 2:L5:2733:C:H6     | 1.85                     | 0.41              |
| 2:L5:2770:C:H2'    | 2:L5:2771:G:C8     | 2.54                     | 0.41              |
| 2:L5:3650:C:H2'    | 2:L5:3651:A:C8     | 2.55                     | 0.41              |
| 2:L5:3819:G:H2'    | 2:L5:3820:G:C8     | 2.52                     | 0.41              |
| 2:L5:3899:OMG:H5'  | 6:LB:257:TRP:CD1   | 2.56                     | 0.41              |
| 2:L5:3925:OMU:H1'  | 2:L5:3925:OMU:HM23 | 1.79                     | 0.41              |
| 2:L5:4086:G:H5'    | 11:LG:54:PHE:HB3   | 2.01                     | 0.41              |
| 2:L5:4689:PSU:H2'  | 2:L5:4690:G:O4'    | 2.19                     | 0.41              |
| 2:L5:4708:A:N3     | 2:L5:4709:U:H5'    | 2.35                     | 0.41              |
| 2:L5:4920:C:H2'    | 2:L5:4921:C:C6     | 2.55                     | 0.41              |
| 2:L5:4987:C:OP2    | 6:LB:116:ARG:NH2   | 2.53                     | 0.41              |
| 2:L5:5036:C:H2'    | 2:L5:5037:U:C6     | 2.55                     | 0.41              |
| 3:L7:114:U:C2      | 3:L7:115:A:C8      | 3.09                     | 0.41              |
| 6:LB:107:ALA:HB2   | 6:LB:201:LEU:HD13  | 2.01                     | 0.41              |
| 8:LD:59:ASP:OD1    | 8:LD:60:ILE:N      | 2.53                     | 0.41              |
| 10:LF:214:SER:OG   | 10:LF:215:SER:N    | 2.53                     | 0.41              |
| 17:LN:124:ASP:HB3  | 17:LN:127:TYR:H    | 1.85                     | 0.41              |
| 45:Lp:49:ARG:HG3   | 45:Lp:55:TRP:CE2   | 2.56                     | 0.41              |
| 49:SD:60:GLY:HA3   | 49:SD:65:ARG:H     | 1.84                     | 0.41              |
| 55:SR:133:GLY:HA3  | 65:SB:152:LYS:HD3  | 2.01                     | 0.41              |
| 56:SS:132:ARG:HD3  | 82:S2:1623:A:C6    | 2.55                     | 0.41              |
| 61:Sd:10:HIS:HB3   | 82:S2:1513:C:OP1   | 2.19                     | 0.41              |
| 63:Sg:11:LEU:HB3   | 63:Sg:43:TRP:CZ3   | 2.55                     | 0.41              |
| 69:SH:27:LEU:O     | 69:SH:37:LYS:NZ    | 2.53                     | 0.41              |
| 69:SH:63:PHE:HA    | 69:SH:95:ILE:O     | 2.20                     | 0.41              |
| 69:SH:100:ILE:HG12 | 69:SH:125:VAL:HG11 | 2.01                     | 0.41              |
| 72:SL:113:LEU:HD11 | 72:SL:117:PHE:HB2  | 2.01                     | 0.41              |
| 73:SN:89:TYR:CD1   | 73:SN:150:VAL:HG12 | 2.56                     | 0.41              |
| 76:SW:6:VAL:HG13   | 76:SW:29:PRO:HB2   | 2.03                     | 0.41              |
| 78:SY:89:HIS:CD2   | 78:SY:90:ARG:HG3   | 2.55                     | 0.41              |
| 81:Se:33:LYS:O     | 81:Se:37:GLN:HG2   | 2.20                     | 0.41              |
| 82:S2:1303:C:H2'   | 82:S2:1304:U:C6    | 2.55                     | 0.41              |
| 82:S2:1744:G:HO2'  | 82:S2:1789:G:H22   | 1.63                     | 0.41              |
| 2:L5:153:G:H2'     | 2:L5:154:G:C8      | 2.56                     | 0.41              |
| 2:L5:714:G:H2'     | 2:L5:715:G:C8      | 2.54                     | 0.41              |
| 2:L5:1347:G:H2'    | 2:L5:1348:U:C6     | 2.55                     | 0.41              |
| 2:L5:1937:C:H2'    | 2:L5:1938:C:C5     | 2.55                     | 0.41              |
| 2:L5:2408:U:H1'    | 2:L5:2410:C:C5     | 2.56                     | 0.41              |
| 2:L5:3865:A:N6     | 2:L5:3881:G:H1     | 2.17                     | 0.41              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 2:L5:4069:U:H2'   | 2:L5:4070:U:H6     | 1.83                     | 0.41              |
| 2:L5:4281:A:H2'   | 2:L5:4282:A:H2'    | 2.03                     | 0.41              |
| 2:L5:4482:U:H2'   | 2:L5:4483:C:H6     | 1.85                     | 0.41              |
| 2:L5:4549:G:H2'   | 2:L5:4550:G:H8     | 1.85                     | 0.41              |
| 6:LB:66:LYS:HB2   | 25:LV:14:PHE:HE2   | 1.83                     | 0.41              |
| 7:LC:217:ILE:HG12 | 7:LC:229:LEU:HD21  | 2.02                     | 0.41              |
| 9:LE:139:LYS:O    | 9:LE:191:GLN:NE2   | 2.38                     | 0.41              |
| 12:LH:34:LEU:HD23 | 12:LH:34:LEU:HA    | 1.81                     | 0.41              |
| 17:LN:115:VAL:HA  | 17:LN:134:LEU:HD13 | 2.03                     | 0.41              |
| 18:LO:54:TYR:CD1  | 18:LO:145:VAL:HG21 | 2.56                     | 0.41              |
| 35:Lf:92:LEU:HD23 | 35:Lf:92:LEU:HA    | 1.90                     | 0.41              |
| 53:SP:124:LYS:NZ  | 82:S2:1239:U:O3'   | 2.54                     | 0.41              |
| 59:SZ:72:VAL:HA   | 59:SZ:75:GLU:HG2   | 2.02                     | 0.41              |
| 63:Sg:5:MET:HB3   | 63:Sg:270:LEU:HD21 | 2.02                     | 0.41              |
| 63:Sg:61:GLY:O    | 63:Sg:88:ARG:NH1   | 2.53                     | 0.41              |
| 66:SC:66:LEU:HD21 | 66:SC:88:ILE:HD13  | 2.02                     | 0.41              |
| 76:SW:6:VAL:HG12  | 76:SW:34:ILE:HD11  | 2.03                     | 0.41              |
| 82:S2:348:A:H2'   | 82:S2:349:A:C8     | 2.55                     | 0.41              |
| 82:S2:688:U:H1'   | 82:S2:689:U:OP2    | 2.21                     | 0.41              |
| 82:S2:937:C:H2'   | 82:S2:938:A:C8     | 2.55                     | 0.41              |
| 82:S2:940:U:H2'   | 82:S2:941:C:C6     | 2.55                     | 0.41              |
| 82:S2:1270:G:O2'  | 82:S2:1299:A:N6    | 2.36                     | 0.41              |
| 82:S2:1340:U:OP2  | 82:S2:1341:C:O2'   | 2.32                     | 0.41              |
| 82:S2:1415:C:H2'  | 82:S2:1416:C:H6    | 1.84                     | 0.41              |
| 82:S2:1523:C:H2'  | 82:S2:1524:G:C8    | 2.55                     | 0.41              |
| 82:S2:1545:A:C2   | 82:S2:1671:G:H1'   | 2.55                     | 0.41              |
| 82:S2:1705:C:H2'  | 82:S2:1706:G:C8    | 2.55                     | 0.41              |
| 2:L5:32:G:H21     | 2:L5:50:C:H5       | 1.68                     | 0.41              |
| 2:L5:124:C:H2'    | 2:L5:125:C:C6      | 2.56                     | 0.41              |
| 2:L5:269:G:H2'    | 2:L5:270:U:H6      | 1.85                     | 0.41              |
| 2:L5:1363:C:H2'   | 2:L5:1364:U:C6     | 2.56                     | 0.41              |
| 2:L5:1554:A:OP2   | 45:Lp:4:ARG:NE     | 2.30                     | 0.41              |
| 2:L5:1972:G:C6    | 2:L5:1973:G:C6     | 3.09                     | 0.41              |
| 2:L5:2438:A:OP1   | 27:LX:106:LYS:NZ   | 2.41                     | 0.41              |
| 2:L5:2544:G:C2    | 4:L8:126:C:C4      | 3.09                     | 0.41              |
| 2:L5:2662:G:H2'   | 2:L5:2663:G:H8     | 1.86                     | 0.41              |
| 2:L5:2675:G:N1    | 32:Lc:33:GLN:OE1   | 2.39                     | 0.41              |
| 2:L5:2744:A:H2'   | 2:L5:2745:A:C8     | 2.55                     | 0.41              |
| 2:L5:2815:A2M:H3' | 2:L5:2816:G:H8     | 1.85                     | 0.41              |
| 2:L5:3653:A:O3'   | 5:LA:179:ILE:HB    | 2.20                     | 0.41              |
| 2:L5:4345:C:H2'   | 2:L5:4346:U:H6     | 1.85                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:4460:U:H2'    | 2:L5:4461:C:H6     | 1.84                     | 0.41              |
| 3:L7:6:C:O2'       | 8:LD:50:ARG:NH2    | 2.54                     | 0.41              |
| 6:LB:201:LEU:HD23  | 6:LB:201:LEU:HA    | 1.92                     | 0.41              |
| 9:LE:157:HIS:HA    | 9:LE:160:LYS:HE3   | 2.02                     | 0.41              |
| 17:LN:138:PHE:CZ   | 37:Lh:93:ARG:HD2   | 2.55                     | 0.41              |
| 18:LO:34:VAL:HG11  | 18:LO:112:TYR:CZ   | 2.56                     | 0.41              |
| 24:LU:99:TRP:HE1   | 83:CI:59:GLN:HB2   | 1.85                     | 0.41              |
| 28:LY:34:LEU:HD21  | 28:LY:47:MET:HB2   | 2.01                     | 0.41              |
| 29:LZ:48:ARG:HB2   | 29:LZ:69:LYS:HB3   | 2.01                     | 0.41              |
| 49:SD:94:ARG:O     | 49:SD:101:GLN:NE2  | 2.43                     | 0.41              |
| 53:SP:29:SER:HB3   | 53:SP:32:GLN:NE2   | 2.36                     | 0.41              |
| 55:SR:82:ASP:HA    | 64:SA:89:LYS:NZ    | 2.35                     | 0.41              |
| 63:Sg:170:TRP:HA   | 63:Sg:194:TYR:HB2  | 2.03                     | 0.41              |
| 65:SB:198:GLU:HB2  | 65:SB:210:VAL:HG21 | 2.02                     | 0.41              |
| 69:SH:58:LYS:HA    | 69:SH:58:LYS:HD2   | 1.87                     | 0.41              |
| 71:SJ:2:PRO:HD2    | 82:S2:428:OMU:O3'  | 2.21                     | 0.41              |
| 73:SN:11:LEU:H     | 82:S2:1013:U:P     | 2.43                     | 0.41              |
| 76:SW:115:GLU:O    | 76:SW:119:LYS:HG2  | 2.20                     | 0.41              |
| 82:S2:14:C:H2'     | 82:S2:15:U:C6      | 2.54                     | 0.41              |
| 82:S2:386:C:H2'    | 82:S2:387:C:C6     | 2.55                     | 0.41              |
| 82:S2:428:OMU:P    | 82:S2:429:C:H41    | 2.43                     | 0.41              |
| 82:S2:856:C:H2'    | 82:S2:857:U:H6     | 1.85                     | 0.41              |
| 82:S2:991:G:N1     | 82:S2:1134:G:H4'   | 2.36                     | 0.41              |
| 82:S2:1114:U:O2'   | 82:S2:1115:U:O5'   | 2.31                     | 0.41              |
| 82:S2:1146:C:H2'   | 82:S2:1147:C:C6    | 2.55                     | 0.41              |
| 82:S2:1232:PSU:H2' | 82:S2:1233:G:H8    | 1.85                     | 0.41              |
| 2:L5:73:A:O2'      | 15:LL:62:PRO:HA    | 2.21                     | 0.41              |
| 2:L5:249:C:H2'     | 2:L5:250:C:C6      | 2.56                     | 0.41              |
| 2:L5:370:U:H2'     | 2:L5:371:A:C8      | 2.55                     | 0.41              |
| 2:L5:382:G:N2      | 2:L5:384:A:H3'     | 2.35                     | 0.41              |
| 2:L5:441:G:O4'     | 35:Lf:93:PRO:HB3   | 2.20                     | 0.41              |
| 2:L5:676:C:H2'     | 2:L5:677:G:C8      | 2.55                     | 0.41              |
| 2:L5:735:G:H2'     | 2:L5:736:C:H6      | 1.85                     | 0.41              |
| 2:L5:1198:G:H2'    | 2:L5:1199:G:C8     | 2.55                     | 0.41              |
| 2:L5:1372:A:C4     | 2:L5:1373:A:C8     | 3.09                     | 0.41              |
| 2:L5:1457:G:HO2'   | 20:LQ:75:ARG:HH22  | 1.65                     | 0.41              |
| 2:L5:2017:A:H2'    | 2:L5:2017:A:OP2    | 2.20                     | 0.41              |
| 2:L5:2571:C:H2'    | 2:L5:2572:C:C6     | 2.56                     | 0.41              |
| 2:L5:3740:G:C5     | 2:L5:3741:C:C5     | 3.09                     | 0.41              |
| 2:L5:4160:C:H2'    | 2:L5:4161:G:H8     | 1.85                     | 0.41              |
| 2:L5:4173:G:H2'    | 2:L5:4174:U:C6     | 2.55                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:4622:A:H4'    | 6:LB:13:SER:HB2    | 2.03                     | 0.41              |
| 2:L5:4995:U:H2'    | 2:L5:4996:C:C6     | 2.56                     | 0.41              |
| 3:L7:74:A:OP1      | 3:L7:76:U:H1'      | 2.20                     | 0.41              |
| 4:L8:145:C:H2'     | 4:L8:146:U:C6      | 2.56                     | 0.41              |
| 7:LC:150:LEU:O     | 7:LC:152:LEU:N     | 2.53                     | 0.41              |
| 8:LD:263:LYS:HD3   | 8:LD:263:LYS:HA    | 1.87                     | 0.41              |
| 10:LF:108:VAL:HG21 | 10:LF:135:ILE:HG21 | 2.03                     | 0.41              |
| 11:LG:73:ARG:HA    | 11:LG:73:ARG:HD3   | 1.67                     | 0.41              |
| 12:LH:88:PHE:CE1   | 12:LH:151:ILE:HD12 | 2.56                     | 0.41              |
| 37:Lh:4:ILE:HD12   | 37:Lh:9:LEU:HD11   | 2.01                     | 0.41              |
| 44:Lo:12:CYS:HB3   | 44:Lo:15:CYS:HB2   | 2.02                     | 0.41              |
| 57:ST:39:LEU:HD23  | 57:ST:39:LEU:HA    | 1.70                     | 0.41              |
| 67:SE:240:ARG:NH2  | 82:S2:844:U:OP1    | 2.54                     | 0.41              |
| 69:SH:17:ASP:OD1   | 69:SH:17:ASP:N     | 2.53                     | 0.41              |
| 70:SI:104:ILE:HD12 | 70:SI:109:TYR:HE2  | 1.83                     | 0.41              |
| 72:SL:57:ASP:HB3   | 72:SL:60:CYS:HB2   | 2.02                     | 0.41              |
| 74:SO:32:HIS:N     | 74:SO:43:HIS:O     | 2.53                     | 0.41              |
| 82:S2:324:C:O2'    | 82:S2:325:C:O4'    | 2.27                     | 0.41              |
| 82:S2:573:U:O2     | 82:S2:576:A2M:H8   | 2.20                     | 0.41              |
| 82:S2:805:U:H2'    | 82:S2:806:U:H6     | 1.85                     | 0.41              |
| 82:S2:1033:G:N1    | 82:S2:1080:A:O2'   | 2.50                     | 0.41              |
| 82:S2:1143:A:H2'   | 82:S2:1144:A:C8    | 2.55                     | 0.41              |
| 82:S2:1177:PSU:H2' | 82:S2:1178:U:H6    | 1.85                     | 0.41              |
| 82:S2:1218:C:H2'   | 82:S2:1219:C:H6    | 1.86                     | 0.41              |
| 2:L5:290:U:H2'     | 2:L5:291:U:C6      | 2.56                     | 0.41              |
| 2:L5:684:G:O2'     | 9:LE:101:ASN:HA    | 2.21                     | 0.41              |
| 2:L5:1495:G:O3'    | 20:LQ:187:LYS:NZ   | 2.32                     | 0.41              |
| 2:L5:1602:U:H2'    | 2:L5:1603:C:C6     | 2.56                     | 0.41              |
| 2:L5:1646:A:H2'    | 2:L5:1647:U:C6     | 2.55                     | 0.41              |
| 2:L5:1696:C:H2'    | 2:L5:1697:G:N9     | 2.35                     | 0.41              |
| 2:L5:1741:G:O6     | 3:L7:103:A:O2'     | 2.25                     | 0.41              |
| 2:L5:1778:C:H2'    | 2:L5:1779:U:C6     | 2.55                     | 0.41              |
| 2:L5:1806:G:H2'    | 2:L5:1807:C:C6     | 2.55                     | 0.41              |
| 2:L5:1926:C:H2'    | 2:L5:1927:U:C6     | 2.56                     | 0.41              |
| 2:L5:1957:U:H2'    | 2:L5:1958:A:C8     | 2.55                     | 0.41              |
| 2:L5:2404:A:H1'    | 39:Lj:12:ARG:HH21  | 1.86                     | 0.41              |
| 2:L5:2476:G:H2'    | 2:L5:2477:A:C8     | 2.56                     | 0.41              |
| 2:L5:2519:U:H1'    | 2:L5:2520:C:C6     | 2.56                     | 0.41              |
| 2:L5:4551:U:H2'    | 2:L5:4552:PSU:C6   | 2.55                     | 0.41              |
| 3:L7:17:C:H2'      | 3:L7:18:C:H6       | 1.85                     | 0.41              |
| 3:L7:18:C:H2'      | 3:L7:19:C:C6       | 2.56                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 4:L8:96:C:H5''     | 37:Lh:66:LYS:HG2   | 2.02                     | 0.41              |
| 6:LB:219:VAL:HG11  | 6:LB:337:VAL:HG13  | 2.02                     | 0.41              |
| 13:LI:77:VAL:HG22  | 13:LI:82:ARG:HA    | 2.02                     | 0.41              |
| 14:LJ:85:LYS:HE3   | 14:LJ:116:GLY:HA3  | 2.03                     | 0.41              |
| 18:LO:77:SER:N     | 18:LO:106:ASP:OD1  | 2.53                     | 0.41              |
| 19:LP:27:LYS:HD3   | 19:LP:63:TYR:HB3   | 2.01                     | 0.41              |
| 29:LZ:41:ALA:HB2   | 29:LZ:77:TYR:HE1   | 1.86                     | 0.41              |
| 39:Lj:21:ARG:C     | 39:Lj:23:GLY:H     | 2.29                     | 0.41              |
| 49:SD:39:VAL:HG12  | 49:SD:48:ILE:HG12  | 2.03                     | 0.41              |
| 54:SQ:97:GLN:NE2   | 63:Sg:58:ALA:HB3   | 2.36                     | 0.41              |
| 63:Sg:260:ASP:O    | 63:Sg:264:LYS:N    | 2.52                     | 0.41              |
| 64:SA:68:ILE:HD11  | 64:SA:121:LEU:HB2  | 2.03                     | 0.41              |
| 64:SA:122:LEU:HD22 | 64:SA:137:ALA:HB2  | 2.01                     | 0.41              |
| 66:SC:110:MET:HG2  | 66:SC:125:LYS:HB3  | 2.03                     | 0.41              |
| 68:SG:64:LYS:O     | 68:SG:100:CYS:HB3  | 2.20                     | 0.41              |
| 68:SG:138:ALA:HA   | 68:SG:176:ILE:HD11 | 2.02                     | 0.41              |
| 68:SG:172:LYS:HE2  | 82:S2:65:C:H4'     | 2.02                     | 0.41              |
| 69:SH:33:ASN:CG    | 69:SH:36:LEU:HB3   | 2.46                     | 0.41              |
| 71:SJ:33:GLY:HA3   | 81:Se:38:TYR:CD2   | 2.56                     | 0.41              |
| 76:SW:94:LEU:HD21  | 76:SW:102:ILE:HG13 | 2.02                     | 0.41              |
| 77:SX:132:ALA:O    | 77:SX:137:LYS:N    | 2.53                     | 0.41              |
| 82:S2:59:U:O2'     | 82:S2:61:A:N7      | 2.49                     | 0.41              |
| 82:S2:117:C:O2'    | 82:S2:118:C:O2     | 2.32                     | 0.41              |
| 82:S2:669:A:H2'    | 82:S2:670:A:C8     | 2.56                     | 0.41              |
| 82:S2:1019:C:H2'   | 82:S2:1020:A:O4'   | 2.20                     | 0.41              |
| 82:S2:1171:G:H1'   | 82:S2:1172:U:H5    | 1.86                     | 0.41              |
| 82:S2:1399:C:H2'   | 82:S2:1400:U:C6    | 2.56                     | 0.41              |
| 1:Pt:5:C:H2'       | 1:Pt:6:C:H6        | 1.84                     | 0.41              |
| 2:L5:478:G:H2'     | 2:L5:479:G:C8      | 2.55                     | 0.41              |
| 2:L5:1355:G:P      | 20:LQ:108:ARG:HH22 | 2.44                     | 0.41              |
| 2:L5:2016:C:H2'    | 2:L5:2017:A:H8     | 1.85                     | 0.41              |
| 2:L5:2284:G:H2'    | 2:L5:2285:A:C8     | 2.55                     | 0.41              |
| 2:L5:2460:A:O2'    | 17:LN:104:GLU:OE1  | 2.38                     | 0.41              |
| 2:L5:2594:C:H2'    | 2:L5:2595:C:H6     | 1.86                     | 0.41              |
| 2:L5:2890:C:H2'    | 2:L5:2891:U:H6     | 1.84                     | 0.41              |
| 2:L5:3883:U:H2'    | 2:L5:3884:PSU:C6   | 2.56                     | 0.41              |
| 2:L5:4142:C:H3'    | 2:L5:4143:G:C4     | 2.56                     | 0.41              |
| 2:L5:4268:A:H2'    | 2:L5:4269:G:O4'    | 2.21                     | 0.41              |
| 2:L5:4479:A:H2'    | 2:L5:4480:A:O4'    | 2.20                     | 0.41              |
| 2:L5:4769:G:OP1    | 18:LO:176:ARG:NH1  | 2.47                     | 0.41              |
| 2:L5:4934:A:H2'    | 2:L5:4935:C:H6     | 1.86                     | 0.41              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 4:L8:78:G:O2'     | 37:Lh:45:SER:OG    | 2.25                     | 0.41              |
| 6:LB:117:ARG:NH2  | 6:LB:177:LYS:HG2   | 2.36                     | 0.41              |
| 12:LH:51:LYS:HG3  | 12:LH:52:LYS:H     | 1.86                     | 0.41              |
| 16:LM:104:MET:HG2 | 16:LM:109:ARG:HG3  | 2.03                     | 0.41              |
| 20:LQ:69:LYS:HD3  | 20:LQ:69:LYS:HA    | 1.86                     | 0.41              |
| 45:Lp:8:VAL:O     | 45:Lp:11:VAL:HG22  | 2.20                     | 0.41              |
| 46:Lr:48:THR:N    | 46:Lr:102:TYR:OH   | 2.54                     | 0.41              |
| 47:Ls:159:GLN:NE2 | 47:Ls:162:LYS:HG3  | 2.36                     | 0.41              |
| 49:SD:28:GLU:OE1  | 51:SK:61:GLN:NE2   | 2.52                     | 0.41              |
| 57:ST:110:LEU:O   | 57:ST:111:LYS:HG3  | 2.21                     | 0.41              |
| 63:Sg:39:THR:HG22 | 63:Sg:60:ARG:HG2   | 2.03                     | 0.41              |
| 63:Sg:251:ALA:HA  | 63:Sg:256:ILE:HD13 | 2.02                     | 0.41              |
| 63:Sg:256:ILE:HB  | 63:Sg:270:LEU:HB2  | 2.03                     | 0.41              |
| 70:SI:130:THR:O   | 70:SI:134:GLU:HB2  | 2.21                     | 0.41              |
| 72:SL:94:HIS:O    | 72:SL:103:GLU:N    | 2.54                     | 0.41              |
| 74:SO:87:GLU:HG3  | 74:SO:88:LEU:HD12  | 2.03                     | 0.41              |
| 76:SW:103:VAL:HA  | 76:SW:112:ASP:HA   | 2.01                     | 0.41              |
| 82:S2:479:C:H2'   | 82:S2:480:G:H8     | 1.85                     | 0.41              |
| 82:S2:1208:A:H2'  | 82:S2:1209:A:C8    | 2.56                     | 0.41              |
| 82:S2:1229:G:H2'  | 82:S2:1230:C:C6    | 2.55                     | 0.41              |
| 82:S2:1379:A:H2'  | 82:S2:1380:C:C6    | 2.55                     | 0.41              |
| 82:S2:1529:C:H2'  | 82:S2:1530:U:C6    | 2.56                     | 0.41              |
| 82:S2:1649:U:H2'  | 82:S2:1650:A:C8    | 2.54                     | 0.41              |
| 2:L5:45:U:O4      | 17:LN:83:LYS:NZ    | 2.44                     | 0.41              |
| 2:L5:50:C:C2      | 2:L5:51:A:C8       | 3.09                     | 0.41              |
| 2:L5:91:G:O5'     | 2:L5:92:C:H5''     | 2.21                     | 0.41              |
| 2:L5:92:C:OP1     | 86:L5:5260:SPD:N10 | 2.54                     | 0.41              |
| 2:L5:306:A:H2'    | 2:L5:307:A:C8      | 2.56                     | 0.41              |
| 2:L5:307:A:H2'    | 2:L5:308:G:N3      | 2.36                     | 0.41              |
| 2:L5:433:A:C2     | 2:L5:3867:A2M:H4'  | 2.56                     | 0.41              |
| 2:L5:748:G:N2     | 22:LS:147:ASP:O    | 2.54                     | 0.41              |
| 2:L5:951:G:H2'    | 2:L5:952:G:C8      | 2.56                     | 0.41              |
| 2:L5:1085:C:H2'   | 2:L5:1086:C:C6     | 2.55                     | 0.41              |
| 2:L5:1338:G:OP2   | 2:L5:1338:G:N2     | 2.31                     | 0.41              |
| 2:L5:1348:U:H2'   | 2:L5:1349:G:H8     | 1.84                     | 0.41              |
| 2:L5:1401:C:H2'   | 2:L5:1402:C:C6     | 2.56                     | 0.41              |
| 2:L5:1502:G:OP2   | 20:LQ:65:ARG:HB2   | 2.21                     | 0.41              |
| 2:L5:1566:C:H2'   | 2:L5:1567:U:H6     | 1.86                     | 0.41              |
| 2:L5:1703:C:O2'   | 2:L5:1704:C:O5'    | 2.38                     | 0.41              |
| 2:L5:1846:G:H2'   | 2:L5:1847:C:H6     | 1.85                     | 0.41              |
| 2:L5:1949:U:OP1   | 12:LH:64:ARG:NE    | 2.45                     | 0.41              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 2:L5:2081:C:H2'   | 2:L5:2082:G:C8     | 2.56                     | 0.41              |
| 2:L5:2092:G:O2'   | 2:L5:2093:A:OP2    | 2.35                     | 0.41              |
| 2:L5:2387:G:H2'   | 2:L5:2388:A:C8     | 2.56                     | 0.41              |
| 2:L5:3608:A:H2'   | 2:L5:3609:G:H8     | 1.86                     | 0.41              |
| 2:L5:3688:U:OP2   | 5:LA:198:ARG:NH2   | 2.54                     | 0.41              |
| 2:L5:3949:A:OP1   | 2:L5:4065:G:N2     | 2.53                     | 0.41              |
| 2:L5:3954:A:H1'   | 2:L5:4058:U:H5'    | 2.02                     | 0.41              |
| 2:L5:4081:G:H2'   | 2:L5:4082:G:C8     | 2.56                     | 0.41              |
| 2:L5:4228:OMG:O3' | 2:L5:4337:C:N4     | 2.54                     | 0.41              |
| 2:L5:4411:G:H2'   | 2:L5:4412:C:H6     | 1.85                     | 0.41              |
| 2:L5:4525:C:H2'   | 2:L5:4526:U:H6     | 1.84                     | 0.41              |
| 2:L5:4566:U:H2'   | 2:L5:4567:G:O4'    | 2.21                     | 0.41              |
| 2:L5:4586:G:H2'   | 2:L5:4587:G:H8     | 1.86                     | 0.41              |
| 2:L5:4593:C:H2'   | 2:L5:4594:U:C6     | 2.56                     | 0.41              |
| 2:L5:4673:PSU:H2' | 2:L5:4674:C:C6     | 2.56                     | 0.41              |
| 2:L5:4761:G:H2'   | 2:L5:4762:A:C8     | 2.56                     | 0.41              |
| 2:L5:4870:G:H2'   | 16:LM:91:TRP:CZ2   | 2.55                     | 0.41              |
| 2:L5:4928:C:H2'   | 2:L5:4929:C:C6     | 2.56                     | 0.41              |
| 2:L5:4989:U:H1'   | 2:L5:4990:C:H5     | 1.85                     | 0.41              |
| 2:L5:5064:G:H21   | 19:LP:75:GLN:HE22  | 1.69                     | 0.41              |
| 3:L7:46:C:H2'     | 3:L7:47:G:H8       | 1.86                     | 0.41              |
| 4:L8:13:G:C6      | 4:L8:14:U:C4       | 3.09                     | 0.41              |
| 4:L8:69:PSU:H2'   | 4:L8:70:G:O4'      | 2.21                     | 0.41              |
| 6:LB:14:LEU:HD22  | 6:LB:17:LEU:HD11   | 2.03                     | 0.41              |
| 6:LB:138:GLN:O    | 6:LB:143:LYS:NZ    | 2.53                     | 0.41              |
| 9:LE:190:HIS:ND1  | 9:LE:192:LYS:HB2   | 2.36                     | 0.41              |
| 14:LJ:89:VAL:HG21 | 14:LJ:115:LEU:HB3  | 2.03                     | 0.41              |
| 15:LL:136:LYS:HE2 | 15:LL:136:LYS:HB3  | 1.93                     | 0.41              |
| 16:LM:30:VAL:HG13 | 16:LM:52:PHE:HZ    | 1.86                     | 0.41              |
| 16:LM:118:MET:HG2 | 18:LO:192:TYR:OH   | 2.21                     | 0.41              |
| 19:LP:111:SER:HB2 | 19:LP:153:LYS:O    | 2.21                     | 0.41              |
| 20:LQ:89:ASP:OD2  | 20:LQ:91:ARG:NH2   | 2.30                     | 0.41              |
| 22:LS:113:MET:HE3 | 22:LS:113:MET:HB3  | 1.89                     | 0.41              |
| 28:LY:26:ARG:HA   | 28:LY:29:ILE:HD12  | 2.03                     | 0.41              |
| 29:LZ:9:LYS:NZ    | 29:LZ:83:THR:O     | 2.45                     | 0.41              |
| 36:Lg:44:SER:OG   | 36:Lg:46:CYS:SG    | 2.74                     | 0.41              |
| 36:Lg:60:ARG:HB2  | 36:Lg:63:VAL:HG23  | 2.03                     | 0.41              |
| 39:Lj:18:LEU:HA   | 39:Lj:25:LYS:HA    | 2.03                     | 0.41              |
| 46:Lr:61:VAL:HG22 | 46:Lr:81:THR:OG1   | 2.21                     | 0.41              |
| 50:SF:123:GLU:HA  | 50:SF:141:VAL:HG13 | 2.02                     | 0.41              |
| 51:SK:31:LYS:HZ3  | 51:SK:40:VAL:H     | 1.69                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 52:SM:60:MET:HB2   | 52:SM:63:LYS:HD2   | 2.02                     | 0.41              |
| 54:SQ:98:LYS:O     | 63:Sg:57:ARG:NH1   | 2.46                     | 0.41              |
| 55:SR:31:ASN:HA    | 55:SR:34:VAL:HG22  | 2.03                     | 0.41              |
| 56:SS:105:ASN:HB2  | 56:SS:108:ARG:HH21 | 1.85                     | 0.41              |
| 64:SA:184:ARG:HB3  | 64:SA:191:ARG:NE   | 2.36                     | 0.41              |
| 64:SA:220:LYS:HA   | 64:SA:220:LYS:HD3  | 1.86                     | 0.41              |
| 65:SB:29:ASP:HB3   | 65:SB:51:ARG:HH11  | 1.86                     | 0.41              |
| 66:SC:74:LYS:HA    | 66:SC:74:LYS:HD3   | 1.92                     | 0.41              |
| 66:SC:121:ARG:NH1  | 66:SC:123:ARG:HE   | 2.18                     | 0.41              |
| 67:SE:129:ILE:HD11 | 67:SE:154:ILE:HG22 | 2.03                     | 0.41              |
| 68:SG:32:MET:HG3   | 68:SG:100:CYS:HB2  | 2.03                     | 0.41              |
| 68:SG:136:LYS:HB3  | 82:S2:170:A:O5'    | 2.21                     | 0.41              |
| 68:SG:191:ARG:O    | 68:SG:195:LYS:HG3  | 2.21                     | 0.41              |
| 76:SW:15:ASN:OD1   | 76:SW:71:LYS:HA    | 2.21                     | 0.41              |
| 76:SW:105:THR:OG1  | 82:S2:862:A:N3     | 2.48                     | 0.41              |
| 77:SX:140:ARG:HE   | 77:SX:141:PRO:HD2  | 1.85                     | 0.41              |
| 82:S2:156:G:H2'    | 82:S2:157:U:C6     | 2.55                     | 0.41              |
| 82:S2:194:C:H2'    | 82:S2:195:C:C6     | 2.55                     | 0.41              |
| 82:S2:376:A:H2'    | 82:S2:377:G:C8     | 2.55                     | 0.41              |
| 82:S2:491:C:N3     | 82:S2:510:G:N1     | 2.69                     | 0.41              |
| 82:S2:868:G:OP2    | 82:S2:868:G:N2     | 2.28                     | 0.41              |
| 82:S2:929:G:H2'    | 82:S2:930:C:O4'    | 2.21                     | 0.41              |
| 82:S2:1039:C:H2'   | 82:S2:1040:G:C8    | 2.54                     | 0.41              |
| 82:S2:1177:PSU:H2' | 82:S2:1178:U:C6    | 2.56                     | 0.41              |
| 82:S2:1501:C:H2'   | 82:S2:1502:C:H6    | 1.85                     | 0.41              |
| 82:S2:1847:G:N1    | 82:S2:1853:C:N3    | 2.69                     | 0.41              |
| 1:Pt:24:A:H2'      | 1:Pt:25:C:C6       | 2.56                     | 0.41              |
| 2:L5:47:A:H5''     | 15:LL:16:LYS:HG2   | 2.03                     | 0.41              |
| 2:L5:128:C:H2'     | 2:L5:129:C:C6      | 2.56                     | 0.41              |
| 2:L5:418:A:H8      | 2:L5:418:A:O5'     | 2.04                     | 0.41              |
| 2:L5:1247:U:H2'    | 2:L5:1248:C:C6     | 2.56                     | 0.41              |
| 2:L5:1340:OMC:H1'  | 2:L5:1340:OMC:HM23 | 1.70                     | 0.41              |
| 2:L5:1815:G:O6     | 31:Lb:49:HIS:NE2   | 2.51                     | 0.41              |
| 2:L5:2486:G:N7     | 2:L5:2493:G:C2     | 2.89                     | 0.41              |
| 2:L5:2589:C:H2'    | 2:L5:2590:G:O4'    | 2.21                     | 0.41              |
| 2:L5:3658:C:H2'    | 2:L5:3659:G:C8     | 2.56                     | 0.41              |
| 2:L5:3717:A:N3     | 2:L5:4178:A:O2'    | 2.50                     | 0.41              |
| 2:L5:4320:G:H2'    | 2:L5:4321:U:C6     | 2.56                     | 0.41              |
| 2:L5:4343:U:H2'    | 2:L5:4344:U:H6     | 1.85                     | 0.41              |
| 2:L5:4505:C:H2'    | 2:L5:4506:C:H6     | 1.86                     | 0.41              |
| 2:L5:4620:OMU:H1'  | 2:L5:4620:OMU:HM23 | 1.85                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:L5:4650:G:H2'    | 2:L5:4651:A:O4'    | 2.20                     | 0.41              |
| 2:L5:5055:G:H2'    | 2:L5:5056:A:C8     | 2.55                     | 0.41              |
| 6:LB:54:THR:OG1    | 6:LB:55:HIS:N      | 2.53                     | 0.41              |
| 10:LF:54:ALA:HB2   | 10:LF:188:GLU:HG3  | 2.03                     | 0.41              |
| 20:LQ:59:PRO:HD3   | 20:LQ:143:ARG:HD3  | 2.02                     | 0.41              |
| 21:LR:163:ARG:HG2  | 82:S2:873:G:P      | 2.61                     | 0.41              |
| 23:LT:100:LYS:HB3  | 23:LT:100:LYS:HE2  | 1.81                     | 0.41              |
| 30:La:76:ASP:OD1   | 30:La:77:LYS:N     | 2.53                     | 0.41              |
| 45:Lp:79:VAL:O     | 45:Lp:83:ILE:HG12  | 2.21                     | 0.41              |
| 46:Lr:28:GLU:OE2   | 46:Lr:31:ASN:ND2   | 2.50                     | 0.41              |
| 51:SK:3:MET:O      | 82:S2:1314:U:O2'   | 2.35                     | 0.41              |
| 65:SB:117:TRP:N    | 82:S2:989:C:OP2    | 2.43                     | 0.41              |
| 70:SI:129:LEU:HD12 | 70:SI:129:LEU:HA   | 1.95                     | 0.41              |
| 82:S2:489:A:H2'    | 82:S2:490:C:C6     | 2.56                     | 0.41              |
| 82:S2:614:C:H2'    | 82:S2:626:G:C8     | 2.56                     | 0.41              |
| 82:S2:1295:A:H3'   | 82:S2:1296:U:C6    | 2.56                     | 0.41              |
| 82:S2:1396:A:N7    | 82:S2:1449:G:C6    | 2.89                     | 0.41              |
| 82:S2:1431:G:H4'   | 82:S2:1434:C:N4    | 2.36                     | 0.41              |
| 2:L5:28:C:P        | 17:LN:193:ARG:HH22 | 2.43                     | 0.40              |
| 2:L5:106:A:H1'     | 2:L5:336:A:N3      | 2.36                     | 0.40              |
| 2:L5:318:A:O2'     | 2:L5:3727:A:O2'    | 2.38                     | 0.40              |
| 2:L5:443:G:H2'     | 2:L5:444:G:H8      | 1.85                     | 0.40              |
| 2:L5:983:C:H2'     | 2:L5:984:C:H6      | 1.86                     | 0.40              |
| 2:L5:1345:A:H2'    | 2:L5:1346:C:C6     | 2.56                     | 0.40              |
| 2:L5:1458:C:H2'    | 2:L5:1459:A:O4'    | 2.21                     | 0.40              |
| 2:L5:1480:C:O2'    | 2:L5:1482:G:OP2    | 2.39                     | 0.40              |
| 2:L5:1730:U:H5''   | 23:LT:100:LYS:HE2  | 2.03                     | 0.40              |
| 2:L5:1942:A:OP2    | 2:L5:2040:A:N6     | 2.37                     | 0.40              |
| 2:L5:2347:A:N3     | 34:Le:30:LYS:HE3   | 2.36                     | 0.40              |
| 2:L5:2407:G:O6     | 41:Ll:2:SER:N      | 2.54                     | 0.40              |
| 2:L5:2421:G:H1'    | 19:LP:139:TYR:CE2  | 2.57                     | 0.40              |
| 2:L5:2759:G:H5'    | 2:L5:2765:A:H1'    | 2.03                     | 0.40              |
| 2:L5:2824:OMC:HM23 | 2:L5:2824:OMC:H1'  | 1.70                     | 0.40              |
| 2:L5:3718:A2M:H1'  | 2:L5:3718:A2M:HM'3 | 1.84                     | 0.40              |
| 2:L5:4129:G:OP1    | 29:LZ:55:ALA:N     | 2.45                     | 0.40              |
| 2:L5:4330:G:H2'    | 2:L5:4331:G:C8     | 2.57                     | 0.40              |
| 2:L5:4453:C:H2'    | 2:L5:4454:G:O4'    | 2.20                     | 0.40              |
| 6:LB:140:GLU:HB2   | 6:LB:144:LYS:HZ3   | 1.86                     | 0.40              |
| 7:LC:60:HIS:NE2    | 7:LC:100:ARG:HD3   | 2.35                     | 0.40              |
| 7:LC:252:TRP:CZ3   | 7:LC:260:LEU:HD11  | 2.56                     | 0.40              |
| 17:LN:116:LEU:HD23 | 17:LN:133:ILE:HG21 | 2.03                     | 0.40              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 20:LQ:121:LEU:HD23 | 20:LQ:125:GLN:HB3  | 2.02                     | 0.40              |
| 28:LY:27:ARG:HB2   | 28:LY:75:ARG:CZ    | 2.51                     | 0.40              |
| 47:Ls:30:VAL:HG21  | 47:Ls:187:LEU:HG   | 2.03                     | 0.40              |
| 48:Lt:119:ARG:NH2  | 48:Lt:123:ARG:HH12 | 2.18                     | 0.40              |
| 50:SF:187:SER:OG   | 50:SF:190:ILE:HG12 | 2.21                     | 0.40              |
| 52:SM:52:LEU:HD21  | 52:SM:62:VAL:HB    | 2.02                     | 0.40              |
| 57:ST:134:ILE:HA   | 57:ST:137:GLN:HG2  | 2.03                     | 0.40              |
| 63:Sg:201:SER:HB3  | 63:Sg:241:PHE:CE2  | 2.56                     | 0.40              |
| 63:Sg:258:ILE:HG23 | 63:Sg:267:VAL:HG23 | 2.02                     | 0.40              |
| 64:SA:11:LYS:O     | 64:SA:15:VAL:HG23  | 2.22                     | 0.40              |
| 71:SJ:10:ARG:HH22  | 82:S2:816:A:P      | 2.44                     | 0.40              |
| 82:S2:509:OMG:HM23 | 82:S2:509:OMG:H1'  | 1.78                     | 0.40              |
| 82:S2:1218:C:H2'   | 82:S2:1219:C:C6    | 2.55                     | 0.40              |
| 82:S2:1806:A:H2'   | 82:S2:1807:C:C6    | 2.56                     | 0.40              |
| 1:Pt:18:G:O2'      | 1:Pt:57:G:N2       | 2.33                     | 0.40              |
| 2:L5:38:A:N6       | 2:L5:41:C:OP2      | 2.55                     | 0.40              |
| 2:L5:301:G:H2'     | 2:L5:302:C:H6      | 1.85                     | 0.40              |
| 2:L5:406:C:H2'     | 2:L5:407:A:C8      | 2.57                     | 0.40              |
| 2:L5:980:U:H2'     | 2:L5:981:C:C6      | 2.57                     | 0.40              |
| 2:L5:1179:U:OP2    | 8:LD:289:ARG:NH2   | 2.32                     | 0.40              |
| 2:L5:1307:A:H2'    | 2:L5:1308:C:H6     | 1.86                     | 0.40              |
| 2:L5:1510:G:H2'    | 2:L5:1511:U:H6     | 1.83                     | 0.40              |
| 2:L5:1787:A:O3'    | 85:L5:5257:SPM:N14 | 2.46                     | 0.40              |
| 2:L5:2351:OMC:HM22 | 7:LC:95:MET:HG3    | 2.04                     | 0.40              |
| 2:L5:2363:A2M:HM'2 | 2:L5:2364:OMG:H5'  | 2.03                     | 0.40              |
| 2:L5:2385:U:H2'    | 2:L5:2386:U:C6     | 2.56                     | 0.40              |
| 2:L5:2578:G:C6     | 2:L5:2584:G:C6     | 3.09                     | 0.40              |
| 2:L5:2621:A:H2'    | 2:L5:2622:G:C8     | 2.56                     | 0.40              |
| 2:L5:2691:U:H2'    | 2:L5:2692:U:H6     | 1.86                     | 0.40              |
| 2:L5:2836:A:H3'    | 2:L5:2837:OMU:H6   | 2.04                     | 0.40              |
| 2:L5:2890:C:OP2    | 21:LR:74:ARG:HB3   | 2.21                     | 0.40              |
| 2:L5:3651:A:OP2    | 5:LA:200:ARG:NH2   | 2.37                     | 0.40              |
| 2:L5:3727:A:H2'    | 2:L5:3728:A:C8     | 2.57                     | 0.40              |
| 2:L5:3775:A:OP2    | 2:L5:3775:A:H8     | 2.03                     | 0.40              |
| 2:L5:4252:C:H3'    | 2:L5:4253:A:H8     | 1.86                     | 0.40              |
| 2:L5:4926:C:H3'    | 2:L5:4927:G:N3     | 2.37                     | 0.40              |
| 5:LA:19:HIS:ND1    | 5:LA:190:LYS:O     | 2.42                     | 0.40              |
| 5:LA:114:CYS:N     | 5:LA:165:VAL:O     | 2.54                     | 0.40              |
| 10:LF:222:LYS:N    | 10:LF:232:ASP:OD1  | 2.44                     | 0.40              |
| 11:LG:229:ARG:HB2  | 11:LG:232:GLU:OE2  | 2.21                     | 0.40              |
| 14:LJ:13:ARG:NH1   | 14:LJ:155:HIS:HA   | 2.27                     | 0.40              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 15:LL:65:ARG:HG3   | 30:La:69:PHE:CD2   | 2.56                     | 0.40              |
| 25:LV:111:GLU:H    | 25:LV:111:GLU:CD   | 2.28                     | 0.40              |
| 33:Ld:123:ASP:OD1  | 33:Ld:123:ASP:N    | 2.49                     | 0.40              |
| 39:Lj:28:HIS:CE1   | 39:Lj:31:LYS:HD3   | 2.57                     | 0.40              |
| 47:Ls:148:SER:O    | 47:Ls:151:THR:OG1  | 2.33                     | 0.40              |
| 57:ST:120:GLY:N    | 82:S2:1562:C:H4'   | 2.36                     | 0.40              |
| 63:Sg:20:GLN:HB3   | 63:Sg:69:VAL:HG12  | 2.02                     | 0.40              |
| 64:SA:183:LEU:HD23 | 64:SA:183:LEU:HA   | 1.86                     | 0.40              |
| 65:SB:57:ILE:HG22  | 65:SB:59:SER:H     | 1.86                     | 0.40              |
| 67:SE:144:ALA:HB3  | 82:S2:121:OMU:HM23 | 2.03                     | 0.40              |
| 69:SH:36:LEU:HA    | 69:SH:39:GLN:NE2   | 2.36                     | 0.40              |
| 78:SY:42:GLU:O     | 78:SY:46:LYS:HG3   | 2.21                     | 0.40              |
| 78:SY:104:ARG:NH1  | 82:S2:507:G:OP2    | 2.33                     | 0.40              |
| 79:Sa:13:LYS:HA    | 79:Sa:13:LYS:HD3   | 1.69                     | 0.40              |
| 81:Se:18:LYS:HB2   | 81:Se:18:LYS:HE2   | 1.90                     | 0.40              |
| 82:S2:176:U:H2'    | 82:S2:177:G:C8     | 2.55                     | 0.40              |
| 82:S2:627:OMU:H6   | 82:S2:627:OMU:H2'  | 1.88                     | 0.40              |
| 82:S2:1716:C:H2'   | 82:S2:1717:C:C6    | 2.57                     | 0.40              |
| 82:S2:1749:G:H2'   | 82:S2:1750:C:H6    | 1.87                     | 0.40              |
| 2:L5:34:A:H2'      | 2:L5:35:U:H6       | 1.86                     | 0.40              |
| 2:L5:298:G:H2'     | 2:L5:299:C:C6      | 2.56                     | 0.40              |
| 2:L5:1096:C:H2'    | 2:L5:1097:C:H6     | 1.84                     | 0.40              |
| 2:L5:2422:OMC:HM23 | 2:L5:2422:OMC:H1'  | 1.89                     | 0.40              |
| 2:L5:2684:C:H2'    | 2:L5:2685:C:C6     | 2.56                     | 0.40              |
| 2:L5:2776:G:H2'    | 2:L5:2777:G:H8     | 1.86                     | 0.40              |
| 2:L5:3792:OMG:H2'  | 2:L5:3793:U:H6     | 1.86                     | 0.40              |
| 2:L5:4129:G:H2'    | 2:L5:4130:C:C6     | 2.56                     | 0.40              |
| 2:L5:4874:A:O2'    | 22:LS:170:LYS:NZ   | 2.40                     | 0.40              |
| 2:L5:4953:G:H2'    | 2:L5:4954:G:H8     | 1.85                     | 0.40              |
| 11:LG:70:LEU:HD23  | 11:LG:70:LEU:HA    | 1.83                     | 0.40              |
| 12:LH:97:ALA:N     | 12:LH:177:ASP:OD1  | 2.54                     | 0.40              |
| 19:LP:9:GLU:H      | 19:LP:9:GLU:CD     | 2.29                     | 0.40              |
| 19:LP:102:ALA:HB1  | 19:LP:107:LEU:HD11 | 2.04                     | 0.40              |
| 33:Ld:92:ARG:HD3   | 33:Ld:102:LEU:HD21 | 2.02                     | 0.40              |
| 45:Lp:75:SER:O     | 45:Lp:79:VAL:HG23  | 2.21                     | 0.40              |
| 47:Ls:20:LEU:HD12  | 47:Ls:20:LEU:HA    | 1.92                     | 0.40              |
| 50:SF:60:ARG:HG3   | 82:S2:1679:A:C2    | 2.56                     | 0.40              |
| 53:SP:92:SER:O     | 53:SP:93:MET:HE2   | 2.20                     | 0.40              |
| 54:SQ:77:HIS:O     | 54:SQ:80:GLN:HB3   | 2.21                     | 0.40              |
| 58:SU:72:GLU:OE1   | 82:S2:1490:OMG:N2  | 2.54                     | 0.40              |
| 64:SA:42:LYS:HD3   | 64:SA:46:ILE:HB    | 2.03                     | 0.40              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 67:SE:104:ASP:N    | 67:SE:108:ARG:O    | 2.47                     | 0.40              |
| 67:SE:163:ASP:N    | 67:SE:163:ASP:OD1  | 2.51                     | 0.40              |
| 69:SH:115:LYS:HD2  | 82:S2:868:G:C2     | 2.56                     | 0.40              |
| 70:SI:12:ARG:HA    | 70:SI:18:ARG:NH2   | 2.36                     | 0.40              |
| 71:SJ:153:SER:OG   | 82:S2:821:G:O6     | 2.25                     | 0.40              |
| 74:SO:57:THR:OG1   | 82:S2:957:A:OP1    | 2.35                     | 0.40              |
| 74:SO:78:ALA:HB1   | 74:SO:119:LEU:HG   | 2.03                     | 0.40              |
| 77:SX:46:HIS:CD2   | 77:SX:103:ALA:HB2  | 2.56                     | 0.40              |
| 80:Sb:21:LYS:HB3   | 82:S2:921:G:C8     | 2.57                     | 0.40              |
| 82:S2:1069:U:C2    | 82:S2:1070:A:C8    | 3.09                     | 0.40              |
| 82:S2:1093:A:H2'   | 82:S2:1094:C:H6    | 1.86                     | 0.40              |
| 82:S2:1414:A:H2'   | 82:S2:1415:C:C6    | 2.57                     | 0.40              |
| 82:S2:1737:G:H2'   | 82:S2:1738:C:C6    | 2.56                     | 0.40              |
| 82:S2:1803:U:H2'   | 82:S2:1804:U:C6    | 2.57                     | 0.40              |
| 82:S2:1831:A:O2'   | 82:S2:1832:6MZ:H8  | 2.21                     | 0.40              |
| 2:L5:230:G:H4'     | 28:LY:18:HIS:CE1   | 2.57                     | 0.40              |
| 2:L5:937:U:H2'     | 2:L5:938:C:C6      | 2.56                     | 0.40              |
| 2:L5:1094:G:C5     | 2:L5:1203:G:C2     | 3.09                     | 0.40              |
| 2:L5:1450:C:H2'    | 2:L5:1451:G:O4'    | 2.21                     | 0.40              |
| 2:L5:1743:A:H1'    | 8:LD:15:ARG:CZ     | 2.52                     | 0.40              |
| 2:L5:1872:G:O2'    | 2:L5:4219:A:N3     | 2.49                     | 0.40              |
| 2:L5:1932:A:P      | 18:LO:49:ARG:HH12  | 2.44                     | 0.40              |
| 2:L5:2861:OMC:HM22 | 2:L5:3625:G:N7     | 2.37                     | 0.40              |
| 2:L5:3723:A:OP2    | 38:Li:68:ARG:NH2   | 2.28                     | 0.40              |
| 2:L5:3938:G:H22    | 2:L5:4171:C:H5''   | 1.86                     | 0.40              |
| 2:L5:4177:C:H2'    | 2:L5:4178:A:C8     | 2.48                     | 0.40              |
| 2:L5:4187:G:H2'    | 2:L5:4188:U:C6     | 2.57                     | 0.40              |
| 2:L5:4265:U:H4'    | 2:L5:4266:G:O4'    | 2.22                     | 0.40              |
| 2:L5:4767:C:N3     | 2:L5:4868:G:N1     | 2.70                     | 0.40              |
| 7:LC:183:VAL:O     | 7:LC:187:GLN:HG3   | 2.22                     | 0.40              |
| 14:LJ:151:ILE:HD11 | 14:LJ:156:ARG:HG2  | 2.03                     | 0.40              |
| 17:LN:80:THR:OG1   | 17:LN:87:HIS:HA    | 2.22                     | 0.40              |
| 19:LP:40:HIS:HA    | 19:LP:113:VAL:HG22 | 2.04                     | 0.40              |
| 29:LZ:103:ASP:HB3  | 29:LZ:106:LEU:HD13 | 2.02                     | 0.40              |
| 30:La:84:GLU:OE1   | 30:La:87:ARG:NH2   | 2.54                     | 0.40              |
| 44:Lo:53:LYS:HB3   | 44:Lo:53:LYS:HE2   | 1.95                     | 0.40              |
| 57:ST:87:VAL:HG23  | 82:S2:1530:U:H1'   | 2.04                     | 0.40              |
| 63:Sg:43:TRP:CZ3   | 63:Sg:55:PRO:HD3   | 2.57                     | 0.40              |
| 63:Sg:191:HIS:CD2  | 63:Sg:195:LEU:HD11 | 2.56                     | 0.40              |
| 64:SA:37:TYR:CG    | 64:SA:162:PRO:HG3  | 2.56                     | 0.40              |
| 64:SA:50:ASN:ND2   | 64:SA:53:ARG:HH11  | 2.20                     | 0.40              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 65:SB:133:TYR:CE1  | 65:SB:221:PRO:HD2  | 2.56                     | 0.40              |
| 66:SC:70:VAL:HG21  | 66:SC:93:ILE:HG23  | 2.04                     | 0.40              |
| 66:SC:172:ASN:O    | 66:SC:174:ILE:HG12 | 2.22                     | 0.40              |
| 67:SE:180:LEU:N    | 67:SE:231:GLY:O    | 2.54                     | 0.40              |
| 67:SE:196:THR:HG1  | 67:SE:209:HIS:C    | 2.27                     | 0.40              |
| 68:SG:45:TRP:O     | 68:SG:48:TYR:HB2   | 2.21                     | 0.40              |
| 77:SX:128:VAL:HG23 | 77:SX:138:LYS:HD2  | 2.03                     | 0.40              |
| 82:S2:6:G:H4'      | 82:S2:601:OMG:HM21 | 2.03                     | 0.40              |
| 82:S2:218:U:H2'    | 82:S2:219:U:C6     | 2.56                     | 0.40              |
| 82:S2:293:C:O2'    | 82:S2:295:C:H5'    | 2.21                     | 0.40              |
| 82:S2:502:C:H3'    | 82:S2:503:C:H6     | 1.87                     | 0.40              |
| 82:S2:943:U:C2     | 82:S2:944:A:C8     | 3.09                     | 0.40              |
| 82:S2:1607:A:C5    | 82:S2:1608:U:C4    | 3.10                     | 0.40              |
| 82:S2:1617:G:N2    | 82:S2:1619:A:H3'   | 2.36                     | 0.40              |
| 82:S2:1771:G:H2'   | 82:S2:1772:C:H6    | 1.86                     | 0.40              |
| 2:L5:5:A:H2'       | 2:L5:6:C:C6        | 2.57                     | 0.40              |
| 2:L5:211:G:C2      | 2:L5:212:A:C8      | 3.10                     | 0.40              |
| 2:L5:737:C:H3'     | 2:L5:738:C:H5'     | 2.03                     | 0.40              |
| 2:L5:1305:C:H2'    | 2:L5:1306:C:C6     | 2.56                     | 0.40              |
| 2:L5:1383:G:H2'    | 2:L5:1384:C:C6     | 2.57                     | 0.40              |
| 2:L5:1388:A:H2'    | 2:L5:1389:U:C6     | 2.56                     | 0.40              |
| 2:L5:1430:C:H2'    | 2:L5:1431:C:C6     | 2.57                     | 0.40              |
| 2:L5:1468:C:OP1    | 30:La:132:ARG:NH2  | 2.48                     | 0.40              |
| 2:L5:1489:G:OP1    | 30:La:131:ARG:NH1  | 2.54                     | 0.40              |
| 2:L5:1823:G:H2'    | 2:L5:1824:G:C8     | 2.56                     | 0.40              |
| 2:L5:1824:G:H2'    | 2:L5:1825:A:H8     | 1.86                     | 0.40              |
| 2:L5:1856:C:H2'    | 2:L5:1857:C:H6     | 1.87                     | 0.40              |
| 2:L5:2372:U:H2'    | 2:L5:2373:C:C6     | 2.56                     | 0.40              |
| 2:L5:2515:G:O2'    | 2:L5:2745:A:N6     | 2.43                     | 0.40              |
| 2:L5:2638:G:H1     | 2:L5:2718:U:H2'    | 1.86                     | 0.40              |
| 2:L5:2728:U:H2'    | 2:L5:2729:C:H6     | 1.87                     | 0.40              |
| 2:L5:2752:G:C6     | 2:L5:2753:G:C6     | 3.10                     | 0.40              |
| 2:L5:4312:PSU:H2'  | 2:L5:4313:A:C8     | 2.56                     | 0.40              |
| 2:L5:4882:U:O2'    | 2:L5:4883:C:H4'    | 2.21                     | 0.40              |
| 2:L5:4958:C:H2'    | 2:L5:4959:U:C6     | 2.57                     | 0.40              |
| 86:L5:5283:SPD:H82 | 86:L5:5283:SPD:H51 | 1.90                     | 0.40              |
| 3:L7:4:U:H2'       | 3:L7:5:A:H8        | 1.87                     | 0.40              |
| 4:L8:148:A:H2'     | 4:L8:149:G:H8      | 1.85                     | 0.40              |
| 6:LB:14:LEU:HD23   | 6:LB:17:LEU:HD21   | 2.03                     | 0.40              |
| 6:LB:108:GLU:HG3   | 6:LB:134:CYS:HB2   | 2.02                     | 0.40              |
| 16:LM:8:GLU:OE2    | 16:LM:61:ILE:HD13  | 2.22                     | 0.40              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 20:LQ:172:ARG:NH2 | 30:La:59:LYS:HA    | 2.36                     | 0.40              |
| 23:LT:9:ARG:O     | 23:LT:55:LYS:NZ    | 2.40                     | 0.40              |
| 23:LT:122:LYS:NZ  | 23:LT:124:THR:HB   | 2.37                     | 0.40              |
| 29:LZ:76:ASN:ND2  | 29:LZ:78:ASN:HD22  | 2.18                     | 0.40              |
| 63:Sg:35:SER:OG   | 63:Sg:36:ARG:N     | 2.54                     | 0.40              |
| 63:Sg:52:TYR:CE2  | 63:Sg:309:VAL:HG21 | 2.56                     | 0.40              |
| 63:Sg:100:ARG:NH2 | 82:S2:1399:C:O3'   | 2.54                     | 0.40              |
| 63:Sg:205:SER:C   | 63:Sg:221:LEU:HD23 | 2.46                     | 0.40              |
| 63:Sg:292:SER:OG  | 63:Sg:293:ALA:N    | 2.54                     | 0.40              |
| 65:SB:145:LYS:HE3 | 65:SB:145:LYS:HB2  | 1.74                     | 0.40              |
| 67:SE:101:LEU:HG  | 67:SE:109:PHE:CD1  | 2.56                     | 0.40              |
| 67:SE:242:LYS:HA  | 67:SE:242:LYS:HD3  | 1.68                     | 0.40              |
| 68:SG:3:LEU:HD22  | 68:SG:111:LEU:HD11 | 2.03                     | 0.40              |
| 81:Se:38:TYR:O    | 81:Se:42:PHE:HB2   | 2.22                     | 0.40              |
| 82:S2:116:OMU:O5' | 82:S2:116:OMU:H6   | 2.21                     | 0.40              |
| 82:S2:325:C:H42   | 82:S2:327:G:H22    | 1.68                     | 0.40              |
| 82:S2:901:G:H2'   | 82:S2:902:G:C8     | 2.57                     | 0.40              |
| 82:S2:909:G:H2'   | 82:S2:910:G:C8     | 2.56                     | 0.40              |
| 82:S2:1096:G:N2   | 82:S2:1136:U:O2    | 2.37                     | 0.40              |
| 82:S2:1168:G:H2'  | 82:S2:1169:G:O4'   | 2.21                     | 0.40              |
| 82:S2:1375:G:H2'  | 82:S2:1376:A:C8    | 2.57                     | 0.40              |

There are no symmetry-related clashes.

## 5.3 Torsion angles ⓘ

### 5.3.1 Protein backbone ⓘ

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

| Mol | Chain | Analysed       | Favoured  | Allowed | Outliers | Percentiles |     |
|-----|-------|----------------|-----------|---------|----------|-------------|-----|
| 5   | LA    | 246/248 (99%)  | 227 (92%) | 19 (8%) | 0        | 100         | 100 |
| 6   | LB    | 400/402 (100%) | 379 (95%) | 21 (5%) | 0        | 100         | 100 |
| 7   | LC    | 366/368 (100%) | 352 (96%) | 14 (4%) | 0        | 100         | 100 |
| 8   | LD    | 291/293 (99%)  | 280 (96%) | 11 (4%) | 0        | 100         | 100 |

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| Mol | Chain | Analysed      | Favoured  | Allowed | Outliers | Percentiles |     |
|-----|-------|---------------|-----------|---------|----------|-------------|-----|
| 9   | LE    | 236/250 (94%) | 222 (94%) | 14 (6%) | 0        | 100         | 100 |
| 10  | LF    | 223/225 (99%) | 214 (96%) | 9 (4%)  | 0        | 100         | 100 |
| 11  | LG    | 239/241 (99%) | 222 (93%) | 17 (7%) | 0        | 100         | 100 |
| 12  | LH    | 188/190 (99%) | 179 (95%) | 9 (5%)  | 0        | 100         | 100 |
| 13  | LI    | 211/213 (99%) | 202 (96%) | 9 (4%)  | 0        | 100         | 100 |
| 14  | LJ    | 168/176 (96%) | 158 (94%) | 10 (6%) | 0        | 100         | 100 |
| 15  | LL    | 208/210 (99%) | 200 (96%) | 8 (4%)  | 0        | 100         | 100 |
| 16  | LM    | 137/139 (99%) | 129 (94%) | 8 (6%)  | 0        | 100         | 100 |
| 17  | LN    | 201/203 (99%) | 196 (98%) | 5 (2%)  | 0        | 100         | 100 |
| 18  | LO    | 199/201 (99%) | 195 (98%) | 4 (2%)  | 0        | 100         | 100 |
| 19  | LP    | 151/153 (99%) | 146 (97%) | 5 (3%)  | 0        | 100         | 100 |
| 20  | LQ    | 185/187 (99%) | 179 (97%) | 6 (3%)  | 0        | 100         | 100 |
| 21  | LR    | 185/187 (99%) | 180 (97%) | 5 (3%)  | 0        | 100         | 100 |
| 22  | LS    | 173/175 (99%) | 164 (95%) | 9 (5%)  | 0        | 100         | 100 |
| 23  | LT    | 157/159 (99%) | 150 (96%) | 7 (4%)  | 0        | 100         | 100 |
| 24  | LU    | 99/101 (98%)  | 92 (93%)  | 7 (7%)  | 0        | 100         | 100 |
| 25  | LV    | 129/131 (98%) | 126 (98%) | 3 (2%)  | 0        | 100         | 100 |
| 26  | LW    | 112/124 (90%) | 108 (96%) | 4 (4%)  | 0        | 100         | 100 |
| 27  | LX    | 118/120 (98%) | 115 (98%) | 3 (2%)  | 0        | 100         | 100 |
| 28  | LY    | 132/134 (98%) | 127 (96%) | 5 (4%)  | 0        | 100         | 100 |
| 29  | LZ    | 133/135 (98%) | 124 (93%) | 9 (7%)  | 0        | 100         | 100 |
| 30  | La    | 145/147 (99%) | 141 (97%) | 4 (3%)  | 0        | 100         | 100 |
| 31  | Lb    | 105/121 (87%) | 101 (96%) | 4 (4%)  | 0        | 100         | 100 |
| 32  | Lc    | 96/98 (98%)   | 93 (97%)  | 3 (3%)  | 0        | 100         | 100 |
| 33  | Ld    | 105/107 (98%) | 101 (96%) | 4 (4%)  | 0        | 100         | 100 |
| 34  | Le    | 126/128 (98%) | 124 (98%) | 2 (2%)  | 0        | 100         | 100 |
| 35  | Lf    | 107/109 (98%) | 105 (98%) | 2 (2%)  | 0        | 100         | 100 |
| 36  | Lg    | 112/114 (98%) | 109 (97%) | 3 (3%)  | 0        | 100         | 100 |
| 37  | Lh    | 120/122 (98%) | 116 (97%) | 4 (3%)  | 0        | 100         | 100 |
| 38  | Li    | 100/102 (98%) | 98 (98%)  | 2 (2%)  | 0        | 100         | 100 |
| 39  | Lj    | 84/86 (98%)   | 81 (96%)  | 3 (4%)  | 0        | 100         | 100 |

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| Mol | Chain | Analysed      | Favoured  | Allowed  | Outliers | Percentiles |     |
|-----|-------|---------------|-----------|----------|----------|-------------|-----|
| 40  | Lk    | 67/69 (97%)   | 64 (96%)  | 3 (4%)   | 0        | 100         | 100 |
| 41  | Ll    | 48/50 (96%)   | 47 (98%)  | 1 (2%)   | 0        | 100         | 100 |
| 42  | Lm    | 50/52 (96%)   | 50 (100%) | 0        | 0        | 100         | 100 |
| 43  | Ln    | 22/24 (92%)   | 22 (100%) | 0        | 0        | 100         | 100 |
| 44  | Lo    | 103/105 (98%) | 99 (96%)  | 4 (4%)   | 0        | 100         | 100 |
| 45  | Lp    | 89/91 (98%)   | 87 (98%)  | 2 (2%)   | 0        | 100         | 100 |
| 46  | Lr    | 123/125 (98%) | 121 (98%) | 2 (2%)   | 0        | 100         | 100 |
| 47  | Ls    | 194/196 (99%) | 179 (92%) | 15 (8%)  | 0        | 100         | 100 |
| 48  | Lt    | 128/157 (82%) | 110 (86%) | 18 (14%) | 0        | 100         | 100 |
| 49  | SD    | 225/227 (99%) | 217 (96%) | 8 (4%)   | 0        | 100         | 100 |
| 50  | SF    | 187/189 (99%) | 175 (94%) | 12 (6%)  | 0        | 100         | 100 |
| 51  | SK    | 96/98 (98%)   | 88 (92%)  | 8 (8%)   | 0        | 100         | 100 |
| 52  | SM    | 120/122 (98%) | 108 (90%) | 12 (10%) | 0        | 100         | 100 |
| 53  | SP    | 119/121 (98%) | 116 (98%) | 3 (2%)   | 0        | 100         | 100 |
| 54  | SQ    | 142/144 (99%) | 135 (95%) | 7 (5%)   | 0        | 100         | 100 |
| 55  | SR    | 133/135 (98%) | 121 (91%) | 11 (8%)  | 1 (1%)   | 16          | 51  |
| 56  | SS    | 143/145 (99%) | 136 (95%) | 6 (4%)   | 1 (1%)   | 19          | 54  |
| 57  | ST    | 141/143 (99%) | 134 (95%) | 7 (5%)   | 0        | 100         | 100 |
| 58  | SU    | 102/104 (98%) | 98 (96%)  | 4 (4%)   | 0        | 100         | 100 |
| 59  | SZ    | 73/75 (97%)   | 69 (94%)  | 4 (6%)   | 0        | 100         | 100 |
| 60  | Sc    | 62/64 (97%)   | 60 (97%)  | 2 (3%)   | 0        | 100         | 100 |
| 61  | Sd    | 53/55 (96%)   | 52 (98%)  | 1 (2%)   | 0        | 100         | 100 |
| 62  | Sf    | 65/67 (97%)   | 57 (88%)  | 8 (12%)  | 0        | 100         | 100 |
| 63  | Sg    | 311/313 (99%) | 296 (95%) | 15 (5%)  | 0        | 100         | 100 |
| 64  | SA    | 219/221 (99%) | 207 (94%) | 12 (6%)  | 0        | 100         | 100 |
| 65  | SB    | 212/214 (99%) | 207 (98%) | 5 (2%)   | 0        | 100         | 100 |
| 66  | SC    | 218/222 (98%) | 202 (93%) | 16 (7%)  | 0        | 100         | 100 |
| 67  | SE    | 260/262 (99%) | 246 (95%) | 14 (5%)  | 0        | 100         | 100 |
| 68  | SG    | 235/237 (99%) | 219 (93%) | 16 (7%)  | 0        | 100         | 100 |
| 69  | SH    | 182/189 (96%) | 167 (92%) | 15 (8%)  | 0        | 100         | 100 |
| 70  | SI    | 204/206 (99%) | 195 (96%) | 9 (4%)   | 0        | 100         | 100 |

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| Mol | Chain | Analysed          | Favoured    | Allowed  | Outliers | Percentiles |     |
|-----|-------|-------------------|-------------|----------|----------|-------------|-----|
| 71  | SJ    | 183/185 (99%)     | 172 (94%)   | 10 (6%)  | 1 (0%)   | 25          | 60  |
| 72  | SL    | 151/153 (99%)     | 142 (94%)   | 9 (6%)   | 0        | 100         | 100 |
| 73  | SN    | 148/150 (99%)     | 145 (98%)   | 3 (2%)   | 0        | 100         | 100 |
| 74  | SO    | 135/140 (96%)     | 124 (92%)   | 11 (8%)  | 0        | 100         | 100 |
| 75  | SV    | 81/83 (98%)       | 77 (95%)    | 4 (5%)   | 0        | 100         | 100 |
| 76  | SW    | 127/129 (98%)     | 120 (94%)   | 7 (6%)   | 0        | 100         | 100 |
| 77  | SX    | 139/141 (99%)     | 131 (94%)   | 8 (6%)   | 0        | 100         | 100 |
| 78  | SY    | 129/131 (98%)     | 123 (95%)   | 6 (5%)   | 0        | 100         | 100 |
| 79  | Sa    | 100/102 (98%)     | 97 (97%)    | 3 (3%)   | 0        | 100         | 100 |
| 80  | Sb    | 81/83 (98%)       | 76 (94%)    | 5 (6%)   | 0        | 100         | 100 |
| 81  | Se    | 56/58 (97%)       | 51 (91%)    | 5 (9%)   | 0        | 100         | 100 |
| 83  | CI    | 29/31 (94%)       | 29 (100%)   | 0        | 0        | 100         | 100 |
| All | All   | 11672/11907 (98%) | 11106 (95%) | 563 (5%) | 3 (0%)   | 100         | 100 |

All (3) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 55  | SR    | 129 | LYS  |
| 56  | SS    | 16  | LEU  |
| 71  | SJ    | 138 | ARG  |

### 5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

| Mol | Chain | Analysed       | Rotameric  | Outliers | Percentiles |     |
|-----|-------|----------------|------------|----------|-------------|-----|
| 5   | LA    | 190/190 (100%) | 190 (100%) | 0        | 100         | 100 |
| 6   | LB    | 348/348 (100%) | 348 (100%) | 0        | 100         | 100 |
| 7   | LC    | 306/306 (100%) | 306 (100%) | 0        | 100         | 100 |
| 8   | LD    | 246/247 (100%) | 246 (100%) | 0        | 100         | 100 |
| 9   | LE    | 212/222 (96%)  | 212 (100%) | 0        | 100         | 100 |

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| Mol | Chain | Analysed       | Rotameric  | Outliers | Percentiles |     |
|-----|-------|----------------|------------|----------|-------------|-----|
| 10  | LF    | 194/194 (100%) | 194 (100%) | 0        | 100         | 100 |
| 11  | LG    | 203/205 (99%)  | 203 (100%) | 0        | 100         | 100 |
| 12  | LH    | 169/169 (100%) | 169 (100%) | 0        | 100         | 100 |
| 13  | LI    | 180/180 (100%) | 180 (100%) | 0        | 100         | 100 |
| 14  | LJ    | 143/148 (97%)  | 143 (100%) | 0        | 100         | 100 |
| 15  | LL    | 176/176 (100%) | 176 (100%) | 0        | 100         | 100 |
| 16  | LM    | 118/118 (100%) | 118 (100%) | 0        | 100         | 100 |
| 17  | LN    | 171/171 (100%) | 171 (100%) | 0        | 100         | 100 |
| 18  | LO    | 173/173 (100%) | 173 (100%) | 0        | 100         | 100 |
| 19  | LP    | 134/134 (100%) | 134 (100%) | 0        | 100         | 100 |
| 20  | LQ    | 164/164 (100%) | 164 (100%) | 0        | 100         | 100 |
| 21  | LR    | 166/166 (100%) | 166 (100%) | 0        | 100         | 100 |
| 22  | LS    | 156/156 (100%) | 156 (100%) | 0        | 100         | 100 |
| 23  | LT    | 139/139 (100%) | 139 (100%) | 0        | 100         | 100 |
| 24  | LU    | 91/91 (100%)   | 91 (100%)  | 0        | 100         | 100 |
| 25  | LV    | 101/101 (100%) | 101 (100%) | 0        | 100         | 100 |
| 26  | LW    | 95/103 (92%)   | 95 (100%)  | 0        | 100         | 100 |
| 27  | LX    | 108/108 (100%) | 108 (100%) | 0        | 100         | 100 |
| 28  | LY    | 124/124 (100%) | 124 (100%) | 0        | 100         | 100 |
| 29  | LZ    | 117/117 (100%) | 117 (100%) | 0        | 100         | 100 |
| 30  | La    | 120/120 (100%) | 120 (100%) | 0        | 100         | 100 |
| 31  | Lb    | 88/101 (87%)   | 88 (100%)  | 0        | 100         | 100 |
| 32  | Lc    | 83/83 (100%)   | 83 (100%)  | 0        | 100         | 100 |
| 33  | Ld    | 98/98 (100%)   | 98 (100%)  | 0        | 100         | 100 |
| 34  | Le    | 114/114 (100%) | 114 (100%) | 0        | 100         | 100 |
| 35  | Lf    | 88/88 (100%)   | 88 (100%)  | 0        | 100         | 100 |
| 36  | Lg    | 98/98 (100%)   | 98 (100%)  | 0        | 100         | 100 |
| 37  | Lh    | 109/109 (100%) | 109 (100%) | 0        | 100         | 100 |
| 38  | Li    | 86/86 (100%)   | 86 (100%)  | 0        | 100         | 100 |
| 39  | Lj    | 73/73 (100%)   | 73 (100%)  | 0        | 100         | 100 |
| 40  | Lk    | 64/64 (100%)   | 64 (100%)  | 0        | 100         | 100 |

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| Mol | Chain | Analysed       | Rotameric  | Outliers | Percentiles |     |
|-----|-------|----------------|------------|----------|-------------|-----|
| 41  | Ll    | 47/47 (100%)   | 47 (100%)  | 0        | 100         | 100 |
| 42  | Lm    | 48/48 (100%)   | 48 (100%)  | 0        | 100         | 100 |
| 43  | Ln    | 23/23 (100%)   | 23 (100%)  | 0        | 100         | 100 |
| 44  | Lo    | 93/93 (100%)   | 93 (100%)  | 0        | 100         | 100 |
| 45  | Lp    | 74/74 (100%)   | 74 (100%)  | 0        | 100         | 100 |
| 46  | Lr    | 109/109 (100%) | 109 (100%) | 0        | 100         | 100 |
| 47  | Ls    | 162/164 (99%)  | 162 (100%) | 0        | 100         | 100 |
| 48  | Lt    | 107/130 (82%)  | 107 (100%) | 0        | 100         | 100 |
| 49  | SD    | 190/190 (100%) | 190 (100%) | 0        | 100         | 100 |
| 50  | SF    | 159/159 (100%) | 159 (100%) | 0        | 100         | 100 |
| 51  | SK    | 89/89 (100%)   | 89 (100%)  | 0        | 100         | 100 |
| 52  | SM    | 102/104 (98%)  | 102 (100%) | 0        | 100         | 100 |
| 53  | SP    | 107/107 (100%) | 107 (100%) | 0        | 100         | 100 |
| 54  | SQ    | 119/119 (100%) | 119 (100%) | 0        | 100         | 100 |
| 55  | SR    | 122/122 (100%) | 122 (100%) | 0        | 100         | 100 |
| 56  | SS    | 126/126 (100%) | 126 (100%) | 0        | 100         | 100 |
| 57  | ST    | 113/113 (100%) | 113 (100%) | 0        | 100         | 100 |
| 58  | SU    | 94/94 (100%)   | 94 (100%)  | 0        | 100         | 100 |
| 59  | SZ    | 66/66 (100%)   | 66 (100%)  | 0        | 100         | 100 |
| 60  | Sc    | 57/57 (100%)   | 57 (100%)  | 0        | 100         | 100 |
| 61  | Sd    | 48/48 (100%)   | 48 (100%)  | 0        | 100         | 100 |
| 62  | Sf    | 60/60 (100%)   | 60 (100%)  | 0        | 100         | 100 |
| 63  | Sg    | 272/272 (100%) | 272 (100%) | 0        | 100         | 100 |
| 64  | SA    | 183/183 (100%) | 183 (100%) | 0        | 100         | 100 |
| 65  | SB    | 195/195 (100%) | 195 (100%) | 0        | 100         | 100 |
| 66  | SC    | 186/188 (99%)  | 186 (100%) | 0        | 100         | 100 |
| 67  | SE    | 224/224 (100%) | 224 (100%) | 0        | 100         | 100 |
| 68  | SG    | 207/207 (100%) | 207 (100%) | 0        | 100         | 100 |
| 69  | SH    | 166/169 (98%)  | 166 (100%) | 0        | 100         | 100 |
| 70  | SI    | 178/178 (100%) | 178 (100%) | 0        | 100         | 100 |
| 71  | SJ    | 161/161 (100%) | 161 (100%) | 0        | 100         | 100 |

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| Mol | Chain | Analysed          | Rotameric    | Outliers | Percentiles |     |
|-----|-------|-------------------|--------------|----------|-------------|-----|
| 72  | SL    | 137/137 (100%)    | 137 (100%)   | 0        | 100         | 100 |
| 73  | SN    | 130/130 (100%)    | 130 (100%)   | 0        | 100         | 100 |
| 74  | SO    | 107/110 (97%)     | 107 (100%)   | 0        | 100         | 100 |
| 75  | SV    | 67/67 (100%)      | 67 (100%)    | 0        | 100         | 100 |
| 76  | SW    | 112/112 (100%)    | 112 (100%)   | 0        | 100         | 100 |
| 77  | SX    | 113/113 (100%)    | 113 (100%)   | 0        | 100         | 100 |
| 78  | SY    | 113/113 (100%)    | 113 (100%)   | 0        | 100         | 100 |
| 79  | Sa    | 89/89 (100%)      | 89 (100%)    | 0        | 100         | 100 |
| 80  | Sb    | 75/75 (100%)      | 75 (100%)    | 0        | 100         | 100 |
| 81  | Se    | 47/47 (100%)      | 47 (100%)    | 0        | 100         | 100 |
| 83  | CI    | 25/25 (100%)      | 25 (100%)    | 0        | 100         | 100 |
| All | All   | 10147/10221 (99%) | 10147 (100%) | 0        | 100         | 100 |

There are no protein residues with a non-rotameric sidechain to report.

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (78) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 5   | LA    | 97  | ASN  |
| 5   | LA    | 215 | ASN  |
| 6   | LB    | 68  | ASN  |
| 6   | LB    | 121 | ASN  |
| 6   | LB    | 184 | GLN  |
| 6   | LB    | 203 | GLN  |
| 6   | LB    | 289 | GLN  |
| 6   | LB    | 301 | ASN  |
| 7   | LC    | 38  | ASN  |
| 7   | LC    | 41  | HIS  |
| 7   | LC    | 310 | HIS  |
| 7   | LC    | 329 | ASN  |
| 8   | LD    | 45  | ASN  |
| 8   | LD    | 202 | GLN  |
| 11  | LG    | 46  | GLN  |
| 11  | LG    | 112 | GLN  |
| 11  | LG    | 240 | ASN  |
| 12  | LH    | 98  | HIS  |
| 12  | LH    | 116 | ASN  |
| 12  | LH    | 138 | GLN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 13  | LI    | 166 | HIS  |
| 14  | LJ    | 98  | ASN  |
| 14  | LJ    | 110 | GLN  |
| 15  | LL    | 19  | GLN  |
| 16  | LM    | 66  | HIS  |
| 17  | LN    | 32  | GLN  |
| 17  | LN    | 199 | GLN  |
| 18  | LO    | 50  | ASN  |
| 18  | LO    | 199 | HIS  |
| 20  | LQ    | 44  | ASN  |
| 21  | LR    | 134 | ASN  |
| 22  | LS    | 108 | GLN  |
| 26  | LW    | 79  | GLN  |
| 26  | LW    | 104 | GLN  |
| 27  | LX    | 57  | GLN  |
| 28  | LY    | 18  | HIS  |
| 28  | LY    | 61  | HIS  |
| 29  | LZ    | 78  | ASN  |
| 30  | La    | 34  | ASN  |
| 30  | La    | 66  | ASN  |
| 30  | La    | 67  | GLN  |
| 34  | Le    | 52  | GLN  |
| 35  | Lf    | 99  | HIS  |
| 39  | Lj    | 76  | HIS  |
| 46  | Lr    | 31  | ASN  |
| 48  | Lt    | 65  | GLN  |
| 50  | SF    | 110 | GLN  |
| 51  | SK    | 32  | HIS  |
| 52  | SM    | 19  | GLN  |
| 53  | SP    | 103 | ASN  |
| 55  | SR    | 116 | ASN  |
| 56  | SS    | 87  | GLN  |
| 57  | ST    | 51  | ASN  |
| 59  | SZ    | 89  | GLN  |
| 61  | Sd    | 5   | GLN  |
| 61  | Sd    | 37  | ASN  |
| 64  | SA    | 9   | GLN  |
| 64  | SA    | 84  | GLN  |
| 65  | SB    | 53  | GLN  |
| 65  | SB    | 76  | ASN  |
| 65  | SB    | 101 | HIS  |
| 66  | SC    | 115 | GLN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 66  | SC    | 267 | GLN  |
| 67  | SE    | 50  | ASN  |
| 67  | SE    | 179 | ASN  |
| 67  | SE    | 188 | ASN  |
| 68  | SG    | 227 | GLN  |
| 69  | SH    | 76  | GLN  |
| 70  | SI    | 9   | HIS  |
| 71  | SJ    | 124 | HIS  |
| 72  | SL    | 65  | ASN  |
| 73  | SN    | 105 | ASN  |
| 76  | SW    | 56  | HIS  |
| 77  | SX    | 31  | HIS  |
| 78  | SY    | 63  | HIS  |
| 78  | SY    | 89  | HIS  |
| 79  | Sa    | 72  | HIS  |
| 81  | Se    | 58  | ASN  |

### 5.3.3 RNA ⓘ

| Mol | Chain | Analysed        | Backbone Outliers | Pucker Outliers |
|-----|-------|-----------------|-------------------|-----------------|
| 1   | Pt    | 72/74 (97%)     | 16 (22%)          | 0               |
| 2   | L5    | 3643/3655 (99%) | 804 (22%)         | 15 (0%)         |
| 3   | L7    | 119/120 (99%)   | 13 (10%)          | 0               |
| 4   | L8    | 155/156 (99%)   | 25 (16%)          | 0               |
| 82  | S2    | 1714/1740 (98%) | 405 (23%)         | 4 (0%)          |
| All | All   | 5703/5745 (99%) | 1263 (22%)        | 19 (0%)         |

All (1263) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | Pt    | 9   | A    |
| 1   | Pt    | 19  | G    |
| 1   | Pt    | 21  | A    |
| 1   | Pt    | 46  | G    |
| 1   | Pt    | 47  | U    |
| 1   | Pt    | 48  | C    |
| 1   | Pt    | 49  | C    |
| 1   | Pt    | 58  | A    |
| 1   | Pt    | 61  | C    |
| 1   | Pt    | 63  | G    |
| 1   | Pt    | 66  | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | Pt    | 67  | G    |
| 1   | Pt    | 70  | A    |
| 1   | Pt    | 72  | C    |
| 1   | Pt    | 74  | C    |
| 1   | Pt    | 76  | A    |
| 2   | L5    | 13  | U    |
| 2   | L5    | 25  | A    |
| 2   | L5    | 39  | A    |
| 2   | L5    | 42  | A    |
| 2   | L5    | 48  | G    |
| 2   | L5    | 56  | A    |
| 2   | L5    | 59  | A    |
| 2   | L5    | 64  | A    |
| 2   | L5    | 65  | A    |
| 2   | L5    | 72  | C    |
| 2   | L5    | 73  | A    |
| 2   | L5    | 74  | G    |
| 2   | L5    | 76  | A    |
| 2   | L5    | 91  | G    |
| 2   | L5    | 104 | G    |
| 2   | L5    | 109 | G    |
| 2   | L5    | 110 | C    |
| 2   | L5    | 119 | G    |
| 2   | L5    | 120 | A    |
| 2   | L5    | 122 | U    |
| 2   | L5    | 127 | G    |
| 2   | L5    | 132 | G    |
| 2   | L5    | 133 | C    |
| 2   | L5    | 134 | G    |
| 2   | L5    | 135 | G    |
| 2   | L5    | 136 | C    |
| 2   | L5    | 144 | G    |
| 2   | L5    | 159 | C    |
| 2   | L5    | 165 | A    |
| 2   | L5    | 172 | C    |
| 2   | L5    | 181 | C    |
| 2   | L5    | 182 | G    |
| 2   | L5    | 183 | C    |
| 2   | L5    | 184 | U    |
| 2   | L5    | 185 | C    |
| 2   | L5    | 188 | G    |
| 2   | L5    | 197 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2   | L5    | 200 | U    |
| 2   | L5    | 209 | U    |
| 2   | L5    | 216 | C    |
| 2   | L5    | 218 | A    |
| 2   | L5    | 220 | C    |
| 2   | L5    | 255 | C    |
| 2   | L5    | 256 | G    |
| 2   | L5    | 261 | G    |
| 2   | L5    | 263 | G    |
| 2   | L5    | 264 | C    |
| 2   | L5    | 265 | C    |
| 2   | L5    | 266 | C    |
| 2   | L5    | 267 | G    |
| 2   | L5    | 275 | C    |
| 2   | L5    | 276 | C    |
| 2   | L5    | 280 | G    |
| 2   | L5    | 281 | U    |
| 2   | L5    | 297 | U    |
| 2   | L5    | 306 | A    |
| 2   | L5    | 315 | G    |
| 2   | L5    | 316 | U    |
| 2   | L5    | 336 | A    |
| 2   | L5    | 340 | C    |
| 2   | L5    | 349 | A    |
| 2   | L5    | 355 | A    |
| 2   | L5    | 357 | U    |
| 2   | L5    | 362 | A    |
| 2   | L5    | 363 | A    |
| 2   | L5    | 365 | U    |
| 2   | L5    | 372 | A    |
| 2   | L5    | 373 | G    |
| 2   | L5    | 385 | A    |
| 2   | L5    | 387 | G    |
| 2   | L5    | 388 | A    |
| 2   | L5    | 398 | A2M  |
| 2   | L5    | 406 | C    |
| 2   | L5    | 407 | A    |
| 2   | L5    | 409 | G    |
| 2   | L5    | 410 | A    |
| 2   | L5    | 411 | G    |
| 2   | L5    | 412 | G    |
| 2   | L5    | 413 | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2   | L5    | 432 | U    |
| 2   | L5    | 440 | U    |
| 2   | L5    | 449 | C    |
| 2   | L5    | 450 | G    |
| 2   | L5    | 452 | A    |
| 2   | L5    | 453 | G    |
| 2   | L5    | 454 | U    |
| 2   | L5    | 456 | C    |
| 2   | L5    | 457 | G    |
| 2   | L5    | 467 | U    |
| 2   | L5    | 484 | U    |
| 2   | L5    | 485 | C    |
| 2   | L5    | 486 | C    |
| 2   | L5    | 489 | C    |
| 2   | L5    | 493 | G    |
| 2   | L5    | 494 | U    |
| 2   | L5    | 497 | G    |
| 2   | L5    | 498 | C    |
| 2   | L5    | 499 | G    |
| 2   | L5    | 502 | C    |
| 2   | L5    | 504 | G    |
| 2   | L5    | 509 | A    |
| 2   | L5    | 510 | U    |
| 2   | L5    | 512 | U    |
| 2   | L5    | 513 | U    |
| 2   | L5    | 514 | U    |
| 2   | L5    | 518 | G    |
| 2   | L5    | 519 | C    |
| 2   | L5    | 643 | C    |
| 2   | L5    | 645 | G    |
| 2   | L5    | 646 | G    |
| 2   | L5    | 654 | C    |
| 2   | L5    | 655 | C    |
| 2   | L5    | 656 | C    |
| 2   | L5    | 657 | C    |
| 2   | L5    | 659 | G    |
| 2   | L5    | 665 | C    |
| 2   | L5    | 666 | G    |
| 2   | L5    | 667 | A    |
| 2   | L5    | 668 | C    |
| 2   | L5    | 669 | C    |
| 2   | L5    | 672 | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2   | L5    | 673 | C    |
| 2   | L5    | 674 | G    |
| 2   | L5    | 685 | C    |
| 2   | L5    | 686 | A    |
| 2   | L5    | 687 | U    |
| 2   | L5    | 696 | C    |
| 2   | L5    | 697 | G    |
| 2   | L5    | 704 | C    |
| 2   | L5    | 729 | G    |
| 2   | L5    | 731 | G    |
| 2   | L5    | 738 | C    |
| 2   | L5    | 739 | G    |
| 2   | L5    | 742 | G    |
| 2   | L5    | 750 | U    |
| 2   | L5    | 759 | G    |
| 2   | L5    | 760 | G    |
| 2   | L5    | 904 | C    |
| 2   | L5    | 905 | C    |
| 2   | L5    | 906 | C    |
| 2   | L5    | 910 | G    |
| 2   | L5    | 913 | U    |
| 2   | L5    | 914 | U    |
| 2   | L5    | 915 | A    |
| 2   | L5    | 917 | A    |
| 2   | L5    | 923 | C    |
| 2   | L5    | 924 | C    |
| 2   | L5    | 932 | A    |
| 2   | L5    | 933 | G    |
| 2   | L5    | 936 | C    |
| 2   | L5    | 937 | U    |
| 2   | L5    | 941 | C    |
| 2   | L5    | 943 | A    |
| 2   | L5    | 944 | A    |
| 2   | L5    | 945 | U    |
| 2   | L5    | 956 | A    |
| 2   | L5    | 959 | G    |
| 2   | L5    | 960 | A    |
| 2   | L5    | 961 | G    |
| 2   | L5    | 962 | C    |
| 2   | L5    | 965 | G    |
| 2   | L5    | 966 | A    |
| 2   | L5    | 967 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | L5    | 969  | C    |
| 2   | L5    | 970  | G    |
| 2   | L5    | 977  | C    |
| 2   | L5    | 982  | U    |
| 2   | L5    | 985  | C    |
| 2   | L5    | 986  | C    |
| 2   | L5    | 1070 | G    |
| 2   | L5    | 1071 | C    |
| 2   | L5    | 1072 | C    |
| 2   | L5    | 1075 | G    |
| 2   | L5    | 1082 | C    |
| 2   | L5    | 1083 | U    |
| 2   | L5    | 1168 | G    |
| 2   | L5    | 1170 | G    |
| 2   | L5    | 1171 | G    |
| 2   | L5    | 1172 | C    |
| 2   | L5    | 1173 | G    |
| 2   | L5    | 1179 | U    |
| 2   | L5    | 1180 | C    |
| 2   | L5    | 1181 | C    |
| 2   | L5    | 1182 | C    |
| 2   | L5    | 1183 | C    |
| 2   | L5    | 1184 | A    |
| 2   | L5    | 1200 | G    |
| 2   | L5    | 1202 | C    |
| 2   | L5    | 1203 | G    |
| 2   | L5    | 1205 | G    |
| 2   | L5    | 1210 | C    |
| 2   | L5    | 1211 | G    |
| 2   | L5    | 1214 | C    |
| 2   | L5    | 1215 | C    |
| 2   | L5    | 1216 | C    |
| 2   | L5    | 1218 | G    |
| 2   | L5    | 1219 | G    |
| 2   | L5    | 1222 | A    |
| 2   | L5    | 1241 | C    |
| 2   | L5    | 1246 | G    |
| 2   | L5    | 1253 | G    |
| 2   | L5    | 1254 | A    |
| 2   | L5    | 1257 | A    |
| 2   | L5    | 1258 | G    |
| 2   | L5    | 1262 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | L5    | 1266 | G    |
| 2   | L5    | 1267 | C    |
| 2   | L5    | 1269 | G    |
| 2   | L5    | 1271 | G    |
| 2   | L5    | 1272 | C    |
| 2   | L5    | 1273 | G    |
| 2   | L5    | 1275 | G    |
| 2   | L5    | 1284 | G    |
| 2   | L5    | 1287 | G    |
| 2   | L5    | 1293 | G    |
| 2   | L5    | 1294 | A    |
| 2   | L5    | 1295 | C    |
| 2   | L5    | 1296 | G    |
| 2   | L5    | 1301 | C    |
| 2   | L5    | 1314 | C    |
| 2   | L5    | 1326 | A2M  |
| 2   | L5    | 1337 | A    |
| 2   | L5    | 1344 | C    |
| 2   | L5    | 1354 | A    |
| 2   | L5    | 1359 | G    |
| 2   | L5    | 1364 | U    |
| 2   | L5    | 1365 | C    |
| 2   | L5    | 1366 | G    |
| 2   | L5    | 1367 | C    |
| 2   | L5    | 1379 | C    |
| 2   | L5    | 1381 | U    |
| 2   | L5    | 1387 | A    |
| 2   | L5    | 1394 | G    |
| 2   | L5    | 1397 | A    |
| 2   | L5    | 1398 | A    |
| 2   | L5    | 1399 | G    |
| 2   | L5    | 1403 | G    |
| 2   | L5    | 1404 | G    |
| 2   | L5    | 1407 | C    |
| 2   | L5    | 1409 | C    |
| 2   | L5    | 1410 | U    |
| 2   | L5    | 1411 | C    |
| 2   | L5    | 1414 | C    |
| 2   | L5    | 1417 | C    |
| 2   | L5    | 1420 | A    |
| 2   | L5    | 1437 | C    |
| 2   | L5    | 1439 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | L5    | 1442 | C    |
| 2   | L5    | 1443 | A    |
| 2   | L5    | 1444 | G    |
| 2   | L5    | 1446 | C    |
| 2   | L5    | 1447 | C    |
| 2   | L5    | 1452 | A    |
| 2   | L5    | 1457 | G    |
| 2   | L5    | 1465 | G    |
| 2   | L5    | 1482 | G    |
| 2   | L5    | 1483 | C    |
| 2   | L5    | 1497 | A    |
| 2   | L5    | 1498 | G    |
| 2   | L5    | 1502 | G    |
| 2   | L5    | 1504 | G    |
| 2   | L5    | 1516 | G    |
| 2   | L5    | 1517 | G    |
| 2   | L5    | 1523 | A    |
| 2   | L5    | 1524 | A2M  |
| 2   | L5    | 1525 | A    |
| 2   | L5    | 1534 | A2M  |
| 2   | L5    | 1536 | PSU  |
| 2   | L5    | 1537 | A    |
| 2   | L5    | 1543 | G    |
| 2   | L5    | 1547 | A    |
| 2   | L5    | 1549 | G    |
| 2   | L5    | 1562 | G    |
| 2   | L5    | 1564 | A    |
| 2   | L5    | 1566 | C    |
| 2   | L5    | 1574 | G    |
| 2   | L5    | 1578 | U    |
| 2   | L5    | 1591 | U    |
| 2   | L5    | 1592 | G    |
| 2   | L5    | 1596 | U    |
| 2   | L5    | 1597 | G    |
| 2   | L5    | 1612 | G    |
| 2   | L5    | 1624 | G    |
| 2   | L5    | 1625 | OMG  |
| 2   | L5    | 1626 | G    |
| 2   | L5    | 1631 | A    |
| 2   | L5    | 1633 | G    |
| 2   | L5    | 1634 | A    |
| 2   | L5    | 1638 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | L5    | 1640 | C    |
| 2   | L5    | 1641 | G    |
| 2   | L5    | 1654 | G    |
| 2   | L5    | 1661 | C    |
| 2   | L5    | 1676 | C    |
| 2   | L5    | 1677 | PSU  |
| 2   | L5    | 1678 | C    |
| 2   | L5    | 1691 | G    |
| 2   | L5    | 1699 | A    |
| 2   | L5    | 1700 | G    |
| 2   | L5    | 1701 | A    |
| 2   | L5    | 1702 | C    |
| 2   | L5    | 1704 | C    |
| 2   | L5    | 1705 | G    |
| 2   | L5    | 1717 | C    |
| 2   | L5    | 1718 | C    |
| 2   | L5    | 1719 | A    |
| 2   | L5    | 1731 | C    |
| 2   | L5    | 1734 | G    |
| 2   | L5    | 1742 | A    |
| 2   | L5    | 1753 | G    |
| 2   | L5    | 1755 | C    |
| 2   | L5    | 1757 | U    |
| 2   | L5    | 1758 | G    |
| 2   | L5    | 1761 | G    |
| 2   | L5    | 1762 | C    |
| 2   | L5    | 1763 | C    |
| 2   | L5    | 1764 | G    |
| 2   | L5    | 1765 | A    |
| 2   | L5    | 1766 | A    |
| 2   | L5    | 1767 | A    |
| 2   | L5    | 1768 | C    |
| 2   | L5    | 1769 | G    |
| 2   | L5    | 1770 | A    |
| 2   | L5    | 1775 | A    |
| 2   | L5    | 1785 | C    |
| 2   | L5    | 1787 | A    |
| 2   | L5    | 1803 | G    |
| 2   | L5    | 1804 | A    |
| 2   | L5    | 1806 | G    |
| 2   | L5    | 1810 | G    |
| 2   | L5    | 1821 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | L5    | 1822 | U    |
| 2   | L5    | 1836 | G    |
| 2   | L5    | 1837 | A    |
| 2   | L5    | 1842 | G    |
| 2   | L5    | 1855 | G    |
| 2   | L5    | 1869 | G    |
| 2   | L5    | 1882 | U    |
| 2   | L5    | 1897 | A    |
| 2   | L5    | 1916 | G    |
| 2   | L5    | 1917 | A    |
| 2   | L5    | 1918 | U    |
| 2   | L5    | 1919 | G    |
| 2   | L5    | 1920 | C    |
| 2   | L5    | 1921 | C    |
| 2   | L5    | 1922 | G    |
| 2   | L5    | 1925 | G    |
| 2   | L5    | 1931 | C    |
| 2   | L5    | 1932 | A    |
| 2   | L5    | 1940 | G    |
| 2   | L5    | 1948 | G    |
| 2   | L5    | 1951 | G    |
| 2   | L5    | 1961 | G    |
| 2   | L5    | 1962 | A    |
| 2   | L5    | 1965 | G    |
| 2   | L5    | 1975 | G    |
| 2   | L5    | 1978 | C    |
| 2   | L5    | 1980 | U    |
| 2   | L5    | 1981 | G    |
| 2   | L5    | 1983 | A    |
| 2   | L5    | 1984 | A    |
| 2   | L5    | 1985 | G    |
| 2   | L5    | 1986 | U    |
| 2   | L5    | 1991 | A    |
| 2   | L5    | 1993 | C    |
| 2   | L5    | 1997 | U    |
| 2   | L5    | 1998 | A    |
| 2   | L5    | 1999 | A    |
| 2   | L5    | 2001 | G    |
| 2   | L5    | 2002 | A    |
| 2   | L5    | 2003 | G    |
| 2   | L5    | 2004 | U    |
| 2   | L5    | 2011 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | L5    | 2017 | A    |
| 2   | L5    | 2018 | C    |
| 2   | L5    | 2024 | G    |
| 2   | L5    | 2025 | A    |
| 2   | L5    | 2026 | A    |
| 2   | L5    | 2046 | G    |
| 2   | L5    | 2048 | U    |
| 2   | L5    | 2052 | G    |
| 2   | L5    | 2055 | G    |
| 2   | L5    | 2056 | G    |
| 2   | L5    | 2069 | A    |
| 2   | L5    | 2084 | C    |
| 2   | L5    | 2085 | G    |
| 2   | L5    | 2092 | G    |
| 2   | L5    | 2093 | A    |
| 2   | L5    | 2094 | G    |
| 2   | L5    | 2095 | A    |
| 2   | L5    | 2096 | G    |
| 2   | L5    | 2097 | U    |
| 2   | L5    | 2098 | G    |
| 2   | L5    | 2099 | G    |
| 2   | L5    | 2101 | C    |
| 2   | L5    | 2102 | G    |
| 2   | L5    | 2107 | C    |
| 2   | L5    | 2110 | C    |
| 2   | L5    | 2111 | G    |
| 2   | L5    | 2112 | G    |
| 2   | L5    | 2250 | C    |
| 2   | L5    | 2252 | G    |
| 2   | L5    | 2256 | C    |
| 2   | L5    | 2258 | C    |
| 2   | L5    | 2261 | G    |
| 2   | L5    | 2268 | A    |
| 2   | L5    | 2289 | C    |
| 2   | L5    | 2300 | A    |
| 2   | L5    | 2301 | G    |
| 2   | L5    | 2306 | G    |
| 2   | L5    | 2313 | A    |
| 2   | L5    | 2316 | G    |
| 2   | L5    | 2331 | G    |
| 2   | L5    | 2333 | G    |
| 2   | L5    | 2348 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | L5    | 2349 | A    |
| 2   | L5    | 2351 | OMC  |
| 2   | L5    | 2360 | A    |
| 2   | L5    | 2395 | A    |
| 2   | L5    | 2396 | A    |
| 2   | L5    | 2397 | G    |
| 2   | L5    | 2410 | C    |
| 2   | L5    | 2417 | A    |
| 2   | L5    | 2422 | OMC  |
| 2   | L5    | 2425 | U    |
| 2   | L5    | 2453 | A    |
| 2   | L5    | 2463 | G    |
| 2   | L5    | 2464 | C    |
| 2   | L5    | 2465 | C    |
| 2   | L5    | 2469 | C    |
| 2   | L5    | 2471 | G    |
| 2   | L5    | 2474 | G    |
| 2   | L5    | 2475 | G    |
| 2   | L5    | 2478 | C    |
| 2   | L5    | 2479 | G    |
| 2   | L5    | 2483 | G    |
| 2   | L5    | 2484 | A    |
| 2   | L5    | 2485 | U    |
| 2   | L5    | 2487 | G    |
| 2   | L5    | 2488 | C    |
| 2   | L5    | 2489 | C    |
| 2   | L5    | 2491 | C    |
| 2   | L5    | 2494 | U    |
| 2   | L5    | 2504 | C    |
| 2   | L5    | 2505 | C    |
| 2   | L5    | 2506 | G    |
| 2   | L5    | 2507 | A    |
| 2   | L5    | 2511 | A    |
| 2   | L5    | 2513 | A    |
| 2   | L5    | 2518 | G    |
| 2   | L5    | 2519 | U    |
| 2   | L5    | 2529 | A    |
| 2   | L5    | 2537 | A    |
| 2   | L5    | 2544 | G    |
| 2   | L5    | 2546 | G    |
| 2   | L5    | 2547 | G    |
| 2   | L5    | 2554 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | L5    | 2555 | G    |
| 2   | L5    | 2556 | G    |
| 2   | L5    | 2560 | C    |
| 2   | L5    | 2565 | A    |
| 2   | L5    | 2567 | G    |
| 2   | L5    | 2573 | A    |
| 2   | L5    | 2581 | A    |
| 2   | L5    | 2583 | C    |
| 2   | L5    | 2586 | G    |
| 2   | L5    | 2587 | A    |
| 2   | L5    | 2589 | C    |
| 2   | L5    | 2602 | G    |
| 2   | L5    | 2627 | C    |
| 2   | L5    | 2653 | C    |
| 2   | L5    | 2662 | G    |
| 2   | L5    | 2669 | C    |
| 2   | L5    | 2673 | G    |
| 2   | L5    | 2676 | A    |
| 2   | L5    | 2686 | G    |
| 2   | L5    | 2687 | U    |
| 2   | L5    | 2694 | G    |
| 2   | L5    | 2695 | A    |
| 2   | L5    | 2696 | A    |
| 2   | L5    | 2702 | C    |
| 2   | L5    | 2706 | G    |
| 2   | L5    | 2707 | U    |
| 2   | L5    | 2708 | U    |
| 2   | L5    | 2709 | C    |
| 2   | L5    | 2710 | C    |
| 2   | L5    | 2711 | G    |
| 2   | L5    | 2712 | G    |
| 2   | L5    | 2719 | C    |
| 2   | L5    | 2721 | G    |
| 2   | L5    | 2724 | G    |
| 2   | L5    | 2726 | G    |
| 2   | L5    | 2739 | C    |
| 2   | L5    | 2742 | G    |
| 2   | L5    | 2743 | A    |
| 2   | L5    | 2754 | G    |
| 2   | L5    | 2759 | G    |
| 2   | L5    | 2761 | U    |
| 2   | L5    | 2763 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | L5    | 2769 | U    |
| 2   | L5    | 2770 | C    |
| 2   | L5    | 2788 | U    |
| 2   | L5    | 2790 | U    |
| 2   | L5    | 2794 | C    |
| 2   | L5    | 2799 | G    |
| 2   | L5    | 2806 | A    |
| 2   | L5    | 2814 | C    |
| 2   | L5    | 2826 | U    |
| 2   | L5    | 2827 | G    |
| 2   | L5    | 2829 | U    |
| 2   | L5    | 2833 | A    |
| 2   | L5    | 2835 | A    |
| 2   | L5    | 2842 | G    |
| 2   | L5    | 2855 | G    |
| 2   | L5    | 2877 | G    |
| 2   | L5    | 2895 | A    |
| 2   | L5    | 2899 | C    |
| 2   | L5    | 2900 | U    |
| 2   | L5    | 2902 | G    |
| 2   | L5    | 2903 | G    |
| 2   | L5    | 2904 | U    |
| 2   | L5    | 2905 | C    |
| 2   | L5    | 2907 | G    |
| 2   | L5    | 2908 | U    |
| 2   | L5    | 3590 | G    |
| 2   | L5    | 3591 | C    |
| 2   | L5    | 3594 | C    |
| 2   | L5    | 3595 | U    |
| 2   | L5    | 3596 | A    |
| 2   | L5    | 3597 | G    |
| 2   | L5    | 3604 | A    |
| 2   | L5    | 3605 | C    |
| 2   | L5    | 3615 | G    |
| 2   | L5    | 3626 | G    |
| 2   | L5    | 3630 | A    |
| 2   | L5    | 3635 | A    |
| 2   | L5    | 3644 | U    |
| 2   | L5    | 3646 | A    |
| 2   | L5    | 3648 | A    |
| 2   | L5    | 3652 | A    |
| 2   | L5    | 3662 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | L5    | 3664 | G    |
| 2   | L5    | 3673 | C    |
| 2   | L5    | 3674 | G    |
| 2   | L5    | 3701 | OMC  |
| 2   | L5    | 3710 | G    |
| 2   | L5    | 3711 | A    |
| 2   | L5    | 3713 | U    |
| 2   | L5    | 3726 | A    |
| 2   | L5    | 3727 | A    |
| 2   | L5    | 3748 | A    |
| 2   | L5    | 3753 | G    |
| 2   | L5    | 3754 | G    |
| 2   | L5    | 3760 | A    |
| 2   | L5    | 3764 | U    |
| 2   | L5    | 3770 | U    |
| 2   | L5    | 3774 | A    |
| 2   | L5    | 3775 | A    |
| 2   | L5    | 3776 | G    |
| 2   | L5    | 3777 | G    |
| 2   | L5    | 3778 | U    |
| 2   | L5    | 3784 | A    |
| 2   | L5    | 3785 | A2M  |
| 2   | L5    | 3786 | U    |
| 2   | L5    | 3791 | C    |
| 2   | L5    | 3792 | OMG  |
| 2   | L5    | 3811 | G    |
| 2   | L5    | 3812 | C    |
| 2   | L5    | 3817 | A    |
| 2   | L5    | 3819 | G    |
| 2   | L5    | 3824 | A    |
| 2   | L5    | 3840 | U    |
| 2   | L5    | 3876 | A    |
| 2   | L5    | 3877 | A    |
| 2   | L5    | 3878 | C    |
| 2   | L5    | 3879 | G    |
| 2   | L5    | 3885 | G    |
| 2   | L5    | 3887 | OMC  |
| 2   | L5    | 3892 | U    |
| 2   | L5    | 3897 | G    |
| 2   | L5    | 3899 | OMG  |
| 2   | L5    | 3901 | A    |
| 2   | L5    | 3906 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | L5    | 3907 | G    |
| 2   | L5    | 3908 | A    |
| 2   | L5    | 3915 | U    |
| 2   | L5    | 3923 | A    |
| 2   | L5    | 3938 | G    |
| 2   | L5    | 3939 | G    |
| 2   | L5    | 3942 | A    |
| 2   | L5    | 3943 | A    |
| 2   | L5    | 3945 | A    |
| 2   | L5    | 3946 | G    |
| 2   | L5    | 3947 | A    |
| 2   | L5    | 3949 | A    |
| 2   | L5    | 3950 | U    |
| 2   | L5    | 3951 | G    |
| 2   | L5    | 3953 | G    |
| 2   | L5    | 4057 | C    |
| 2   | L5    | 4058 | U    |
| 2   | L5    | 4059 | C    |
| 2   | L5    | 4061 | G    |
| 2   | L5    | 4062 | A    |
| 2   | L5    | 4064 | C    |
| 2   | L5    | 4065 | G    |
| 2   | L5    | 4068 | U    |
| 2   | L5    | 4076 | G    |
| 2   | L5    | 4088 | C    |
| 2   | L5    | 4095 | G    |
| 2   | L5    | 4097 | G    |
| 2   | L5    | 4098 | A    |
| 2   | L5    | 4099 | G    |
| 2   | L5    | 4101 | C    |
| 2   | L5    | 4104 | G    |
| 2   | L5    | 4108 | G    |
| 2   | L5    | 4111 | U    |
| 2   | L5    | 4112 | C    |
| 2   | L5    | 4114 | C    |
| 2   | L5    | 4115 | G    |
| 2   | L5    | 4116 | C    |
| 2   | L5    | 4119 | C    |
| 2   | L5    | 4122 | G    |
| 2   | L5    | 4127 | A    |
| 2   | L5    | 4133 | C    |
| 2   | L5    | 4141 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | L5    | 4142 | C    |
| 2   | L5    | 4143 | G    |
| 2   | L5    | 4144 | C    |
| 2   | L5    | 4146 | G    |
| 2   | L5    | 4162 | C    |
| 2   | L5    | 4163 | U    |
| 2   | L5    | 4170 | A    |
| 2   | L5    | 4183 | G    |
| 2   | L5    | 4184 | G    |
| 2   | L5    | 4191 | G    |
| 2   | L5    | 4203 | A    |
| 2   | L5    | 4212 | A    |
| 2   | L5    | 4213 | A    |
| 2   | L5    | 4220 | 6MZ  |
| 2   | L5    | 4222 | G    |
| 2   | L5    | 4225 | G    |
| 2   | L5    | 4229 | U    |
| 2   | L5    | 4232 | U    |
| 2   | L5    | 4233 | A    |
| 2   | L5    | 4234 | A    |
| 2   | L5    | 4241 | C    |
| 2   | L5    | 4251 | A    |
| 2   | L5    | 4254 | G    |
| 2   | L5    | 4258 | C    |
| 2   | L5    | 4265 | U    |
| 2   | L5    | 4273 | A    |
| 2   | L5    | 4280 | A    |
| 2   | L5    | 4290 | U    |
| 2   | L5    | 4291 | G    |
| 2   | L5    | 4295 | U    |
| 2   | L5    | 4304 | A    |
| 2   | L5    | 4305 | G    |
| 2   | L5    | 4306 | OMU  |
| 2   | L5    | 4314 | C    |
| 2   | L5    | 4319 | C    |
| 2   | L5    | 4326 | G    |
| 2   | L5    | 4329 | G    |
| 2   | L5    | 4330 | G    |
| 2   | L5    | 4332 | C    |
| 2   | L5    | 4349 | C    |
| 2   | L5    | 4350 | C    |
| 2   | L5    | 4354 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | L5    | 4373 | G    |
| 2   | L5    | 4375 | C    |
| 2   | L5    | 4377 | G    |
| 2   | L5    | 4378 | A    |
| 2   | L5    | 4379 | A    |
| 2   | L5    | 4387 | C    |
| 2   | L5    | 4391 | G    |
| 2   | L5    | 4393 | G    |
| 2   | L5    | 4394 | A    |
| 2   | L5    | 4410 | G    |
| 2   | L5    | 4420 | U    |
| 2   | L5    | 4421 | C    |
| 2   | L5    | 4422 | A    |
| 2   | L5    | 4436 | U    |
| 2   | L5    | 4437 | U    |
| 2   | L5    | 4444 | C    |
| 2   | L5    | 4447 | 5MC  |
| 2   | L5    | 4448 | G    |
| 2   | L5    | 4449 | A    |
| 2   | L5    | 4464 | A    |
| 2   | L5    | 4466 | C    |
| 2   | L5    | 4475 | G    |
| 2   | L5    | 4488 | A    |
| 2   | L5    | 4500 | PSU  |
| 2   | L5    | 4512 | U    |
| 2   | L5    | 4513 | A    |
| 2   | L5    | 4518 | A    |
| 2   | L5    | 4519 | C    |
| 2   | L5    | 4524 | G    |
| 2   | L5    | 4528 | G    |
| 2   | L5    | 4545 | G    |
| 2   | L5    | 4548 | A    |
| 2   | L5    | 4549 | G    |
| 2   | L5    | 4557 | U    |
| 2   | L5    | 4560 | C    |
| 2   | L5    | 4567 | G    |
| 2   | L5    | 4570 | G    |
| 2   | L5    | 4575 | G    |
| 2   | L5    | 4581 | G    |
| 2   | L5    | 4584 | A    |
| 2   | L5    | 4589 | A    |
| 2   | L5    | 4590 | A2M  |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | L5    | 4601 | U    |
| 2   | L5    | 4608 | G    |
| 2   | L5    | 4617 | G    |
| 2   | L5    | 4618 | OMG  |
| 2   | L5    | 4635 | A    |
| 2   | L5    | 4636 | PSU  |
| 2   | L5    | 4637 | OMG  |
| 2   | L5    | 4652 | G    |
| 2   | L5    | 4656 | A    |
| 2   | L5    | 4670 | C    |
| 2   | L5    | 4672 | A    |
| 2   | L5    | 4678 | G    |
| 2   | L5    | 4687 | A    |
| 2   | L5    | 4694 | G    |
| 2   | L5    | 4695 | C    |
| 2   | L5    | 4700 | A    |
| 2   | L5    | 4708 | A    |
| 2   | L5    | 4709 | U    |
| 2   | L5    | 4719 | G    |
| 2   | L5    | 4733 | C    |
| 2   | L5    | 4734 | A    |
| 2   | L5    | 4740 | G    |
| 2   | L5    | 4741 | C    |
| 2   | L5    | 4742 | G    |
| 2   | L5    | 4745 | G    |
| 2   | L5    | 4750 | G    |
| 2   | L5    | 4754 | G    |
| 2   | L5    | 4757 | C    |
| 2   | L5    | 4759 | C    |
| 2   | L5    | 4761 | G    |
| 2   | L5    | 4765 | G    |
| 2   | L5    | 4771 | C    |
| 2   | L5    | 4772 | C    |
| 2   | L5    | 4775 | C    |
| 2   | L5    | 4859 | C    |
| 2   | L5    | 4862 | G    |
| 2   | L5    | 4865 | C    |
| 2   | L5    | 4870 | G    |
| 2   | L5    | 4871 | C    |
| 2   | L5    | 4875 | G    |
| 2   | L5    | 4881 | U    |
| 2   | L5    | 4882 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | L5    | 4883 | C    |
| 2   | L5    | 4887 | C    |
| 2   | L5    | 4889 | G    |
| 2   | L5    | 4895 | C    |
| 2   | L5    | 4896 | G    |
| 2   | L5    | 4897 | G    |
| 2   | L5    | 4899 | G    |
| 2   | L5    | 4900 | C    |
| 2   | L5    | 4901 | G    |
| 2   | L5    | 4909 | A    |
| 2   | L5    | 4910 | G    |
| 2   | L5    | 4911 | A    |
| 2   | L5    | 4912 | G    |
| 2   | L5    | 4913 | G    |
| 2   | L5    | 4914 | C    |
| 2   | L5    | 4922 | C    |
| 2   | L5    | 4925 | U    |
| 2   | L5    | 4927 | G    |
| 2   | L5    | 4928 | C    |
| 2   | L5    | 4934 | A    |
| 2   | L5    | 4937 | C    |
| 2   | L5    | 4941 | G    |
| 2   | L5    | 4943 | A    |
| 2   | L5    | 4944 | C    |
| 2   | L5    | 4951 | G    |
| 2   | L5    | 4960 | G    |
| 2   | L5    | 4968 | A    |
| 2   | L5    | 4975 | G    |
| 2   | L5    | 4976 | U    |
| 2   | L5    | 4985 | U    |
| 2   | L5    | 4988 | U    |
| 2   | L5    | 4989 | U    |
| 2   | L5    | 4990 | C    |
| 2   | L5    | 4991 | U    |
| 2   | L5    | 5006 | U    |
| 2   | L5    | 5013 | C    |
| 2   | L5    | 5014 | A    |
| 2   | L5    | 5017 | G    |
| 2   | L5    | 5022 | U    |
| 2   | L5    | 5024 | C    |
| 2   | L5    | 5027 | C    |
| 2   | L5    | 5028 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | L5    | 5030 | U    |
| 2   | L5    | 5032 | C    |
| 2   | L5    | 5034 | A    |
| 2   | L5    | 5041 | G    |
| 2   | L5    | 5048 | A    |
| 2   | L5    | 5050 | C    |
| 2   | L5    | 5054 | C    |
| 2   | L5    | 5055 | G    |
| 2   | L5    | 5061 | A    |
| 2   | L5    | 5062 | G    |
| 2   | L5    | 5069 | U    |
| 3   | L7    | 7    | G    |
| 3   | L7    | 24   | C    |
| 3   | L7    | 33   | U    |
| 3   | L7    | 38   | U    |
| 3   | L7    | 53   | U    |
| 3   | L7    | 54   | A    |
| 3   | L7    | 64   | G    |
| 3   | L7    | 76   | U    |
| 3   | L7    | 89   | G    |
| 3   | L7    | 97   | G    |
| 3   | L7    | 100  | A    |
| 3   | L7    | 110  | G    |
| 3   | L7    | 120  | U    |
| 4   | L8    | 34   | U    |
| 4   | L8    | 35   | C    |
| 4   | L8    | 51   | U    |
| 4   | L8    | 59   | A    |
| 4   | L8    | 62   | A    |
| 4   | L8    | 63   | U    |
| 4   | L8    | 75   | OMG  |
| 4   | L8    | 80   | A    |
| 4   | L8    | 82   | A    |
| 4   | L8    | 84   | A    |
| 4   | L8    | 85   | U    |
| 4   | L8    | 86   | U    |
| 4   | L8    | 87   | G    |
| 4   | L8    | 94   | G    |
| 4   | L8    | 103  | A    |
| 4   | L8    | 105  | C    |
| 4   | L8    | 111  | U    |
| 4   | L8    | 114  | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 4   | L8    | 123 | U    |
| 4   | L8    | 124 | U    |
| 4   | L8    | 125 | C    |
| 4   | L8    | 126 | C    |
| 4   | L8    | 127 | U    |
| 4   | L8    | 150 | C    |
| 4   | L8    | 153 | C    |
| 82  | S2    | 4   | C    |
| 82  | S2    | 13  | C    |
| 82  | S2    | 14  | C    |
| 82  | S2    | 25  | A    |
| 82  | S2    | 33  | G    |
| 82  | S2    | 37  | C    |
| 82  | S2    | 41  | G    |
| 82  | S2    | 42  | A    |
| 82  | S2    | 44  | U    |
| 82  | S2    | 45  | A    |
| 82  | S2    | 46  | A    |
| 82  | S2    | 56  | G    |
| 82  | S2    | 58  | C    |
| 82  | S2    | 62  | G    |
| 82  | S2    | 65  | C    |
| 82  | S2    | 67  | C    |
| 82  | S2    | 68  | A    |
| 82  | S2    | 72  | C    |
| 82  | S2    | 73  | C    |
| 82  | S2    | 74  | G    |
| 82  | S2    | 76  | U    |
| 82  | S2    | 99  | A2M  |
| 82  | S2    | 103 | A    |
| 82  | S2    | 113 | G    |
| 82  | S2    | 115 | U    |
| 82  | S2    | 126 | G    |
| 82  | S2    | 128 | U    |
| 82  | S2    | 130 | G    |
| 82  | S2    | 143 | U    |
| 82  | S2    | 149 | A    |
| 82  | S2    | 158 | A    |
| 82  | S2    | 160 | U    |
| 82  | S2    | 162 | C    |
| 82  | S2    | 170 | A    |
| 82  | S2    | 171 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 82  | S2    | 175 | A    |
| 82  | S2    | 179 | C    |
| 82  | S2    | 190 | G    |
| 82  | S2    | 191 | A    |
| 82  | S2    | 196 | C    |
| 82  | S2    | 197 | U    |
| 82  | S2    | 198 | U    |
| 82  | S2    | 200 | G    |
| 82  | S2    | 203 | G    |
| 82  | S2    | 204 | G    |
| 82  | S2    | 206 | G    |
| 82  | S2    | 207 | G    |
| 82  | S2    | 208 | G    |
| 82  | S2    | 209 | A    |
| 82  | S2    | 213 | G    |
| 82  | S2    | 214 | U    |
| 82  | S2    | 220 | U    |
| 82  | S2    | 291 | G    |
| 82  | S2    | 292 | A    |
| 82  | S2    | 295 | C    |
| 82  | S2    | 299 | A    |
| 82  | S2    | 302 | A    |
| 82  | S2    | 305 | U    |
| 82  | S2    | 306 | C    |
| 82  | S2    | 307 | G    |
| 82  | S2    | 308 | G    |
| 82  | S2    | 309 | G    |
| 82  | S2    | 311 | C    |
| 82  | S2    | 312 | G    |
| 82  | S2    | 313 | A    |
| 82  | S2    | 318 | A    |
| 82  | S2    | 319 | C    |
| 82  | S2    | 320 | G    |
| 82  | S2    | 323 | C    |
| 82  | S2    | 324 | C    |
| 82  | S2    | 325 | C    |
| 82  | S2    | 326 | C    |
| 82  | S2    | 327 | G    |
| 82  | S2    | 328 | U    |
| 82  | S2    | 329 | G    |
| 82  | S2    | 332 | G    |
| 82  | S2    | 339 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 82  | S2    | 340 | C    |
| 82  | S2    | 347 | G    |
| 82  | S2    | 351 | G    |
| 82  | S2    | 360 | A    |
| 82  | S2    | 362 | C    |
| 82  | S2    | 364 | A    |
| 82  | S2    | 368 | U    |
| 82  | S2    | 370 | G    |
| 82  | S2    | 385 | G    |
| 82  | S2    | 386 | C    |
| 82  | S2    | 398 | A    |
| 82  | S2    | 407 | G    |
| 82  | S2    | 408 | A    |
| 82  | S2    | 409 | C    |
| 82  | S2    | 426 | A    |
| 82  | S2    | 438 | G    |
| 82  | S2    | 448 | A    |
| 82  | S2    | 449 | A    |
| 82  | S2    | 450 | C    |
| 82  | S2    | 452 | G    |
| 82  | S2    | 464 | A    |
| 82  | S2    | 465 | A    |
| 82  | S2    | 471 | G    |
| 82  | S2    | 472 | C    |
| 82  | S2    | 473 | A    |
| 82  | S2    | 474 | G    |
| 82  | S2    | 476 | A    |
| 82  | S2    | 482 | G    |
| 82  | S2    | 487 | U    |
| 82  | S2    | 488 | U    |
| 82  | S2    | 492 | C    |
| 82  | S2    | 493 | A    |
| 82  | S2    | 502 | C    |
| 82  | S2    | 508 | A    |
| 82  | S2    | 517 | OMC  |
| 82  | S2    | 531 | A    |
| 82  | S2    | 532 | C    |
| 82  | S2    | 536 | A    |
| 82  | S2    | 537 | C    |
| 82  | S2    | 540 | U    |
| 82  | S2    | 542 | U    |
| 82  | S2    | 544 | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 82  | S2    | 546 | G    |
| 82  | S2    | 547 | G    |
| 82  | S2    | 557 | U    |
| 82  | S2    | 558 | G    |
| 82  | S2    | 563 | G    |
| 82  | S2    | 564 | A    |
| 82  | S2    | 574 | A    |
| 82  | S2    | 576 | A2M  |
| 82  | S2    | 583 | A    |
| 82  | S2    | 587 | A    |
| 82  | S2    | 589 | G    |
| 82  | S2    | 590 | A    |
| 82  | S2    | 591 | U    |
| 82  | S2    | 593 | C    |
| 82  | S2    | 604 | A    |
| 82  | S2    | 606 | G    |
| 82  | S2    | 608 | C    |
| 82  | S2    | 611 | G    |
| 82  | S2    | 614 | C    |
| 82  | S2    | 617 | G    |
| 82  | S2    | 623 | G    |
| 82  | S2    | 628 | A    |
| 82  | S2    | 631 | U    |
| 82  | S2    | 638 | C    |
| 82  | S2    | 643 | A    |
| 82  | S2    | 644 | OMG  |
| 82  | S2    | 660 | C    |
| 82  | S2    | 664 | A    |
| 82  | S2    | 668 | A2M  |
| 82  | S2    | 669 | A    |
| 82  | S2    | 671 | A    |
| 82  | S2    | 672 | A    |
| 82  | S2    | 673 | G    |
| 82  | S2    | 678 | U    |
| 82  | S2    | 683 | OMG  |
| 82  | S2    | 684 | G    |
| 82  | S2    | 688 | U    |
| 82  | S2    | 689 | U    |
| 82  | S2    | 692 | G    |
| 82  | S2    | 694 | G    |
| 82  | S2    | 696 | G    |
| 82  | S2    | 697 | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 82  | S2    | 698 | G    |
| 82  | S2    | 732 | U    |
| 82  | S2    | 733 | C    |
| 82  | S2    | 736 | C    |
| 82  | S2    | 737 | G    |
| 82  | S2    | 738 | C    |
| 82  | S2    | 748 | C    |
| 82  | S2    | 749 | U    |
| 82  | S2    | 750 | C    |
| 82  | S2    | 751 | G    |
| 82  | S2    | 752 | G    |
| 82  | S2    | 753 | C    |
| 82  | S2    | 787 | G    |
| 82  | S2    | 788 | G    |
| 82  | S2    | 791 | C    |
| 82  | S2    | 792 | C    |
| 82  | S2    | 793 | G    |
| 82  | S2    | 798 | G    |
| 82  | S2    | 799 | OMU  |
| 82  | S2    | 801 | PSU  |
| 82  | S2    | 819 | G    |
| 82  | S2    | 821 | G    |
| 82  | S2    | 822 | U    |
| 82  | S2    | 823 | U    |
| 82  | S2    | 824 | C    |
| 82  | S2    | 830 | A    |
| 82  | S2    | 834 | C    |
| 82  | S2    | 835 | C    |
| 82  | S2    | 836 | G    |
| 82  | S2    | 837 | A    |
| 82  | S2    | 838 | G    |
| 82  | S2    | 839 | C    |
| 82  | S2    | 842 | C    |
| 82  | S2    | 847 | A    |
| 82  | S2    | 867 | OMG  |
| 82  | S2    | 870 | A    |
| 82  | S2    | 874 | G    |
| 82  | S2    | 877 | C    |
| 82  | S2    | 878 | G    |
| 82  | S2    | 880 | G    |
| 82  | S2    | 888 | U    |
| 82  | S2    | 889 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 82  | S2    | 891  | G    |
| 82  | S2    | 893  | U    |
| 82  | S2    | 896  | U    |
| 82  | S2    | 897  | U    |
| 82  | S2    | 898  | U    |
| 82  | S2    | 899  | U    |
| 82  | S2    | 900  | C    |
| 82  | S2    | 901  | G    |
| 82  | S2    | 903  | A    |
| 82  | S2    | 904  | A    |
| 82  | S2    | 913  | A    |
| 82  | S2    | 919  | A    |
| 82  | S2    | 920  | A    |
| 82  | S2    | 933  | G    |
| 82  | S2    | 934  | G    |
| 82  | S2    | 943  | U    |
| 82  | S2    | 950  | C    |
| 82  | S2    | 955  | A    |
| 82  | S2    | 956  | G    |
| 82  | S2    | 969  | U    |
| 82  | S2    | 970  | G    |
| 82  | S2    | 971  | G    |
| 82  | S2    | 972  | A    |
| 82  | S2    | 985  | G    |
| 82  | S2    | 990  | A    |
| 82  | S2    | 992  | A    |
| 82  | S2    | 997  | A    |
| 82  | S2    | 999  | G    |
| 82  | S2    | 1002 | U    |
| 82  | S2    | 1008 | A    |
| 82  | S2    | 1017 | U    |
| 82  | S2    | 1023 | A    |
| 82  | S2    | 1027 | A    |
| 82  | S2    | 1045 | PSU  |
| 82  | S2    | 1061 | U    |
| 82  | S2    | 1062 | A    |
| 82  | S2    | 1083 | A    |
| 82  | S2    | 1085 | C    |
| 82  | S2    | 1087 | A    |
| 82  | S2    | 1099 | G    |
| 82  | S2    | 1109 | C    |
| 82  | S2    | 1113 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 82  | S2    | 1116 | C    |
| 82  | S2    | 1121 | G    |
| 82  | S2    | 1126 | G    |
| 82  | S2    | 1133 | A    |
| 82  | S2    | 1138 | C    |
| 82  | S2    | 1148 | A    |
| 82  | S2    | 1150 | A    |
| 82  | S2    | 1153 | C    |
| 82  | S2    | 1154 | U    |
| 82  | S2    | 1166 | G    |
| 82  | S2    | 1170 | A    |
| 82  | S2    | 1172 | U    |
| 82  | S2    | 1195 | A    |
| 82  | S2    | 1200 | A    |
| 82  | S2    | 1207 | G    |
| 82  | S2    | 1208 | A    |
| 82  | S2    | 1215 | C    |
| 82  | S2    | 1217 | A    |
| 82  | S2    | 1220 | A    |
| 82  | S2    | 1224 | G    |
| 82  | S2    | 1227 | G    |
| 82  | S2    | 1242 | U    |
| 82  | S2    | 1243 | U    |
| 82  | S2    | 1248 | B8N  |
| 82  | S2    | 1251 | A    |
| 82  | S2    | 1253 | A    |
| 82  | S2    | 1256 | G    |
| 82  | S2    | 1257 | G    |
| 82  | S2    | 1264 | C    |
| 82  | S2    | 1271 | C    |
| 82  | S2    | 1272 | OMC  |
| 82  | S2    | 1274 | G    |
| 82  | S2    | 1275 | G    |
| 82  | S2    | 1283 | C    |
| 82  | S2    | 1284 | A    |
| 82  | S2    | 1288 | OMU  |
| 82  | S2    | 1290 | G    |
| 82  | S2    | 1294 | G    |
| 82  | S2    | 1295 | A    |
| 82  | S2    | 1301 | A    |
| 82  | S2    | 1302 | G    |
| 82  | S2    | 1303 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 82  | S2    | 1304 | U    |
| 82  | S2    | 1308 | U    |
| 82  | S2    | 1315 | U    |
| 82  | S2    | 1333 | U    |
| 82  | S2    | 1342 | U    |
| 82  | S2    | 1357 | A    |
| 82  | S2    | 1358 | U    |
| 82  | S2    | 1371 | U    |
| 82  | S2    | 1376 | A    |
| 82  | S2    | 1378 | A    |
| 82  | S2    | 1382 | A    |
| 82  | S2    | 1396 | A    |
| 82  | S2    | 1402 | A    |
| 82  | S2    | 1406 | G    |
| 82  | S2    | 1413 | G    |
| 82  | S2    | 1414 | A    |
| 82  | S2    | 1418 | C    |
| 82  | S2    | 1419 | C    |
| 82  | S2    | 1420 | G    |
| 82  | S2    | 1421 | A    |
| 82  | S2    | 1422 | G    |
| 82  | S2    | 1423 | C    |
| 82  | S2    | 1428 | G    |
| 82  | S2    | 1433 | C    |
| 82  | S2    | 1435 | C    |
| 82  | S2    | 1437 | C    |
| 82  | S2    | 1438 | A    |
| 82  | S2    | 1439 | A    |
| 82  | S2    | 1442 | OMU  |
| 82  | S2    | 1449 | G    |
| 82  | S2    | 1454 | A    |
| 82  | S2    | 1463 | U    |
| 82  | S2    | 1466 | G    |
| 82  | S2    | 1489 | A    |
| 82  | S2    | 1490 | OMG  |
| 82  | S2    | 1494 | U    |
| 82  | S2    | 1495 | G    |
| 82  | S2    | 1497 | G    |
| 82  | S2    | 1498 | A    |
| 82  | S2    | 1507 | G    |
| 82  | S2    | 1521 | C    |
| 82  | S2    | 1522 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 82  | S2    | 1531 | A    |
| 82  | S2    | 1533 | A    |
| 82  | S2    | 1544 | C    |
| 82  | S2    | 1546 | G    |
| 82  | S2    | 1552 | G    |
| 82  | S2    | 1553 | C    |
| 82  | S2    | 1556 | A    |
| 82  | S2    | 1558 | C    |
| 82  | S2    | 1560 | U    |
| 82  | S2    | 1573 | G    |
| 82  | S2    | 1575 | G    |
| 82  | S2    | 1578 | U    |
| 82  | S2    | 1580 | A    |
| 82  | S2    | 1581 | C    |
| 82  | S2    | 1585 | U    |
| 82  | S2    | 1587 | G    |
| 82  | S2    | 1588 | A    |
| 82  | S2    | 1600 | G    |
| 82  | S2    | 1601 | A    |
| 82  | S2    | 1604 | G    |
| 82  | S2    | 1606 | G    |
| 82  | S2    | 1621 | U    |
| 82  | S2    | 1623 | A    |
| 82  | S2    | 1631 | U    |
| 82  | S2    | 1633 | A    |
| 82  | S2    | 1634 | A    |
| 82  | S2    | 1637 | A    |
| 82  | S2    | 1638 | G    |
| 82  | S2    | 1648 | G    |
| 82  | S2    | 1649 | U    |
| 82  | S2    | 1654 | G    |
| 82  | S2    | 1663 | A    |
| 82  | S2    | 1665 | G    |
| 82  | S2    | 1680 | G    |
| 82  | S2    | 1683 | C    |
| 82  | S2    | 1695 | A    |
| 82  | S2    | 1698 | C    |
| 82  | S2    | 1699 | A    |
| 82  | S2    | 1715 | A    |
| 82  | S2    | 1721 | U    |
| 82  | S2    | 1722 | G    |
| 82  | S2    | 1744 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 82  | S2    | 1745 | A    |
| 82  | S2    | 1752 | C    |
| 82  | S2    | 1753 | C    |
| 82  | S2    | 1754 | G    |
| 82  | S2    | 1755 | C    |
| 82  | S2    | 1757 | G    |
| 82  | S2    | 1759 | G    |
| 82  | S2    | 1761 | U    |
| 82  | S2    | 1772 | C    |
| 82  | S2    | 1773 | C    |
| 82  | S2    | 1774 | C    |
| 82  | S2    | 1777 | G    |
| 82  | S2    | 1782 | G    |
| 82  | S2    | 1783 | C    |
| 82  | S2    | 1784 | G    |
| 82  | S2    | 1786 | U    |
| 82  | S2    | 1787 | G    |
| 82  | S2    | 1798 | C    |
| 82  | S2    | 1809 | A    |
| 82  | S2    | 1810 | U    |
| 82  | S2    | 1820 | G    |
| 82  | S2    | 1821 | U    |
| 82  | S2    | 1825 | A    |
| 82  | S2    | 1831 | A    |
| 82  | S2    | 1835 | A    |
| 82  | S2    | 1838 | U    |
| 82  | S2    | 1849 | G    |
| 82  | S2    | 1851 | MA6  |
| 82  | S2    | 1852 | C    |
| 82  | S2    | 1861 | G    |
| 82  | S2    | 1862 | G    |
| 82  | S2    | 1863 | A    |
| 82  | S2    | 1864 | U    |
| 82  | S2    | 1865 | C    |

All (19) RNA pucker outliers are listed below:

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | L5    | 406  | C    |
| 2   | L5    | 493  | G    |
| 2   | L5    | 914  | U    |
| 2   | L5    | 1082 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | L5    | 1633 | G    |
| 2   | L5    | 1703 | C    |
| 2   | L5    | 1977 | C    |
| 2   | L5    | 2416 | G    |
| 2   | L5    | 2675 | G    |
| 2   | L5    | 2760 | G    |
| 2   | L5    | 3673 | C    |
| 2   | L5    | 4447 | 5MC  |
| 2   | L5    | 4600 | G    |
| 2   | L5    | 4699 | U    |
| 2   | L5    | 4913 | G    |
| 82  | S2    | 291  | G    |
| 82  | S2    | 563  | G    |
| 82  | S2    | 688  | U    |
| 82  | S2    | 1781 | A    |

## 5.4 Non-standard residues in protein, DNA, RNA chains

178 non-standard protein/DNA/RNA residues are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mol | Type | Chain | Res  | Link | Bond lengths |      |             | Bond angles |      |             |
|-----|------|-------|------|------|--------------|------|-------------|-------------|------|-------------|
|     |      |       |      |      | Counts       | RMSZ | $\# Z  > 2$ | Counts      | RMSZ | $\# Z  > 2$ |
| 2   | PSU  | L5    | 4493 | 2    | 18,21,22     | 1.08 | 1 (5%)      | 21,30,33    | 1.91 | 4 (19%)     |
| 2   | OMC  | L5    | 2351 | 84,2 | 19,22,23     | 0.66 | 0           | 25,31,34    | 1.38 | 4 (16%)     |
| 82  | PSU  | S2    | 1244 | 82   | 18,21,22     | 1.12 | 2 (11%)     | 21,30,33    | 1.94 | 4 (19%)     |
| 2   | A2M  | L5    | 1524 | 2    | 18,25,26     | 1.26 | 1 (5%)      | 20,36,39    | 2.16 | 6 (30%)     |
| 2   | OMC  | L5    | 2824 | 2    | 19,22,23     | 0.57 | 0           | 25,31,34    | 0.70 | 1 (4%)      |
| 2   | OMG  | L5    | 3899 | 2    | 19,26,27     | 1.21 | 2 (10%)     | 21,38,41    | 0.81 | 1 (4%)      |
| 2   | 6MZ  | L5    | 4220 | 2    | 17,25,26     | 3.59 | 7 (41%)     | 15,36,39    | 2.87 | 4 (26%)     |
| 82  | OMG  | S2    | 683  | 82   | 19,26,27     | 1.22 | 2 (10%)     | 21,38,41    | 0.78 | 1 (4%)      |
| 82  | PSU  | S2    | 1081 | 82   | 18,21,22     | 1.08 | 2 (11%)     | 21,30,33    | 2.02 | 6 (28%)     |
| 2   | PSU  | L5    | 1862 | 2    | 18,21,22     | 1.11 | 1 (5%)      | 21,30,33    | 2.00 | 4 (19%)     |

| Mol | Type | Chain | Res  | Link  | Bond lengths |      |          | Bond angles |      |          |
|-----|------|-------|------|-------|--------------|------|----------|-------------|------|----------|
|     |      |       |      |       | Counts       | RMSZ | # Z  > 2 | Counts      | RMSZ | # Z  > 2 |
| 2   | OMG  | L5    | 4618 | 2     | 19,26,27     | 1.23 | 2 (10%)  | 21,38,41    | 0.77 | 0        |
| 2   | OMC  | L5    | 2861 | 2     | 19,22,23     | 0.61 | 0        | 25,31,34    | 0.91 | 1 (4%)   |
| 82  | A2M  | S2    | 1383 | 82    | 18,25,26     | 1.38 | 3 (16%)  | 20,36,39    | 2.33 | 8 (40%)  |
| 82  | A2M  | S2    | 468  | 82    | 18,25,26     | 1.28 | 2 (11%)  | 20,36,39    | 2.14 | 5 (25%)  |
| 2   | PSU  | L5    | 1860 | 2     | 18,21,22     | 1.09 | 1 (5%)   | 21,30,33    | 1.94 | 4 (19%)  |
| 2   | OMG  | L5    | 2424 | 2     | 19,26,27     | 1.20 | 2 (10%)  | 21,38,41    | 0.81 | 1 (4%)   |
| 2   | OMG  | L5    | 2364 | 84,2  | 19,26,27     | 1.18 | 2 (10%)  | 21,38,41    | 0.80 | 1 (4%)   |
| 2   | PSU  | L5    | 4576 | 2     | 18,21,22     | 1.09 | 1 (5%)   | 21,30,33    | 1.93 | 5 (23%)  |
| 82  | PSU  | S2    | 1174 | 82    | 18,21,22     | 1.07 | 2 (11%)  | 21,30,33    | 2.06 | 5 (23%)  |
| 82  | PSU  | S2    | 966  | 82,84 | 18,21,22     | 1.09 | 1 (5%)   | 21,30,33    | 1.99 | 5 (23%)  |
| 82  | PSU  | S2    | 801  | 82    | 18,21,22     | 1.08 | 1 (5%)   | 21,30,33    | 1.92 | 4 (19%)  |
| 4   | OMG  | L8    | 75   | 4     | 19,26,27     | 1.15 | 2 (10%)  | 21,38,41    | 0.84 | 1 (4%)   |
| 2   | PSU  | L5    | 1792 | 2     | 18,21,22     | 1.06 | 1 (5%)   | 21,30,33    | 1.96 | 4 (19%)  |
| 2   | OMG  | L5    | 4370 | 2     | 19,26,27     | 1.21 | 2 (10%)  | 21,38,41    | 0.77 | 1 (4%)   |
| 2   | PSU  | L5    | 4552 | 2     | 18,21,22     | 1.03 | 1 (5%)   | 21,30,33    | 1.99 | 4 (19%)  |
| 82  | OMC  | S2    | 517  | 82    | 19,22,23     | 0.52 | 0        | 25,31,34    | 0.61 | 0        |
| 2   | A2M  | L5    | 2363 | 84,2  | 18,25,26     | 1.42 | 2 (11%)  | 20,36,39    | 1.90 | 6 (30%)  |
| 2   | PSU  | L5    | 4296 | 2     | 18,21,22     | 1.13 | 2 (11%)  | 21,30,33    | 2.08 | 5 (23%)  |
| 2   | OMG  | L5    | 1522 | 2     | 19,26,27     | 1.19 | 2 (10%)  | 21,38,41    | 0.80 | 1 (4%)   |
| 2   | OMG  | L5    | 1625 | 2     | 19,26,27     | 1.23 | 2 (10%)  | 21,38,41    | 0.82 | 1 (4%)   |
| 2   | PSU  | L5    | 4312 | 2     | 18,21,22     | 1.08 | 1 (5%)   | 21,30,33    | 2.00 | 5 (23%)  |
| 82  | PSU  | S2    | 1046 | 82    | 18,21,22     | 1.07 | 1 (5%)   | 21,30,33    | 1.96 | 4 (19%)  |
| 82  | OMU  | S2    | 627  | 82    | 19,22,23     | 3.33 | 7 (36%)  | 25,31,34    | 1.86 | 5 (20%)  |
| 82  | OMG  | S2    | 867  | 82    | 19,26,27     | 1.24 | 2 (10%)  | 21,38,41    | 0.79 | 1 (4%)   |
| 82  | A2M  | S2    | 99   | 82,84 | 18,25,26     | 1.32 | 2 (11%)  | 20,36,39    | 1.92 | 6 (30%)  |
| 2   | OMG  | L5    | 4499 | 2     | 19,26,27     | 1.18 | 2 (10%)  | 21,38,41    | 0.84 | 1 (4%)   |
| 2   | PSU  | L5    | 4579 | 2     | 18,21,22     | 1.07 | 1 (5%)   | 21,30,33    | 2.05 | 5 (23%)  |
| 2   | OMG  | L5    | 1316 | 2     | 19,26,27     | 1.24 | 2 (10%)  | 21,38,41    | 0.77 | 1 (4%)   |
| 82  | PSU  | S2    | 93   | 82    | 18,21,22     | 1.12 | 1 (5%)   | 21,30,33    | 1.88 | 4 (19%)  |
| 2   | OMC  | L5    | 3869 | 2     | 19,22,23     | 0.57 | 0        | 25,31,34    | 0.68 | 0        |
| 82  | PSU  | S2    | 109  | 82    | 18,21,22     | 1.10 | 1 (5%)   | 21,30,33    | 2.04 | 5 (23%)  |
| 2   | PSU  | L5    | 3637 | 2     | 18,21,22     | 1.09 | 1 (5%)   | 21,30,33    | 1.91 | 4 (19%)  |
| 82  | OMU  | S2    | 1326 | 82    | 19,22,23     | 3.33 | 7 (36%)  | 25,31,34    | 1.83 | 5 (20%)  |
| 2   | PSU  | L5    | 4299 | 2     | 18,21,22     | 1.05 | 1 (5%)   | 21,30,33    | 1.94 | 4 (19%)  |
| 82  | OMG  | S2    | 1490 | 82    | 19,26,27     | 1.20 | 2 (10%)  | 21,38,41    | 0.69 | 0        |

| Mol | Type | Chain | Res  | Link  | Bond lengths |      |          | Bond angles |      |          |
|-----|------|-------|------|-------|--------------|------|----------|-------------|------|----------|
|     |      |       |      |       | Counts       | RMSZ | # Z  > 2 | Counts      | RMSZ | # Z  > 2 |
| 2   | OMC  | L5    | 4456 | 2     | 19,22,23     | 0.63 | 0        | 25,31,34    | 0.76 | 1 (4%)   |
| 2   | A2M  | L5    | 2787 | 2     | 18,25,26     | 1.22 | 2 (11%)  | 20,36,39    | 1.77 | 6 (30%)  |
| 82  | PSU  | S2    | 814  | 82    | 18,21,22     | 1.13 | 1 (5%)   | 21,30,33    | 1.97 | 4 (19%)  |
| 2   | A2M  | L5    | 1871 | 84,2  | 18,25,26     | 1.42 | 2 (11%)  | 20,36,39    | 2.24 | 5 (25%)  |
| 82  | PSU  | S2    | 681  | 82    | 18,21,22     | 1.08 | 1 (5%)   | 21,30,33    | 1.93 | 4 (19%)  |
| 82  | OMC  | S2    | 1391 | 82    | 19,22,23     | 0.55 | 0        | 25,31,34    | 0.69 | 0        |
| 82  | PSU  | S2    | 686  | 82    | 18,21,22     | 1.12 | 2 (11%)  | 21,30,33    | 2.01 | 5 (23%)  |
| 2   | PSU  | L5    | 4431 | 2     | 18,21,22     | 1.06 | 1 (5%)   | 21,30,33    | 2.07 | 5 (23%)  |
| 2   | PSU  | L5    | 2632 | 2     | 18,21,22     | 1.09 | 1 (5%)   | 21,30,33    | 1.84 | 4 (19%)  |
| 82  | A2M  | S2    | 27   | 82    | 18,25,26     | 1.32 | 2 (11%)  | 20,36,39    | 1.93 | 6 (30%)  |
| 2   | OMU  | L5    | 2837 | 2     | 19,22,23     | 3.33 | 7 (36%)  | 25,31,34    | 1.79 | 4 (16%)  |
| 2   | PSU  | L5    | 1781 | 2     | 18,21,22     | 1.05 | 1 (5%)   | 21,30,33    | 1.96 | 4 (19%)  |
| 2   | OMC  | L5    | 1340 | 2     | 19,22,23     | 0.57 | 0        | 25,31,34    | 0.75 | 1 (4%)   |
| 2   | PSU  | L5    | 5010 | 2     | 18,21,22     | 1.08 | 1 (5%)   | 21,30,33    | 2.05 | 4 (19%)  |
| 2   | PSU  | L5    | 3695 | 2     | 18,21,22     | 1.09 | 2 (11%)  | 21,30,33    | 1.96 | 6 (28%)  |
| 82  | OMU  | S2    | 428  | 82    | 19,22,23     | 3.38 | 7 (36%)  | 25,31,34    | 1.85 | 5 (20%)  |
| 82  | A2M  | S2    | 1031 | 82    | 18,25,26     | 1.33 | 2 (11%)  | 20,36,39    | 1.96 | 6 (30%)  |
| 2   | 5MC  | L5    | 4447 | 2     | 19,22,23     | 0.76 | 0        | 26,32,35    | 0.58 | 0        |
| 2   | OMC  | L5    | 3701 | 2     | 19,22,23     | 0.62 | 0        | 25,31,34    | 0.92 | 1 (4%)   |
| 82  | PSU  | S2    | 863  | 82    | 18,21,22     | 1.08 | 1 (5%)   | 21,30,33    | 1.96 | 4 (19%)  |
| 82  | OMG  | S2    | 601  | 82    | 19,26,27     | 1.16 | 2 (10%)  | 21,38,41    | 0.87 | 1 (4%)   |
| 2   | PSU  | L5    | 4973 | 2     | 18,21,22     | 1.14 | 1 (5%)   | 21,30,33    | 1.90 | 5 (23%)  |
| 2   | PSU  | L5    | 4972 | 2     | 18,21,22     | 1.09 | 1 (5%)   | 21,30,33    | 2.05 | 5 (23%)  |
| 2   | OMG  | L5    | 4392 | 2     | 19,26,27     | 1.20 | 2 (10%)  | 21,38,41    | 0.76 | 1 (4%)   |
| 2   | PSU  | L5    | 3853 | 84,2  | 18,21,22     | 1.04 | 1 (5%)   | 21,30,33    | 1.79 | 4 (19%)  |
| 2   | PSU  | L5    | 3844 | 2     | 18,21,22     | 1.08 | 1 (5%)   | 21,30,33    | 1.82 | 4 (19%)  |
| 2   | PSU  | L5    | 4636 | 2     | 18,21,22     | 1.13 | 1 (5%)   | 21,30,33    | 2.05 | 6 (28%)  |
| 2   | OMU  | L5    | 3925 | 2     | 19,22,23     | 3.32 | 7 (36%)  | 25,31,34    | 1.91 | 5 (20%)  |
| 82  | OMG  | S2    | 509  | 82    | 19,26,27     | 1.17 | 2 (10%)  | 21,38,41    | 0.81 | 1 (4%)   |
| 82  | OMU  | S2    | 172  | 82,84 | 19,22,23     | 3.39 | 7 (36%)  | 25,31,34    | 1.84 | 5 (20%)  |
| 2   | PSU  | L5    | 3822 | 2     | 18,21,22     | 1.10 | 3 (16%)  | 21,30,33    | 2.06 | 6 (28%)  |
| 2   | OMG  | L5    | 2876 | 2     | 19,26,27     | 1.27 | 3 (15%)  | 21,38,41    | 0.75 | 0        |
| 2   | PSU  | L5    | 4532 | 2     | 18,21,22     | 1.07 | 1 (5%)   | 21,30,33    | 1.86 | 4 (19%)  |
| 2   | PSU  | L5    | 4293 | 2     | 18,21,22     | 1.10 | 2 (11%)  | 21,30,33    | 1.98 | 5 (23%)  |
| 2   | OMC  | L5    | 2804 | 2     | 19,22,23     | 0.61 | 0        | 25,31,34    | 0.94 | 2 (8%)   |

| Mol | Type | Chain | Res  | Link  | Bond lengths |      |          | Bond angles |      |          |
|-----|------|-------|------|-------|--------------|------|----------|-------------|------|----------|
|     |      |       |      |       | Counts       | RMSZ | # Z  > 2 | Counts      | RMSZ | # Z  > 2 |
| 2   | UR3  | L5    | 4530 | 2     | 19,22,23     | 2.72 | 7 (36%)  | 26,32,35    | 1.59 | 3 (11%)  |
| 2   | PSU  | L5    | 1782 | 2     | 18,21,22     | 1.10 | 1 (5%)   | 21,30,33    | 2.00 | 5 (23%)  |
| 82  | PSU  | S2    | 866  | 82    | 18,21,22     | 1.13 | 1 (5%)   | 21,30,33    | 1.96 | 6 (28%)  |
| 2   | PSU  | L5    | 3639 | 2     | 18,21,22     | 1.05 | 1 (5%)   | 21,30,33    | 1.99 | 4 (19%)  |
| 2   | OMC  | L5    | 2422 | 84,2  | 19,22,23     | 0.59 | 0        | 25,31,34    | 0.71 | 1 (4%)   |
| 82  | 6MZ  | S2    | 1832 | 82,84 | 21,26,26     | 1.31 | 2 (9%)   | 22,39,39    | 1.83 | 2 (9%)   |
| 2   | A2M  | L5    | 3825 | 2     | 18,25,26     | 1.27 | 2 (11%)  | 20,36,39    | 2.00 | 5 (25%)  |
| 2   | OMG  | L5    | 3627 | 2     | 19,26,27     | 1.21 | 3 (15%)  | 21,38,41    | 0.89 | 1 (4%)   |
| 2   | PSU  | L5    | 4628 | 2     | 18,21,22     | 1.07 | 1 (5%)   | 21,30,33    | 1.98 | 5 (23%)  |
| 2   | OMG  | L5    | 3744 | 2     | 19,26,27     | 1.17 | 2 (10%)  | 21,38,41    | 0.79 | 1 (4%)   |
| 2   | A2M  | L5    | 3867 | 2     | 18,25,26     | 1.29 | 2 (11%)  | 20,36,39    | 1.92 | 7 (35%)  |
| 82  | OMG  | S2    | 436  | 82    | 19,26,27     | 1.20 | 2 (10%)  | 21,38,41    | 0.78 | 1 (4%)   |
| 2   | PSU  | L5    | 1677 | 2     | 18,21,22     | 1.08 | 2 (11%)  | 21,30,33    | 1.95 | 5 (23%)  |
| 2   | PSU  | L5    | 5001 | 2     | 18,21,22     | 1.10 | 2 (11%)  | 21,30,33    | 1.95 | 6 (28%)  |
| 82  | OMU  | S2    | 354  | 82    | 19,22,23     | 3.31 | 7 (36%)  | 25,31,34    | 1.79 | 5 (20%)  |
| 82  | PSU  | S2    | 1232 | 82    | 18,21,22     | 1.08 | 1 (5%)   | 21,30,33    | 1.80 | 4 (19%)  |
| 82  | OMC  | S2    | 174  | 82    | 19,22,23     | 0.50 | 0        | 25,31,34    | 0.73 | 0        |
| 82  | PSU  | S2    | 1004 | 82    | 18,21,22     | 1.09 | 1 (5%)   | 21,30,33    | 2.02 | 4 (19%)  |
| 2   | PSU  | L5    | 4403 | 2     | 18,21,22     | 1.00 | 1 (5%)   | 21,30,33    | 2.10 | 6 (28%)  |
| 82  | OMU  | S2    | 116  | 82    | 19,22,23     | 3.26 | 7 (36%)  | 25,31,34    | 1.64 | 4 (16%)  |
| 82  | A2M  | S2    | 159  | 82    | 18,25,26     | 1.23 | 1 (5%)   | 20,36,39    | 1.80 | 8 (40%)  |
| 2   | UY1  | L5    | 3818 | 2     | 19,22,23     | 4.93 | 10 (52%) | 21,31,34    | 2.01 | 6 (28%)  |
| 2   | PSU  | L5    | 4353 | 2     | 18,21,22     | 1.07 | 1 (5%)   | 21,30,33    | 2.05 | 6 (28%)  |
| 2   | OMC  | L5    | 2365 | 84,2  | 19,22,23     | 0.58 | 0        | 25,31,34    | 0.71 | 0        |
| 2   | A2M  | L5    | 4590 | 2     | 18,25,26     | 1.22 | 2 (11%)  | 20,36,39    | 2.05 | 7 (35%)  |
| 82  | OMU  | S2    | 1288 | 82    | 19,22,23     | 3.40 | 7 (36%)  | 25,31,34    | 1.85 | 5 (20%)  |
| 2   | PSU  | L5    | 4457 | 2     | 18,21,22     | 1.07 | 2 (11%)  | 21,30,33    | 2.11 | 6 (28%)  |
| 82  | OMC  | S2    | 1703 | 82    | 19,22,23     | 0.57 | 0        | 25,31,34    | 0.77 | 1 (4%)   |
| 2   | OMU  | L5    | 4620 | 2     | 19,22,23     | 3.29 | 7 (36%)  | 25,31,34    | 1.70 | 4 (16%)  |
| 2   | A2M  | L5    | 2401 | 2     | 18,25,26     | 1.41 | 2 (11%)  | 20,36,39    | 2.05 | 6 (30%)  |
| 82  | OMU  | S2    | 1442 | 82    | 19,22,23     | 3.39 | 7 (36%)  | 25,31,34    | 1.84 | 5 (20%)  |
| 2   | PSU  | L5    | 4521 | 84,2  | 18,21,22     | 1.10 | 2 (11%)  | 21,30,33    | 2.03 | 6 (28%)  |
| 82  | MA6  | S2    | 1850 | 82    | 19,26,27     | 1.54 | 3 (15%)  | 18,38,41    | 3.48 | 3 (16%)  |
| 2   | OMG  | L5    | 4637 | 2     | 19,26,27     | 1.19 | 2 (10%)  | 21,38,41    | 0.80 | 1 (4%)   |
| 2   | A2M  | L5    | 400  | 2     | 18,25,26     | 1.26 | 2 (11%)  | 20,36,39    | 1.97 | 7 (35%)  |

| Mol | Type | Chain | Res  | Link  | Bond lengths |      |          | Bond angles |      |          |
|-----|------|-------|------|-------|--------------|------|----------|-------------|------|----------|
|     |      |       |      |       | Counts       | RMSZ | # Z  > 2 | Counts      | RMSZ | # Z  > 2 |
| 2   | A2M  | L5    | 398  | 2     | 18,25,26     | 1.30 | 2 (11%)  | 20,36,39    | 2.20 | 6 (30%)  |
| 82  | PSU  | S2    | 1177 | 82    | 18,21,22     | 1.11 | 2 (11%)  | 21,30,33    | 1.94 | 4 (19%)  |
| 82  | OMG  | S2    | 644  | 82    | 19,26,27     | 1.17 | 2 (10%)  | 21,38,41    | 0.84 | 1 (4%)   |
| 82  | OMU  | S2    | 799  | 82    | 19,22,23     | 3.36 | 7 (36%)  | 25,31,34    | 1.82 | 5 (20%)  |
| 2   | PSU  | L5    | 1744 | 84,2  | 18,21,22     | 1.09 | 1 (5%)   | 21,30,33    | 1.99 | 6 (28%)  |
| 82  | 4AC  | S2    | 1842 | 82    | 21,24,25     | 0.39 | 0        | 28,34,37    | 0.47 | 0        |
| 2   | OMU  | L5    | 4498 | 2     | 19,22,23     | 3.29 | 7 (36%)  | 25,31,34    | 1.86 | 5 (20%)  |
| 82  | PSU  | S2    | 1045 | 82    | 18,21,22     | 1.07 | 1 (5%)   | 21,30,33    | 2.07 | 5 (23%)  |
| 2   | OMG  | L5    | 4494 | 2     | 19,26,27     | 1.20 | 2 (10%)  | 21,38,41    | 0.82 | 1 (4%)   |
| 82  | OMG  | S2    | 1328 | 82    | 19,26,27     | 1.10 | 2 (10%)  | 21,38,41    | 0.80 | 1 (4%)   |
| 82  | A2M  | S2    | 576  | 82    | 18,25,26     | 1.30 | 2 (11%)  | 20,36,39    | 2.00 | 5 (25%)  |
| 2   | A2M  | L5    | 1326 | 2     | 18,25,26     | 1.23 | 2 (11%)  | 20,36,39    | 1.85 | 7 (35%)  |
| 82  | PSU  | S2    | 1056 | 82    | 18,21,22     | 1.08 | 1 (5%)   | 21,30,33    | 1.99 | 5 (23%)  |
| 2   | PSU  | L5    | 3851 | 84,2  | 18,21,22     | 1.04 | 1 (5%)   | 21,30,33    | 1.88 | 4 (19%)  |
| 82  | MA6  | S2    | 1851 | 82    | 19,26,27     | 1.52 | 3 (15%)  | 18,38,41    | 3.39 | 3 (16%)  |
| 2   | OMC  | L5    | 3841 | 2     | 19,22,23     | 0.58 | 0        | 25,31,34    | 0.62 | 0        |
| 82  | G7M  | S2    | 1639 | 82,1  | 20,26,27     | 2.44 | 7 (35%)  | 16,39,42    | 1.12 | 1 (6%)   |
| 4   | PSU  | L8    | 55   | 4     | 18,21,22     | 1.05 | 1 (5%)   | 21,30,33    | 2.00 | 4 (19%)  |
| 82  | 4AC  | S2    | 1337 | 82    | 21,24,25     | 0.40 | 0        | 28,34,37    | 0.76 | 2 (7%)   |
| 82  | PSU  | S2    | 649  | 82    | 18,21,22     | 1.09 | 1 (5%)   | 21,30,33    | 1.95 | 5 (23%)  |
| 2   | PSU  | L5    | 3920 | 84,2  | 18,21,22     | 1.08 | 1 (5%)   | 21,30,33    | 2.01 | 6 (28%)  |
| 2   | PSU  | L5    | 4500 | 2     | 18,21,22     | 1.11 | 2 (11%)  | 21,30,33    | 1.98 | 4 (19%)  |
| 2   | A2M  | L5    | 3830 | 2     | 18,25,26     | 1.33 | 2 (11%)  | 20,36,39    | 2.02 | 6 (30%)  |
| 2   | A2M  | L5    | 4523 | 84,2  | 18,25,26     | 1.37 | 2 (11%)  | 20,36,39    | 2.14 | 6 (30%)  |
| 82  | PSU  | S2    | 1367 | 82    | 18,21,22     | 1.12 | 1 (5%)   | 21,30,33    | 2.00 | 5 (23%)  |
| 82  | A2M  | S2    | 668  | 82,84 | 18,25,26     | 1.30 | 3 (16%)  | 20,36,39    | 2.02 | 6 (30%)  |
| 2   | PSU  | L5    | 4673 | 2     | 18,21,22     | 1.10 | 1 (5%)   | 21,30,33    | 2.03 | 6 (28%)  |
| 2   | OMG  | L5    | 4228 | 2     | 19,26,27     | 1.18 | 3 (15%)  | 21,38,41    | 0.99 | 1 (4%)   |
| 82  | A2M  | S2    | 166  | 82    | 18,25,26     | 1.34 | 2 (11%)  | 20,36,39    | 2.25 | 8 (40%)  |
| 2   | OMC  | L5    | 4536 | 2     | 19,22,23     | 0.61 | 0        | 25,31,34    | 0.67 | 0        |
| 2   | PSU  | L5    | 2839 | 2     | 18,21,22     | 1.08 | 1 (5%)   | 21,30,33    | 1.96 | 6 (28%)  |
| 2   | 1MA  | L5    | 1322 | 84,2  | 17,25,26     | 0.97 | 2 (11%)  | 17,37,40    | 1.11 | 2 (11%)  |
| 2   | A2M  | L5    | 3785 | 84,2  | 18,25,26     | 1.26 | 2 (11%)  | 20,36,39    | 2.49 | 6 (30%)  |
| 2   | PSU  | L5    | 1536 | 2     | 18,21,22     | 1.05 | 1 (5%)   | 21,30,33    | 2.13 | 5 (23%)  |
| 2   | PSU  | L5    | 1683 | 2     | 18,21,22     | 1.06 | 1 (5%)   | 21,30,33    | 2.02 | 4 (19%)  |

| Mol | Type | Chain | Res  | Link | Bond lengths |      |          | Bond angles |      |          |
|-----|------|-------|------|------|--------------|------|----------|-------------|------|----------|
|     |      |       |      |      | Counts       | RMSZ | # Z  > 2 | Counts      | RMSZ | # Z  > 2 |
| 2   | OMC  | L5    | 3808 | 2    | 19,22,23     | 0.61 | 0        | 25,31,34    | 0.81 | 2 (8%)   |
| 2   | A2M  | L5    | 1534 | 84,2 | 18,25,26     | 1.37 | 4 (22%)  | 20,36,39    | 2.11 | 8 (40%)  |
| 82  | B8N  | S2    | 1248 | 82   | 25,29,30     | 3.29 | 6 (24%)  | 28,42,45    | 1.97 | 8 (28%)  |
| 2   | A2M  | L5    | 4571 | 2    | 18,25,26     | 1.34 | 2 (11%)  | 20,36,39    | 2.06 | 6 (30%)  |
| 2   | PSU  | L5    | 4442 | 2    | 18,21,22     | 1.07 | 1 (5%)   | 21,30,33    | 2.04 | 5 (23%)  |
| 2   | PSU  | L5    | 4689 | 2    | 18,21,22     | 1.03 | 1 (5%)   | 21,30,33    | 1.92 | 4 (19%)  |
| 82  | PSU  | S2    | 105  | 82   | 18,21,22     | 1.08 | 1 (5%)   | 21,30,33    | 1.96 | 4 (19%)  |
| 82  | OMC  | S2    | 1272 | 82   | 19,22,23     | 0.61 | 0        | 25,31,34    | 1.19 | 2 (8%)   |
| 82  | OMC  | S2    | 462  | 82   | 19,22,23     | 0.54 | 0        | 25,31,34    | 0.83 | 1 (4%)   |
| 82  | A2M  | S2    | 484  | 82   | 18,25,26     | 1.17 | 1 (5%)   | 20,36,39    | 1.90 | 7 (35%)  |
| 4   | PSU  | L8    | 69   | 4    | 18,21,22     | 1.08 | 1 (5%)   | 21,30,33    | 2.01 | 4 (19%)  |
| 2   | OMG  | L5    | 4196 | 1,2  | 19,26,27     | 1.22 | 2 (10%)  | 21,38,41    | 0.76 | 1 (4%)   |
| 82  | PSU  | S2    | 651  | 82   | 18,21,22     | 1.11 | 1 (5%)   | 21,30,33    | 1.93 | 4 (19%)  |
| 2   | A2M  | L5    | 2815 | 2    | 18,25,26     | 1.28 | 2 (11%)  | 20,36,39    | 1.77 | 6 (30%)  |
| 82  | OMU  | S2    | 121  | 82   | 19,22,23     | 3.33 | 7 (36%)  | 25,31,34    | 1.79 | 4 (16%)  |
| 2   | OMU  | L5    | 4227 | 2    | 19,22,23     | 3.29 | 7 (36%)  | 25,31,34    | 1.86 | 5 (20%)  |
| 2   | OMU  | L5    | 4306 | 2    | 19,22,23     | 3.23 | 7 (36%)  | 25,31,34    | 1.76 | 4 (16%)  |
| 2   | 5MC  | L5    | 3782 | 84,2 | 19,22,23     | 0.66 | 0        | 26,32,35    | 0.72 | 0        |
| 2   | OMG  | L5    | 4623 | 2    | 19,26,27     | 1.20 | 2 (10%)  | 21,38,41    | 0.77 | 1 (4%)   |
| 2   | PSU  | L5    | 4471 | 2    | 18,21,22     | 1.10 | 2 (11%)  | 21,30,33    | 2.12 | 5 (23%)  |
| 2   | OMC  | L5    | 3887 | 2    | 19,22,23     | 0.61 | 0        | 25,31,34    | 0.69 | 0        |
| 2   | OMG  | L5    | 3792 | 2    | 19,26,27     | 1.25 | 3 (15%)  | 21,38,41    | 0.75 | 1 (4%)   |
| 2   | PSU  | L5    | 4361 | 2    | 18,21,22     | 1.06 | 1 (5%)   | 21,30,33    | 2.00 | 5 (23%)  |
| 2   | PSU  | L5    | 3884 | 2    | 18,21,22     | 1.06 | 1 (5%)   | 21,30,33    | 2.01 | 4 (19%)  |
| 2   | PSU  | L5    | 1582 | 2    | 18,21,22     | 1.12 | 2 (11%)  | 21,30,33    | 1.99 | 5 (23%)  |
| 2   | A2M  | L5    | 1323 | 2    | 18,25,26     | 1.24 | 2 (11%)  | 20,36,39    | 1.96 | 8 (40%)  |
| 82  | PSU  | S2    | 406  | 82   | 18,21,22     | 1.07 | 1 (5%)   | 21,30,33    | 2.00 | 4 (19%)  |
| 2   | A2M  | L5    | 3718 | 2    | 18,25,26     | 1.27 | 2 (11%)  | 20,36,39    | 2.09 | 6 (30%)  |

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

| Mol | Type | Chain | Res  | Link | Chirals | Torsions  | Rings   |
|-----|------|-------|------|------|---------|-----------|---------|
| 2   | PSU  | L5    | 4493 | 2    | -       | 0/7/25/26 | 0/2/2/2 |

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| Mol | Type | Chain | Res  | Link  | Chirals | Torsions  | Rings   |
|-----|------|-------|------|-------|---------|-----------|---------|
| 2   | OMC  | L5    | 2351 | 84,2  | -       | 3/9/27/28 | 0/2/2/2 |
| 82  | PSU  | S2    | 1244 | 82    | -       | 0/7/25/26 | 0/2/2/2 |
| 2   | A2M  | L5    | 1524 | 2     | -       | 2/5/27/28 | 0/3/3/3 |
| 2   | OMC  | L5    | 2824 | 2     | -       | 1/9/27/28 | 0/2/2/2 |
| 2   | OMG  | L5    | 3899 | 2     | -       | 3/5/27/28 | 0/3/3/3 |
| 2   | 6MZ  | L5    | 4220 | 2     | -       | 4/5/27/28 | 0/3/3/3 |
| 82  | OMG  | S2    | 683  | 82    | -       | 2/5/27/28 | 0/3/3/3 |
| 82  | PSU  | S2    | 1081 | 82    | -       | 0/7/25/26 | 0/2/2/2 |
| 2   | PSU  | L5    | 1862 | 2     | -       | 0/7/25/26 | 0/2/2/2 |
| 2   | OMG  | L5    | 4618 | 2     | -       | 3/5/27/28 | 0/3/3/3 |
| 2   | OMC  | L5    | 2861 | 2     | -       | 2/9/27/28 | 0/2/2/2 |
| 82  | A2M  | S2    | 1383 | 82    | -       | 1/5/27/28 | 0/3/3/3 |
| 82  | A2M  | S2    | 468  | 82    | -       | 1/5/27/28 | 0/3/3/3 |
| 2   | PSU  | L5    | 1860 | 2     | -       | 0/7/25/26 | 0/2/2/2 |
| 2   | OMG  | L5    | 2424 | 2     | -       | 0/5/27/28 | 0/3/3/3 |
| 2   | OMG  | L5    | 2364 | 84,2  | -       | 2/5/27/28 | 0/3/3/3 |
| 2   | PSU  | L5    | 4576 | 2     | -       | 0/7/25/26 | 0/2/2/2 |
| 82  | PSU  | S2    | 1174 | 82    | -       | 0/7/25/26 | 0/2/2/2 |
| 82  | PSU  | S2    | 966  | 82,84 | -       | 0/7/25/26 | 0/2/2/2 |
| 82  | PSU  | S2    | 801  | 82    | -       | 2/7/25/26 | 0/2/2/2 |
| 4   | OMG  | L8    | 75   | 4     | -       | 2/5/27/28 | 0/3/3/3 |
| 2   | PSU  | L5    | 1792 | 2     | -       | 0/7/25/26 | 0/2/2/2 |
| 2   | OMG  | L5    | 4370 | 2     | -       | 0/5/27/28 | 0/3/3/3 |
| 2   | PSU  | L5    | 4552 | 2     | -       | 0/7/25/26 | 0/2/2/2 |
| 82  | OMC  | S2    | 517  | 82    | -       | 3/9/27/28 | 0/2/2/2 |
| 2   | A2M  | L5    | 2363 | 84,2  | -       | 0/5/27/28 | 0/3/3/3 |
| 2   | PSU  | L5    | 4296 | 2     | -       | 2/7/25/26 | 0/2/2/2 |
| 2   | OMG  | L5    | 1522 | 2     | -       | 0/5/27/28 | 0/3/3/3 |
| 2   | OMG  | L5    | 1625 | 2     | -       | 2/5/27/28 | 0/3/3/3 |
| 2   | PSU  | L5    | 4312 | 2     | -       | 0/7/25/26 | 0/2/2/2 |
| 82  | PSU  | S2    | 1046 | 82    | -       | 0/7/25/26 | 0/2/2/2 |
| 82  | OMU  | S2    | 627  | 82    | -       | 5/9/27/28 | 0/2/2/2 |
| 82  | OMG  | S2    | 867  | 82    | -       | 2/5/27/28 | 0/3/3/3 |
| 82  | A2M  | S2    | 99   | 82,84 | -       | 2/5/27/28 | 0/3/3/3 |
| 2   | OMG  | L5    | 4499 | 2     | -       | 1/5/27/28 | 0/3/3/3 |
| 2   | PSU  | L5    | 4579 | 2     | -       | 0/7/25/26 | 0/2/2/2 |
| 2   | OMG  | L5    | 1316 | 2     | -       | 1/5/27/28 | 0/3/3/3 |
| 82  | PSU  | S2    | 93   | 82    | -       | 0/7/25/26 | 0/2/2/2 |

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| Mol | Type | Chain | Res  | Link  | Chirals | Torsions  | Rings   |
|-----|------|-------|------|-------|---------|-----------|---------|
| 2   | OMC  | L5    | 3869 | 2     | -       | 1/9/27/28 | 0/2/2/2 |
| 82  | PSU  | S2    | 109  | 82    | -       | 0/7/25/26 | 0/2/2/2 |
| 2   | PSU  | L5    | 3637 | 2     | -       | 0/7/25/26 | 0/2/2/2 |
| 82  | OMU  | S2    | 1326 | 82    | -       | 1/9/27/28 | 0/2/2/2 |
| 2   | PSU  | L5    | 4299 | 2     | -       | 0/7/25/26 | 0/2/2/2 |
| 82  | OMG  | S2    | 1490 | 82    | -       | 1/5/27/28 | 0/3/3/3 |
| 2   | OMC  | L5    | 4456 | 2     | -       | 0/9/27/28 | 0/2/2/2 |
| 2   | A2M  | L5    | 2787 | 2     | -       | 3/5/27/28 | 0/3/3/3 |
| 82  | PSU  | S2    | 814  | 82    | -       | 0/7/25/26 | 0/2/2/2 |
| 2   | A2M  | L5    | 1871 | 84,2  | -       | 0/5/27/28 | 0/3/3/3 |
| 82  | PSU  | S2    | 681  | 82    | -       | 0/7/25/26 | 0/2/2/2 |
| 82  | OMC  | S2    | 1391 | 82    | -       | 1/9/27/28 | 0/2/2/2 |
| 82  | PSU  | S2    | 686  | 82    | -       | 0/7/25/26 | 0/2/2/2 |
| 2   | PSU  | L5    | 4431 | 2     | -       | 0/7/25/26 | 0/2/2/2 |
| 2   | PSU  | L5    | 2632 | 2     | -       | 1/7/25/26 | 0/2/2/2 |
| 82  | A2M  | S2    | 27   | 82    | -       | 1/5/27/28 | 0/3/3/3 |
| 2   | OMU  | L5    | 2837 | 2     | -       | 0/9/27/28 | 0/2/2/2 |
| 2   | PSU  | L5    | 1781 | 2     | -       | 0/7/25/26 | 0/2/2/2 |
| 2   | OMC  | L5    | 1340 | 2     | -       | 1/9/27/28 | 0/2/2/2 |
| 2   | PSU  | L5    | 5010 | 2     | -       | 0/7/25/26 | 0/2/2/2 |
| 2   | PSU  | L5    | 3695 | 2     | -       | 0/7/25/26 | 0/2/2/2 |
| 82  | OMU  | S2    | 428  | 82    | -       | 6/9/27/28 | 0/2/2/2 |
| 82  | A2M  | S2    | 1031 | 82    | -       | 1/5/27/28 | 0/3/3/3 |
| 2   | 5MC  | L5    | 4447 | 2     | -       | 4/7/25/26 | 0/2/2/2 |
| 2   | OMC  | L5    | 3701 | 2     | -       | 5/9/27/28 | 0/2/2/2 |
| 82  | PSU  | S2    | 863  | 82    | -       | 0/7/25/26 | 0/2/2/2 |
| 82  | OMG  | S2    | 601  | 82    | -       | 0/5/27/28 | 0/3/3/3 |
| 2   | PSU  | L5    | 4973 | 2     | -       | 0/7/25/26 | 0/2/2/2 |
| 2   | PSU  | L5    | 4972 | 2     | -       | 0/7/25/26 | 0/2/2/2 |
| 2   | OMG  | L5    | 4392 | 2     | -       | 0/5/27/28 | 0/3/3/3 |
| 2   | PSU  | L5    | 3853 | 84,2  | -       | 0/7/25/26 | 0/2/2/2 |
| 2   | PSU  | L5    | 3844 | 2     | -       | 1/7/25/26 | 0/2/2/2 |
| 2   | PSU  | L5    | 4636 | 2     | -       | 2/7/25/26 | 0/2/2/2 |
| 2   | OMU  | L5    | 3925 | 2     | -       | 1/9/27/28 | 0/2/2/2 |
| 82  | OMG  | S2    | 509  | 82    | -       | 1/5/27/28 | 0/3/3/3 |
| 82  | OMU  | S2    | 172  | 82,84 | -       | 0/9/27/28 | 0/2/2/2 |
| 2   | PSU  | L5    | 3822 | 2     | -       | 2/7/25/26 | 0/2/2/2 |
| 2   | OMG  | L5    | 2876 | 2     | -       | 1/5/27/28 | 0/3/3/3 |
| 2   | PSU  | L5    | 4532 | 2     | -       | 0/7/25/26 | 0/2/2/2 |
| 2   | PSU  | L5    | 4293 | 2     | -       | 0/7/25/26 | 0/2/2/2 |
| 2   | OMC  | L5    | 2804 | 2     | -       | 3/9/27/28 | 0/2/2/2 |

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| Mol | Type | Chain | Res  | Link  | Chirals | Torsions  | Rings   |
|-----|------|-------|------|-------|---------|-----------|---------|
| 2   | UR3  | L5    | 4530 | 2     | -       | 0/7/25/26 | 0/2/2/2 |
| 2   | PSU  | L5    | 1782 | 2     | -       | 0/7/25/26 | 0/2/2/2 |
| 82  | PSU  | S2    | 866  | 82    | -       | 0/7/25/26 | 0/2/2/2 |
| 2   | PSU  | L5    | 3639 | 2     | -       | 0/7/25/26 | 0/2/2/2 |
| 2   | OMC  | L5    | 2422 | 84,2  | -       | 2/9/27/28 | 0/2/2/2 |
| 82  | 6MZ  | S2    | 1832 | 82,84 | -       | 8/8/28/28 | 0/3/3/3 |
| 2   | A2M  | L5    | 3825 | 2     | -       | 3/5/27/28 | 0/3/3/3 |
| 2   | OMG  | L5    | 3627 | 2     | -       | 0/5/27/28 | 0/3/3/3 |
| 2   | PSU  | L5    | 4628 | 2     | -       | 0/7/25/26 | 0/2/2/2 |
| 2   | OMG  | L5    | 3744 | 2     | -       | 1/5/27/28 | 0/3/3/3 |
| 2   | A2M  | L5    | 3867 | 2     | -       | 3/5/27/28 | 0/3/3/3 |
| 82  | OMG  | S2    | 436  | 82    | -       | 0/5/27/28 | 0/3/3/3 |
| 2   | PSU  | L5    | 1677 | 2     | -       | 3/7/25/26 | 0/2/2/2 |
| 2   | PSU  | L5    | 5001 | 2     | -       | 0/7/25/26 | 0/2/2/2 |
| 82  | OMU  | S2    | 354  | 82    | -       | 1/9/27/28 | 0/2/2/2 |
| 82  | PSU  | S2    | 1232 | 82    | -       | 0/7/25/26 | 0/2/2/2 |
| 82  | OMC  | S2    | 174  | 82    | -       | 0/9/27/28 | 0/2/2/2 |
| 82  | PSU  | S2    | 1004 | 82    | -       | 0/7/25/26 | 0/2/2/2 |
| 2   | PSU  | L5    | 4403 | 2     | -       | 0/7/25/26 | 0/2/2/2 |
| 82  | OMU  | S2    | 116  | 82    | -       | 1/9/27/28 | 0/2/2/2 |
| 82  | A2M  | S2    | 159  | 82    | -       | 1/5/27/28 | 0/3/3/3 |
| 2   | UY1  | L5    | 3818 | 2     | -       | 4/9/27/28 | 0/2/2/2 |
| 2   | PSU  | L5    | 4353 | 2     | -       | 0/7/25/26 | 0/2/2/2 |
| 2   | OMC  | L5    | 2365 | 84,2  | -       | 1/9/27/28 | 0/2/2/2 |
| 2   | A2M  | L5    | 4590 | 2     | -       | 4/5/27/28 | 0/3/3/3 |
| 82  | OMU  | S2    | 1288 | 82    | -       | 2/9/27/28 | 0/2/2/2 |
| 2   | PSU  | L5    | 4457 | 2     | -       | 0/7/25/26 | 0/2/2/2 |
| 82  | OMC  | S2    | 1703 | 82    | -       | 0/9/27/28 | 0/2/2/2 |
| 2   | OMU  | L5    | 4620 | 2     | -       | 0/9/27/28 | 0/2/2/2 |
| 2   | A2M  | L5    | 2401 | 2     | -       | 0/5/27/28 | 0/3/3/3 |
| 82  | OMU  | S2    | 1442 | 82    | -       | 2/9/27/28 | 0/2/2/2 |
| 2   | PSU  | L5    | 4521 | 84,2  | -       | 0/7/25/26 | 0/2/2/2 |
| 82  | MA6  | S2    | 1850 | 82    | -       | 1/7/29/30 | 0/3/3/3 |
| 2   | OMG  | L5    | 4637 | 2     | -       | 3/5/27/28 | 0/3/3/3 |
| 2   | A2M  | L5    | 400  | 2     | -       | 1/5/27/28 | 0/3/3/3 |
| 2   | A2M  | L5    | 398  | 2     | -       | 3/5/27/28 | 0/3/3/3 |
| 82  | PSU  | S2    | 1177 | 82    | -       | 0/7/25/26 | 0/2/2/2 |
| 82  | OMG  | S2    | 644  | 82    | -       | 4/5/27/28 | 0/3/3/3 |
| 82  | OMU  | S2    | 799  | 82    | -       | 2/9/27/28 | 0/2/2/2 |

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| Mol | Type | Chain | Res  | Link  | Chirals | Torsions   | Rings   |
|-----|------|-------|------|-------|---------|------------|---------|
| 2   | PSU  | L5    | 1744 | 84,2  | -       | 0/7/25/26  | 0/2/2/2 |
| 82  | 4AC  | S2    | 1842 | 82    | -       | 0/11/29/30 | 0/2/2/2 |
| 2   | OMU  | L5    | 4498 | 2     | -       | 0/9/27/28  | 0/2/2/2 |
| 82  | PSU  | S2    | 1045 | 82    | -       | 2/7/25/26  | 0/2/2/2 |
| 2   | OMG  | L5    | 4494 | 2     | -       | 1/5/27/28  | 0/3/3/3 |
| 82  | OMG  | S2    | 1328 | 82    | -       | 1/5/27/28  | 0/3/3/3 |
| 82  | A2M  | S2    | 576  | 82    | -       | 4/5/27/28  | 0/3/3/3 |
| 2   | A2M  | L5    | 1326 | 2     | -       | 4/5/27/28  | 0/3/3/3 |
| 82  | PSU  | S2    | 1056 | 82    | -       | 0/7/25/26  | 0/2/2/2 |
| 2   | PSU  | L5    | 3851 | 84,2  | -       | 0/7/25/26  | 0/2/2/2 |
| 82  | MA6  | S2    | 1851 | 82    | -       | 2/7/29/30  | 0/3/3/3 |
| 2   | OMC  | L5    | 3841 | 2     | -       | 1/9/27/28  | 0/2/2/2 |
| 82  | G7M  | S2    | 1639 | 82,1  | -       | 0/3/25/26  | 0/3/3/3 |
| 4   | PSU  | L8    | 55   | 4     | -       | 0/7/25/26  | 0/2/2/2 |
| 82  | 4AC  | S2    | 1337 | 82    | -       | 1/11/29/30 | 0/2/2/2 |
| 82  | PSU  | S2    | 649  | 82    | -       | 0/7/25/26  | 0/2/2/2 |
| 2   | PSU  | L5    | 3920 | 84,2  | -       | 0/7/25/26  | 0/2/2/2 |
| 2   | PSU  | L5    | 4500 | 2     | -       | 3/7/25/26  | 0/2/2/2 |
| 2   | A2M  | L5    | 3830 | 2     | -       | 1/5/27/28  | 0/3/3/3 |
| 2   | A2M  | L5    | 4523 | 84,2  | -       | 1/5/27/28  | 0/3/3/3 |
| 82  | PSU  | S2    | 1367 | 82    | -       | 0/7/25/26  | 0/2/2/2 |
| 82  | A2M  | S2    | 668  | 82,84 | -       | 2/5/27/28  | 0/3/3/3 |
| 2   | PSU  | L5    | 4673 | 2     | -       | 0/7/25/26  | 0/2/2/2 |
| 2   | OMG  | L5    | 4228 | 2     | -       | 0/5/27/28  | 0/3/3/3 |
| 82  | A2M  | S2    | 166  | 82    | -       | 0/5/27/28  | 0/3/3/3 |
| 2   | OMC  | L5    | 4536 | 2     | -       | 0/9/27/28  | 0/2/2/2 |
| 2   | PSU  | L5    | 2839 | 2     | -       | 0/7/25/26  | 0/2/2/2 |
| 2   | 1MA  | L5    | 1322 | 84,2  | -       | 0/3/25/26  | 0/3/3/3 |
| 2   | A2M  | L5    | 3785 | 84,2  | -       | 1/5/27/28  | 0/3/3/3 |
| 2   | PSU  | L5    | 1536 | 2     | -       | 2/7/25/26  | 0/2/2/2 |
| 2   | PSU  | L5    | 1683 | 2     | -       | 0/7/25/26  | 0/2/2/2 |
| 2   | OMC  | L5    | 3808 | 2     | -       | 0/9/27/28  | 0/2/2/2 |
| 2   | A2M  | L5    | 1534 | 84,2  | -       | 2/5/27/28  | 0/3/3/3 |
| 82  | B8N  | S2    | 1248 | 82    | -       | 6/16/34/35 | 0/2/2/2 |
| 2   | A2M  | L5    | 4571 | 2     | -       | 1/5/27/28  | 0/3/3/3 |
| 2   | PSU  | L5    | 4442 | 2     | -       | 0/7/25/26  | 0/2/2/2 |
| 2   | PSU  | L5    | 4689 | 2     | -       | 0/7/25/26  | 0/2/2/2 |
| 82  | PSU  | S2    | 105  | 82    | -       | 0/7/25/26  | 0/2/2/2 |
| 82  | OMC  | S2    | 1272 | 82    | -       | 6/9/27/28  | 0/2/2/2 |
| 82  | OMC  | S2    | 462  | 82    | -       | 0/9/27/28  | 0/2/2/2 |

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| Mol | Type | Chain | Res  | Link | Chirals | Torsions  | Rings   |
|-----|------|-------|------|------|---------|-----------|---------|
| 82  | A2M  | S2    | 484  | 82   | -       | 1/5/27/28 | 0/3/3/3 |
| 4   | PSU  | L8    | 69   | 4    | -       | 0/7/25/26 | 0/2/2/2 |
| 2   | OMG  | L5    | 4196 | 1,2  | -       | 3/5/27/28 | 0/3/3/3 |
| 82  | PSU  | S2    | 651  | 82   | -       | 0/7/25/26 | 0/2/2/2 |
| 2   | A2M  | L5    | 2815 | 2    | -       | 0/5/27/28 | 0/3/3/3 |
| 82  | OMU  | S2    | 121  | 82   | -       | 0/9/27/28 | 0/2/2/2 |
| 2   | OMU  | L5    | 4227 | 2    | -       | 0/9/27/28 | 0/2/2/2 |
| 2   | OMU  | L5    | 4306 | 2    | -       | 0/9/27/28 | 0/2/2/2 |
| 2   | 5MC  | L5    | 3782 | 84,2 | -       | 2/7/25/26 | 0/2/2/2 |
| 2   | OMG  | L5    | 4623 | 2    | -       | 0/5/27/28 | 0/3/3/3 |
| 2   | PSU  | L5    | 4471 | 2    | -       | 0/7/25/26 | 0/2/2/2 |
| 2   | OMC  | L5    | 3887 | 2    | -       | 3/9/27/28 | 0/2/2/2 |
| 2   | OMG  | L5    | 3792 | 2    | -       | 3/5/27/28 | 0/3/3/3 |
| 2   | PSU  | L5    | 4361 | 2    | -       | 0/7/25/26 | 0/2/2/2 |
| 2   | PSU  | L5    | 3884 | 2    | -       | 0/7/25/26 | 0/2/2/2 |
| 2   | PSU  | L5    | 1582 | 2    | -       | 2/7/25/26 | 0/2/2/2 |
| 2   | A2M  | L5    | 1323 | 2    | -       | 1/5/27/28 | 0/3/3/3 |
| 82  | PSU  | S2    | 406  | 82   | -       | 0/7/25/26 | 0/2/2/2 |
| 2   | A2M  | L5    | 3718 | 2    | -       | 0/5/27/28 | 0/3/3/3 |

All (367) bond length outliers are listed below:

| Mol | Chain | Res  | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 2   | L5    | 3818 | UY1  | C6-C5   | 12.78 | 1.49        | 1.35     |
| 2   | L5    | 3818 | UY1  | C2-N1   | 11.84 | 1.52        | 1.36     |
| 82  | S2    | 1442 | OMU  | C2-N1   | 8.41  | 1.51        | 1.38     |
| 2   | L5    | 4220 | 6MZ  | C3'-C2' | -8.38 | 1.30        | 1.53     |
| 82  | S2    | 1288 | OMU  | C2-N1   | 8.36  | 1.51        | 1.38     |
| 82  | S2    | 799  | OMU  | C2-N1   | 8.34  | 1.51        | 1.38     |
| 82  | S2    | 172  | OMU  | C2-N1   | 8.24  | 1.51        | 1.38     |
| 2   | L5    | 2837 | OMU  | C2-N1   | 8.20  | 1.51        | 1.38     |
| 82  | S2    | 428  | OMU  | C2-N1   | 8.19  | 1.51        | 1.38     |
| 82  | S2    | 121  | OMU  | C2-N1   | 8.16  | 1.51        | 1.38     |
| 2   | L5    | 3925 | OMU  | C2-N1   | 8.12  | 1.51        | 1.38     |
| 82  | S2    | 354  | OMU  | C2-N1   | 8.09  | 1.51        | 1.38     |
| 82  | S2    | 1326 | OMU  | C2-N1   | 8.05  | 1.51        | 1.38     |
| 2   | L5    | 4620 | OMU  | C2-N1   | 8.05  | 1.51        | 1.38     |
| 82  | S2    | 1248 | B8N  | C4-N3   | -7.99 | 1.26        | 1.40     |
| 2   | L5    | 4227 | OMU  | C2-N1   | 7.96  | 1.50        | 1.38     |
| 82  | S2    | 1248 | B8N  | C6-N1   | 7.88  | 1.55        | 1.36     |
| 82  | S2    | 627  | OMU  | C2-N1   | 7.85  | 1.50        | 1.38     |

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| Mol | Chain | Res  | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 2   | L5    | 3818 | UY1  | C2-N3   | 7.83  | 1.50        | 1.37     |
| 82  | S2    | 116  | OMU  | C2-N1   | 7.80  | 1.50        | 1.38     |
| 2   | L5    | 4220 | 6MZ  | O4'-C1' | -7.79 | 1.30        | 1.40     |
| 2   | L5    | 4498 | OMU  | C2-N1   | 7.78  | 1.50        | 1.38     |
| 2   | L5    | 4306 | OMU  | C2-N1   | 7.73  | 1.50        | 1.38     |
| 82  | S2    | 172  | OMU  | C2-N3   | 7.07  | 1.50        | 1.38     |
| 82  | S2    | 1442 | OMU  | C2-N3   | 7.02  | 1.50        | 1.38     |
| 82  | S2    | 627  | OMU  | C2-N3   | 7.01  | 1.50        | 1.38     |
| 82  | S2    | 1248 | B8N  | C4-C5   | 7.00  | 1.63        | 1.47     |
| 82  | S2    | 428  | OMU  | C2-N3   | 6.97  | 1.50        | 1.38     |
| 82  | S2    | 1288 | OMU  | C2-N3   | 6.92  | 1.50        | 1.38     |
| 82  | S2    | 1326 | OMU  | C2-N3   | 6.89  | 1.50        | 1.38     |
| 2   | L5    | 2837 | OMU  | C2-N3   | 6.85  | 1.49        | 1.38     |
| 82  | S2    | 799  | OMU  | C2-N3   | 6.82  | 1.49        | 1.38     |
| 2   | L5    | 4498 | OMU  | C2-N3   | 6.81  | 1.49        | 1.38     |
| 82  | S2    | 121  | OMU  | C2-N3   | 6.79  | 1.49        | 1.38     |
| 82  | S2    | 116  | OMU  | C2-N3   | 6.78  | 1.49        | 1.38     |
| 2   | L5    | 3925 | OMU  | C2-N3   | 6.74  | 1.49        | 1.38     |
| 2   | L5    | 4620 | OMU  | C2-N3   | 6.72  | 1.49        | 1.38     |
| 2   | L5    | 4227 | OMU  | C2-N3   | 6.71  | 1.49        | 1.38     |
| 82  | S2    | 354  | OMU  | C2-N3   | 6.68  | 1.49        | 1.38     |
| 2   | L5    | 4306 | OMU  | C2-N3   | 6.56  | 1.49        | 1.38     |
| 2   | L5    | 4530 | UR3  | C2-N1   | 6.36  | 1.47        | 1.38     |
| 2   | L5    | 4530 | UR3  | C6-C5   | 6.22  | 1.49        | 1.35     |
| 82  | S2    | 1288 | OMU  | C6-C5   | 5.98  | 1.48        | 1.35     |
| 82  | S2    | 172  | OMU  | C6-C5   | 5.93  | 1.48        | 1.35     |
| 82  | S2    | 428  | OMU  | C6-C5   | 5.92  | 1.48        | 1.35     |
| 82  | S2    | 1248 | B8N  | C2-N1   | 5.91  | 1.56        | 1.39     |
| 82  | S2    | 627  | OMU  | C6-C5   | 5.85  | 1.48        | 1.35     |
| 82  | S2    | 1326 | OMU  | C6-C5   | 5.84  | 1.48        | 1.35     |
| 82  | S2    | 799  | OMU  | C6-C5   | 5.83  | 1.48        | 1.35     |
| 2   | L5    | 4530 | UR3  | C2-N3   | 5.83  | 1.50        | 1.39     |
| 82  | S2    | 121  | OMU  | C6-C5   | 5.81  | 1.48        | 1.35     |
| 82  | S2    | 354  | OMU  | C6-C5   | 5.81  | 1.48        | 1.35     |
| 2   | L5    | 3925 | OMU  | C6-C5   | 5.81  | 1.48        | 1.35     |
| 2   | L5    | 4620 | OMU  | C6-C5   | 5.80  | 1.48        | 1.35     |
| 2   | L5    | 4227 | OMU  | C6-C5   | 5.79  | 1.48        | 1.35     |
| 2   | L5    | 4498 | OMU  | C6-C5   | 5.78  | 1.48        | 1.35     |
| 82  | S2    | 1442 | OMU  | C6-C5   | 5.75  | 1.48        | 1.35     |
| 2   | L5    | 2837 | OMU  | C6-C5   | 5.75  | 1.48        | 1.35     |
| 2   | L5    | 4306 | OMU  | C6-C5   | 5.71  | 1.48        | 1.35     |
| 82  | S2    | 116  | OMU  | C6-C5   | 5.69  | 1.48        | 1.35     |

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| Mol | Chain | Res  | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 2   | L5    | 3925 | OMU  | O4-C4   | -5.63 | 1.13        | 1.24     |
| 2   | L5    | 4498 | OMU  | O4-C4   | -5.57 | 1.13        | 1.24     |
| 2   | L5    | 4306 | OMU  | O4-C4   | -5.54 | 1.13        | 1.24     |
| 82  | S2    | 116  | OMU  | O4-C4   | -5.53 | 1.13        | 1.24     |
| 82  | S2    | 354  | OMU  | O4-C4   | -5.53 | 1.13        | 1.24     |
| 2   | L5    | 3818 | UY1  | C6-N1   | 5.52  | 1.45        | 1.36     |
| 2   | L5    | 4620 | OMU  | O4-C4   | -5.52 | 1.13        | 1.24     |
| 2   | L5    | 2837 | OMU  | O4-C4   | -5.51 | 1.13        | 1.24     |
| 2   | L5    | 4227 | OMU  | O4-C4   | -5.51 | 1.13        | 1.24     |
| 82  | S2    | 1248 | B8N  | C6-C5   | 5.48  | 1.42        | 1.35     |
| 82  | S2    | 121  | OMU  | O4-C4   | -5.48 | 1.13        | 1.24     |
| 82  | S2    | 799  | OMU  | O4-C4   | -5.46 | 1.13        | 1.24     |
| 82  | S2    | 428  | OMU  | O4-C4   | -5.45 | 1.13        | 1.24     |
| 82  | S2    | 1326 | OMU  | O4-C4   | -5.44 | 1.13        | 1.24     |
| 82  | S2    | 1442 | OMU  | O4-C4   | -5.38 | 1.14        | 1.24     |
| 82  | S2    | 1288 | OMU  | O4-C4   | -5.38 | 1.14        | 1.24     |
| 82  | S2    | 1639 | G7M  | C2-N3   | 5.38  | 1.46        | 1.33     |
| 82  | S2    | 172  | OMU  | O4-C4   | -5.34 | 1.14        | 1.24     |
| 82  | S2    | 627  | OMU  | O4-C4   | -5.30 | 1.14        | 1.24     |
| 82  | S2    | 1639 | G7M  | C4-N3   | 5.02  | 1.49        | 1.37     |
| 82  | S2    | 1639 | G7M  | C2-N2   | 4.88  | 1.45        | 1.34     |
| 2   | L5    | 4220 | 6MZ  | C5'-C4' | -4.65 | 1.37        | 1.51     |
| 2   | L5    | 4220 | 6MZ  | O4'-C4' | 4.64  | 1.55        | 1.45     |
| 82  | S2    | 627  | OMU  | C4-N3   | 4.54  | 1.46        | 1.38     |
| 2   | L5    | 3818 | UY1  | C4-N3   | 4.52  | 1.47        | 1.38     |
| 2   | L5    | 4220 | 6MZ  | C6-C5   | -4.52 | 1.37        | 1.44     |
| 82  | S2    | 1442 | OMU  | C4-N3   | 4.48  | 1.46        | 1.38     |
| 82  | S2    | 172  | OMU  | C4-N3   | 4.46  | 1.46        | 1.38     |
| 82  | S2    | 428  | OMU  | C4-N3   | 4.44  | 1.46        | 1.38     |
| 82  | S2    | 1288 | OMU  | C4-N3   | 4.35  | 1.46        | 1.38     |
| 82  | S2    | 1326 | OMU  | C4-N3   | 4.32  | 1.46        | 1.38     |
| 82  | S2    | 799  | OMU  | C4-N3   | 4.28  | 1.45        | 1.38     |
| 2   | L5    | 4498 | OMU  | C4-N3   | 4.27  | 1.45        | 1.38     |
| 82  | S2    | 354  | OMU  | C4-N3   | 4.21  | 1.45        | 1.38     |
| 82  | S2    | 121  | OMU  | C4-N3   | 4.20  | 1.45        | 1.38     |
| 82  | S2    | 116  | OMU  | C4-N3   | 4.19  | 1.45        | 1.38     |
| 82  | S2    | 1850 | MA6  | C6-C5   | -4.19 | 1.38        | 1.44     |
| 2   | L5    | 2837 | OMU  | C4-N3   | 4.17  | 1.45        | 1.38     |
| 2   | L5    | 4227 | OMU  | C4-N3   | 4.15  | 1.45        | 1.38     |
| 2   | L5    | 3925 | OMU  | C4-N3   | 4.14  | 1.45        | 1.38     |
| 2   | L5    | 4306 | OMU  | C4-N3   | 4.10  | 1.45        | 1.38     |
| 2   | L5    | 4620 | OMU  | C4-N3   | 4.08  | 1.45        | 1.38     |

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| Mol | Chain | Res  | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 82  | S2    | 1832 | 6MZ  | C6-C5   | -4.00 | 1.38        | 1.44     |
| 82  | S2    | 1851 | MA6  | C6-C5   | -3.98 | 1.38        | 1.44     |
| 82  | S2    | 1248 | B8N  | C1'-C5  | 3.73  | 1.58        | 1.50     |
| 82  | S2    | 93   | PSU  | C6-C5   | 3.72  | 1.39        | 1.35     |
| 2   | L5    | 3818 | UY1  | O4-C4   | -3.72 | 1.16        | 1.23     |
| 82  | S2    | 1639 | G7M  | C6-N1   | 3.67  | 1.43        | 1.37     |
| 2   | L5    | 2401 | A2M  | O5'-C5' | -3.62 | 1.33        | 1.44     |
| 2   | L5    | 3637 | PSU  | C6-C5   | 3.62  | 1.39        | 1.35     |
| 2   | L5    | 4973 | PSU  | C6-C5   | 3.62  | 1.39        | 1.35     |
| 82  | S2    | 814  | PSU  | C6-C5   | 3.60  | 1.39        | 1.35     |
| 82  | S2    | 866  | PSU  | C6-C5   | 3.60  | 1.39        | 1.35     |
| 82  | S2    | 1367 | PSU  | C6-C5   | 3.59  | 1.39        | 1.35     |
| 2   | L5    | 2632 | PSU  | C6-C5   | 3.57  | 1.39        | 1.35     |
| 82  | S2    | 651  | PSU  | C6-C5   | 3.56  | 1.39        | 1.35     |
| 2   | L5    | 1782 | PSU  | C6-C5   | 3.53  | 1.39        | 1.35     |
| 82  | S2    | 686  | PSU  | C6-C5   | 3.52  | 1.39        | 1.35     |
| 82  | S2    | 1232 | PSU  | C6-C5   | 3.51  | 1.39        | 1.35     |
| 82  | S2    | 668  | A2M  | O5'-C5' | -3.51 | 1.34        | 1.44     |
| 82  | S2    | 966  | PSU  | C6-C5   | 3.50  | 1.39        | 1.35     |
| 2   | L5    | 3844 | PSU  | C6-C5   | 3.49  | 1.39        | 1.35     |
| 2   | L5    | 1862 | PSU  | C6-C5   | 3.48  | 1.39        | 1.35     |
| 2   | L5    | 4493 | PSU  | C6-C5   | 3.48  | 1.39        | 1.35     |
| 2   | L5    | 1534 | A2M  | O5'-C5' | -3.46 | 1.34        | 1.44     |
| 2   | L5    | 4296 | PSU  | C6-C5   | 3.46  | 1.39        | 1.35     |
| 82  | S2    | 1031 | A2M  | O5'-C5' | -3.46 | 1.34        | 1.44     |
| 2   | L5    | 4636 | PSU  | C6-C5   | 3.46  | 1.39        | 1.35     |
| 82  | S2    | 1244 | PSU  | C6-C5   | 3.44  | 1.39        | 1.35     |
| 82  | S2    | 801  | PSU  | C6-C5   | 3.43  | 1.39        | 1.35     |
| 82  | S2    | 649  | PSU  | C6-C5   | 3.43  | 1.39        | 1.35     |
| 2   | L5    | 1860 | PSU  | C6-C5   | 3.42  | 1.39        | 1.35     |
| 2   | L5    | 1323 | A2M  | O5'-C5' | -3.42 | 1.34        | 1.44     |
| 2   | L5    | 3830 | A2M  | O5'-C5' | -3.42 | 1.34        | 1.44     |
| 2   | L5    | 1871 | A2M  | O5'-C5' | -3.42 | 1.34        | 1.44     |
| 82  | S2    | 1383 | A2M  | O5'-C5' | -3.41 | 1.34        | 1.44     |
| 82  | S2    | 109  | PSU  | C6-C5   | 3.40  | 1.39        | 1.35     |
| 2   | L5    | 2815 | A2M  | O5'-C5' | -3.40 | 1.34        | 1.44     |
| 2   | L5    | 5010 | PSU  | C6-C5   | 3.38  | 1.39        | 1.35     |
| 82  | S2    | 1004 | PSU  | C6-C5   | 3.38  | 1.39        | 1.35     |
| 2   | L5    | 1582 | PSU  | C6-C5   | 3.38  | 1.39        | 1.35     |
| 2   | L5    | 4532 | PSU  | C6-C5   | 3.38  | 1.39        | 1.35     |
| 2   | L5    | 3853 | PSU  | C6-C5   | 3.38  | 1.39        | 1.35     |
| 2   | L5    | 4500 | PSU  | C6-C5   | 3.38  | 1.39        | 1.35     |

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| Mol | Chain | Res  | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 82  | S2    | 681  | PSU  | C6-C5   | 3.38  | 1.39        | 1.35     |
| 82  | S2    | 99   | A2M  | O5'-C5' | -3.37 | 1.34        | 1.44     |
| 2   | L5    | 4673 | PSU  | C6-C5   | 3.37  | 1.39        | 1.35     |
| 4   | L8    | 69   | PSU  | C6-C5   | 3.36  | 1.39        | 1.35     |
| 82  | S2    | 863  | PSU  | C6-C5   | 3.36  | 1.39        | 1.35     |
| 2   | L5    | 4972 | PSU  | C6-C5   | 3.35  | 1.39        | 1.35     |
| 82  | S2    | 1177 | PSU  | C6-C5   | 3.35  | 1.39        | 1.35     |
| 82  | S2    | 27   | A2M  | O5'-C5' | -3.34 | 1.34        | 1.44     |
| 82  | S2    | 406  | PSU  | C6-C5   | 3.33  | 1.39        | 1.35     |
| 2   | L5    | 4571 | A2M  | O5'-C5' | -3.33 | 1.34        | 1.44     |
| 2   | L5    | 4293 | PSU  | C6-C5   | 3.33  | 1.39        | 1.35     |
| 82  | S2    | 105  | PSU  | C6-C5   | 3.32  | 1.39        | 1.35     |
| 2   | L5    | 3718 | A2M  | O5'-C5' | -3.32 | 1.34        | 1.44     |
| 2   | L5    | 400  | A2M  | O5'-C5' | -3.31 | 1.34        | 1.44     |
| 82  | S2    | 1639 | G7M  | C5-C6   | 3.30  | 1.54        | 1.45     |
| 2   | L5    | 1781 | PSU  | C6-C5   | 3.30  | 1.38        | 1.35     |
| 82  | S2    | 1056 | PSU  | C6-C5   | 3.30  | 1.38        | 1.35     |
| 2   | L5    | 4299 | PSU  | C6-C5   | 3.30  | 1.38        | 1.35     |
| 2   | L5    | 2787 | A2M  | O5'-C5' | -3.30 | 1.34        | 1.44     |
| 2   | L5    | 4312 | PSU  | C6-C5   | 3.30  | 1.38        | 1.35     |
| 82  | S2    | 576  | A2M  | O5'-C5' | -3.30 | 1.34        | 1.44     |
| 2   | L5    | 1792 | PSU  | C6-C5   | 3.29  | 1.38        | 1.35     |
| 2   | L5    | 4590 | A2M  | O5'-C5' | -3.29 | 1.34        | 1.44     |
| 2   | L5    | 398  | A2M  | O5'-C5' | -3.29 | 1.34        | 1.44     |
| 2   | L5    | 1744 | PSU  | C6-C5   | 3.28  | 1.38        | 1.35     |
| 2   | L5    | 4576 | PSU  | C6-C5   | 3.28  | 1.38        | 1.35     |
| 2   | L5    | 1326 | A2M  | O5'-C5' | -3.28 | 1.34        | 1.44     |
| 2   | L5    | 2363 | A2M  | O5'-C5' | -3.28 | 1.34        | 1.44     |
| 2   | L5    | 3818 | UY1  | C1'-C5  | 3.28  | 1.57        | 1.50     |
| 2   | L5    | 1683 | PSU  | C6-C5   | 3.28  | 1.38        | 1.35     |
| 2   | L5    | 3818 | UY1  | O2-C2   | -3.27 | 1.16        | 1.23     |
| 2   | L5    | 3695 | PSU  | C6-C5   | 3.27  | 1.38        | 1.35     |
| 82  | S2    | 484  | A2M  | O5'-C5' | -3.27 | 1.34        | 1.44     |
| 82  | S2    | 1850 | MA6  | C6-N6   | 3.26  | 1.45        | 1.37     |
| 2   | L5    | 3825 | A2M  | O5'-C5' | -3.26 | 1.34        | 1.44     |
| 2   | L5    | 2839 | PSU  | C6-C5   | 3.25  | 1.38        | 1.35     |
| 2   | L5    | 1677 | PSU  | C6-C5   | 3.25  | 1.38        | 1.35     |
| 2   | L5    | 3920 | PSU  | C6-C5   | 3.24  | 1.38        | 1.35     |
| 82  | S2    | 1081 | PSU  | C6-C5   | 3.24  | 1.38        | 1.35     |
| 2   | L5    | 1524 | A2M  | O5'-C5' | -3.23 | 1.34        | 1.44     |
| 2   | L5    | 4353 | PSU  | C6-C5   | 3.23  | 1.38        | 1.35     |
| 2   | L5    | 4471 | PSU  | C6-C5   | 3.23  | 1.38        | 1.35     |

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| Mol | Chain | Res  | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 2   | L5    | 3884 | PSU  | C6-C5   | 3.23  | 1.38        | 1.35     |
| 2   | L5    | 3851 | PSU  | C6-C5   | 3.22  | 1.38        | 1.35     |
| 2   | L5    | 4361 | PSU  | C6-C5   | 3.22  | 1.38        | 1.35     |
| 2   | L5    | 4442 | PSU  | C6-C5   | 3.22  | 1.38        | 1.35     |
| 2   | L5    | 3639 | PSU  | C6-C5   | 3.22  | 1.38        | 1.35     |
| 82  | S2    | 1045 | PSU  | C6-C5   | 3.22  | 1.38        | 1.35     |
| 2   | L5    | 2876 | OMG  | C8-N7   | -3.22 | 1.29        | 1.34     |
| 82  | S2    | 166  | A2M  | O5'-C5' | -3.21 | 1.34        | 1.44     |
| 2   | L5    | 3822 | PSU  | C6-C5   | 3.21  | 1.38        | 1.35     |
| 82  | S2    | 1046 | PSU  | C6-C5   | 3.21  | 1.38        | 1.35     |
| 2   | L5    | 4579 | PSU  | C6-C5   | 3.20  | 1.38        | 1.35     |
| 82  | S2    | 1851 | MA6  | C6-N6   | 3.20  | 1.44        | 1.37     |
| 2   | L5    | 4521 | PSU  | C6-C5   | 3.20  | 1.38        | 1.35     |
| 82  | S2    | 468  | A2M  | O5'-C5' | -3.19 | 1.34        | 1.44     |
| 2   | L5    | 3867 | A2M  | O5'-C5' | -3.19 | 1.34        | 1.44     |
| 2   | L5    | 4523 | A2M  | O5'-C5' | -3.19 | 1.34        | 1.44     |
| 2   | L5    | 1316 | OMG  | C8-N7   | -3.19 | 1.29        | 1.34     |
| 4   | L8    | 55   | PSU  | C6-C5   | 3.19  | 1.38        | 1.35     |
| 2   | L5    | 4552 | PSU  | C6-C5   | 3.19  | 1.38        | 1.35     |
| 2   | L5    | 5001 | PSU  | C6-C5   | 3.18  | 1.38        | 1.35     |
| 2   | L5    | 4628 | PSU  | C6-C5   | 3.18  | 1.38        | 1.35     |
| 82  | S2    | 867  | OMG  | C8-N7   | -3.18 | 1.29        | 1.34     |
| 82  | S2    | 159  | A2M  | O5'-C5' | -3.16 | 1.35        | 1.44     |
| 2   | L5    | 3785 | A2M  | O5'-C5' | -3.15 | 1.35        | 1.44     |
| 2   | L5    | 4431 | PSU  | C6-C5   | 3.14  | 1.38        | 1.35     |
| 82  | S2    | 1174 | PSU  | C6-C5   | 3.12  | 1.38        | 1.35     |
| 2   | L5    | 4618 | OMG  | C8-N7   | -3.11 | 1.30        | 1.34     |
| 2   | L5    | 4370 | OMG  | C8-N7   | -3.11 | 1.30        | 1.34     |
| 2   | L5    | 1536 | PSU  | C6-C5   | 3.11  | 1.38        | 1.35     |
| 2   | L5    | 2364 | OMG  | C8-N7   | -3.07 | 1.30        | 1.34     |
| 2   | L5    | 4196 | OMG  | C8-N7   | -3.07 | 1.30        | 1.34     |
| 2   | L5    | 3792 | OMG  | C8-N7   | -3.05 | 1.30        | 1.34     |
| 82  | S2    | 683  | OMG  | C8-N7   | -3.05 | 1.30        | 1.34     |
| 2   | L5    | 4689 | PSU  | C6-C5   | 3.05  | 1.38        | 1.35     |
| 2   | L5    | 4457 | PSU  | C6-C5   | 3.03  | 1.38        | 1.35     |
| 2   | L5    | 3627 | OMG  | C8-N7   | -3.02 | 1.30        | 1.34     |
| 2   | L5    | 4623 | OMG  | C8-N7   | -3.00 | 1.30        | 1.34     |
| 2   | L5    | 2424 | OMG  | C8-N7   | -3.00 | 1.30        | 1.34     |
| 2   | L5    | 4392 | OMG  | C8-N7   | -3.00 | 1.30        | 1.34     |
| 82  | S2    | 1288 | OMU  | C5-C4   | 2.99  | 1.50        | 1.43     |
| 82  | S2    | 601  | OMG  | C8-N7   | -2.97 | 1.30        | 1.34     |
| 2   | L5    | 4637 | OMG  | C8-N7   | -2.97 | 1.30        | 1.34     |

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| Mol | Chain | Res  | Type | Atoms  | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|--------|-------|-------------|----------|
| 2   | L5    | 1625 | OMG  | C8-N7  | -2.97 | 1.30        | 1.34     |
| 82  | S2    | 627  | OMU  | C5-C4  | 2.97  | 1.50        | 1.43     |
| 82  | S2    | 436  | OMG  | C8-N7  | -2.96 | 1.30        | 1.34     |
| 82  | S2    | 1490 | OMG  | C8-N7  | -2.96 | 1.30        | 1.34     |
| 2   | L5    | 3899 | OMG  | C8-N7  | -2.95 | 1.30        | 1.34     |
| 2   | L5    | 3744 | OMG  | C8-N7  | -2.94 | 1.30        | 1.34     |
| 82  | S2    | 1328 | OMG  | C8-N7  | -2.92 | 1.30        | 1.34     |
| 2   | L5    | 4494 | OMG  | C8-N7  | -2.92 | 1.30        | 1.34     |
| 2   | L5    | 1522 | OMG  | C8-N7  | -2.90 | 1.30        | 1.34     |
| 82  | S2    | 644  | OMG  | C8-N7  | -2.89 | 1.30        | 1.34     |
| 82  | S2    | 867  | OMG  | C5-C6  | -2.88 | 1.41        | 1.47     |
| 2   | L5    | 2401 | A2M  | C1'-N9 | -2.87 | 1.42        | 1.49     |
| 82  | S2    | 509  | OMG  | C8-N7  | -2.87 | 1.30        | 1.34     |
| 82  | S2    | 428  | OMU  | C5-C4  | 2.86  | 1.49        | 1.43     |
| 82  | S2    | 172  | OMU  | C5-C4  | 2.85  | 1.49        | 1.43     |
| 2   | L5    | 4403 | PSU  | C6-C5  | 2.85  | 1.38        | 1.35     |
| 2   | L5    | 3792 | OMG  | C5-C6  | -2.84 | 1.41        | 1.47     |
| 2   | L5    | 4499 | OMG  | C8-N7  | -2.83 | 1.30        | 1.34     |
| 2   | L5    | 4227 | OMU  | C5-C4  | 2.83  | 1.49        | 1.43     |
| 2   | L5    | 2876 | OMG  | C5-C6  | -2.83 | 1.41        | 1.47     |
| 2   | L5    | 2363 | A2M  | C1'-N9 | -2.82 | 1.42        | 1.49     |
| 82  | S2    | 1326 | OMU  | C5-C4  | 2.80  | 1.49        | 1.43     |
| 2   | L5    | 1316 | OMG  | C5-C6  | -2.79 | 1.41        | 1.47     |
| 82  | S2    | 1639 | G7M  | C2-N1  | 2.78  | 1.44        | 1.37     |
| 4   | L8    | 75   | OMG  | C8-N7  | -2.78 | 1.30        | 1.34     |
| 2   | L5    | 3925 | OMU  | C5-C4  | 2.77  | 1.49        | 1.43     |
| 82  | S2    | 1442 | OMU  | C5-C4  | 2.75  | 1.49        | 1.43     |
| 82  | S2    | 1851 | MA6  | C2-N3  | 2.75  | 1.36        | 1.32     |
| 82  | S2    | 121  | OMU  | C5-C4  | 2.75  | 1.49        | 1.43     |
| 82  | S2    | 799  | OMU  | C5-C4  | 2.74  | 1.49        | 1.43     |
| 82  | S2    | 1288 | OMU  | C6-N1  | 2.74  | 1.44        | 1.38     |
| 82  | S2    | 436  | OMG  | C5-C6  | -2.74 | 1.42        | 1.47     |
| 82  | S2    | 354  | OMU  | C5-C4  | 2.74  | 1.49        | 1.43     |
| 2   | L5    | 4370 | OMG  | C5-C6  | -2.73 | 1.42        | 1.47     |
| 2   | L5    | 4196 | OMG  | C5-C6  | -2.73 | 1.42        | 1.47     |
| 82  | S2    | 1490 | OMG  | C5-C6  | -2.72 | 1.42        | 1.47     |
| 82  | S2    | 683  | OMG  | C5-C6  | -2.71 | 1.42        | 1.47     |
| 2   | L5    | 4228 | OMG  | C8-N7  | -2.71 | 1.30        | 1.34     |
| 2   | L5    | 4306 | OMU  | C5-C4  | 2.71  | 1.49        | 1.43     |
| 2   | L5    | 4498 | OMU  | C5-C4  | 2.71  | 1.49        | 1.43     |
| 2   | L5    | 4620 | OMU  | C5-C4  | 2.69  | 1.49        | 1.43     |
| 2   | L5    | 4494 | OMG  | C5-C6  | -2.68 | 1.42        | 1.47     |

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| Mol | Chain | Res  | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 2   | L5    | 2424 | OMG  | C5-C6   | -2.68 | 1.42        | 1.47     |
| 2   | L5    | 2837 | OMU  | C5-C4   | 2.68  | 1.49        | 1.43     |
| 2   | L5    | 4392 | OMG  | C5-C6   | -2.68 | 1.42        | 1.47     |
| 82  | S2    | 468  | A2M  | C1'-N9  | -2.67 | 1.43        | 1.49     |
| 2   | L5    | 4623 | OMG  | C5-C6   | -2.67 | 1.42        | 1.47     |
| 82  | S2    | 121  | OMU  | C6-N1   | 2.66  | 1.44        | 1.38     |
| 82  | S2    | 166  | A2M  | C1'-N9  | -2.66 | 1.43        | 1.49     |
| 2   | L5    | 4637 | OMG  | C5-C6   | -2.65 | 1.42        | 1.47     |
| 82  | S2    | 99   | A2M  | C1'-N9  | -2.64 | 1.43        | 1.49     |
| 4   | L8    | 75   | OMG  | C5-C6   | -2.64 | 1.42        | 1.47     |
| 82  | S2    | 1442 | OMU  | C6-N1   | 2.64  | 1.44        | 1.38     |
| 82  | S2    | 116  | OMU  | C5-C4   | 2.63  | 1.49        | 1.43     |
| 2   | L5    | 3830 | A2M  | C1'-N9  | -2.62 | 1.43        | 1.49     |
| 82  | S2    | 172  | OMU  | C6-N1   | 2.61  | 1.44        | 1.38     |
| 82  | S2    | 799  | OMU  | C6-N1   | 2.61  | 1.44        | 1.38     |
| 2   | L5    | 1522 | OMG  | C5-C6   | -2.61 | 1.42        | 1.47     |
| 82  | S2    | 428  | OMU  | C6-N1   | 2.61  | 1.44        | 1.38     |
| 82  | S2    | 576  | A2M  | C1'-N9  | -2.61 | 1.43        | 1.49     |
| 82  | S2    | 601  | OMG  | C5-C6   | -2.61 | 1.42        | 1.47     |
| 2   | L5    | 4220 | 6MZ  | O3'-C3' | 2.61  | 1.49        | 1.43     |
| 2   | L5    | 3899 | OMG  | C5-C6   | -2.60 | 1.42        | 1.47     |
| 2   | L5    | 3744 | OMG  | C5-C6   | -2.59 | 1.42        | 1.47     |
| 82  | S2    | 627  | OMU  | C6-N1   | 2.59  | 1.44        | 1.38     |
| 2   | L5    | 1625 | OMG  | C5-C6   | -2.59 | 1.42        | 1.47     |
| 2   | L5    | 4618 | OMG  | C5-C6   | -2.59 | 1.42        | 1.47     |
| 2   | L5    | 3627 | OMG  | C5-C6   | -2.58 | 1.42        | 1.47     |
| 82  | S2    | 1326 | OMU  | C6-N1   | 2.58  | 1.44        | 1.38     |
| 82  | S2    | 1383 | A2M  | C1'-N9  | -2.57 | 1.43        | 1.49     |
| 2   | L5    | 4530 | UR3  | O2-C2   | -2.57 | 1.17        | 1.22     |
| 82  | S2    | 354  | OMU  | C6-N1   | 2.56  | 1.44        | 1.38     |
| 82  | S2    | 1031 | A2M  | C1'-N9  | -2.56 | 1.43        | 1.49     |
| 2   | L5    | 4498 | OMU  | C6-N1   | 2.55  | 1.44        | 1.38     |
| 2   | L5    | 4499 | OMG  | C5-C6   | -2.55 | 1.42        | 1.47     |
| 2   | L5    | 2364 | OMG  | C5-C6   | -2.54 | 1.42        | 1.47     |
| 2   | L5    | 4228 | OMG  | C5-C6   | -2.53 | 1.42        | 1.47     |
| 82  | S2    | 27   | A2M  | C1'-N9  | -2.53 | 1.43        | 1.49     |
| 2   | L5    | 1871 | A2M  | C1'-N9  | -2.52 | 1.43        | 1.49     |
| 82  | S2    | 644  | OMG  | C5-C6   | -2.51 | 1.42        | 1.47     |
| 82  | S2    | 509  | OMG  | C5-C6   | -2.51 | 1.42        | 1.47     |
| 82  | S2    | 116  | OMU  | C6-N1   | 2.50  | 1.44        | 1.38     |
| 2   | L5    | 4620 | OMU  | C6-N1   | 2.49  | 1.44        | 1.38     |
| 2   | L5    | 4523 | A2M  | C1'-N9  | -2.49 | 1.43        | 1.49     |

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| Mol | Chain | Res  | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 2   | L5    | 3925 | OMU  | C6-N1   | 2.48  | 1.44        | 1.38     |
| 2   | L5    | 1322 | 1MA  | C5-C4   | -2.47 | 1.37        | 1.43     |
| 2   | L5    | 398  | A2M  | C1'-N9  | -2.47 | 1.43        | 1.49     |
| 2   | L5    | 2837 | OMU  | C6-N1   | 2.47  | 1.44        | 1.38     |
| 2   | L5    | 4227 | OMU  | C6-N1   | 2.47  | 1.44        | 1.38     |
| 2   | L5    | 4530 | UR3  | C6-N1   | 2.44  | 1.43        | 1.38     |
| 82  | S2    | 1850 | MA6  | C2-N3   | 2.43  | 1.35        | 1.32     |
| 2   | L5    | 1322 | 1MA  | C8-N7   | -2.42 | 1.31        | 1.34     |
| 82  | S2    | 1328 | OMG  | C5-C6   | -2.41 | 1.42        | 1.47     |
| 2   | L5    | 4306 | OMU  | C6-N1   | 2.37  | 1.43        | 1.38     |
| 2   | L5    | 2815 | A2M  | C1'-N9  | -2.35 | 1.44        | 1.49     |
| 2   | L5    | 3785 | A2M  | C1'-N9  | -2.35 | 1.44        | 1.49     |
| 2   | L5    | 4571 | A2M  | C1'-N9  | -2.32 | 1.44        | 1.49     |
| 2   | L5    | 1534 | A2M  | C1'-N9  | -2.29 | 1.44        | 1.49     |
| 82  | S2    | 668  | A2M  | O4'-C4' | -2.29 | 1.39        | 1.45     |
| 2   | L5    | 1326 | A2M  | C1'-N9  | -2.26 | 1.44        | 1.49     |
| 2   | L5    | 4530 | UR3  | C3U-N3  | 2.25  | 1.51        | 1.47     |
| 2   | L5    | 4590 | A2M  | C1'-N9  | -2.24 | 1.44        | 1.49     |
| 2   | L5    | 3718 | A2M  | C1'-N9  | -2.24 | 1.44        | 1.49     |
| 2   | L5    | 4530 | UR3  | C5-C4   | 2.24  | 1.49        | 1.43     |
| 2   | L5    | 3867 | A2M  | O4'-C4' | -2.21 | 1.40        | 1.45     |
| 2   | L5    | 400  | A2M  | C1'-N9  | -2.19 | 1.44        | 1.49     |
| 2   | L5    | 3818 | UY1  | O4'-C1' | -2.18 | 1.40        | 1.43     |
| 82  | S2    | 1832 | 6MZ  | C2-N3   | 2.17  | 1.35        | 1.32     |
| 2   | L5    | 3825 | A2M  | C1'-N9  | -2.17 | 1.44        | 1.49     |
| 2   | L5    | 2787 | A2M  | C1'-N9  | -2.16 | 1.44        | 1.49     |
| 2   | L5    | 4220 | 6MZ  | C2-N3   | 2.13  | 1.35        | 1.32     |
| 2   | L5    | 3627 | OMG  | C5-C4   | -2.13 | 1.37        | 1.43     |
| 2   | L5    | 3822 | PSU  | O4'-C1' | -2.10 | 1.40        | 1.43     |
| 2   | L5    | 3818 | UY1  | C4-C5   | 2.10  | 1.50        | 1.44     |
| 2   | L5    | 2876 | OMG  | C5-C4   | -2.10 | 1.37        | 1.43     |
| 2   | L5    | 1582 | PSU  | C4-C5   | -2.10 | 1.38        | 1.44     |
| 2   | L5    | 4521 | PSU  | C4-C5   | -2.08 | 1.38        | 1.44     |
| 2   | L5    | 4500 | PSU  | C4-C5   | -2.07 | 1.38        | 1.44     |
| 2   | L5    | 4471 | PSU  | C4-C5   | -2.07 | 1.38        | 1.44     |
| 2   | L5    | 5001 | PSU  | C4-C5   | -2.07 | 1.38        | 1.44     |
| 2   | L5    | 3822 | PSU  | C4-C5   | -2.07 | 1.38        | 1.44     |
| 82  | S2    | 668  | A2M  | C1'-N9  | -2.06 | 1.44        | 1.49     |
| 2   | L5    | 4293 | PSU  | C4-C5   | -2.06 | 1.38        | 1.44     |
| 2   | L5    | 4457 | PSU  | C4-C5   | -2.06 | 1.38        | 1.44     |
| 2   | L5    | 3792 | OMG  | C5-C4   | -2.05 | 1.38        | 1.43     |
| 82  | S2    | 1174 | PSU  | C4-C5   | -2.05 | 1.38        | 1.44     |

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| Mol | Chain | Res  | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 2   | L5    | 1323 | A2M  | C1'-N9  | -2.04 | 1.44        | 1.49     |
| 82  | S2    | 1081 | PSU  | C4-C5   | -2.04 | 1.38        | 1.44     |
| 82  | S2    | 686  | PSU  | C4-C5   | -2.04 | 1.38        | 1.44     |
| 2   | L5    | 1677 | PSU  | C4-C5   | -2.03 | 1.38        | 1.44     |
| 2   | L5    | 3695 | PSU  | C4-C5   | -2.03 | 1.38        | 1.44     |
| 2   | L5    | 4228 | OMG  | C5-C4   | -2.03 | 1.38        | 1.43     |
| 2   | L5    | 1534 | A2M  | O4'-C4' | -2.03 | 1.40        | 1.45     |
| 2   | L5    | 4296 | PSU  | C4-C5   | -2.02 | 1.38        | 1.44     |
| 82  | S2    | 1244 | PSU  | C4-C5   | -2.02 | 1.38        | 1.44     |
| 2   | L5    | 1534 | A2M  | O3'-C3' | -2.01 | 1.38        | 1.43     |
| 82  | S2    | 1383 | A2M  | O4'-C4' | -2.01 | 1.40        | 1.45     |
| 82  | S2    | 1177 | PSU  | C4-C5   | -2.01 | 1.38        | 1.44     |
| 82  | S2    | 1639 | G7M  | O6-C6   | -2.00 | 1.18        | 1.23     |

All (677) bond angle outliers are listed below:

| Mol | Chain | Res  | Type | Atoms       | Z      | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|--------|-------------|----------|
| 82  | S2    | 1850 | MA6  | N1-C6-N6    | -12.52 | 102.36      | 116.83   |
| 82  | S2    | 1851 | MA6  | N1-C6-N6    | -12.23 | 102.70      | 116.83   |
| 2   | L5    | 3785 | A2M  | C4'-O4'-C1' | -7.96  | 102.64      | 109.92   |
| 82  | S2    | 1850 | MA6  | N3-C2-N1    | -6.51  | 119.84      | 128.67   |
| 82  | S2    | 1851 | MA6  | N3-C2-N1    | -6.47  | 119.90      | 128.67   |
| 82  | S2    | 1832 | 6MZ  | N3-C2-N1    | -6.46  | 119.91      | 128.67   |
| 2   | L5    | 4220 | 6MZ  | N3-C2-N1    | -6.42  | 119.96      | 128.67   |
| 2   | L5    | 3925 | OMU  | C4-N3-C2    | -6.00  | 119.17      | 126.61   |
| 2   | L5    | 4227 | OMU  | C4-N3-C2    | -5.88  | 119.31      | 126.61   |
| 82  | S2    | 627  | OMU  | C4-N3-C2    | -5.87  | 119.33      | 126.61   |
| 2   | L5    | 4220 | 6MZ  | C4'-O4'-C1' | -5.83  | 104.58      | 109.92   |
| 2   | L5    | 4498 | OMU  | C4-N3-C2    | -5.82  | 119.39      | 126.61   |
| 2   | L5    | 1524 | A2M  | C4'-O4'-C1' | -5.82  | 104.60      | 109.92   |
| 82  | S2    | 428  | OMU  | C4-N3-C2    | -5.76  | 119.47      | 126.61   |
| 82  | S2    | 1288 | OMU  | C4-N3-C2    | -5.74  | 119.49      | 126.61   |
| 82  | S2    | 1383 | A2M  | C4'-O4'-C1' | -5.67  | 104.73      | 109.92   |
| 2   | L5    | 4523 | A2M  | C4'-O4'-C1' | -5.66  | 104.74      | 109.92   |
| 82  | S2    | 172  | OMU  | C4-N3-C2    | -5.60  | 119.66      | 126.61   |
| 82  | S2    | 799  | OMU  | C4-N3-C2    | -5.60  | 119.67      | 126.61   |
| 82  | S2    | 1326 | OMU  | C4-N3-C2    | -5.58  | 119.68      | 126.61   |
| 2   | L5    | 1871 | A2M  | C4'-O4'-C1' | -5.57  | 104.82      | 109.92   |
| 2   | L5    | 4530 | UR3  | C4-N3-C2    | -5.52  | 120.14      | 124.58   |
| 82  | S2    | 1442 | OMU  | C4-N3-C2    | -5.49  | 119.79      | 126.61   |
| 2   | L5    | 4306 | OMU  | C4-N3-C2    | -5.47  | 119.82      | 126.61   |
| 82  | S2    | 354  | OMU  | C4-N3-C2    | -5.41  | 119.90      | 126.61   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 2   | L5    | 2837 | OMU  | C4-N3-C2    | -5.39 | 119.93      | 126.61   |
| 2   | L5    | 1536 | PSU  | N1-C2-N3    | 5.38  | 120.85      | 115.17   |
| 82  | S2    | 1248 | B8N  | C5-C4-N3    | 5.35  | 125.86      | 116.15   |
| 82  | S2    | 121  | OMU  | C4-N3-C2    | -5.32 | 120.00      | 126.61   |
| 2   | L5    | 4471 | PSU  | C4-N3-C2    | -5.30 | 119.06      | 126.37   |
| 2   | L5    | 4457 | PSU  | N1-C2-N3    | 5.30  | 120.75      | 115.17   |
| 2   | L5    | 5010 | PSU  | N1-C2-N3    | 5.27  | 120.72      | 115.17   |
| 82  | S2    | 1174 | PSU  | C4-N3-C2    | -5.26 | 119.13      | 126.37   |
| 2   | L5    | 1536 | PSU  | C4-N3-C2    | -5.25 | 119.14      | 126.37   |
| 2   | L5    | 4403 | PSU  | C4-N3-C2    | -5.21 | 119.19      | 126.37   |
| 82  | S2    | 1045 | PSU  | C4-N3-C2    | -5.21 | 119.20      | 126.37   |
| 2   | L5    | 4972 | PSU  | N1-C2-N3    | 5.20  | 120.66      | 115.17   |
| 82  | S2    | 1045 | PSU  | N1-C2-N3    | 5.19  | 120.64      | 115.17   |
| 2   | L5    | 4296 | PSU  | C4-N3-C2    | -5.18 | 119.24      | 126.37   |
| 2   | L5    | 4579 | PSU  | N1-C2-N3    | 5.18  | 120.63      | 115.17   |
| 82  | S2    | 166  | A2M  | C4'-O4'-C1' | -5.17 | 105.19      | 109.92   |
| 2   | L5    | 4431 | PSU  | C4-N3-C2    | -5.16 | 119.26      | 126.37   |
| 2   | L5    | 4471 | PSU  | N1-C2-N3    | 5.16  | 120.61      | 115.17   |
| 4   | L8    | 55   | PSU  | C4-N3-C2    | -5.16 | 119.27      | 126.37   |
| 2   | L5    | 1744 | PSU  | C4-N3-C2    | -5.16 | 119.27      | 126.37   |
| 2   | L5    | 4353 | PSU  | N1-C2-N3    | 5.15  | 120.60      | 115.17   |
| 2   | L5    | 4296 | PSU  | N1-C2-N3    | 5.14  | 120.59      | 115.17   |
| 2   | L5    | 4312 | PSU  | C4-N3-C2    | -5.14 | 119.29      | 126.37   |
| 2   | L5    | 4361 | PSU  | C4-N3-C2    | -5.14 | 119.29      | 126.37   |
| 2   | L5    | 4431 | PSU  | N1-C2-N3    | 5.14  | 120.59      | 115.17   |
| 82  | S2    | 1174 | PSU  | N1-C2-N3    | 5.14  | 120.59      | 115.17   |
| 2   | L5    | 4636 | PSU  | C4-N3-C2    | -5.14 | 119.30      | 126.37   |
| 2   | L5    | 1683 | PSU  | N1-C2-N3    | 5.14  | 120.58      | 115.17   |
| 2   | L5    | 3884 | PSU  | C4-N3-C2    | -5.13 | 119.30      | 126.37   |
| 2   | L5    | 3920 | PSU  | N1-C2-N3    | 5.13  | 120.58      | 115.17   |
| 2   | L5    | 4403 | PSU  | N1-C2-N3    | 5.13  | 120.58      | 115.17   |
| 4   | L8    | 69   | PSU  | N1-C2-N3    | 5.13  | 120.58      | 115.17   |
| 82  | S2    | 109  | PSU  | N1-C2-N3    | 5.12  | 120.56      | 115.17   |
| 2   | L5    | 4293 | PSU  | C4-N3-C2    | -5.11 | 119.33      | 126.37   |
| 82  | S2    | 1004 | PSU  | N1-C2-N3    | 5.11  | 120.56      | 115.17   |
| 82  | S2    | 1081 | PSU  | C4-N3-C2    | -5.11 | 119.33      | 126.37   |
| 2   | L5    | 1782 | PSU  | N1-C2-N3    | 5.10  | 120.55      | 115.17   |
| 2   | L5    | 1781 | PSU  | N1-C2-N3    | 5.10  | 120.55      | 115.17   |
| 2   | L5    | 4552 | PSU  | C4-N3-C2    | -5.10 | 119.35      | 126.37   |
| 82  | S2    | 966  | PSU  | N1-C2-N3    | 5.09  | 120.54      | 115.17   |
| 2   | L5    | 4673 | PSU  | N1-C2-N3    | 5.09  | 120.53      | 115.17   |
| 82  | S2    | 1367 | PSU  | N1-C2-N3    | 5.09  | 120.53      | 115.17   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 2   | L5    | 4636 | PSU  | N1-C2-N3    | 5.08  | 120.52      | 115.17   |
| 82  | S2    | 406  | PSU  | C4-N3-C2    | -5.07 | 119.38      | 126.37   |
| 2   | L5    | 4442 | PSU  | N1-C2-N3    | 5.07  | 120.52      | 115.17   |
| 82  | S2    | 686  | PSU  | N1-C2-N3    | 5.07  | 120.52      | 115.17   |
| 82  | S2    | 814  | PSU  | C4-N3-C2    | -5.07 | 119.38      | 126.37   |
| 2   | L5    | 1683 | PSU  | C4-N3-C2    | -5.07 | 119.39      | 126.37   |
| 2   | L5    | 3639 | PSU  | N1-C2-N3    | 5.07  | 120.51      | 115.17   |
| 2   | L5    | 3920 | PSU  | C4-N3-C2    | -5.07 | 119.39      | 126.37   |
| 2   | L5    | 3884 | PSU  | N1-C2-N3    | 5.07  | 120.51      | 115.17   |
| 2   | L5    | 4620 | OMU  | C4-N3-C2    | -5.06 | 120.33      | 126.61   |
| 2   | L5    | 3639 | PSU  | C4-N3-C2    | -5.04 | 119.42      | 126.37   |
| 4   | L8    | 69   | PSU  | C4-N3-C2    | -5.04 | 119.42      | 126.37   |
| 82  | S2    | 105  | PSU  | N1-C2-N3    | 5.04  | 120.49      | 115.17   |
| 2   | L5    | 4628 | PSU  | N1-C2-N3    | 5.04  | 120.48      | 115.17   |
| 82  | S2    | 406  | PSU  | N1-C2-N3    | 5.04  | 120.48      | 115.17   |
| 2   | L5    | 1792 | PSU  | N1-C2-N3    | 5.04  | 120.48      | 115.17   |
| 2   | L5    | 4361 | PSU  | N1-C2-N3    | 5.03  | 120.48      | 115.17   |
| 4   | L8    | 55   | PSU  | N1-C2-N3    | 5.03  | 120.48      | 115.17   |
| 2   | L5    | 1862 | PSU  | N1-C2-N3    | 5.03  | 120.48      | 115.17   |
| 2   | L5    | 1862 | PSU  | C4-N3-C2    | -5.03 | 119.44      | 126.37   |
| 2   | L5    | 4579 | PSU  | C4-N3-C2    | -5.02 | 119.45      | 126.37   |
| 82  | S2    | 1004 | PSU  | C4-N3-C2    | -5.02 | 119.46      | 126.37   |
| 2   | L5    | 5010 | PSU  | C4-N3-C2    | -5.02 | 119.46      | 126.37   |
| 2   | L5    | 4521 | PSU  | C4-N3-C2    | -5.02 | 119.46      | 126.37   |
| 2   | L5    | 4353 | PSU  | C4-N3-C2    | -5.01 | 119.47      | 126.37   |
| 2   | L5    | 4493 | PSU  | C4-N3-C2    | -5.01 | 119.47      | 126.37   |
| 82  | S2    | 1056 | PSU  | N1-C2-N3    | 5.00  | 120.45      | 115.17   |
| 2   | L5    | 3822 | PSU  | N1-C2-N3    | 5.00  | 120.44      | 115.17   |
| 82  | S2    | 1046 | PSU  | N1-C2-N3    | 4.99  | 120.43      | 115.17   |
| 82  | S2    | 116  | OMU  | C4-N3-C2    | -4.99 | 120.42      | 126.61   |
| 2   | L5    | 4552 | PSU  | N1-C2-N3    | 4.99  | 120.43      | 115.17   |
| 82  | S2    | 1046 | PSU  | C4-N3-C2    | -4.98 | 119.51      | 126.37   |
| 82  | S2    | 649  | PSU  | N1-C2-N3    | 4.98  | 120.42      | 115.17   |
| 2   | L5    | 4521 | PSU  | N1-C2-N3    | 4.97  | 120.41      | 115.17   |
| 82  | S2    | 468  | A2M  | C4'-O4'-C1' | -4.97 | 105.38      | 109.92   |
| 82  | S2    | 863  | PSU  | C4-N3-C2    | -4.96 | 119.54      | 126.37   |
| 82  | S2    | 966  | PSU  | C4-N3-C2    | -4.96 | 119.54      | 126.37   |
| 2   | L5    | 4312 | PSU  | N1-C2-N3    | 4.96  | 120.40      | 115.17   |
| 2   | L5    | 4299 | PSU  | C4-N3-C2    | -4.96 | 119.54      | 126.37   |
| 2   | L5    | 4673 | PSU  | C4-N3-C2    | -4.95 | 119.55      | 126.37   |
| 2   | L5    | 2839 | PSU  | N1-C2-N3    | 4.95  | 120.39      | 115.17   |
| 2   | L5    | 3637 | PSU  | N1-C2-N3    | 4.95  | 120.38      | 115.17   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 2   | L5    | 5001 | PSU  | C4-N3-C2    | -4.94 | 119.56      | 126.37   |
| 2   | L5    | 4972 | PSU  | C4-N3-C2    | -4.94 | 119.56      | 126.37   |
| 2   | L5    | 1860 | PSU  | N1-C2-N3    | 4.94  | 120.38      | 115.17   |
| 2   | L5    | 4299 | PSU  | N1-C2-N3    | 4.94  | 120.38      | 115.17   |
| 82  | S2    | 93   | PSU  | C4-N3-C2    | -4.94 | 119.57      | 126.37   |
| 2   | L5    | 4220 | 6MZ  | C9-N6-C6    | -4.94 | 118.27      | 122.85   |
| 2   | L5    | 1792 | PSU  | C4-N3-C2    | -4.93 | 119.58      | 126.37   |
| 2   | L5    | 4500 | PSU  | C4-N3-C2    | -4.93 | 119.58      | 126.37   |
| 2   | L5    | 2839 | PSU  | C4-N3-C2    | -4.93 | 119.58      | 126.37   |
| 2   | L5    | 3851 | PSU  | C4-N3-C2    | -4.93 | 119.59      | 126.37   |
| 82  | S2    | 109  | PSU  | C4-N3-C2    | -4.92 | 119.59      | 126.37   |
| 2   | L5    | 4457 | PSU  | C4-N3-C2    | -4.92 | 119.60      | 126.37   |
| 82  | S2    | 863  | PSU  | N1-C2-N3    | 4.92  | 120.35      | 115.17   |
| 2   | L5    | 1860 | PSU  | C4-N3-C2    | -4.91 | 119.60      | 126.37   |
| 2   | L5    | 1582 | PSU  | N1-C2-N3    | 4.91  | 120.35      | 115.17   |
| 82  | S2    | 651  | PSU  | N1-C2-N3    | 4.91  | 120.35      | 115.17   |
| 2   | L5    | 3695 | PSU  | N1-C2-N3    | 4.91  | 120.34      | 115.17   |
| 82  | S2    | 681  | PSU  | N1-C2-N3    | 4.90  | 120.34      | 115.17   |
| 82  | S2    | 1177 | PSU  | C4-N3-C2    | -4.90 | 119.62      | 126.37   |
| 2   | L5    | 3818 | UY1  | C4-N3-C2    | -4.90 | 119.62      | 126.37   |
| 82  | S2    | 814  | PSU  | N1-C2-N3    | 4.89  | 120.32      | 115.17   |
| 82  | S2    | 649  | PSU  | C4-N3-C2    | -4.88 | 119.65      | 126.37   |
| 82  | S2    | 801  | PSU  | C4-N3-C2    | -4.88 | 119.65      | 126.37   |
| 2   | L5    | 4442 | PSU  | C4-N3-C2    | -4.88 | 119.65      | 126.37   |
| 2   | L5    | 4628 | PSU  | C4-N3-C2    | -4.87 | 119.66      | 126.37   |
| 2   | L5    | 1677 | PSU  | C4-N3-C2    | -4.87 | 119.66      | 126.37   |
| 2   | L5    | 1582 | PSU  | C4-N3-C2    | -4.87 | 119.66      | 126.37   |
| 82  | S2    | 1177 | PSU  | N1-C2-N3    | 4.87  | 120.30      | 115.17   |
| 82  | S2    | 1244 | PSU  | N1-C2-N3    | 4.87  | 120.30      | 115.17   |
| 2   | L5    | 1677 | PSU  | N1-C2-N3    | 4.86  | 120.30      | 115.17   |
| 2   | L5    | 1781 | PSU  | C4-N3-C2    | -4.86 | 119.67      | 126.37   |
| 2   | L5    | 398  | A2M  | C4'-O4'-C1' | -4.86 | 105.48      | 109.92   |
| 2   | L5    | 4576 | PSU  | C4-N3-C2    | -4.86 | 119.68      | 126.37   |
| 2   | L5    | 4689 | PSU  | N1-C2-N3    | 4.86  | 120.29      | 115.17   |
| 82  | S2    | 651  | PSU  | C4-N3-C2    | -4.85 | 119.68      | 126.37   |
| 82  | S2    | 1081 | PSU  | N1-C2-N3    | 4.85  | 120.28      | 115.17   |
| 2   | L5    | 4293 | PSU  | N1-C2-N3    | 4.85  | 120.28      | 115.17   |
| 2   | L5    | 3718 | A2M  | C4'-O4'-C1' | -4.84 | 105.50      | 109.92   |
| 2   | L5    | 4500 | PSU  | N1-C2-N3    | 4.84  | 120.27      | 115.17   |
| 2   | L5    | 1744 | PSU  | N1-C2-N3    | 4.84  | 120.27      | 115.17   |
| 2   | L5    | 3637 | PSU  | C4-N3-C2    | -4.83 | 119.71      | 126.37   |
| 82  | S2    | 801  | PSU  | N1-C2-N3    | 4.83  | 120.27      | 115.17   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 82  | S2    | 866  | PSU  | C4-N3-C2    | -4.82 | 119.73      | 126.37   |
| 82  | S2    | 866  | PSU  | N1-C2-N3    | 4.81  | 120.24      | 115.17   |
| 82  | S2    | 1244 | PSU  | C4-N3-C2    | -4.81 | 119.74      | 126.37   |
| 2   | L5    | 3822 | PSU  | C4-N3-C2    | -4.79 | 119.77      | 126.37   |
| 2   | L5    | 4576 | PSU  | N1-C2-N3    | 4.78  | 120.21      | 115.17   |
| 2   | L5    | 1782 | PSU  | C4-N3-C2    | -4.78 | 119.78      | 126.37   |
| 82  | S2    | 681  | PSU  | C4-N3-C2    | -4.78 | 119.78      | 126.37   |
| 2   | L5    | 3695 | PSU  | C4-N3-C2    | -4.78 | 119.79      | 126.37   |
| 2   | L5    | 5001 | PSU  | N1-C2-N3    | 4.77  | 120.20      | 115.17   |
| 82  | S2    | 1367 | PSU  | C4-N3-C2    | -4.77 | 119.81      | 126.37   |
| 82  | S2    | 1248 | B8N  | C4-N3-C2    | -4.74 | 119.78      | 125.62   |
| 2   | L5    | 3851 | PSU  | N1-C2-N3    | 4.73  | 120.15      | 115.17   |
| 2   | L5    | 3853 | PSU  | C4-N3-C2    | -4.72 | 119.86      | 126.37   |
| 2   | L5    | 4493 | PSU  | N1-C2-N3    | 4.72  | 120.15      | 115.17   |
| 82  | S2    | 1056 | PSU  | C4-N3-C2    | -4.72 | 119.87      | 126.37   |
| 2   | L5    | 2632 | PSU  | N1-C2-N3    | 4.72  | 120.14      | 115.17   |
| 2   | L5    | 4532 | PSU  | N1-C2-N3    | 4.71  | 120.14      | 115.17   |
| 2   | L5    | 4973 | PSU  | N1-C2-N3    | 4.69  | 120.12      | 115.17   |
| 82  | S2    | 105  | PSU  | C4-N3-C2    | -4.68 | 119.92      | 126.37   |
| 2   | L5    | 2632 | PSU  | C4-N3-C2    | -4.68 | 119.92      | 126.37   |
| 2   | L5    | 4590 | A2M  | C4'-O4'-C1' | -4.68 | 105.64      | 109.92   |
| 82  | S2    | 686  | PSU  | C4-N3-C2    | -4.68 | 119.92      | 126.37   |
| 2   | L5    | 3844 | PSU  | C4-N3-C2    | -4.68 | 119.92      | 126.37   |
| 82  | S2    | 93   | PSU  | N1-C2-N3    | 4.67  | 120.10      | 115.17   |
| 2   | L5    | 3844 | PSU  | N1-C2-N3    | 4.62  | 120.04      | 115.17   |
| 2   | L5    | 4973 | PSU  | C4-N3-C2    | -4.62 | 120.01      | 126.37   |
| 2   | L5    | 4689 | PSU  | C4-N3-C2    | -4.59 | 120.05      | 126.37   |
| 2   | L5    | 4532 | PSU  | C4-N3-C2    | -4.58 | 120.06      | 126.37   |
| 2   | L5    | 2401 | A2M  | C4'-O4'-C1' | -4.50 | 105.80      | 109.92   |
| 82  | S2    | 1232 | PSU  | C4-N3-C2    | -4.50 | 120.18      | 126.37   |
| 2   | L5    | 3818 | UY1  | N1-C2-N3    | 4.49  | 119.90      | 115.17   |
| 2   | L5    | 3853 | PSU  | N1-C2-N3    | 4.46  | 119.88      | 115.17   |
| 82  | S2    | 1232 | PSU  | N1-C2-N3    | 4.43  | 119.84      | 115.17   |
| 82  | S2    | 576  | A2M  | C4'-O4'-C1' | -4.42 | 105.88      | 109.92   |
| 2   | L5    | 4571 | A2M  | C4'-O4'-C1' | -4.40 | 105.90      | 109.92   |
| 82  | S2    | 1832 | 6MZ  | C2-N1-C6    | 4.38  | 120.00      | 116.60   |
| 2   | L5    | 1534 | A2M  | C4'-O4'-C1' | -4.38 | 105.92      | 109.92   |
| 82  | S2    | 99   | A2M  | C4'-O4'-C1' | -4.36 | 105.94      | 109.92   |
| 82  | S2    | 668  | A2M  | C4'-O4'-C1' | -4.35 | 105.94      | 109.92   |
| 2   | L5    | 1871 | A2M  | C3'-C2'-C1' | -4.32 | 94.54       | 102.81   |
| 82  | S2    | 468  | A2M  | C1'-N9-C4   | -4.29 | 119.11      | 126.64   |
| 2   | L5    | 3825 | A2M  | C4'-O4'-C1' | -4.27 | 106.02      | 109.92   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 2   | L5    | 2363 | A2M  | C4'-O4'-C1' | -4.17 | 106.11      | 109.92   |
| 2   | L5    | 4590 | A2M  | C1'-N9-C4   | -4.16 | 119.33      | 126.64   |
| 82  | S2    | 1383 | A2M  | C1'-N9-C4   | -4.16 | 119.33      | 126.64   |
| 2   | L5    | 398  | A2M  | C1'-N9-C4   | -4.12 | 119.41      | 126.64   |
| 2   | L5    | 3925 | OMU  | N3-C2-N1    | 4.11  | 120.25      | 114.89   |
| 2   | L5    | 4523 | A2M  | C1'-N9-C4   | -4.08 | 119.48      | 126.64   |
| 2   | L5    | 2401 | A2M  | C1'-N9-C4   | -4.05 | 119.53      | 126.64   |
| 82  | S2    | 1288 | OMU  | N3-C2-N1    | 4.04  | 120.15      | 114.89   |
| 2   | L5    | 4227 | OMU  | N3-C2-N1    | 4.02  | 120.13      | 114.89   |
| 82  | S2    | 172  | OMU  | N3-C2-N1    | 4.01  | 120.12      | 114.89   |
| 2   | L5    | 3830 | A2M  | C4'-O4'-C1' | -4.01 | 106.25      | 109.92   |
| 2   | L5    | 1534 | A2M  | C1'-N9-C4   | -4.00 | 119.61      | 126.64   |
| 82  | S2    | 668  | A2M  | C1'-N9-C4   | -4.00 | 119.62      | 126.64   |
| 82  | S2    | 1031 | A2M  | C4'-O4'-C1' | -3.99 | 106.27      | 109.92   |
| 82  | S2    | 428  | OMU  | N3-C2-N1    | 3.97  | 120.05      | 114.89   |
| 2   | L5    | 3867 | A2M  | C4'-O4'-C1' | -3.96 | 106.30      | 109.92   |
| 82  | S2    | 1031 | A2M  | C1'-N9-C4   | -3.94 | 119.71      | 126.64   |
| 82  | S2    | 27   | A2M  | C4'-O4'-C1' | -3.94 | 106.32      | 109.92   |
| 82  | S2    | 354  | OMU  | N3-C2-N1    | 3.93  | 120.01      | 114.89   |
| 82  | S2    | 121  | OMU  | N3-C2-N1    | 3.93  | 120.00      | 114.89   |
| 82  | S2    | 166  | A2M  | C1'-N9-C4   | -3.93 | 119.74      | 126.64   |
| 2   | L5    | 3830 | A2M  | C1'-N9-C4   | -3.91 | 119.76      | 126.64   |
| 2   | L5    | 3925 | OMU  | C5-C4-N3    | 3.90  | 120.27      | 114.80   |
| 2   | L5    | 2351 | OMC  | C1'-N1-C2   | 3.89  | 127.03      | 118.44   |
| 82  | S2    | 1850 | MA6  | C2-N1-C6    | 3.88  | 120.65      | 116.84   |
| 2   | L5    | 4498 | OMU  | N3-C2-N1    | 3.88  | 119.94      | 114.89   |
| 2   | L5    | 3785 | A2M  | C1'-N9-C4   | -3.85 | 119.88      | 126.64   |
| 2   | L5    | 398  | A2M  | O3'-C3'-C2' | 3.85  | 121.96      | 111.19   |
| 2   | L5    | 4498 | OMU  | C5-C4-N3    | 3.82  | 120.15      | 114.80   |
| 82  | S2    | 1383 | A2M  | C3'-C2'-C1' | -3.81 | 95.51       | 102.81   |
| 2   | L5    | 2837 | OMU  | N3-C2-N1    | 3.81  | 119.85      | 114.89   |
| 2   | L5    | 4530 | UR3  | C5-C4-N3    | 3.80  | 120.05      | 115.04   |
| 82  | S2    | 799  | OMU  | N3-C2-N1    | 3.80  | 119.83      | 114.89   |
| 82  | S2    | 799  | OMU  | C5-C4-N3    | 3.79  | 120.10      | 114.80   |
| 82  | S2    | 1326 | OMU  | N3-C2-N1    | 3.79  | 119.82      | 114.89   |
| 2   | L5    | 4220 | 6MZ  | C2-N1-C6    | 3.78  | 119.53      | 116.60   |
| 2   | L5    | 398  | A2M  | C3'-C2'-C1' | -3.77 | 95.59       | 102.81   |
| 2   | L5    | 4227 | OMU  | C5-C4-N3    | 3.71  | 120.00      | 114.80   |
| 82  | S2    | 627  | OMU  | C5-C4-N3    | 3.71  | 120.00      | 114.80   |
| 2   | L5    | 4571 | A2M  | C1'-N9-C4   | -3.69 | 120.15      | 126.64   |
| 2   | L5    | 4620 | OMU  | N3-C2-N1    | 3.68  | 119.69      | 114.89   |
| 82  | S2    | 627  | OMU  | N3-C2-N1    | 3.68  | 119.69      | 114.89   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 2   | L5    | 4306 | OMU  | N3-C2-N1    | 3.68  | 119.68      | 114.89   |
| 82  | S2    | 1442 | OMU  | N3-C2-N1    | 3.67  | 119.67      | 114.89   |
| 82  | S2    | 27   | A2M  | C1'-N9-C4   | -3.67 | 120.19      | 126.64   |
| 2   | L5    | 3718 | A2M  | C1'-N9-C4   | -3.66 | 120.21      | 126.64   |
| 2   | L5    | 3867 | A2M  | C1'-N9-C4   | -3.65 | 120.22      | 126.64   |
| 82  | S2    | 166  | A2M  | O3'-C3'-C2' | 3.65  | 121.41      | 111.19   |
| 2   | L5    | 3825 | A2M  | C1'-N9-C4   | -3.65 | 120.23      | 126.64   |
| 2   | L5    | 400  | A2M  | C1'-N9-C4   | -3.64 | 120.24      | 126.64   |
| 2   | L5    | 1871 | A2M  | C1'-N9-C4   | -3.64 | 120.25      | 126.64   |
| 82  | S2    | 468  | A2M  | C3'-C2'-C1' | -3.63 | 95.86       | 102.81   |
| 82  | S2    | 1272 | OMC  | C1'-N1-C2   | 3.62  | 126.44      | 118.44   |
| 82  | S2    | 99   | A2M  | C1'-N9-C4   | -3.61 | 120.29      | 126.64   |
| 2   | L5    | 4306 | OMU  | C5-C4-N3    | 3.60  | 119.85      | 114.80   |
| 82  | S2    | 1326 | OMU  | C5-C4-N3    | 3.59  | 119.83      | 114.80   |
| 82  | S2    | 1383 | A2M  | O3'-C3'-C2' | 3.59  | 121.23      | 111.19   |
| 82  | S2    | 428  | OMU  | C5-C4-N3    | 3.58  | 119.82      | 114.80   |
| 2   | L5    | 2787 | A2M  | C1'-N9-C4   | -3.58 | 120.35      | 126.64   |
| 82  | S2    | 1288 | OMU  | C5-C4-N3    | 3.56  | 119.79      | 114.80   |
| 82  | S2    | 116  | OMU  | C5-C4-N3    | 3.55  | 119.78      | 114.80   |
| 2   | L5    | 2837 | OMU  | C5-C4-N3    | 3.53  | 119.75      | 114.80   |
| 2   | L5    | 400  | A2M  | C4'-O4'-C1' | -3.52 | 106.70      | 109.92   |
| 82  | S2    | 1442 | OMU  | C5-C4-N3    | 3.52  | 119.73      | 114.80   |
| 2   | L5    | 1323 | A2M  | C1'-N9-C4   | -3.51 | 120.47      | 126.64   |
| 2   | L5    | 3718 | A2M  | O3'-C3'-C2' | 3.51  | 121.02      | 111.19   |
| 2   | L5    | 1871 | A2M  | O3'-C3'-C2' | 3.49  | 120.96      | 111.19   |
| 82  | S2    | 576  | A2M  | C3'-C2'-C1' | -3.49 | 96.12       | 102.81   |
| 82  | S2    | 121  | OMU  | C5-C4-N3    | 3.49  | 119.69      | 114.80   |
| 82  | S2    | 354  | OMU  | C5-C4-N3    | 3.48  | 119.67      | 114.80   |
| 2   | L5    | 4523 | A2M  | C3'-C2'-C1' | -3.46 | 96.17       | 102.81   |
| 2   | L5    | 3718 | A2M  | C3'-C2'-C1' | -3.44 | 96.23       | 102.81   |
| 2   | L5    | 4442 | PSU  | O2-C2-N1    | -3.44 | 119.25      | 122.79   |
| 82  | S2    | 576  | A2M  | O3'-C3'-C2' | 3.43  | 120.78      | 111.19   |
| 2   | L5    | 1534 | A2M  | C3'-C2'-C1' | -3.42 | 96.26       | 102.81   |
| 2   | L5    | 1323 | A2M  | C4'-O4'-C1' | -3.42 | 106.79      | 109.92   |
| 2   | L5    | 1326 | A2M  | C1'-N9-C4   | -3.42 | 120.63      | 126.64   |
| 2   | L5    | 4620 | OMU  | C5-C4-N3    | 3.42  | 119.59      | 114.80   |
| 82  | S2    | 1248 | B8N  | N3-C2-N1    | 3.42  | 120.89      | 116.72   |
| 82  | S2    | 172  | OMU  | C5-C4-N3    | 3.41  | 119.58      | 114.80   |
| 82  | S2    | 484  | A2M  | O3'-C3'-C2' | 3.41  | 120.74      | 111.19   |
| 2   | L5    | 4571 | A2M  | O3'-C3'-C2' | 3.41  | 120.74      | 111.19   |
| 82  | S2    | 166  | A2M  | C3'-C2'-C1' | -3.37 | 96.36       | 102.81   |
| 82  | S2    | 1851 | MA6  | C2-N1-C6    | 3.36  | 120.14      | 116.84   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 82  | S2    | 1056 | PSU  | O2-C2-N1    | -3.36 | 119.33      | 122.79   |
| 82  | S2    | 576  | A2M  | C1'-N9-C4   | -3.35 | 120.76      | 126.64   |
| 82  | S2    | 484  | A2M  | C1'-N9-C4   | -3.33 | 120.79      | 126.64   |
| 2   | L5    | 1524 | A2M  | O3'-C3'-C2' | 3.31  | 120.46      | 111.19   |
| 2   | L5    | 1683 | PSU  | O2-C2-N1    | -3.31 | 119.38      | 122.79   |
| 2   | L5    | 4689 | PSU  | O2-C2-N1    | -3.28 | 119.40      | 122.79   |
| 82  | S2    | 116  | OMU  | N3-C2-N1    | 3.27  | 119.15      | 114.89   |
| 2   | L5    | 3830 | A2M  | O3'-C3'-C2' | 3.24  | 120.25      | 111.19   |
| 82  | S2    | 686  | PSU  | O2-C2-N1    | -3.24 | 119.45      | 122.79   |
| 2   | L5    | 3818 | UY1  | C6-N1-C2    | -3.23 | 119.70      | 122.69   |
| 82  | S2    | 105  | PSU  | O2-C2-N1    | -3.22 | 119.47      | 122.79   |
| 82  | S2    | 686  | PSU  | C6-N1-C2    | -3.21 | 119.71      | 122.69   |
| 2   | L5    | 1782 | PSU  | O2-C2-N1    | -3.21 | 119.48      | 122.79   |
| 2   | L5    | 4403 | PSU  | O2-C2-N1    | -3.20 | 119.49      | 122.79   |
| 82  | S2    | 109  | PSU  | O2-C2-N1    | -3.19 | 119.50      | 122.79   |
| 2   | L5    | 5010 | PSU  | O2-C2-N1    | -3.18 | 119.50      | 122.79   |
| 2   | L5    | 1536 | PSU  | O2-C2-N1    | -3.18 | 119.51      | 122.79   |
| 82  | S2    | 1442 | OMU  | O4-C4-C5    | -3.17 | 119.69      | 125.16   |
| 2   | L5    | 4689 | PSU  | C6-N1-C2    | -3.16 | 119.75      | 122.69   |
| 82  | S2    | 1248 | B8N  | C1'-C5-C4   | 3.16  | 122.41      | 117.61   |
| 82  | S2    | 406  | PSU  | O2-C2-N1    | -3.16 | 119.53      | 122.79   |
| 2   | L5    | 4457 | PSU  | C6-N1-C2    | -3.15 | 119.76      | 122.69   |
| 2   | L5    | 3822 | PSU  | O2-C2-N1    | -3.15 | 119.54      | 122.79   |
| 2   | L5    | 3818 | UY1  | C6-C5-C4    | 3.14  | 120.29      | 118.17   |
| 2   | L5    | 4457 | PSU  | O2-C2-N1    | -3.14 | 119.55      | 122.79   |
| 2   | L5    | 1326 | A2M  | C4'-O4'-C1' | -3.13 | 107.06      | 109.92   |
| 2   | L5    | 2401 | A2M  | O3'-C3'-C2' | 3.12  | 119.91      | 111.19   |
| 82  | S2    | 105  | PSU  | C6-N1-C2    | -3.11 | 119.80      | 122.69   |
| 82  | S2    | 468  | A2M  | O3'-C3'-C2' | 3.11  | 119.90      | 111.19   |
| 2   | L5    | 4498 | OMU  | O4-C4-C5    | -3.11 | 119.80      | 125.16   |
| 82  | S2    | 1004 | PSU  | O2-C2-N1    | -3.11 | 119.59      | 122.79   |
| 82  | S2    | 1367 | PSU  | O2-C2-N1    | -3.10 | 119.59      | 122.79   |
| 2   | L5    | 400  | A2M  | O3'-C3'-C2' | 3.09  | 119.85      | 111.19   |
| 2   | L5    | 3825 | A2M  | O3'-C3'-C2' | 3.09  | 119.85      | 111.19   |
| 2   | L5    | 4972 | PSU  | O2-C2-N1    | -3.08 | 119.61      | 122.79   |
| 2   | L5    | 4521 | PSU  | O2-C2-N1    | -3.07 | 119.62      | 122.79   |
| 2   | L5    | 1582 | PSU  | O2-C2-N1    | -3.07 | 119.62      | 122.79   |
| 82  | S2    | 1056 | PSU  | C6-N1-C2    | -3.06 | 119.85      | 122.69   |
| 2   | L5    | 3925 | OMU  | O4-C4-C5    | -3.05 | 119.89      | 125.16   |
| 2   | L5    | 4571 | A2M  | C3'-C2'-C1' | -3.05 | 96.96       | 102.81   |
| 2   | L5    | 2363 | A2M  | C3'-C2'-C1' | -3.05 | 96.97       | 102.81   |
| 2   | L5    | 4579 | PSU  | O2-C2-N1    | -3.04 | 119.65      | 122.79   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 2   | L5    | 2351 | OMC  | C1'-N1-C6   | -3.04 | 114.28      | 120.78   |
| 82  | S2    | 1174 | PSU  | O2-C2-N1    | -3.03 | 119.66      | 122.79   |
| 2   | L5    | 1781 | PSU  | O2-C2-N1    | -3.03 | 119.67      | 122.79   |
| 2   | L5    | 4500 | PSU  | O2-C2-N1    | -3.02 | 119.67      | 122.79   |
| 2   | L5    | 4442 | PSU  | C6-N1-C2    | -3.02 | 119.89      | 122.69   |
| 82  | S2    | 99   | A2M  | O3'-C3'-C2' | 3.01  | 119.62      | 111.19   |
| 82  | S2    | 1326 | OMU  | O4-C4-C5    | -3.01 | 119.97      | 125.16   |
| 2   | L5    | 4431 | PSU  | O2-C2-N1    | -3.01 | 119.69      | 122.79   |
| 2   | L5    | 3825 | A2M  | C3'-C2'-C1' | -3.00 | 97.05       | 102.81   |
| 82  | S2    | 627  | OMU  | O4-C4-C5    | -3.00 | 119.98      | 125.16   |
| 82  | S2    | 159  | A2M  | C1'-N9-C4   | -3.00 | 121.37      | 126.64   |
| 2   | L5    | 3639 | PSU  | O2-C2-N1    | -3.00 | 119.70      | 122.79   |
| 2   | L5    | 4353 | PSU  | O2-C2-N1    | -2.97 | 119.72      | 122.79   |
| 82  | S2    | 1367 | PSU  | C6-N1-C2    | -2.97 | 119.94      | 122.69   |
| 82  | S2    | 1639 | G7M  | C2-N1-C6    | -2.97 | 119.68      | 125.11   |
| 2   | L5    | 4673 | PSU  | O2-C2-N1    | -2.96 | 119.73      | 122.79   |
| 2   | L5    | 1862 | PSU  | O2-C2-N1    | -2.95 | 119.75      | 122.79   |
| 82  | S2    | 1081 | PSU  | O2-C2-N1    | -2.94 | 119.75      | 122.79   |
| 4   | L8    | 69   | PSU  | O2-C2-N1    | -2.94 | 119.75      | 122.79   |
| 2   | L5    | 2804 | OMC  | C1'-N1-C2   | 2.94  | 124.93      | 118.44   |
| 2   | L5    | 4628 | PSU  | C6-N1-C2    | -2.93 | 119.97      | 122.69   |
| 82  | S2    | 428  | OMU  | O4-C4-C5    | -2.93 | 120.11      | 125.16   |
| 2   | L5    | 1323 | A2M  | O3'-C3'-C2' | 2.92  | 119.37      | 111.19   |
| 2   | L5    | 2787 | A2M  | O3'-C3'-C2' | 2.92  | 119.36      | 111.19   |
| 82  | S2    | 1031 | A2M  | O3'-C3'-C2' | 2.92  | 119.36      | 111.19   |
| 2   | L5    | 3822 | PSU  | C6-N1-C2    | -2.92 | 119.98      | 122.69   |
| 2   | L5    | 3830 | A2M  | C3'-C2'-C1' | -2.91 | 97.24       | 102.81   |
| 82  | S2    | 354  | OMU  | O4-C4-C5    | -2.91 | 120.15      | 125.16   |
| 82  | S2    | 1248 | B8N  | O4-C4-N3    | -2.91 | 115.27      | 119.99   |
| 82  | S2    | 172  | OMU  | O4-C4-C5    | -2.91 | 120.15      | 125.16   |
| 82  | S2    | 681  | PSU  | O2-C2-N1    | -2.90 | 119.79      | 122.79   |
| 2   | L5    | 4532 | PSU  | C6-N1-C2    | -2.90 | 120.00      | 122.69   |
| 82  | S2    | 966  | PSU  | O2-C2-N1    | -2.90 | 119.80      | 122.79   |
| 82  | S2    | 799  | OMU  | O4-C4-C5    | -2.90 | 120.16      | 125.16   |
| 82  | S2    | 121  | OMU  | O4-C4-C5    | -2.90 | 120.17      | 125.16   |
| 2   | L5    | 4471 | PSU  | O2-C2-N1    | -2.89 | 119.81      | 122.79   |
| 82  | S2    | 1046 | PSU  | O2-C2-N1    | -2.89 | 119.81      | 122.79   |
| 2   | L5    | 2815 | A2M  | C4'-O4'-C1' | -2.89 | 107.28      | 109.92   |
| 2   | L5    | 3884 | PSU  | O2-C2-N1    | -2.88 | 119.82      | 122.79   |
| 82  | S2    | 1045 | PSU  | O2-C2-N1    | -2.88 | 119.82      | 122.79   |
| 2   | L5    | 1677 | PSU  | O2-C2-N1    | -2.88 | 119.82      | 122.79   |
| 2   | L5    | 2815 | A2M  | C1'-N9-C4   | -2.87 | 121.59      | 126.64   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 82  | S2    | 681  | PSU  | C6-N1-C2    | -2.87 | 120.03      | 122.69   |
| 2   | L5    | 4227 | OMU  | O4-C4-C5    | -2.87 | 120.21      | 125.16   |
| 82  | S2    | 116  | OMU  | O4-C4-C5    | -2.87 | 120.22      | 125.16   |
| 2   | L5    | 2363 | A2M  | O3'-C3'-C2' | 2.87  | 119.21      | 111.19   |
| 2   | L5    | 5010 | PSU  | C6-N1-C2    | -2.86 | 120.03      | 122.69   |
| 2   | L5    | 4306 | OMU  | O4-C4-C5    | -2.86 | 120.23      | 125.16   |
| 4   | L8    | 55   | PSU  | O2-C2-N1    | -2.86 | 119.84      | 122.79   |
| 2   | L5    | 1782 | PSU  | C6-N1-C2    | -2.86 | 120.04      | 122.69   |
| 2   | L5    | 4471 | PSU  | C6-C5-C4    | 2.85  | 120.10      | 118.17   |
| 2   | L5    | 2837 | OMU  | O4-C4-C5    | -2.85 | 120.25      | 125.16   |
| 2   | L5    | 1524 | A2M  | C1'-N9-C4   | -2.84 | 121.64      | 126.64   |
| 82  | S2    | 1177 | PSU  | O2-C2-N1    | -2.84 | 119.86      | 122.79   |
| 2   | L5    | 4299 | PSU  | O2-C2-N1    | -2.84 | 119.86      | 122.79   |
| 2   | L5    | 4628 | PSU  | O2-C2-N1    | -2.84 | 119.86      | 122.79   |
| 2   | L5    | 4312 | PSU  | O2-C2-N1    | -2.83 | 119.87      | 122.79   |
| 2   | L5    | 4296 | PSU  | O2-C2-N1    | -2.82 | 119.88      | 122.79   |
| 2   | L5    | 2787 | A2M  | O4'-C1'-C2' | 2.82  | 111.42      | 106.61   |
| 2   | L5    | 4972 | PSU  | C6-N1-C2    | -2.82 | 120.07      | 122.69   |
| 2   | L5    | 3695 | PSU  | C6-N1-C2    | -2.82 | 120.08      | 122.69   |
| 82  | S2    | 863  | PSU  | O2-C2-N1    | -2.82 | 119.88      | 122.79   |
| 82  | S2    | 801  | PSU  | O2-C2-N1    | -2.82 | 119.88      | 122.79   |
| 2   | L5    | 4620 | OMU  | O4-C4-C5    | -2.81 | 120.31      | 125.16   |
| 2   | L5    | 1860 | PSU  | O2-C2-N1    | -2.81 | 119.89      | 122.79   |
| 2   | L5    | 1792 | PSU  | O2-C2-N1    | -2.81 | 119.89      | 122.79   |
| 82  | S2    | 159  | A2M  | O3'-C3'-C2' | 2.81  | 119.04      | 111.19   |
| 82  | S2    | 1272 | OMC  | C1'-N1-C6   | -2.80 | 114.79      | 120.78   |
| 82  | S2    | 1031 | A2M  | C3'-C2'-C1' | -2.79 | 97.46       | 102.81   |
| 82  | S2    | 651  | PSU  | O2-C2-N1    | -2.79 | 119.91      | 122.79   |
| 82  | S2    | 1244 | PSU  | C6-N1-C2    | -2.79 | 120.10      | 122.69   |
| 2   | L5    | 1323 | A2M  | C2'-C1'-N9  | 2.79  | 118.75      | 112.56   |
| 2   | L5    | 4361 | PSU  | O2-C2-N1    | -2.79 | 119.91      | 122.79   |
| 2   | L5    | 4552 | PSU  | O2-C2-N1    | -2.79 | 119.92      | 122.79   |
| 82  | S2    | 668  | A2M  | O4'-C1'-C2' | 2.78  | 111.35      | 106.61   |
| 2   | L5    | 4579 | PSU  | C6-N1-C2    | -2.78 | 120.11      | 122.69   |
| 82  | S2    | 99   | A2M  | C3'-C2'-C1' | -2.78 | 97.49       | 102.81   |
| 2   | L5    | 4532 | PSU  | O2-C2-N1    | -2.77 | 119.93      | 122.79   |
| 82  | S2    | 109  | PSU  | C6-N1-C2    | -2.77 | 120.12      | 122.69   |
| 2   | L5    | 3867 | A2M  | C2'-C1'-N9  | 2.77  | 118.70      | 112.56   |
| 2   | L5    | 4590 | A2M  | O3'-C3'-C2' | 2.76  | 118.90      | 111.19   |
| 82  | S2    | 1046 | PSU  | C6-N1-C2    | -2.75 | 120.14      | 122.69   |
| 82  | S2    | 1288 | OMU  | O4-C4-C5    | -2.75 | 120.42      | 125.16   |
| 2   | L5    | 1326 | A2M  | O3'-C3'-C2' | 2.75  | 118.87      | 111.19   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 82  | S2    | 627  | OMU  | O2-C2-N1    | -2.74 | 119.22      | 122.80   |
| 2   | L5    | 2815 | A2M  | O3'-C3'-C2' | 2.74  | 118.86      | 111.19   |
| 82  | S2    | 159  | A2M  | C2'-C1'-N9  | 2.74  | 118.64      | 112.56   |
| 82  | S2    | 27   | A2M  | O3'-C3'-C2' | 2.74  | 118.85      | 111.19   |
| 2   | L5    | 1683 | PSU  | C6-N1-C2    | -2.73 | 120.16      | 122.69   |
| 82  | S2    | 649  | PSU  | O2-C2-N1    | -2.73 | 119.97      | 122.79   |
| 82  | S2    | 1337 | 4AC  | N4-C4-N3    | 2.73  | 118.29      | 113.87   |
| 2   | L5    | 4457 | PSU  | C6-C5-C4    | 2.72  | 120.01      | 118.17   |
| 82  | S2    | 1004 | PSU  | C6-N1-C2    | -2.72 | 120.16      | 122.69   |
| 2   | L5    | 1781 | PSU  | C6-N1-C2    | -2.72 | 120.17      | 122.69   |
| 2   | L5    | 3853 | PSU  | O2-C2-N1    | -2.72 | 119.99      | 122.79   |
| 2   | L5    | 5001 | PSU  | O2-C2-N1    | -2.72 | 119.99      | 122.79   |
| 82  | S2    | 1244 | PSU  | O2-C2-N1    | -2.71 | 119.99      | 122.79   |
| 82  | S2    | 814  | PSU  | O2-C2-N1    | -2.70 | 120.00      | 122.79   |
| 2   | L5    | 1534 | A2M  | O3'-C3'-C2' | 2.70  | 118.75      | 111.19   |
| 2   | L5    | 3818 | UY1  | O2-C2-N1    | -2.70 | 120.00      | 122.79   |
| 2   | L5    | 2632 | PSU  | O2-C2-N1    | -2.69 | 120.01      | 122.79   |
| 2   | L5    | 4500 | PSU  | C6-N1-C2    | -2.69 | 120.19      | 122.69   |
| 2   | L5    | 4673 | PSU  | C6-N1-C2    | -2.69 | 120.19      | 122.69   |
| 2   | L5    | 2351 | OMC  | O2-C2-N3    | -2.69 | 118.09      | 122.33   |
| 2   | L5    | 4973 | PSU  | C6-N1-C2    | -2.69 | 120.20      | 122.69   |
| 2   | L5    | 2839 | PSU  | O2-C2-N1    | -2.69 | 120.02      | 122.79   |
| 2   | L5    | 1582 | PSU  | C6-N1-C2    | -2.69 | 120.20      | 122.69   |
| 2   | L5    | 3718 | A2M  | C4-C5-N7    | 2.68  | 112.17      | 109.34   |
| 2   | L5    | 4973 | PSU  | O2-C2-N1    | -2.68 | 120.02      | 122.79   |
| 82  | S2    | 668  | A2M  | O3'-C3'-C2' | 2.68  | 118.68      | 111.19   |
| 2   | L5    | 1536 | PSU  | C6-N1-C2    | -2.68 | 120.21      | 122.69   |
| 2   | L5    | 1677 | PSU  | C6-N1-C2    | -2.67 | 120.21      | 122.69   |
| 2   | L5    | 4521 | PSU  | C6-N1-C2    | -2.67 | 120.21      | 122.69   |
| 2   | L5    | 2351 | OMC  | O2-C2-N1    | 2.67  | 124.12      | 118.90   |
| 2   | L5    | 4353 | PSU  | C6-N1-C2    | -2.66 | 120.22      | 122.69   |
| 2   | L5    | 3785 | A2M  | O3'-C3'-C2' | 2.66  | 118.64      | 111.19   |
| 2   | L5    | 4296 | PSU  | C6-C5-C4    | 2.66  | 119.97      | 118.17   |
| 82  | S2    | 576  | A2M  | C4-C5-N7    | 2.66  | 112.15      | 109.34   |
| 2   | L5    | 3851 | PSU  | O2-C2-N1    | -2.66 | 120.05      | 122.79   |
| 2   | L5    | 2401 | A2M  | C3'-C2'-C1' | -2.66 | 97.72       | 102.81   |
| 2   | L5    | 4431 | PSU  | C6-C5-C4    | 2.66  | 119.97      | 118.17   |
| 2   | L5    | 4576 | PSU  | O2-C2-N1    | -2.66 | 120.05      | 122.79   |
| 2   | L5    | 2363 | A2M  | C4-C5-N7    | 2.65  | 112.14      | 109.34   |
| 2   | L5    | 1792 | PSU  | C6-N1-C2    | -2.65 | 120.23      | 122.69   |
| 82  | S2    | 406  | PSU  | C6-N1-C2    | -2.65 | 120.23      | 122.69   |
| 82  | S2    | 1177 | PSU  | C6-N1-C2    | -2.65 | 120.23      | 122.69   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 2   | L5    | 3830 | A2M  | C4-C5-N7    | 2.64  | 112.13      | 109.34   |
| 82  | S2    | 1232 | PSU  | O2-C2-N1    | -2.64 | 120.07      | 122.79   |
| 2   | L5    | 1524 | A2M  | O4'-C1'-C2' | 2.63  | 111.09      | 106.61   |
| 2   | L5    | 1744 | PSU  | O2-C2-N1    | -2.63 | 120.08      | 122.79   |
| 2   | L5    | 3884 | PSU  | C6-N1-C2    | -2.63 | 120.25      | 122.69   |
| 4   | L8    | 69   | PSU  | C6-N1-C2    | -2.62 | 120.26      | 122.69   |
| 82  | S2    | 166  | A2M  | C4-C5-N7    | 2.62  | 112.11      | 109.34   |
| 2   | L5    | 4403 | PSU  | C6-C5-C4    | 2.62  | 119.94      | 118.17   |
| 2   | L5    | 4576 | PSU  | C6-N1-C2    | -2.62 | 120.26      | 122.69   |
| 2   | L5    | 4636 | PSU  | O2-C2-N1    | -2.62 | 120.09      | 122.79   |
| 82  | S2    | 651  | PSU  | C6-N1-C2    | -2.62 | 120.26      | 122.69   |
| 2   | L5    | 2632 | PSU  | C6-N1-C2    | -2.60 | 120.28      | 122.69   |
| 2   | L5    | 1536 | PSU  | C6-C5-C4    | 2.60  | 119.93      | 118.17   |
| 2   | L5    | 3637 | PSU  | O2-C2-N1    | -2.60 | 120.11      | 122.79   |
| 82  | S2    | 866  | PSU  | O2-C2-N1    | -2.60 | 120.11      | 122.79   |
| 2   | L5    | 4493 | PSU  | O2-C2-N1    | -2.59 | 120.11      | 122.79   |
| 82  | S2    | 159  | A2M  | C4-C5-N7    | 2.59  | 112.07      | 109.34   |
| 2   | L5    | 3639 | PSU  | C6-N1-C2    | -2.58 | 120.29      | 122.69   |
| 2   | L5    | 1862 | PSU  | C6-N1-C2    | -2.58 | 120.30      | 122.69   |
| 82  | S2    | 966  | PSU  | C6-N1-C2    | -2.57 | 120.31      | 122.69   |
| 2   | L5    | 1860 | PSU  | C6-N1-C2    | -2.57 | 120.31      | 122.69   |
| 2   | L5    | 400  | A2M  | C4-C5-N7    | 2.56  | 112.05      | 109.34   |
| 2   | L5    | 1871 | A2M  | C4-C5-N7    | 2.56  | 112.05      | 109.34   |
| 2   | L5    | 2861 | OMC  | C1'-N1-C2   | 2.56  | 124.09      | 118.44   |
| 2   | L5    | 2839 | PSU  | C6-N1-C2    | -2.56 | 120.32      | 122.69   |
| 2   | L5    | 3920 | PSU  | O2-C2-N1    | -2.55 | 120.16      | 122.79   |
| 82  | S2    | 1045 | PSU  | C6-C5-C4    | 2.54  | 119.89      | 118.17   |
| 2   | L5    | 1323 | A2M  | O4'-C1'-C2' | 2.54  | 110.94      | 106.61   |
| 2   | L5    | 3637 | PSU  | C6-N1-C2    | -2.53 | 120.34      | 122.69   |
| 82  | S2    | 801  | PSU  | C6-N1-C2    | -2.52 | 120.35      | 122.69   |
| 2   | L5    | 4571 | A2M  | C4-C5-N7    | 2.52  | 112.00      | 109.34   |
| 2   | L5    | 4590 | A2M  | C3'-C2'-C1' | -2.52 | 97.99       | 102.81   |
| 82  | S2    | 863  | PSU  | C6-N1-C2    | -2.51 | 120.36      | 122.69   |
| 82  | S2    | 1383 | A2M  | C4-C5-N7    | 2.51  | 111.99      | 109.34   |
| 2   | L5    | 4293 | PSU  | O2-C2-N1    | -2.51 | 120.20      | 122.79   |
| 2   | L5    | 3822 | PSU  | O4'-C1'-C2' | 2.51  | 108.62      | 105.15   |
| 2   | L5    | 1326 | A2M  | C4-C5-N7    | 2.51  | 111.99      | 109.34   |
| 2   | L5    | 2363 | A2M  | C1'-N9-C4   | -2.50 | 122.24      | 126.64   |
| 82  | S2    | 1174 | PSU  | C6-N1-C2    | -2.50 | 120.37      | 122.69   |
| 82  | S2    | 27   | A2M  | C4-C5-N7    | 2.50  | 111.98      | 109.34   |
| 2   | L5    | 3920 | PSU  | C6-N1-C2    | -2.50 | 120.37      | 122.69   |
| 82  | S2    | 649  | PSU  | C6-N1-C2    | -2.50 | 120.37      | 122.69   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 82  | S2    | 1031 | A2M  | C4-C5-N7    | 2.49  | 111.97      | 109.34   |
| 2   | L5    | 400  | A2M  | C3'-C2'-C1' | -2.49 | 98.04       | 102.81   |
| 2   | L5    | 5001 | PSU  | C6-N1-C2    | -2.49 | 120.38      | 122.69   |
| 2   | L5    | 3867 | A2M  | O3'-C3'-C2' | 2.49  | 118.14      | 111.19   |
| 2   | L5    | 3785 | A2M  | C4-C5-N7    | 2.49  | 111.96      | 109.34   |
| 82  | S2    | 27   | A2M  | C3'-C2'-C1' | -2.48 | 98.06       | 102.81   |
| 2   | L5    | 3808 | OMC  | C1'-N1-C2   | 2.48  | 123.91      | 118.44   |
| 2   | L5    | 2401 | A2M  | C4-C5-N7    | 2.47  | 111.95      | 109.34   |
| 2   | L5    | 3695 | PSU  | O2-C2-N1    | -2.47 | 120.24      | 122.79   |
| 2   | L5    | 2787 | A2M  | C4-C5-N7    | 2.46  | 111.94      | 109.34   |
| 2   | L5    | 1677 | PSU  | C6-C5-C4    | 2.46  | 119.84      | 118.17   |
| 2   | L5    | 1323 | A2M  | C4-C5-N7    | 2.46  | 111.94      | 109.34   |
| 2   | L5    | 4403 | PSU  | C6-N1-C2    | -2.46 | 120.41      | 122.69   |
| 2   | L5    | 4296 | PSU  | C6-N1-C2    | -2.46 | 120.41      | 122.69   |
| 2   | L5    | 4972 | PSU  | C6-C5-C4    | 2.45  | 119.83      | 118.17   |
| 2   | L5    | 4636 | PSU  | C6-N1-C2    | -2.45 | 120.42      | 122.69   |
| 82  | S2    | 27   | A2M  | O4'-C1'-C2' | 2.45  | 110.78      | 106.61   |
| 2   | L5    | 4636 | PSU  | C6-C5-C4    | 2.44  | 119.82      | 118.17   |
| 82  | S2    | 484  | A2M  | C4'-O4'-C1' | -2.44 | 107.69      | 109.92   |
| 2   | L5    | 4552 | PSU  | C6-N1-C2    | -2.44 | 120.43      | 122.69   |
| 2   | L5    | 3867 | A2M  | C4-C5-N7    | 2.43  | 111.91      | 109.34   |
| 82  | S2    | 484  | A2M  | O4'-C4'-C3' | 2.43  | 109.98      | 105.15   |
| 2   | L5    | 1524 | A2M  | C2'-C1'-N9  | 2.43  | 117.95      | 112.56   |
| 82  | S2    | 509  | OMG  | O6-C6-C5    | 2.42  | 129.13      | 124.32   |
| 2   | L5    | 4590 | A2M  | O4'-C1'-C2' | 2.42  | 110.74      | 106.61   |
| 2   | L5    | 4431 | PSU  | C6-N1-C2    | -2.42 | 120.44      | 122.69   |
| 2   | L5    | 3701 | OMC  | C1'-N1-C2   | 2.42  | 123.78      | 118.44   |
| 2   | L5    | 4523 | A2M  | O3'-C3'-C2' | 2.41  | 117.93      | 111.19   |
| 82  | S2    | 109  | PSU  | C6-C5-C4    | 2.41  | 119.80      | 118.17   |
| 82  | S2    | 484  | A2M  | O4'-C1'-C2' | 2.40  | 110.70      | 106.61   |
| 2   | L5    | 4579 | PSU  | C6-C5-C4    | 2.40  | 119.79      | 118.17   |
| 2   | L5    | 3844 | PSU  | O2-C2-N1    | -2.40 | 120.32      | 122.79   |
| 2   | L5    | 3851 | PSU  | C6-N1-C2    | -2.40 | 120.47      | 122.69   |
| 2   | L5    | 4299 | PSU  | C6-N1-C2    | -2.39 | 120.47      | 122.69   |
| 2   | L5    | 2815 | A2M  | C4-C5-N7    | 2.39  | 111.86      | 109.34   |
| 82  | S2    | 1045 | PSU  | C6-N1-C2    | -2.39 | 120.47      | 122.69   |
| 2   | L5    | 1534 | A2M  | C4-C5-N7    | 2.38  | 111.86      | 109.34   |
| 82  | S2    | 484  | A2M  | C4-C5-N7    | 2.38  | 111.86      | 109.34   |
| 82  | S2    | 866  | PSU  | C6-C5-C4    | 2.38  | 119.78      | 118.17   |
| 82  | S2    | 1232 | PSU  | C6-N1-C2    | -2.38 | 120.48      | 122.69   |
| 82  | S2    | 484  | A2M  | C2'-C1'-N9  | 2.38  | 117.85      | 112.56   |
| 82  | S2    | 1383 | A2M  | O4'-C1'-C2' | 2.38  | 110.67      | 106.61   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 2   | L5    | 4353 | PSU  | C6-C5-C4    | 2.38  | 119.78      | 118.17   |
| 2   | L5    | 4673 | PSU  | C6-C5-C4    | 2.37  | 119.78      | 118.17   |
| 2   | L5    | 4498 | OMU  | O2-C2-N1    | -2.37 | 119.71      | 122.80   |
| 2   | L5    | 1534 | A2M  | C2'-C1'-N9  | 2.37  | 117.82      | 112.56   |
| 2   | L5    | 398  | A2M  | C4-C5-N7    | 2.37  | 111.84      | 109.34   |
| 82  | S2    | 866  | PSU  | C6-N1-C2    | -2.36 | 120.50      | 122.69   |
| 2   | L5    | 1524 | A2M  | C4-C5-N7    | 2.36  | 111.83      | 109.34   |
| 2   | L5    | 3627 | OMG  | O6-C6-C5    | 2.35  | 128.98      | 124.32   |
| 2   | L5    | 3844 | PSU  | C6-N1-C2    | -2.35 | 120.51      | 122.69   |
| 82  | S2    | 1031 | A2M  | O4'-C1'-C2' | 2.35  | 110.61      | 106.61   |
| 82  | S2    | 159  | A2M  | O4'-C4'-C3' | 2.35  | 109.81      | 105.15   |
| 82  | S2    | 644  | OMG  | O6-C6-C5    | 2.35  | 128.97      | 124.32   |
| 2   | L5    | 4523 | A2M  | C4-C5-N7    | 2.34  | 111.81      | 109.34   |
| 82  | S2    | 601  | OMG  | O6-C6-C5    | 2.33  | 128.94      | 124.32   |
| 82  | S2    | 468  | A2M  | C4-C5-N7    | 2.33  | 111.80      | 109.34   |
| 2   | L5    | 4228 | OMG  | O6-C6-C5    | 2.33  | 128.94      | 124.32   |
| 82  | S2    | 1703 | OMC  | C1'-N1-C2   | 2.33  | 123.58      | 118.44   |
| 82  | S2    | 1081 | PSU  | C6-N1-C2    | -2.32 | 120.54      | 122.69   |
| 82  | S2    | 668  | A2M  | C2'-C1'-N9  | 2.32  | 117.71      | 112.56   |
| 2   | L5    | 2401 | A2M  | O4'-C1'-C2' | 2.32  | 110.56      | 106.61   |
| 2   | L5    | 4312 | PSU  | C6-N1-C2    | -2.31 | 120.54      | 122.69   |
| 82  | S2    | 172  | OMU  | O2-C2-N1    | -2.31 | 119.79      | 122.80   |
| 2   | L5    | 4471 | PSU  | C6-N1-C2    | -2.31 | 120.55      | 122.69   |
| 82  | S2    | 814  | PSU  | C6-N1-C2    | -2.31 | 120.55      | 122.69   |
| 2   | L5    | 2787 | A2M  | O4'-C4'-C3' | 2.31  | 109.73      | 105.15   |
| 82  | S2    | 93   | PSU  | O2-C2-N1    | -2.31 | 120.41      | 122.79   |
| 2   | L5    | 2804 | OMC  | C1'-N1-C6   | -2.30 | 115.86      | 120.78   |
| 2   | L5    | 3825 | A2M  | C4-C5-N7    | 2.30  | 111.76      | 109.34   |
| 2   | L5    | 4590 | A2M  | C4-C5-N7    | 2.30  | 111.76      | 109.34   |
| 82  | S2    | 1326 | OMU  | O2-C2-N1    | -2.29 | 119.81      | 122.80   |
| 2   | L5    | 4361 | PSU  | C6-N1-C2    | -2.29 | 120.56      | 122.69   |
| 2   | L5    | 2815 | A2M  | O4'-C4'-C3' | 2.29  | 109.70      | 105.15   |
| 82  | S2    | 1328 | OMG  | O6-C6-C5    | 2.29  | 128.86      | 124.32   |
| 82  | S2    | 159  | A2M  | O4'-C1'-C2' | 2.28  | 110.50      | 106.61   |
| 2   | L5    | 4499 | OMG  | O6-C6-C5    | 2.28  | 128.84      | 124.32   |
| 4   | L8    | 55   | PSU  | C6-N1-C2    | -2.27 | 120.58      | 122.69   |
| 82  | S2    | 99   | A2M  | C4-C5-N7    | 2.27  | 111.73      | 109.34   |
| 82  | S2    | 866  | PSU  | O4'-C1'-C2' | 2.26  | 108.28      | 105.15   |
| 2   | L5    | 4571 | A2M  | O4'-C1'-C2' | 2.26  | 110.47      | 106.61   |
| 82  | S2    | 166  | A2M  | O4'-C1'-C2' | 2.26  | 110.46      | 106.61   |
| 82  | S2    | 668  | A2M  | C4-C5-N7    | 2.26  | 111.73      | 109.34   |
| 2   | L5    | 1534 | A2M  | O3'-C3'-C4' | -2.26 | 104.58      | 111.08   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 2   | L5    | 1322 | 1MA  | C5-C6-N1    | -2.26 | 110.71      | 113.95   |
| 82  | S2    | 428  | OMU  | O2-C2-N1    | -2.26 | 119.86      | 122.80   |
| 2   | L5    | 4494 | OMG  | O6-C6-C5    | 2.25  | 128.78      | 124.32   |
| 82  | S2    | 799  | OMU  | C1'-N1-C2   | 2.25  | 121.63      | 117.59   |
| 82  | S2    | 1081 | PSU  | O4'-C1'-C2' | 2.24  | 108.25      | 105.15   |
| 2   | L5    | 2364 | OMG  | O6-C6-C5    | 2.24  | 128.77      | 124.32   |
| 2   | L5    | 4403 | PSU  | O4'-C1'-C2' | 2.24  | 108.25      | 105.15   |
| 4   | L8    | 75   | OMG  | O6-C6-C5    | 2.24  | 128.76      | 124.32   |
| 82  | S2    | 1081 | PSU  | C6-C5-C4    | 2.24  | 119.69      | 118.17   |
| 2   | L5    | 2424 | OMG  | O6-C6-C5    | 2.23  | 128.74      | 124.32   |
| 2   | L5    | 4293 | PSU  | C6-N1-C2    | -2.23 | 120.62      | 122.69   |
| 82  | S2    | 1367 | PSU  | C6-C5-C4    | 2.23  | 119.68      | 118.17   |
| 2   | L5    | 3785 | A2M  | O4'-C1'-N9  | 2.23  | 111.70      | 108.75   |
| 2   | L5    | 1625 | OMG  | O6-C6-C5    | 2.21  | 128.70      | 124.32   |
| 82  | S2    | 99   | A2M  | O4'-C1'-C2' | 2.21  | 110.37      | 106.61   |
| 2   | L5    | 1323 | A2M  | O4'-C4'-C3' | 2.21  | 109.53      | 105.15   |
| 2   | L5    | 1582 | PSU  | C6-C5-C4    | 2.21  | 119.66      | 118.17   |
| 2   | L5    | 1326 | A2M  | O4'-C1'-C2' | 2.20  | 110.36      | 106.61   |
| 82  | S2    | 159  | A2M  | O3'-C3'-C4' | -2.20 | 104.76      | 111.08   |
| 2   | L5    | 4442 | PSU  | O4'-C1'-C2' | 2.20  | 108.19      | 105.15   |
| 2   | L5    | 4637 | OMG  | O6-C6-C5    | 2.20  | 128.67      | 124.32   |
| 2   | L5    | 4530 | UR3  | C1'-N1-C2   | 2.19  | 120.63      | 117.04   |
| 2   | L5    | 2815 | A2M  | C2'-C1'-N9  | 2.19  | 117.42      | 112.56   |
| 82  | S2    | 159  | A2M  | C4'-O4'-C1' | -2.19 | 107.92      | 109.92   |
| 2   | L5    | 1322 | 1MA  | N1-C6-N6    | 2.18  | 125.20      | 119.71   |
| 2   | L5    | 4973 | PSU  | O4'-C1'-C2' | 2.18  | 108.17      | 105.15   |
| 2   | L5    | 1744 | PSU  | O4'-C1'-C2' | 2.18  | 108.17      | 105.15   |
| 82  | S2    | 867  | OMG  | O6-C6-C5    | 2.18  | 128.65      | 124.32   |
| 2   | L5    | 1326 | A2M  | C2'-C1'-N9  | 2.18  | 117.40      | 112.56   |
| 2   | L5    | 1782 | PSU  | C6-C5-C4    | 2.18  | 119.64      | 118.17   |
| 82  | S2    | 1288 | OMU  | O2-C2-N1    | -2.18 | 119.96      | 122.80   |
| 2   | L5    | 1744 | PSU  | C6-N1-C2    | -2.17 | 120.67      | 122.69   |
| 2   | L5    | 4636 | PSU  | O4'-C1'-C2' | 2.17  | 108.16      | 105.15   |
| 2   | L5    | 1522 | OMG  | O6-C6-C5    | 2.17  | 128.62      | 124.32   |
| 2   | L5    | 3867 | A2M  | C3'-C2'-C1' | -2.17 | 98.65       | 102.81   |
| 2   | L5    | 3830 | A2M  | O4'-C1'-C2' | 2.17  | 110.31      | 106.61   |
| 2   | L5    | 1326 | A2M  | O4'-C4'-C3' | 2.17  | 109.46      | 105.15   |
| 82  | S2    | 166  | A2M  | CM'-O2'-C2' | -2.17 | 108.91      | 114.47   |
| 2   | L5    | 3899 | OMG  | O6-C6-C5    | 2.17  | 128.62      | 124.32   |
| 2   | L5    | 3822 | PSU  | C6-C5-C4    | 2.16  | 119.63      | 118.17   |
| 2   | L5    | 4361 | PSU  | C6-C5-C4    | 2.16  | 119.63      | 118.17   |
| 2   | L5    | 398  | A2M  | O4'-C1'-C2' | 2.16  | 110.29      | 106.61   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 2   | L5    | 4370 | OMG  | O6-C6-C5    | 2.15  | 128.59      | 124.32   |
| 2   | L5    | 4493 | PSU  | C6-N1-C2    | -2.15 | 120.69      | 122.69   |
| 2   | L5    | 3785 | A2M  | C3'-C2'-C1' | -2.15 | 98.68       | 102.81   |
| 2   | L5    | 2363 | A2M  | O4'-C1'-C2' | 2.15  | 110.27      | 106.61   |
| 82  | S2    | 1248 | B8N  | O4'-C1'-C2' | 2.15  | 108.12      | 105.15   |
| 82  | S2    | 1248 | B8N  | O4-C4-C5    | -2.15 | 118.87      | 122.58   |
| 2   | L5    | 3867 | A2M  | O4'-C1'-C2' | 2.14  | 110.26      | 106.61   |
| 2   | L5    | 4576 | PSU  | O4'-C1'-C2' | 2.14  | 108.11      | 105.15   |
| 82  | S2    | 686  | PSU  | C6-C5-C4    | 2.14  | 119.62      | 118.17   |
| 2   | L5    | 4623 | OMG  | O6-C6-C5    | 2.14  | 128.56      | 124.32   |
| 2   | L5    | 3695 | PSU  | O4'-C1'-C2' | 2.14  | 108.11      | 105.15   |
| 82  | S2    | 683  | OMG  | O6-C6-C5    | 2.14  | 128.56      | 124.32   |
| 2   | L5    | 4353 | PSU  | O4'-C1'-C2' | 2.13  | 108.10      | 105.15   |
| 2   | L5    | 4457 | PSU  | O4'-C1'-C2' | 2.13  | 108.10      | 105.15   |
| 2   | L5    | 400  | A2M  | C2'-C1'-N9  | 2.13  | 117.29      | 112.56   |
| 2   | L5    | 1316 | OMG  | O6-C6-C5    | 2.13  | 128.55      | 124.32   |
| 2   | L5    | 400  | A2M  | O4'-C1'-C2' | 2.13  | 110.24      | 106.61   |
| 82  | S2    | 1442 | OMU  | C1'-N1-C2   | 2.12  | 121.40      | 117.59   |
| 2   | L5    | 4521 | PSU  | C6-C5-C4    | 2.12  | 119.61      | 118.17   |
| 2   | L5    | 1340 | OMC  | C1'-N1-C2   | 2.12  | 123.12      | 118.44   |
| 2   | L5    | 3920 | PSU  | C6-C5-C4    | 2.11  | 119.60      | 118.17   |
| 2   | L5    | 4456 | OMC  | C1'-N1-C2   | 2.11  | 123.10      | 118.44   |
| 2   | L5    | 3920 | PSU  | O4'-C1'-C2' | 2.11  | 108.07      | 105.15   |
| 2   | L5    | 3744 | OMG  | O6-C6-C5    | 2.10  | 128.49      | 124.32   |
| 82  | S2    | 166  | A2M  | C6-C5-C4    | -2.10 | 113.82      | 117.90   |
| 2   | L5    | 1744 | PSU  | C6-C5-C4    | 2.10  | 119.59      | 118.17   |
| 2   | L5    | 4293 | PSU  | C6-C5-C4    | 2.09  | 119.58      | 118.17   |
| 82  | S2    | 1248 | B8N  | C31-N3-C2   | 2.08  | 120.72      | 117.64   |
| 2   | L5    | 4590 | A2M  | C6-C5-C4    | -2.08 | 113.85      | 117.90   |
| 2   | L5    | 1534 | A2M  | O4'-C1'-C2' | 2.08  | 110.16      | 106.61   |
| 2   | L5    | 4196 | OMG  | O6-C6-C5    | 2.08  | 128.45      | 124.32   |
| 2   | L5    | 2787 | A2M  | C4'-O4'-C1' | -2.08 | 108.02      | 109.92   |
| 82  | S2    | 649  | PSU  | C6-C5-C4    | 2.07  | 119.57      | 118.17   |
| 2   | L5    | 3818 | UY1  | O4'-C1'-C2' | 2.07  | 108.18      | 104.56   |
| 82  | S2    | 436  | OMG  | O6-C6-C5    | 2.07  | 128.42      | 124.32   |
| 2   | L5    | 5001 | PSU  | O4'-C1'-C2' | 2.07  | 108.01      | 105.15   |
| 82  | S2    | 354  | OMU  | O2-C2-N1    | -2.06 | 120.11      | 122.80   |
| 2   | L5    | 2839 | PSU  | C6-C5-C4    | 2.06  | 119.56      | 118.17   |
| 82  | S2    | 1174 | PSU  | C6-C5-C4    | 2.05  | 119.56      | 118.17   |
| 2   | L5    | 4227 | OMU  | O2-C2-N1    | -2.05 | 120.13      | 122.80   |
| 82  | S2    | 1383 | A2M  | C2'-C1'-N9  | 2.05  | 117.10      | 112.56   |
| 2   | L5    | 4628 | PSU  | O4'-C1'-C2' | 2.04  | 107.98      | 105.15   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 2   | L5    | 3853 | PSU  | C6-N1-C2    | -2.04 | 120.80      | 122.69   |
| 2   | L5    | 4392 | OMG  | O6-C6-C5    | 2.04  | 128.36      | 124.32   |
| 2   | L5    | 4312 | PSU  | C6-C5-C4    | 2.03  | 119.55      | 118.17   |
| 2   | L5    | 4521 | PSU  | O4'-C1'-C2' | 2.03  | 107.97      | 105.15   |
| 82  | S2    | 1056 | PSU  | O4'-C1'-C2' | 2.03  | 107.97      | 105.15   |
| 2   | L5    | 3925 | OMU  | O2-C2-N1    | -2.03 | 120.15      | 122.80   |
| 2   | L5    | 3808 | OMC  | C1'-N1-C6   | -2.03 | 116.44      | 120.78   |
| 82  | S2    | 1383 | A2M  | C6-C5-C4    | -2.03 | 113.95      | 117.90   |
| 82  | S2    | 93   | PSU  | C6-N1-C2    | -2.03 | 120.81      | 122.69   |
| 2   | L5    | 5001 | PSU  | C6-C5-C4    | 2.02  | 119.54      | 118.17   |
| 2   | L5    | 2839 | PSU  | O4'-C1'-C2' | 2.02  | 107.95      | 105.15   |
| 2   | L5    | 3695 | PSU  | C6-C5-C4    | 2.02  | 119.54      | 118.17   |
| 82  | S2    | 966  | PSU  | C6-C5-C4    | 2.02  | 119.54      | 118.17   |
| 2   | L5    | 4673 | PSU  | O4'-C1'-C2' | 2.02  | 107.94      | 105.15   |
| 82  | S2    | 1337 | 4AC  | C5-C4-N4    | -2.02 | 119.54      | 122.94   |
| 2   | L5    | 1323 | A2M  | C3'-C2'-C1' | -2.02 | 98.94       | 102.81   |
| 2   | L5    | 2824 | OMC  | C1'-N1-C2   | 2.01  | 122.89      | 118.44   |
| 2   | L5    | 3792 | OMG  | O6-C6-C5    | 2.01  | 128.31      | 124.32   |
| 2   | L5    | 3718 | A2M  | CM'-O2'-C2' | -2.01 | 109.31      | 114.47   |
| 82  | S2    | 462  | OMC  | C1'-N1-C2   | 2.01  | 122.87      | 118.44   |
| 2   | L5    | 4523 | A2M  | O4'-C1'-C2' | 2.01  | 110.03      | 106.61   |
| 2   | L5    | 2422 | OMC  | C1'-N1-C2   | 2.00  | 122.86      | 118.44   |

There are no chirality outliers.

All (189) torsion outliers are listed below:

| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 4   | L8    | 75   | OMG  | C1'-C2'-O2'-CM2 |
| 2   | L5    | 400  | A2M  | C1'-C2'-O2'-CM' |
| 2   | L5    | 1316 | OMG  | C1'-C2'-O2'-CM2 |
| 2   | L5    | 1323 | A2M  | C1'-C2'-O2'-CM' |
| 2   | L5    | 1326 | A2M  | O4'-C4'-C5'-O5' |
| 2   | L5    | 1326 | A2M  | C1'-C2'-O2'-CM' |
| 2   | L5    | 1340 | OMC  | C1'-C2'-O2'-CM2 |
| 2   | L5    | 1625 | OMG  | O4'-C4'-C5'-O5' |
| 2   | L5    | 2351 | OMC  | C1'-C2'-O2'-CM2 |
| 2   | L5    | 2364 | OMG  | C1'-C2'-O2'-CM2 |
| 2   | L5    | 2365 | OMC  | C1'-C2'-O2'-CM2 |
| 2   | L5    | 2787 | A2M  | C1'-C2'-O2'-CM' |
| 2   | L5    | 2824 | OMC  | C1'-C2'-O2'-CM2 |
| 2   | L5    | 2861 | OMC  | C1'-C2'-O2'-CM2 |
| 2   | L5    | 3744 | OMG  | C1'-C2'-O2'-CM2 |

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| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 2   | L5    | 3818 | UY1  | C1'-C2'-O2'-CM2 |
| 2   | L5    | 3825 | A2M  | C1'-C2'-O2'-CM' |
| 2   | L5    | 3830 | A2M  | C1'-C2'-O2'-CM' |
| 2   | L5    | 3841 | OMC  | C1'-C2'-O2'-CM2 |
| 2   | L5    | 3867 | A2M  | C1'-C2'-O2'-CM' |
| 2   | L5    | 3899 | OMG  | O4'-C4'-C5'-O5' |
| 2   | L5    | 3899 | OMG  | C1'-C2'-O2'-CM2 |
| 2   | L5    | 4196 | OMG  | C1'-C2'-O2'-CM2 |
| 2   | L5    | 4220 | 6MZ  | C5-C6-N6-C9     |
| 2   | L5    | 4220 | 6MZ  | N1-C6-N6-C9     |
| 2   | L5    | 4220 | 6MZ  | O4'-C4'-C5'-O5' |
| 2   | L5    | 4447 | 5MC  | C2'-C1'-N1-C2   |
| 2   | L5    | 4447 | 5MC  | C2'-C1'-N1-C6   |
| 2   | L5    | 4590 | A2M  | O4'-C4'-C5'-O5' |
| 2   | L5    | 4590 | A2M  | C1'-C2'-O2'-CM' |
| 2   | L5    | 4636 | PSU  | C2'-C1'-C5-C4   |
| 2   | L5    | 4637 | OMG  | C1'-C2'-O2'-CM2 |
| 82  | S2    | 27   | A2M  | C1'-C2'-O2'-CM' |
| 82  | S2    | 116  | OMU  | C1'-C2'-O2'-CM2 |
| 82  | S2    | 159  | A2M  | C1'-C2'-O2'-CM' |
| 82  | S2    | 354  | OMU  | C1'-C2'-O2'-CM2 |
| 82  | S2    | 468  | A2M  | C1'-C2'-O2'-CM' |
| 82  | S2    | 484  | A2M  | C1'-C2'-O2'-CM' |
| 82  | S2    | 509  | OMG  | C1'-C2'-O2'-CM2 |
| 82  | S2    | 576  | A2M  | O4'-C4'-C5'-O5' |
| 82  | S2    | 644  | OMG  | C1'-C2'-O2'-CM2 |
| 82  | S2    | 1031 | A2M  | C1'-C2'-O2'-CM' |
| 82  | S2    | 1248 | B8N  | O4'-C4'-C5'-O5' |
| 82  | S2    | 1248 | B8N  | C31-C32-C33-C34 |
| 82  | S2    | 1272 | OMC  | C1'-C2'-O2'-CM2 |
| 82  | S2    | 1288 | OMU  | C3'-C4'-C5'-O5' |
| 82  | S2    | 1288 | OMU  | O4'-C4'-C5'-O5' |
| 82  | S2    | 1328 | OMG  | C1'-C2'-O2'-CM2 |
| 82  | S2    | 1337 | 4AC  | N3-C4-N4-C7     |
| 82  | S2    | 1383 | A2M  | C1'-C2'-O2'-CM' |
| 82  | S2    | 1391 | OMC  | C1'-C2'-O2'-CM2 |
| 82  | S2    | 1832 | 6MZ  | C5-C6-N6-C9     |
| 82  | S2    | 1832 | 6MZ  | N1-C6-N6-C9     |
| 82  | S2    | 1832 | 6MZ  | C5'-O5'-P-O1P   |
| 82  | S2    | 1832 | 6MZ  | C5'-O5'-P-O2P   |
| 82  | S2    | 1832 | 6MZ  | C5'-O5'-P-O3P   |
| 82  | S2    | 1832 | 6MZ  | O4'-C4'-C5'-O5' |

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| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 82  | S2    | 1850 | MA6  | C5-C6-N6-C10    |
| 2   | L5    | 398  | A2M  | O4'-C4'-C5'-O5' |
| 2   | L5    | 1326 | A2M  | C3'-C4'-C5'-O5' |
| 2   | L5    | 1536 | PSU  | C3'-C4'-C5'-O5' |
| 2   | L5    | 1536 | PSU  | O4'-C4'-C5'-O5' |
| 2   | L5    | 3792 | OMG  | O4'-C4'-C5'-O5' |
| 2   | L5    | 3887 | OMC  | C3'-C4'-C5'-O5' |
| 2   | L5    | 3899 | OMG  | C3'-C4'-C5'-O5' |
| 2   | L5    | 4590 | A2M  | C3'-C4'-C5'-O5' |
| 2   | L5    | 4618 | OMG  | O4'-C4'-C5'-O5' |
| 2   | L5    | 4618 | OMG  | C3'-C4'-C5'-O5' |
| 2   | L5    | 4637 | OMG  | O4'-C4'-C5'-O5' |
| 82  | S2    | 99   | A2M  | O4'-C4'-C5'-O5' |
| 82  | S2    | 517  | OMC  | C3'-C4'-C5'-O5' |
| 82  | S2    | 576  | A2M  | C3'-C4'-C5'-O5' |
| 82  | S2    | 644  | OMG  | O4'-C4'-C5'-O5' |
| 82  | S2    | 683  | OMG  | C3'-C4'-C5'-O5' |
| 82  | S2    | 799  | OMU  | C3'-C4'-C5'-O5' |
| 82  | S2    | 801  | PSU  | C3'-C4'-C5'-O5' |
| 82  | S2    | 867  | OMG  | C3'-C4'-C5'-O5' |
| 82  | S2    | 1272 | OMC  | C3'-C4'-C5'-O5' |
| 82  | S2    | 1272 | OMC  | O4'-C4'-C5'-O5' |
| 2   | L5    | 2422 | OMC  | C3'-C4'-C5'-O5' |
| 2   | L5    | 2422 | OMC  | O4'-C4'-C5'-O5' |
| 2   | L5    | 2787 | A2M  | C3'-C4'-C5'-O5' |
| 2   | L5    | 3701 | OMC  | C3'-C4'-C5'-O5' |
| 2   | L5    | 3701 | OMC  | O4'-C4'-C5'-O5' |
| 2   | L5    | 4500 | PSU  | O4'-C4'-C5'-O5' |
| 82  | S2    | 517  | OMC  | O4'-C4'-C5'-O5' |
| 82  | S2    | 683  | OMG  | O4'-C4'-C5'-O5' |
| 82  | S2    | 799  | OMU  | O4'-C4'-C5'-O5' |
| 82  | S2    | 801  | PSU  | O4'-C4'-C5'-O5' |
| 82  | S2    | 867  | OMG  | O4'-C4'-C5'-O5' |
| 82  | S2    | 1045 | PSU  | C3'-C4'-C5'-O5' |
| 82  | S2    | 1442 | OMU  | O4'-C4'-C5'-O5' |
| 82  | S2    | 428  | OMU  | C2'-C1'-N1-C6   |
| 2   | L5    | 1625 | OMG  | C3'-C4'-C5'-O5' |
| 2   | L5    | 4220 | 6MZ  | C3'-C4'-C5'-O5' |
| 2   | L5    | 4500 | PSU  | C3'-C4'-C5'-O5' |
| 82  | S2    | 1248 | B8N  | C3'-C4'-C5'-O5' |
| 82  | S2    | 1832 | 6MZ  | C3'-C4'-C5'-O5' |
| 82  | S2    | 627  | OMU  | C2'-C1'-N1-C6   |

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| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 2   | L5    | 398  | A2M  | C3'-C4'-C5'-O5' |
| 2   | L5    | 1582 | PSU  | C3'-C4'-C5'-O5' |
| 2   | L5    | 3792 | OMG  | C3'-C4'-C5'-O5' |
| 82  | S2    | 644  | OMG  | C3'-C4'-C5'-O5' |
| 82  | S2    | 1045 | PSU  | O4'-C4'-C5'-O5' |
| 2   | L5    | 1524 | A2M  | O4'-C4'-C5'-O5' |
| 2   | L5    | 1524 | A2M  | C3'-C4'-C5'-O5' |
| 2   | L5    | 1677 | PSU  | O4'-C4'-C5'-O5' |
| 2   | L5    | 3782 | 5MC  | O4'-C4'-C5'-O5' |
| 2   | L5    | 3887 | OMC  | O4'-C4'-C5'-O5' |
| 2   | L5    | 4637 | OMG  | C3'-C4'-C5'-O5' |
| 82  | S2    | 99   | A2M  | C3'-C4'-C5'-O5' |
| 2   | L5    | 1534 | A2M  | C3'-C2'-O2'-CM' |
| 82  | S2    | 1442 | OMU  | C3'-C4'-C5'-O5' |
| 2   | L5    | 4590 | A2M  | C4'-C5'-O5'-P   |
| 82  | S2    | 428  | OMU  | C2'-C1'-N1-C2   |
| 2   | L5    | 1582 | PSU  | O4'-C4'-C5'-O5' |
| 2   | L5    | 1677 | PSU  | C3'-C4'-C5'-O5' |
| 2   | L5    | 3825 | A2M  | O4'-C4'-C5'-O5' |
| 2   | L5    | 3869 | OMC  | O4'-C4'-C5'-O5' |
| 2   | L5    | 4296 | PSU  | C3'-C4'-C5'-O5' |
| 2   | L5    | 4296 | PSU  | O4'-C4'-C5'-O5' |
| 2   | L5    | 3925 | OMU  | C1'-C2'-O2'-CM2 |
| 2   | L5    | 3825 | A2M  | C3'-C4'-C5'-O5' |
| 82  | S2    | 428  | OMU  | O4'-C4'-C5'-O5' |
| 2   | L5    | 4447 | 5MC  | O4'-C1'-N1-C6   |
| 82  | S2    | 428  | OMU  | O4'-C1'-N1-C6   |
| 82  | S2    | 627  | OMU  | C2'-C1'-N1-C2   |
| 82  | S2    | 627  | OMU  | O4'-C1'-N1-C6   |
| 2   | L5    | 3822 | PSU  | C3'-C4'-C5'-O5' |
| 2   | L5    | 2364 | OMG  | O4'-C4'-C5'-O5' |
| 82  | S2    | 1851 | MA6  | C5-C6-N6-C9     |
| 82  | S2    | 1832 | 6MZ  | C4'-C5'-O5'-P   |
| 82  | S2    | 627  | OMU  | O4'-C1'-N1-C2   |
| 82  | S2    | 1851 | MA6  | C4'-C5'-O5'-P   |
| 2   | L5    | 2351 | OMC  | C2'-C1'-N1-C2   |
| 82  | S2    | 576  | A2M  | C3'-C2'-O2'-CM' |
| 2   | L5    | 1534 | A2M  | C4'-C5'-O5'-P   |
| 2   | L5    | 3818 | UY1  | C4'-C5'-O5'-P   |
| 2   | L5    | 3844 | PSU  | C4'-C5'-O5'-P   |
| 2   | L5    | 2351 | OMC  | C2'-C1'-N1-C6   |
| 2   | L5    | 3818 | UY1  | O4'-C1'-C5-C4   |

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| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 2   | L5    | 4636 | PSU  | O4'-C1'-C5-C4   |
| 82  | S2    | 1248 | B8N  | O4'-C1'-C5-C4   |
| 2   | L5    | 4447 | 5MC  | O4'-C1'-N1-C2   |
| 82  | S2    | 428  | OMU  | O4'-C1'-N1-C2   |
| 82  | S2    | 428  | OMU  | C3'-C4'-C5'-O5' |
| 2   | L5    | 3701 | OMC  | O4'-C1'-N1-C6   |
| 2   | L5    | 3792 | OMG  | C4'-C5'-O5'-P   |
| 82  | S2    | 1490 | OMG  | C4'-C5'-O5'-P   |
| 82  | S2    | 668  | A2M  | O4'-C4'-C5'-O5' |
| 82  | S2    | 576  | A2M  | C4'-C5'-O5'-P   |
| 82  | S2    | 644  | OMG  | C4'-C5'-O5'-P   |
| 2   | L5    | 4571 | A2M  | C3'-C2'-O2'-CM' |
| 4   | L8    | 75   | OMG  | C4'-C5'-O5'-P   |
| 2   | L5    | 4500 | PSU  | C4'-C5'-O5'-P   |
| 2   | L5    | 4196 | OMG  | C3'-C4'-C5'-O5' |
| 2   | L5    | 4523 | A2M  | O4'-C4'-C5'-O5' |
| 82  | S2    | 1248 | B8N  | N34-C33-C34-O36 |
| 2   | L5    | 3701 | OMC  | O4'-C1'-N1-C2   |
| 2   | L5    | 1326 | A2M  | C4'-C5'-O5'-P   |
| 2   | L5    | 2804 | OMC  | C3'-C4'-C5'-O5' |
| 2   | L5    | 4618 | OMG  | C1'-C2'-O2'-CM2 |
| 2   | L5    | 3782 | 5MC  | C3'-C4'-C5'-O5' |
| 82  | S2    | 1326 | OMU  | O4'-C4'-C5'-O5' |
| 2   | L5    | 1677 | PSU  | O4'-C1'-C5-C6   |
| 2   | L5    | 3818 | UY1  | O4'-C1'-C5-C6   |
| 82  | S2    | 1248 | B8N  | O4'-C1'-C5-C6   |
| 82  | S2    | 1272 | OMC  | C2'-C1'-N1-C6   |
| 2   | L5    | 398  | A2M  | C3'-C2'-O2'-CM' |
| 2   | L5    | 2876 | OMG  | C3'-C2'-O2'-CM2 |
| 2   | L5    | 4499 | OMG  | C3'-C2'-O2'-CM2 |
| 2   | L5    | 3822 | PSU  | O4'-C4'-C5'-O5' |
| 2   | L5    | 3867 | A2M  | O4'-C4'-C5'-O5' |
| 2   | L5    | 3867 | A2M  | C3'-C4'-C5'-O5' |
| 2   | L5    | 2787 | A2M  | O4'-C4'-C5'-O5' |
| 2   | L5    | 3785 | A2M  | O4'-C4'-C5'-O5' |
| 82  | S2    | 517  | OMC  | C4'-C5'-O5'-P   |
| 2   | L5    | 4494 | OMG  | C3'-C2'-O2'-CM2 |
| 2   | L5    | 2804 | OMC  | O4'-C4'-C5'-O5' |
| 2   | L5    | 4196 | OMG  | O4'-C4'-C5'-O5' |
| 82  | S2    | 1272 | OMC  | C4'-C5'-O5'-P   |
| 2   | L5    | 2804 | OMC  | C2'-C1'-N1-C2   |
| 2   | L5    | 3701 | OMC  | C2'-C1'-N1-C2   |

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| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 2   | L5    | 3887 | OMC  | C4'-C5'-O5'-P   |
| 2   | L5    | 2861 | OMC  | C2'-C1'-N1-C2   |
| 82  | S2    | 1272 | OMC  | C2'-C1'-N1-C2   |
| 2   | L5    | 2632 | PSU  | C3'-C4'-C5'-O5' |
| 82  | S2    | 627  | OMU  | O4'-C4'-C5'-O5' |
| 82  | S2    | 668  | A2M  | C3'-C4'-C5'-O5' |

There are no ring outliers.

122 monomers are involved in 226 short contacts:

| Mol | Chain | Res  | Type | Clashes | Symm-Clashes |
|-----|-------|------|------|---------|--------------|
| 2   | L5    | 4493 | PSU  | 1       | 0            |
| 2   | L5    | 2351 | OMC  | 3       | 0            |
| 82  | S2    | 1244 | PSU  | 1       | 0            |
| 2   | L5    | 2824 | OMC  | 2       | 0            |
| 2   | L5    | 3899 | OMG  | 3       | 0            |
| 2   | L5    | 4220 | 6MZ  | 1       | 0            |
| 2   | L5    | 1862 | PSU  | 1       | 0            |
| 2   | L5    | 4618 | OMG  | 1       | 0            |
| 2   | L5    | 2861 | OMC  | 2       | 0            |
| 82  | S2    | 1383 | A2M  | 2       | 0            |
| 82  | S2    | 468  | A2M  | 4       | 0            |
| 2   | L5    | 2424 | OMG  | 1       | 0            |
| 2   | L5    | 2364 | OMG  | 2       | 0            |
| 2   | L5    | 4576 | PSU  | 1       | 0            |
| 82  | S2    | 1174 | PSU  | 1       | 0            |
| 4   | L8    | 75   | OMG  | 3       | 0            |
| 2   | L5    | 4370 | OMG  | 2       | 0            |
| 2   | L5    | 4552 | PSU  | 2       | 0            |
| 82  | S2    | 517  | OMC  | 1       | 0            |
| 2   | L5    | 2363 | A2M  | 3       | 0            |
| 2   | L5    | 4312 | PSU  | 2       | 0            |
| 82  | S2    | 627  | OMU  | 1       | 0            |
| 82  | S2    | 867  | OMG  | 1       | 0            |
| 2   | L5    | 4499 | OMG  | 1       | 0            |
| 2   | L5    | 4579 | PSU  | 2       | 0            |
| 2   | L5    | 1316 | OMG  | 4       | 0            |
| 82  | S2    | 93   | PSU  | 2       | 0            |
| 82  | S2    | 109  | PSU  | 1       | 0            |
| 2   | L5    | 4299 | PSU  | 2       | 0            |
| 82  | S2    | 1490 | OMG  | 2       | 0            |
| 2   | L5    | 2787 | A2M  | 1       | 0            |

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| Mol | Chain | Res  | Type | Clashes | Symm-Clashes |
|-----|-------|------|------|---------|--------------|
| 2   | L5    | 1871 | A2M  | 1       | 0            |
| 82  | S2    | 681  | PSU  | 2       | 0            |
| 2   | L5    | 2632 | PSU  | 2       | 0            |
| 82  | S2    | 27   | A2M  | 4       | 0            |
| 2   | L5    | 2837 | OMU  | 1       | 0            |
| 2   | L5    | 1340 | OMC  | 6       | 0            |
| 2   | L5    | 5010 | PSU  | 2       | 0            |
| 2   | L5    | 3695 | PSU  | 1       | 0            |
| 82  | S2    | 428  | OMU  | 2       | 0            |
| 82  | S2    | 1031 | A2M  | 3       | 0            |
| 2   | L5    | 4447 | 5MC  | 1       | 0            |
| 82  | S2    | 601  | OMG  | 4       | 0            |
| 2   | L5    | 4392 | OMG  | 1       | 0            |
| 2   | L5    | 3853 | PSU  | 1       | 0            |
| 2   | L5    | 3844 | PSU  | 2       | 0            |
| 2   | L5    | 4636 | PSU  | 1       | 0            |
| 2   | L5    | 3925 | OMU  | 1       | 0            |
| 82  | S2    | 509  | OMG  | 5       | 0            |
| 82  | S2    | 172  | OMU  | 1       | 0            |
| 2   | L5    | 3822 | PSU  | 1       | 0            |
| 2   | L5    | 2876 | OMG  | 1       | 0            |
| 2   | L5    | 4532 | PSU  | 1       | 0            |
| 2   | L5    | 4293 | PSU  | 1       | 0            |
| 2   | L5    | 2804 | OMC  | 2       | 0            |
| 2   | L5    | 4530 | UR3  | 1       | 0            |
| 82  | S2    | 866  | PSU  | 1       | 0            |
| 2   | L5    | 2422 | OMC  | 2       | 0            |
| 82  | S2    | 1832 | 6MZ  | 2       | 0            |
| 2   | L5    | 3825 | A2M  | 3       | 0            |
| 2   | L5    | 3744 | OMG  | 1       | 0            |
| 2   | L5    | 3867 | A2M  | 6       | 0            |
| 82  | S2    | 436  | OMG  | 1       | 0            |
| 82  | S2    | 354  | OMU  | 2       | 0            |
| 82  | S2    | 1232 | PSU  | 2       | 0            |
| 82  | S2    | 1004 | PSU  | 1       | 0            |
| 2   | L5    | 4403 | PSU  | 1       | 0            |
| 82  | S2    | 116  | OMU  | 4       | 0            |
| 82  | S2    | 159  | A2M  | 5       | 0            |
| 2   | L5    | 3818 | UY1  | 1       | 0            |
| 2   | L5    | 4353 | PSU  | 1       | 0            |
| 2   | L5    | 2365 | OMC  | 1       | 0            |
| 2   | L5    | 4590 | A2M  | 1       | 0            |

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| Mol | Chain | Res  | Type | Clashes | Symm-Clashes |
|-----|-------|------|------|---------|--------------|
| 82  | S2    | 1288 | OMU  | 1       | 0            |
| 2   | L5    | 4457 | PSU  | 1       | 0            |
| 2   | L5    | 4620 | OMU  | 4       | 0            |
| 82  | S2    | 1850 | MA6  | 3       | 0            |
| 2   | L5    | 4637 | OMG  | 2       | 0            |
| 2   | L5    | 400  | A2M  | 3       | 0            |
| 2   | L5    | 398  | A2M  | 1       | 0            |
| 82  | S2    | 1177 | PSU  | 3       | 0            |
| 82  | S2    | 1842 | 4AC  | 5       | 0            |
| 82  | S2    | 1328 | OMG  | 2       | 0            |
| 82  | S2    | 576  | A2M  | 3       | 0            |
| 2   | L5    | 1326 | A2M  | 4       | 0            |
| 2   | L5    | 3851 | PSU  | 1       | 0            |
| 2   | L5    | 3841 | OMC  | 1       | 0            |
| 82  | S2    | 1639 | G7M  | 2       | 0            |
| 4   | L8    | 55   | PSU  | 1       | 0            |
| 82  | S2    | 1337 | 4AC  | 2       | 0            |
| 82  | S2    | 649  | PSU  | 2       | 0            |
| 2   | L5    | 3920 | PSU  | 2       | 0            |
| 2   | L5    | 4500 | PSU  | 1       | 0            |
| 2   | L5    | 4523 | A2M  | 3       | 0            |
| 82  | S2    | 1367 | PSU  | 1       | 0            |
| 2   | L5    | 4673 | PSU  | 1       | 0            |
| 2   | L5    | 4228 | OMG  | 1       | 0            |
| 82  | S2    | 166  | A2M  | 2       | 0            |
| 2   | L5    | 2839 | PSU  | 1       | 0            |
| 2   | L5    | 1683 | PSU  | 3       | 0            |
| 2   | L5    | 3808 | OMC  | 2       | 0            |
| 2   | L5    | 1534 | A2M  | 1       | 0            |
| 82  | S2    | 1248 | B8N  | 1       | 0            |
| 2   | L5    | 4442 | PSU  | 1       | 0            |
| 2   | L5    | 4689 | PSU  | 2       | 0            |
| 82  | S2    | 1272 | OMC  | 1       | 0            |
| 82  | S2    | 462  | OMC  | 1       | 0            |
| 82  | S2    | 484  | A2M  | 2       | 0            |
| 4   | L8    | 69   | PSU  | 1       | 0            |
| 2   | L5    | 4196 | OMG  | 1       | 0            |
| 82  | S2    | 651  | PSU  | 2       | 0            |
| 2   | L5    | 2815 | A2M  | 2       | 0            |
| 82  | S2    | 121  | OMU  | 2       | 0            |
| 2   | L5    | 3782 | 5MC  | 1       | 0            |
| 2   | L5    | 4623 | OMG  | 3       | 0            |

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| Mol | Chain | Res  | Type | Clashes | Symm-Clashes |
|-----|-------|------|------|---------|--------------|
| 2   | L5    | 4471 | PSU  | 1       | 0            |
| 2   | L5    | 3887 | OMC  | 1       | 0            |
| 2   | L5    | 3792 | OMG  | 2       | 0            |
| 2   | L5    | 3884 | PSU  | 2       | 0            |
| 2   | L5    | 1582 | PSU  | 1       | 0            |
| 2   | L5    | 1323 | A2M  | 2       | 0            |
| 2   | L5    | 3718 | A2M  | 4       | 0            |

## 5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

Of 244 ligands modelled in this entry, 225 are monoatomic - leaving 19 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mol | Type | Chain | Res  | Link | Bond lengths |      |             | Bond angles |      |             |
|-----|------|-------|------|------|--------------|------|-------------|-------------|------|-------------|
|     |      |       |      |      | Counts       | RMSZ | $\# Z  > 2$ | Counts      | RMSZ | $\# Z  > 2$ |
| 85  | SPM  | L5    | 5292 | -    | 13,13,13     | 0.35 | 0           | 12,12,12    | 0.89 | 0           |
| 86  | SPD  | L5    | 5260 | -    | 9,9,9        | 0.31 | 0           | 8,8,8       | 0.93 | 0           |
| 85  | SPM  | L5    | 5263 | -    | 13,13,13     | 0.35 | 0           | 12,12,12    | 0.99 | 0           |
| 86  | SPD  | L5    | 5282 | -    | 9,9,9        | 0.32 | 0           | 8,8,8       | 0.86 | 0           |
| 87  | HMT  | L5    | 5294 | -    | 41,43,43     | 4.51 | 15 (36%)    | 43,66,66    | 1.89 | 12 (27%)    |
| 86  | SPD  | L5    | 5286 | -    | 9,9,9        | 0.31 | 0           | 8,8,8       | 0.80 | 0           |
| 85  | SPM  | L5    | 5257 | -    | 13,13,13     | 0.36 | 0           | 12,12,12    | 1.00 | 0           |
| 86  | SPD  | L5    | 5289 | -    | 9,9,9        | 0.32 | 0           | 8,8,8       | 0.85 | 0           |
| 86  | SPD  | L5    | 5288 | -    | 9,9,9        | 0.30 | 0           | 8,8,8       | 0.84 | 0           |
| 88  | 3HE  | L5    | 5295 | -    | 21,21,21     | 0.41 | 0           | 23,30,30    | 0.86 | 0           |
| 85  | SPM  | L5    | 5290 | -    | 13,13,13     | 0.36 | 0           | 12,12,12    | 0.87 | 0           |
| 86  | SPD  | L8    | 202  | -    | 9,9,9        | 0.36 | 0           | 8,8,8       | 0.81 | 0           |
| 86  | SPD  | L5    | 5284 | -    | 9,9,9        | 0.33 | 0           | 8,8,8       | 0.86 | 0           |
| 85  | SPM  | L5    | 5262 | -    | 13,13,13     | 0.34 | 0           | 12,12,12    | 0.90 | 0           |
| 86  | SPD  | L5    | 5283 | -    | 9,9,9        | 0.34 | 0           | 8,8,8       | 0.80 | 0           |
| 85  | SPM  | L5    | 5287 | 84   | 13,13,13     | 0.35 | 0           | 12,12,12    | 1.04 | 0           |

| Mol | Type | Chain | Res  | Link | Bond lengths |      |          | Bond angles |      |          |
|-----|------|-------|------|------|--------------|------|----------|-------------|------|----------|
|     |      |       |      |      | Counts       | RMSZ | # Z  > 2 | Counts      | RMSZ | # Z  > 2 |
| 85  | SPM  | L5    | 5266 | -    | 13,13,13     | 0.35 | 0        | 12,12,12    | 0.95 | 0        |
| 86  | SPD  | L5    | 5291 | -    | 9,9,9        | 0.33 | 0        | 8,8,8       | 0.89 | 0        |
| 86  | SPD  | L5    | 5285 | -    | 9,9,9        | 0.32 | 0        | 8,8,8       | 0.83 | 0        |

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

| Mol | Type | Chain | Res  | Link | Chirals | Torsions    | Rings   |
|-----|------|-------|------|------|---------|-------------|---------|
| 85  | SPM  | L5    | 5292 | -    | -       | 3/11/11/11  | -       |
| 86  | SPD  | L5    | 5260 | -    | -       | 2/7/7/7     | -       |
| 85  | SPM  | L5    | 5263 | -    | -       | 1/11/11/11  | -       |
| 86  | SPD  | L5    | 5282 | -    | -       | 1/7/7/7     | -       |
| 87  | HMT  | L5    | 5294 | -    | -       | 11/27/74/74 | 0/5/5/5 |
| 86  | SPD  | L5    | 5286 | -    | -       | 0/7/7/7     | -       |
| 85  | SPM  | L5    | 5257 | -    | -       | 3/11/11/11  | -       |
| 86  | SPD  | L5    | 5289 | -    | -       | 5/7/7/7     | -       |
| 86  | SPD  | L5    | 5288 | -    | -       | 2/7/7/7     | -       |
| 88  | 3HE  | L5    | 5295 | -    | -       | 0/8/36/36   | 0/2/2/2 |
| 85  | SPM  | L5    | 5290 | -    | -       | 6/11/11/11  | -       |
| 86  | SPD  | L8    | 202  | -    | -       | 3/7/7/7     | -       |
| 86  | SPD  | L5    | 5284 | -    | -       | 4/7/7/7     | -       |
| 85  | SPM  | L5    | 5262 | -    | -       | 3/11/11/11  | -       |
| 86  | SPD  | L5    | 5283 | -    | -       | 0/7/7/7     | -       |
| 85  | SPM  | L5    | 5287 | 84   | -       | 5/11/11/11  | -       |
| 85  | SPM  | L5    | 5266 | -    | -       | 5/11/11/11  | -       |
| 86  | SPD  | L5    | 5291 | -    | -       | 2/7/7/7     | -       |
| 86  | SPD  | L5    | 5285 | -    | -       | 2/7/7/7     | -       |

All (15) bond length outliers are listed below:

| Mol | Chain | Res  | Type | Atoms  | Z      | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|--------|--------|-------------|----------|
| 87  | L5    | 5294 | HMT  | C8-C7  | 18.07  | 1.79        | 1.52     |
| 87  | L5    | 5294 | HMT  | C7-C6  | 11.93  | 1.77        | 1.51     |
| 87  | L5    | 5294 | HMT  | C5-C4  | -10.35 | 1.35        | 1.51     |
| 87  | L5    | 5294 | HMT  | C10-N1 | 7.36   | 1.57        | 1.47     |
| 87  | L5    | 5294 | HMT  | C1-C2  | 6.85   | 1.42        | 1.32     |
| 87  | L5    | 5294 | HMT  | O4-C19 | 5.67   | 1.45        | 1.34     |

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| Mol | Chain | Res  | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 87  | L5    | 5294 | HMT  | C9-N1   | -4.95 | 1.34        | 1.48     |
| 87  | L5    | 5294 | HMT  | O4-C3   | -4.66 | 1.36        | 1.44     |
| 87  | L5    | 5294 | HMT  | C12-C9  | 3.61  | 1.59        | 1.54     |
| 87  | L5    | 5294 | HMT  | O3-C2   | 3.06  | 1.41        | 1.35     |
| 87  | L5    | 5294 | HMT  | O7-C22  | 2.74  | 1.41        | 1.33     |
| 87  | L5    | 5294 | HMT  | C3-C2   | -2.67 | 1.43        | 1.50     |
| 87  | L5    | 5294 | HMT  | O1-C14  | 2.26  | 1.41        | 1.38     |
| 87  | L5    | 5294 | HMT  | O2-C15  | 2.21  | 1.41        | 1.38     |
| 87  | L5    | 5294 | HMT  | C21-C22 | 2.04  | 1.54        | 1.50     |

All (12) bond angle outliers are listed below:

| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 87  | L5    | 5294 | HMT  | O4-C19-C20  | 5.05  | 120.50      | 111.24   |
| 87  | L5    | 5294 | HMT  | O7-C22-C21  | 4.90  | 119.77      | 111.16   |
| 87  | L5    | 5294 | HMT  | C3-O4-C19   | -3.76 | 111.32      | 117.24   |
| 87  | L5    | 5294 | HMT  | O2-C15-C16  | 3.18  | 132.09      | 127.86   |
| 87  | L5    | 5294 | HMT  | O1-C14-C13  | 2.76  | 131.53      | 127.86   |
| 87  | L5    | 5294 | HMT  | C18-O3-C2   | -2.70 | 112.07      | 116.53   |
| 87  | L5    | 5294 | HMT  | C10-N1-C9   | -2.48 | 100.79      | 107.65   |
| 87  | L5    | 5294 | HMT  | O4-C19-O5   | -2.35 | 119.80      | 123.95   |
| 87  | L5    | 5294 | HMT  | C13-C5-C6   | -2.16 | 117.04      | 119.39   |
| 87  | L5    | 5294 | HMT  | C16-C15-C14 | -2.09 | 119.42      | 122.03   |
| 87  | L5    | 5294 | HMT  | C17-O2-C15  | 2.04  | 108.06      | 105.32   |
| 87  | L5    | 5294 | HMT  | C17-O1-C14  | 2.04  | 108.05      | 105.32   |

There are no chirality outliers.

All (58) torsion outliers are listed below:

| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 87  | L5    | 5294 | HMT  | C1-C2-O3-C18    |
| 87  | L5    | 5294 | HMT  | C3-C2-O3-C18    |
| 87  | L5    | 5294 | HMT  | C21-C22-O7-C23  |
| 87  | L5    | 5294 | HMT  | O8-C22-O7-C23   |
| 85  | L5    | 5262 | SPM  | N5-C6-C7-C8     |
| 85  | L5    | 5266 | SPM  | C2-C3-C4-N5     |
| 85  | L5    | 5287 | SPM  | N10-C11-C12-C13 |
| 85  | L5    | 5266 | SPM  | C3-C4-N5-C6     |
| 85  | L5    | 5290 | SPM  | C2-C3-C4-N5     |
| 87  | L5    | 5294 | HMT  | O6-C20-C21-C22  |
| 85  | L5    | 5287 | SPM  | C7-C6-N5-C4     |
| 86  | L5    | 5260 | SPD  | C8-C7-N6-C5     |

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| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 86  | L5    | 5284 | SPD  | C8-C7-N6-C5     |
| 85  | L5    | 5257 | SPM  | C3-C4-N5-C6     |
| 85  | L5    | 5290 | SPM  | C7-C6-N5-C4     |
| 87  | L5    | 5294 | HMT  | C19-C20-C21-C22 |
| 85  | L5    | 5290 | SPM  | C7-C8-C9-N10    |
| 86  | L5    | 5289 | SPD  | N6-C7-C8-C9     |
| 86  | L8    | 202  | SPD  | C3-C4-C5-N6     |
| 87  | L5    | 5294 | HMT  | C24-C20-C21-C22 |
| 86  | L5    | 5284 | SPD  | C3-C4-C5-N6     |
| 85  | L5    | 5266 | SPM  | N10-C11-C12-C13 |
| 85  | L5    | 5292 | SPM  | C6-C7-C8-C9     |
| 86  | L5    | 5288 | SPD  | C2-C3-C4-C5     |
| 85  | L5    | 5266 | SPM  | C6-C7-C8-C9     |
| 85  | L5    | 5257 | SPM  | C6-C7-C8-C9     |
| 86  | L5    | 5284 | SPD  | C2-C3-C4-C5     |
| 85  | L5    | 5263 | SPM  | N5-C6-C7-C8     |
| 86  | L5    | 5289 | SPD  | C4-C5-N6-C7     |
| 86  | L5    | 5282 | SPD  | C2-C3-C4-C5     |
| 86  | L5    | 5285 | SPD  | C3-C4-C5-N6     |
| 87  | L5    | 5294 | HMT  | O5-C19-C20-C24  |
| 85  | L5    | 5287 | SPM  | C8-C9-N10-C11   |
| 85  | L5    | 5287 | SPM  | C12-C11-N10-C9  |
| 87  | L5    | 5294 | HMT  | C20-C24-C25-C26 |
| 86  | L5    | 5288 | SPD  | C8-C7-N6-C5     |
| 87  | L5    | 5294 | HMT  | O4-C19-C20-C24  |
| 85  | L5    | 5262 | SPM  | C6-C7-C8-C9     |
| 85  | L5    | 5290 | SPM  | N10-C11-C12-C13 |
| 85  | L5    | 5266 | SPM  | N5-C6-C7-C8     |
| 86  | L8    | 202  | SPD  | C8-C7-N6-C5     |
| 85  | L5    | 5257 | SPM  | C11-C12-C13-N14 |
| 85  | L5    | 5290 | SPM  | C11-C12-C13-N14 |
| 86  | L5    | 5285 | SPD  | C8-C7-N6-C5     |
| 86  | L8    | 202  | SPD  | C4-C5-N6-C7     |
| 85  | L5    | 5262 | SPM  | C3-C4-N5-C6     |
| 86  | L5    | 5291 | SPD  | C8-C7-N6-C5     |
| 86  | L5    | 5284 | SPD  | C4-C5-N6-C7     |
| 86  | L5    | 5289 | SPD  | N1-C2-C3-C4     |
| 87  | L5    | 5294 | HMT  | O5-C19-O4-C3    |
| 85  | L5    | 5290 | SPM  | C8-C9-N10-C11   |
| 86  | L5    | 5291 | SPD  | C4-C5-N6-C7     |
| 85  | L5    | 5287 | SPM  | N1-C2-C3-C4     |
| 85  | L5    | 5292 | SPM  | N1-C2-C3-C4     |

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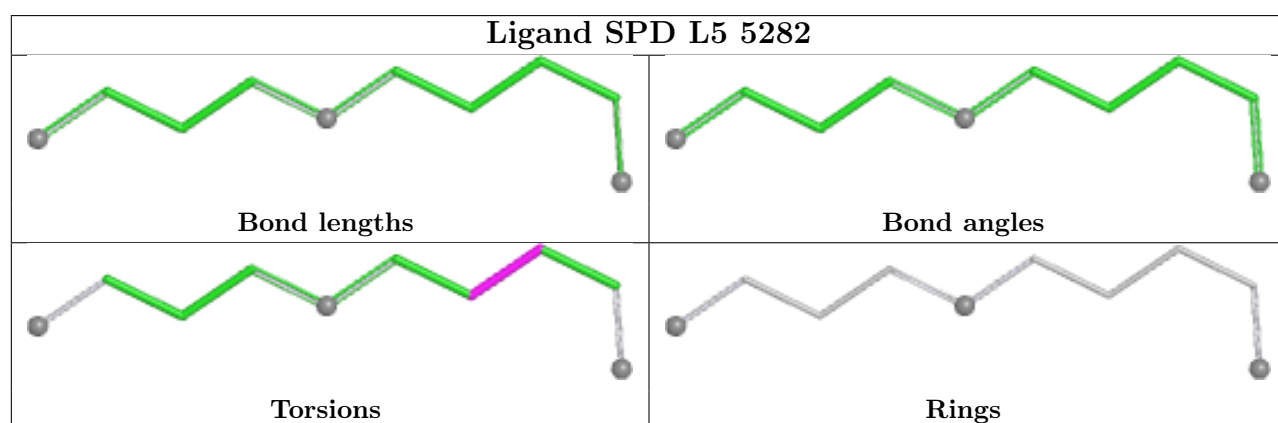
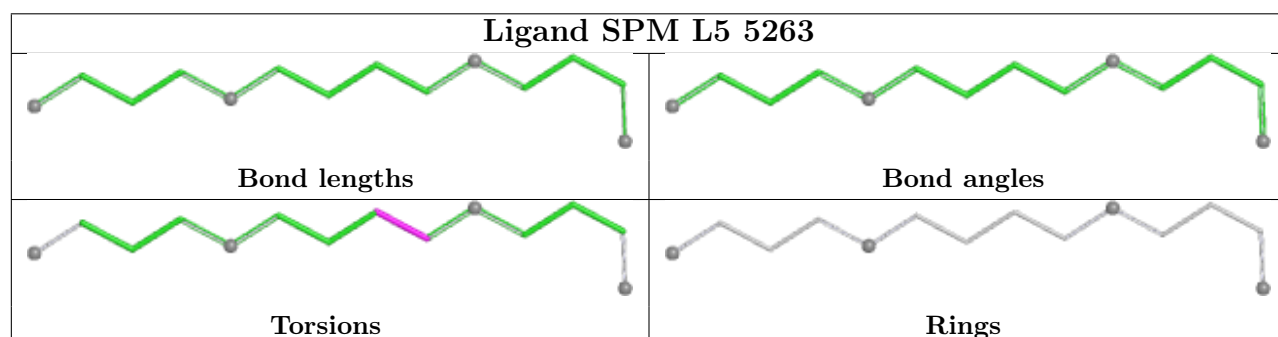
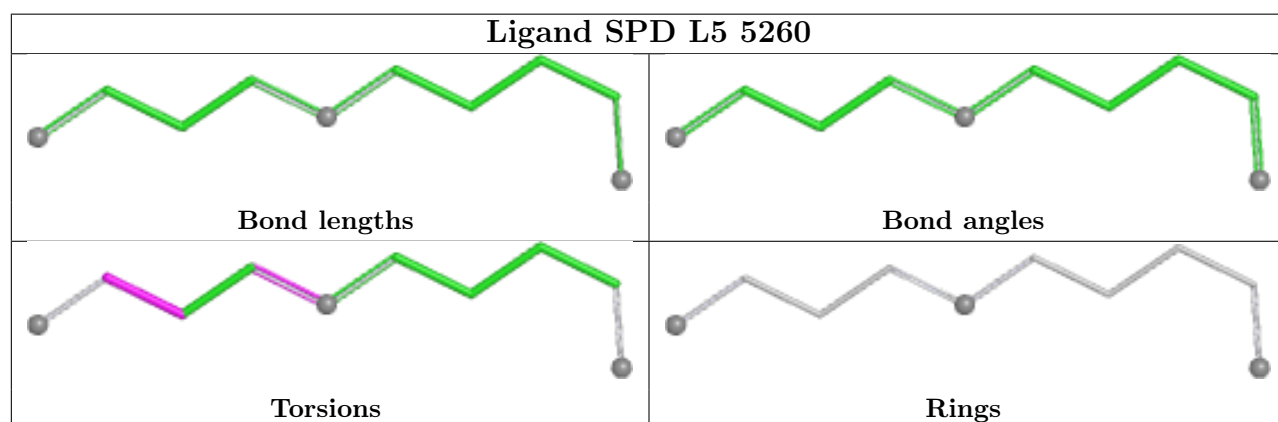
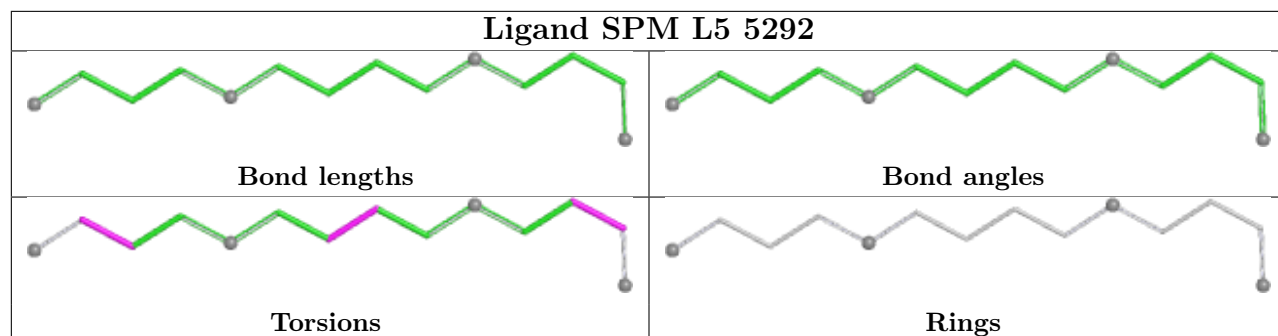
| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 85  | L5    | 5292 | SPM  | C11-C12-C13-N14 |
| 86  | L5    | 5260 | SPD  | C7-C8-C9-N10    |
| 86  | L5    | 5289 | SPD  | C8-C7-N6-C5     |
| 86  | L5    | 5289 | SPD  | C3-C4-C5-N6     |

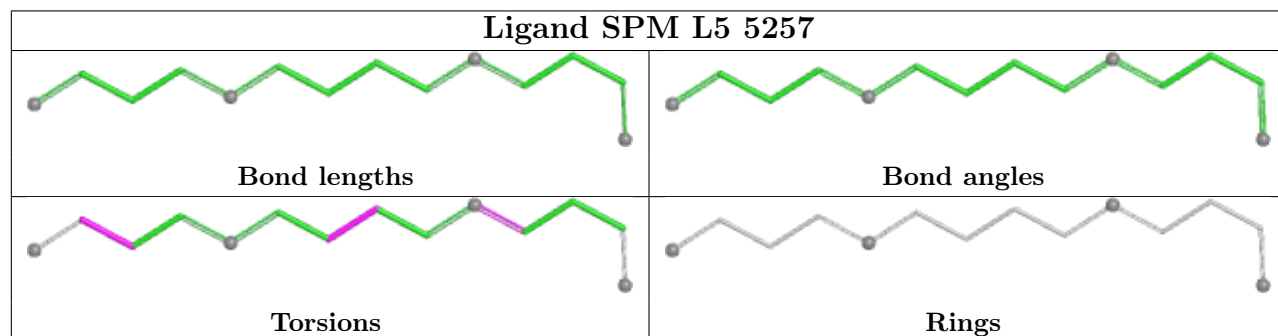
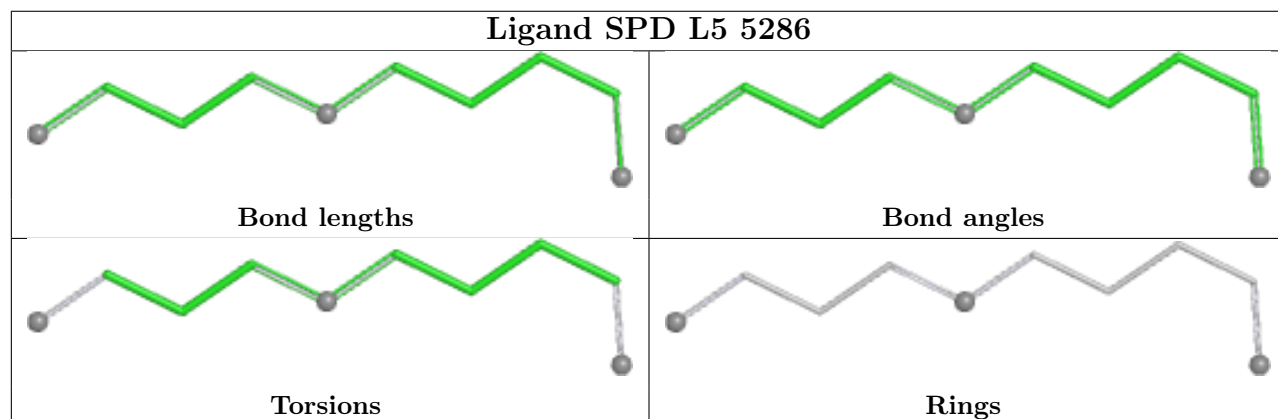
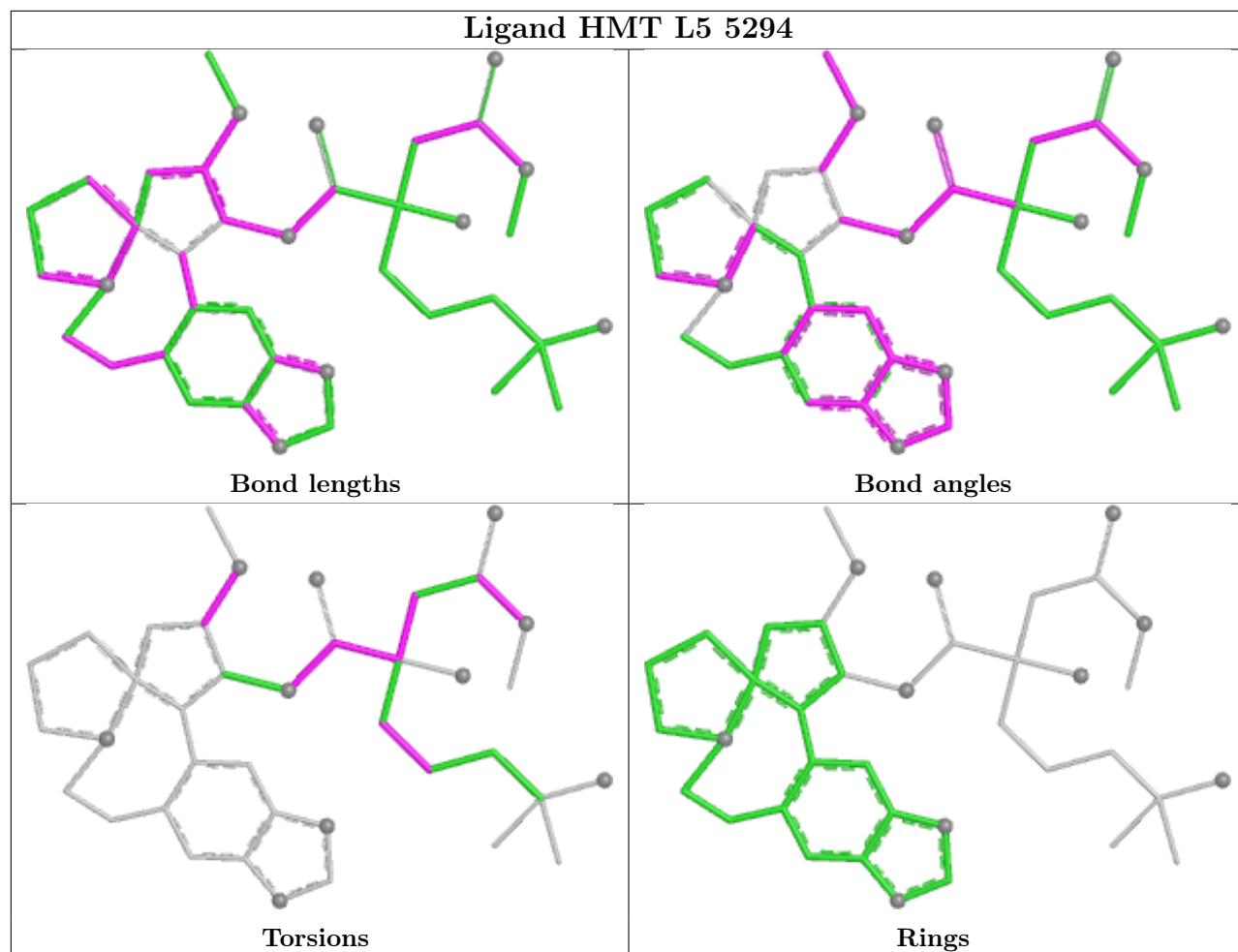
There are no ring outliers.

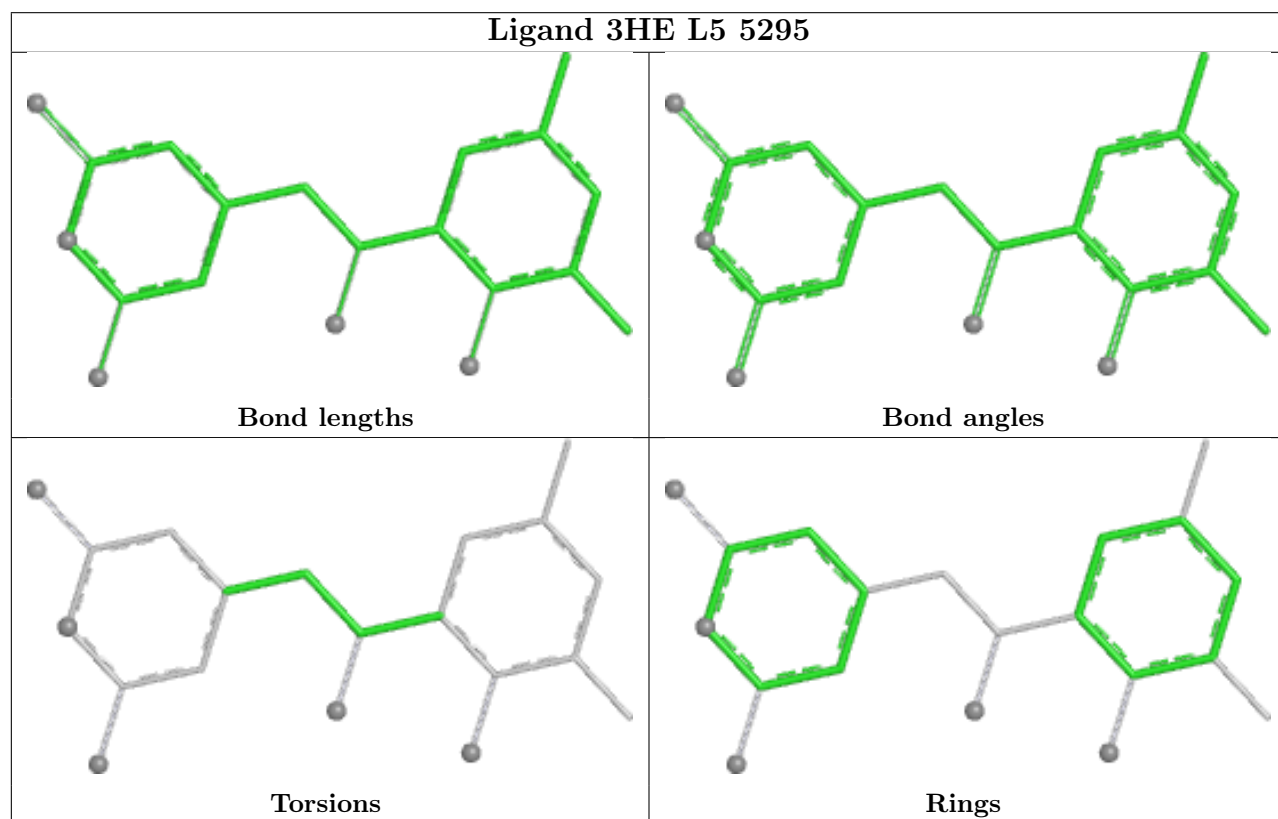
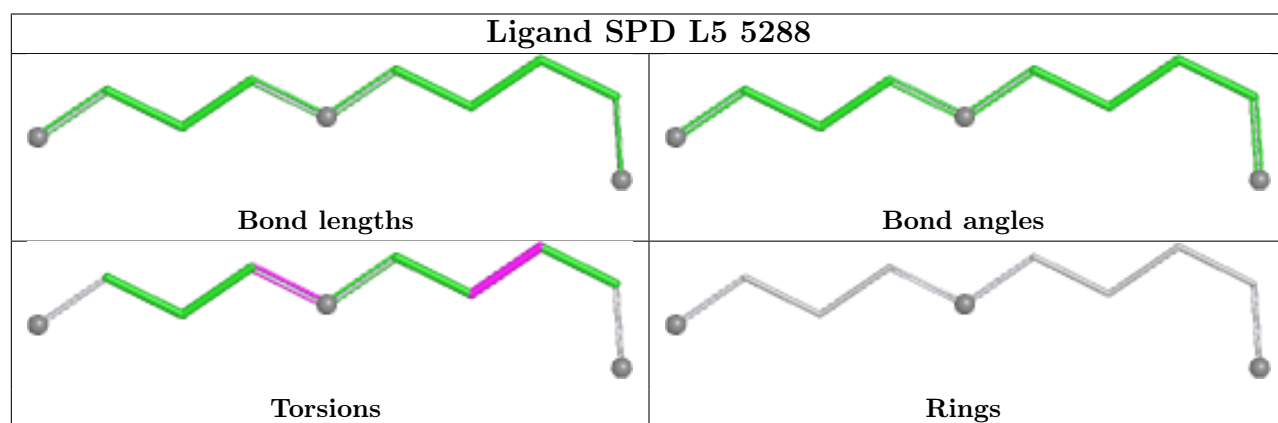
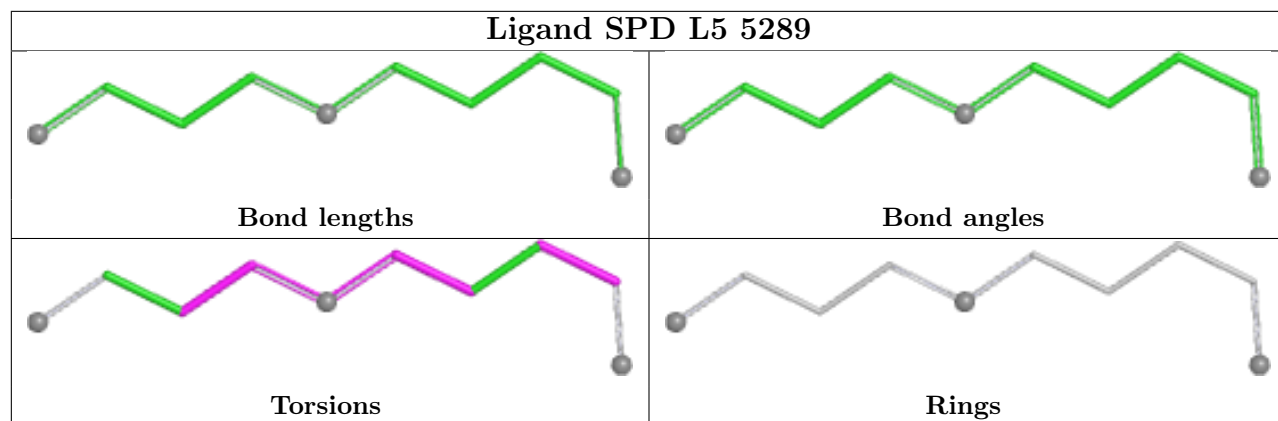
17 monomers are involved in 38 short contacts:

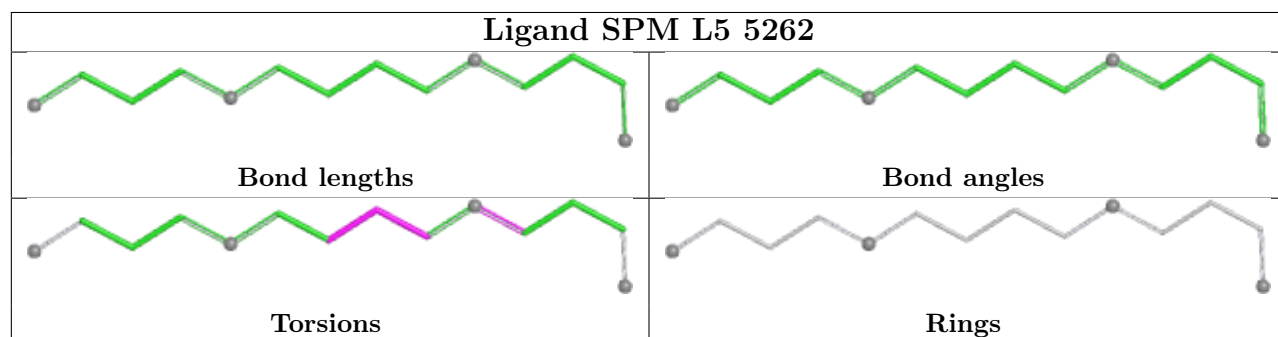
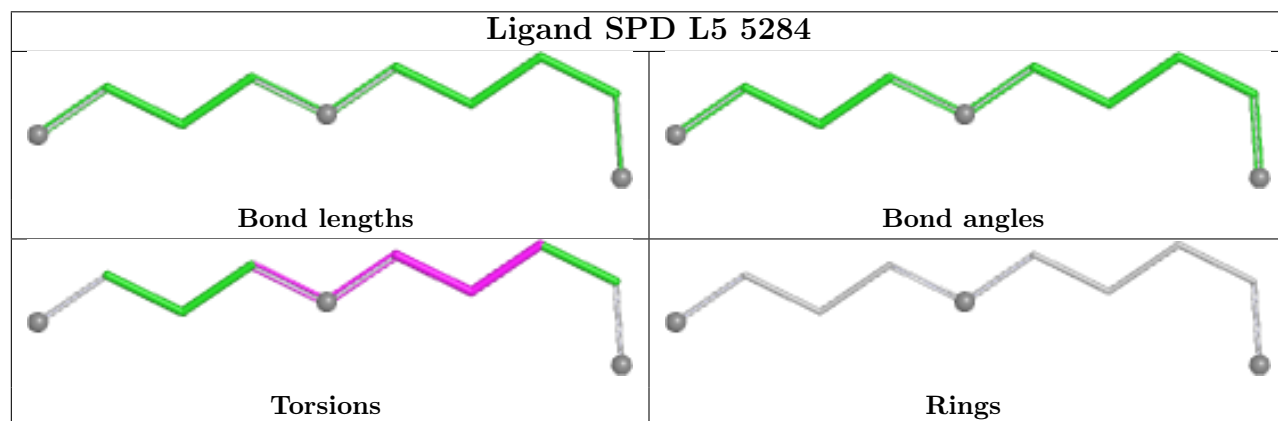
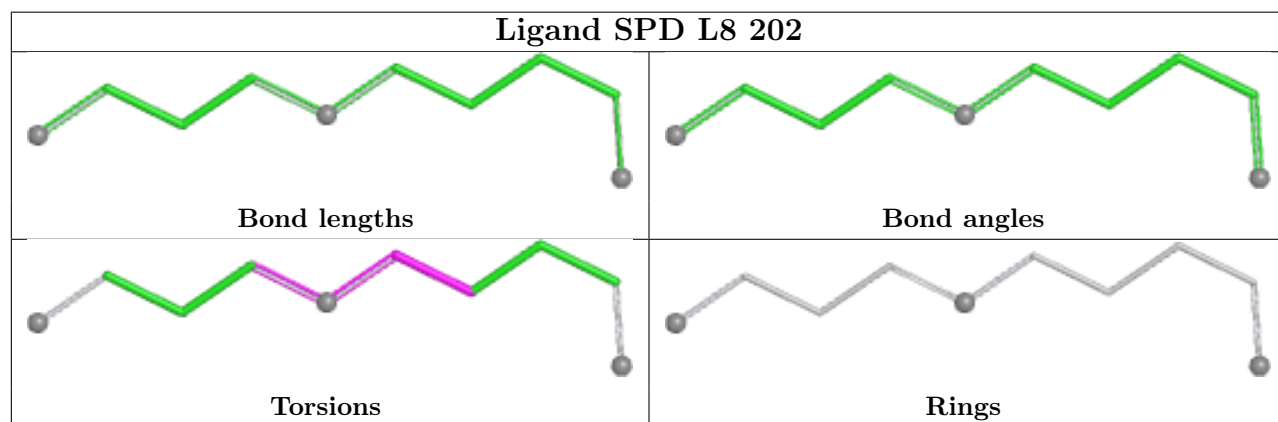
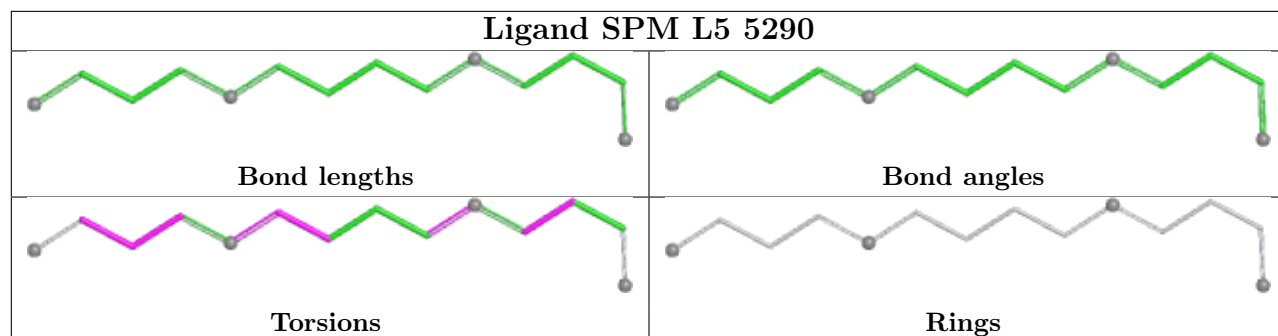
| Mol | Chain | Res  | Type | Clashes | Symm-Clashes |
|-----|-------|------|------|---------|--------------|
| 85  | L5    | 5292 | SPM  | 1       | 0            |
| 86  | L5    | 5260 | SPD  | 4       | 0            |
| 85  | L5    | 5263 | SPM  | 1       | 0            |
| 86  | L5    | 5282 | SPD  | 2       | 0            |
| 87  | L5    | 5294 | HMT  | 10      | 0            |
| 86  | L5    | 5286 | SPD  | 1       | 0            |
| 85  | L5    | 5257 | SPM  | 3       | 0            |
| 86  | L5    | 5289 | SPD  | 2       | 0            |
| 86  | L5    | 5288 | SPD  | 1       | 0            |
| 88  | L5    | 5295 | 3HE  | 1       | 0            |
| 85  | L5    | 5290 | SPM  | 2       | 0            |
| 86  | L8    | 202  | SPD  | 1       | 0            |
| 86  | L5    | 5284 | SPD  | 3       | 0            |
| 86  | L5    | 5283 | SPD  | 3       | 0            |
| 85  | L5    | 5287 | SPM  | 1       | 0            |
| 86  | L5    | 5291 | SPD  | 1       | 0            |
| 86  | L5    | 5285 | SPD  | 1       | 0            |

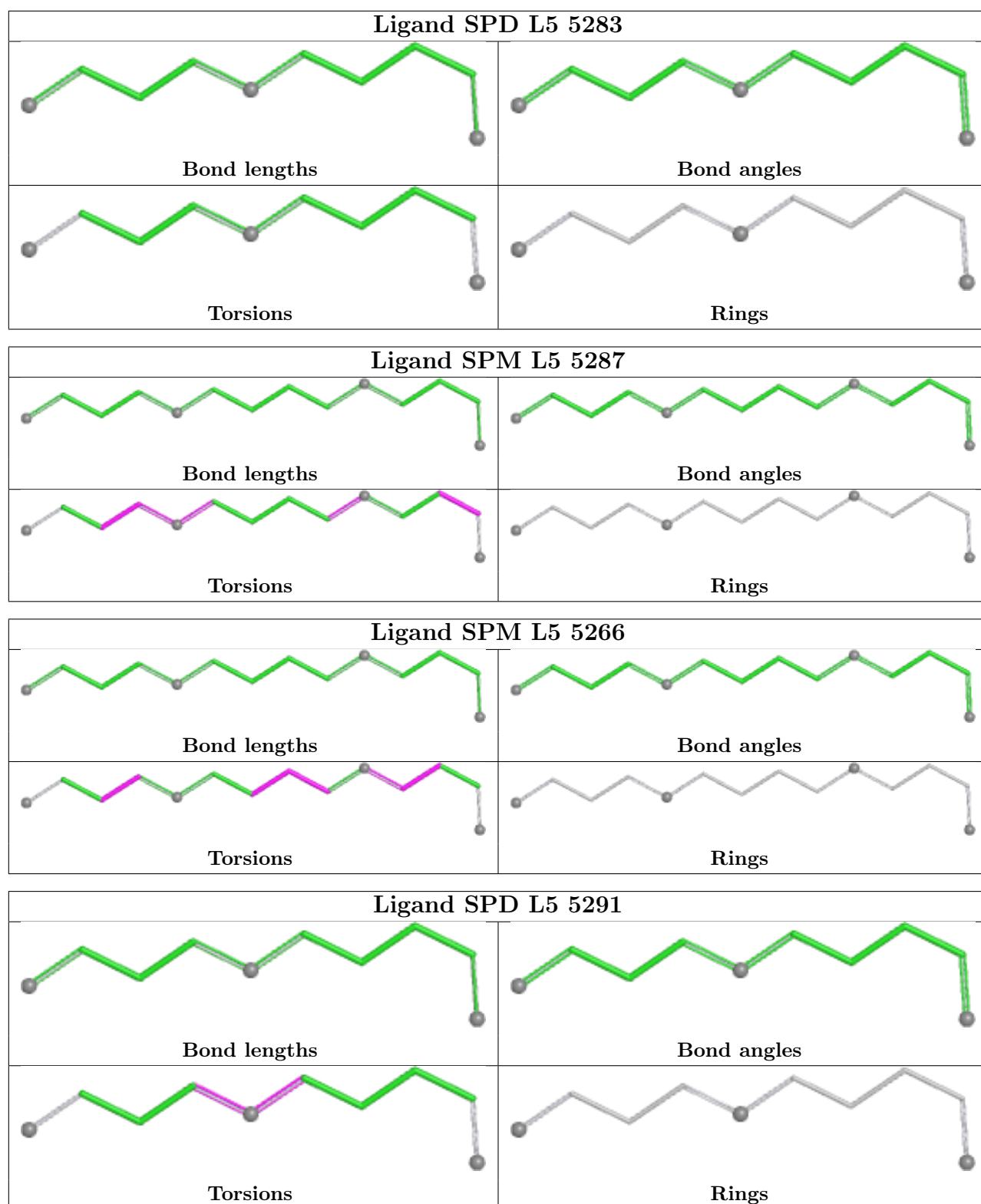
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

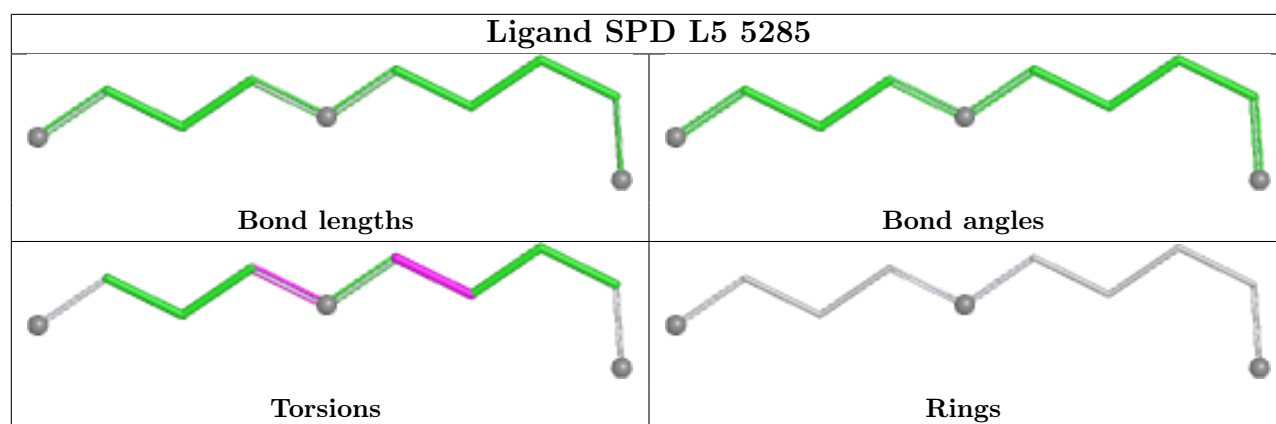












## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

| Mol | Chain | Number of breaks |
|-----|-------|------------------|
| 2   | L5    | 10               |
| 82  | S2    | 5                |
| 1   | Pt    | 1                |

All chain breaks are listed below:

| Model | Chain | Residue-1 | Atom-1 | Residue-2 | Atom-2 | Distance (Å) |
|-------|-------|-----------|--------|-----------|--------|--------------|
| 1     | S2    | 753:C     | O3'    | 785:C     | P      | 29.42        |
| 1     | L5    | 1706:A    | O3'    | 1716:G    | P      | 21.48        |
| 1     | L5    | 2910:G    | O3'    | 3584:C    | P      | 20.84        |
| 1     | L5    | 760:G     | O3'    | 903:C     | P      | 16.51        |
| 1     | L5    | 519:C     | O3'    | 642:G     | P      | 15.03        |
| 1     | L5    | 4776:G    | O3'    | 4858:C    | P      | 14.81        |
| 1     | S2    | 698:G     | O3'    | 730:C     | P      | 14.78        |
| 1     | L5    | 2112:G    | O3'    | 2249:C    | P      | 14.72        |
| 1     | L5    | 3954:A    | O3'    | 4056:A    | P      | 13.38        |
| 1     | S2    | 739:C     | O3'    | 746:C     | P      | 12.64        |
| 1     | L5    | 990:C     | O3'    | 1064:G    | P      | 12.55        |
| 1     | L5    | 1222:A    | O3'    | 1234:G    | P      | 11.29        |
| 1     | Pt    | 15:G      | O3'    | 18:G      | P      | 9.46         |
| 1     | S2    | 225:G     | O3'    | 287:U     | P      | 7.89         |
| 1     | L5    | 1100:U    | O3'    | 1167:C    | P      | 6.77         |
| 1     | S2    | 1831:A    | O3'    | 1832:6MZ  | P      | 4.31         |

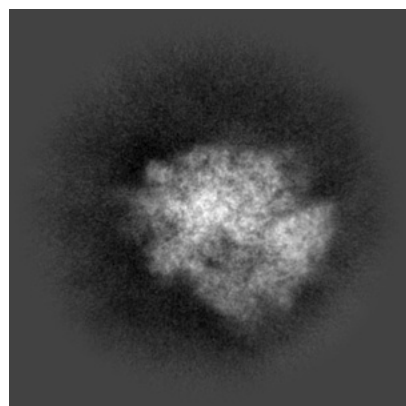
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-71344. These allow visual inspection of the internal detail of the map and identification of artifacts.

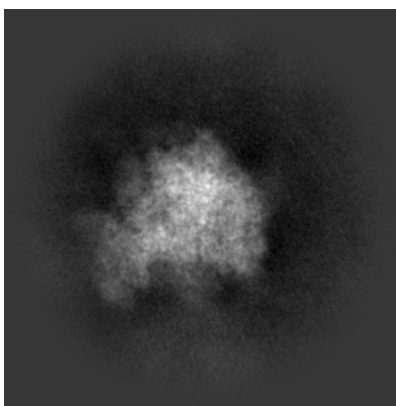
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

### 6.1 Orthogonal projections [i](#)

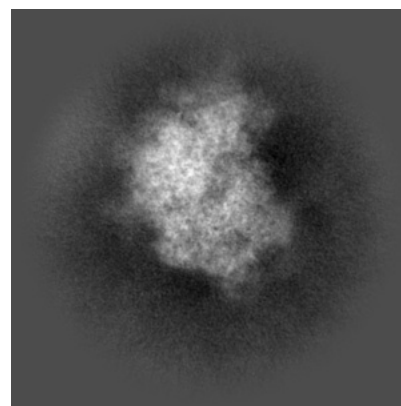
#### 6.1.1 Primary map



X

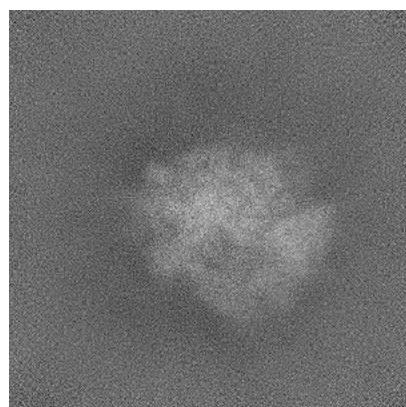


Y

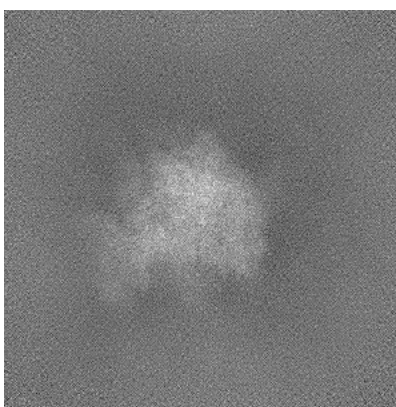


Z

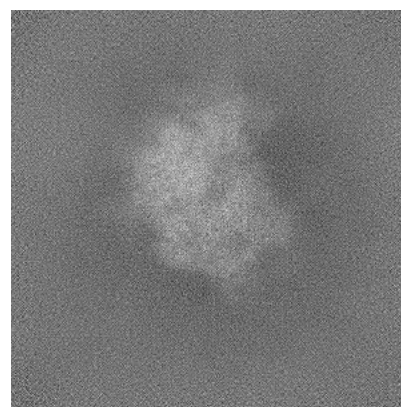
#### 6.1.2 Raw map



X



Y

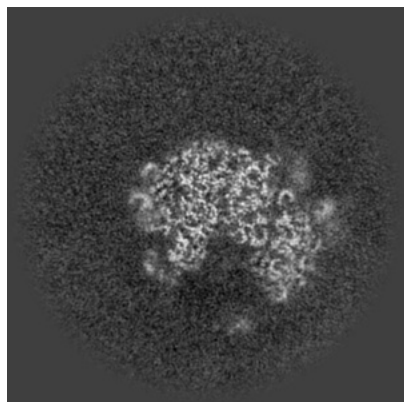


Z

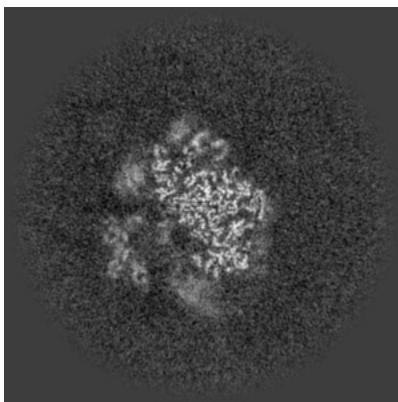
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

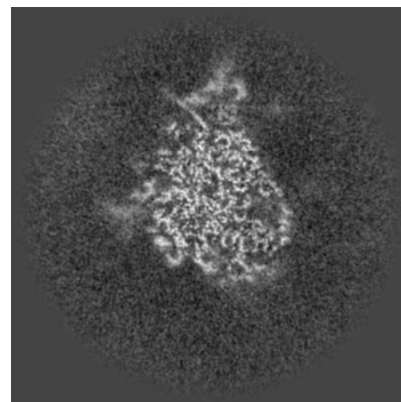
### 6.2.1 Primary map



X Index: 256

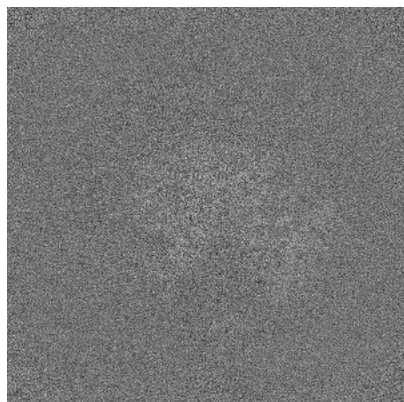


Y Index: 256

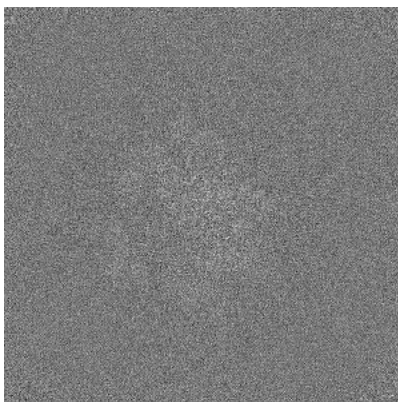


Z Index: 256

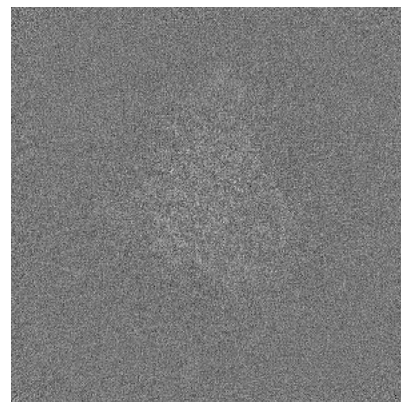
### 6.2.2 Raw map



X Index: 256



Y Index: 256

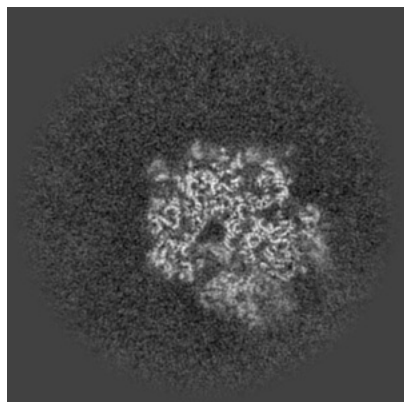


Z Index: 256

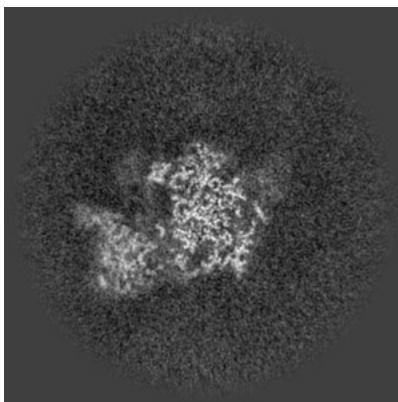
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices [i](#)

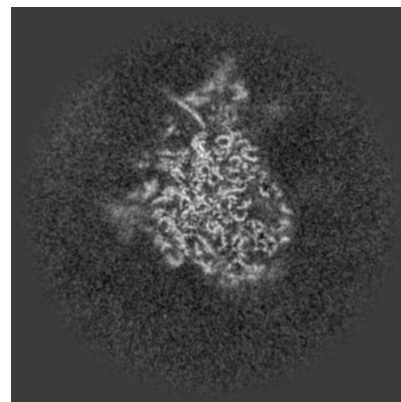
### 6.3.1 Primary map



X Index: 219

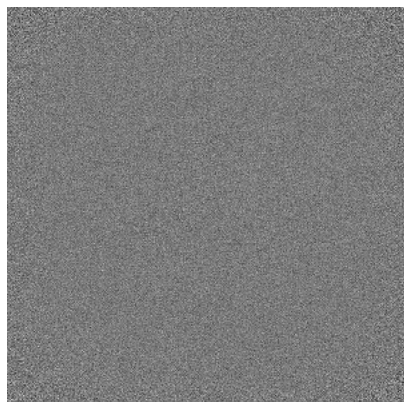


Y Index: 288

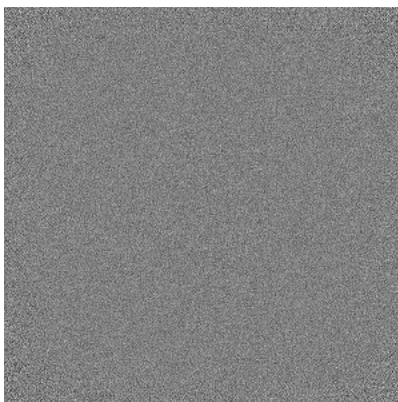


Z Index: 254

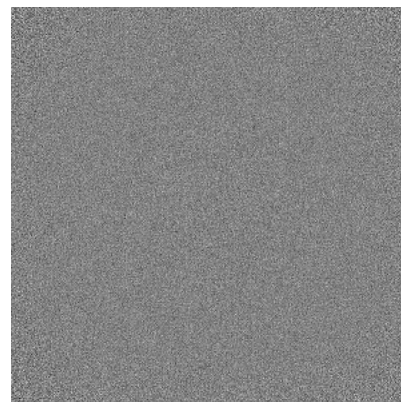
### 6.3.2 Raw map



X Index: 0



Y Index: 0

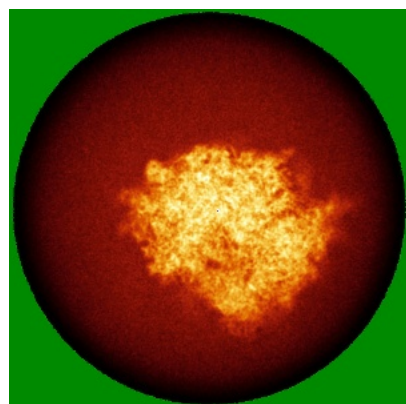


Z Index: 0

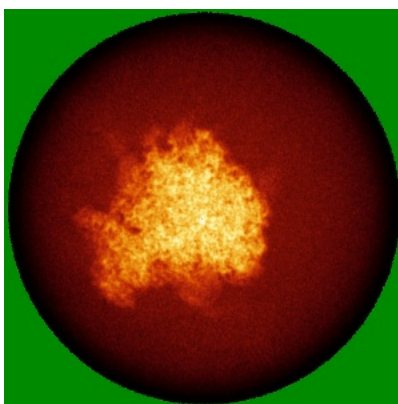
The images above show the largest variance slices of the map in three orthogonal directions.

## 6.4 Orthogonal standard-deviation projections (False-color) [i](#)

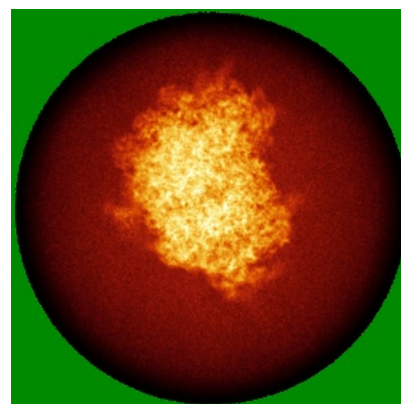
### 6.4.1 Primary map



X

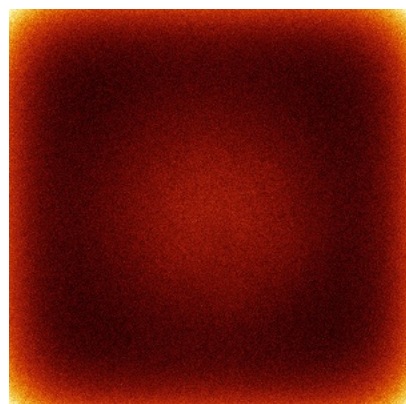


Y

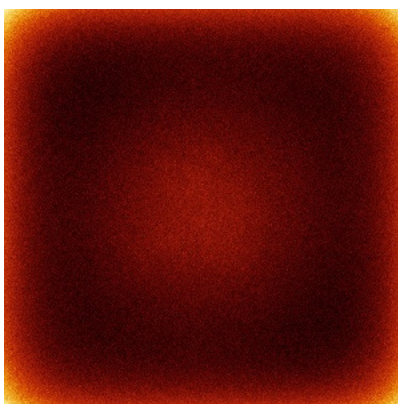


Z

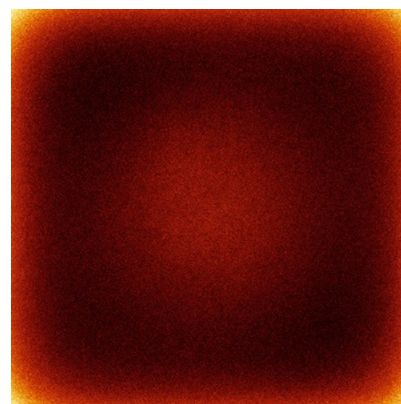
### 6.4.2 Raw map



X



Y

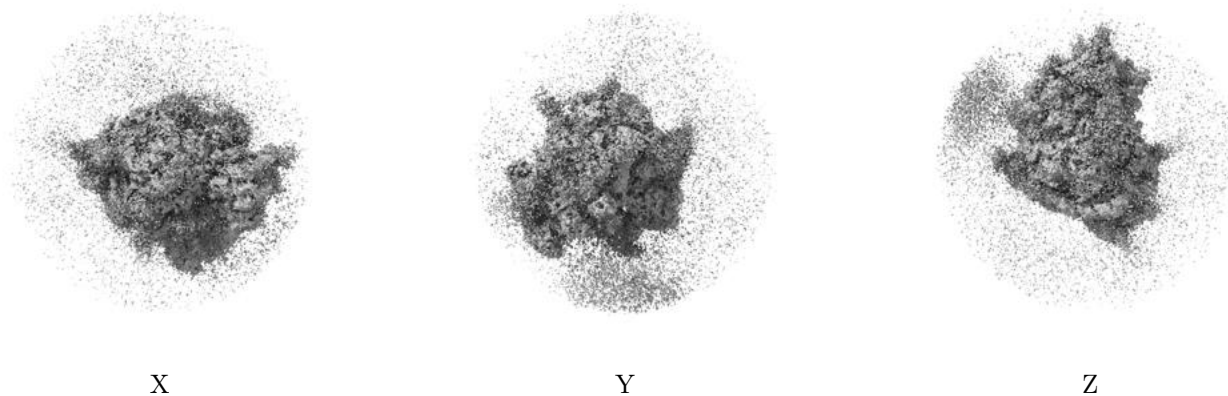


Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

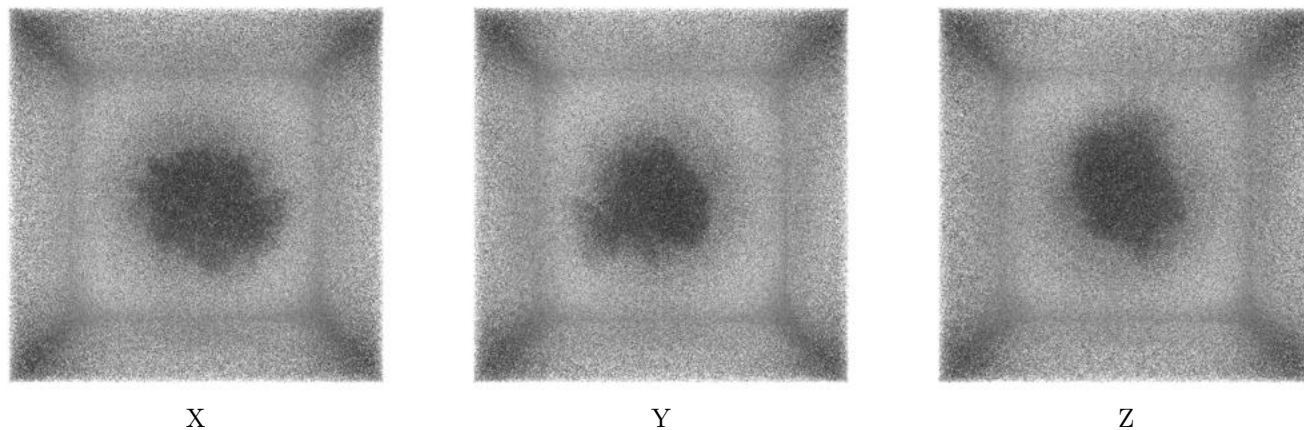
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.0714. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

### 6.5.2 Raw map



These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

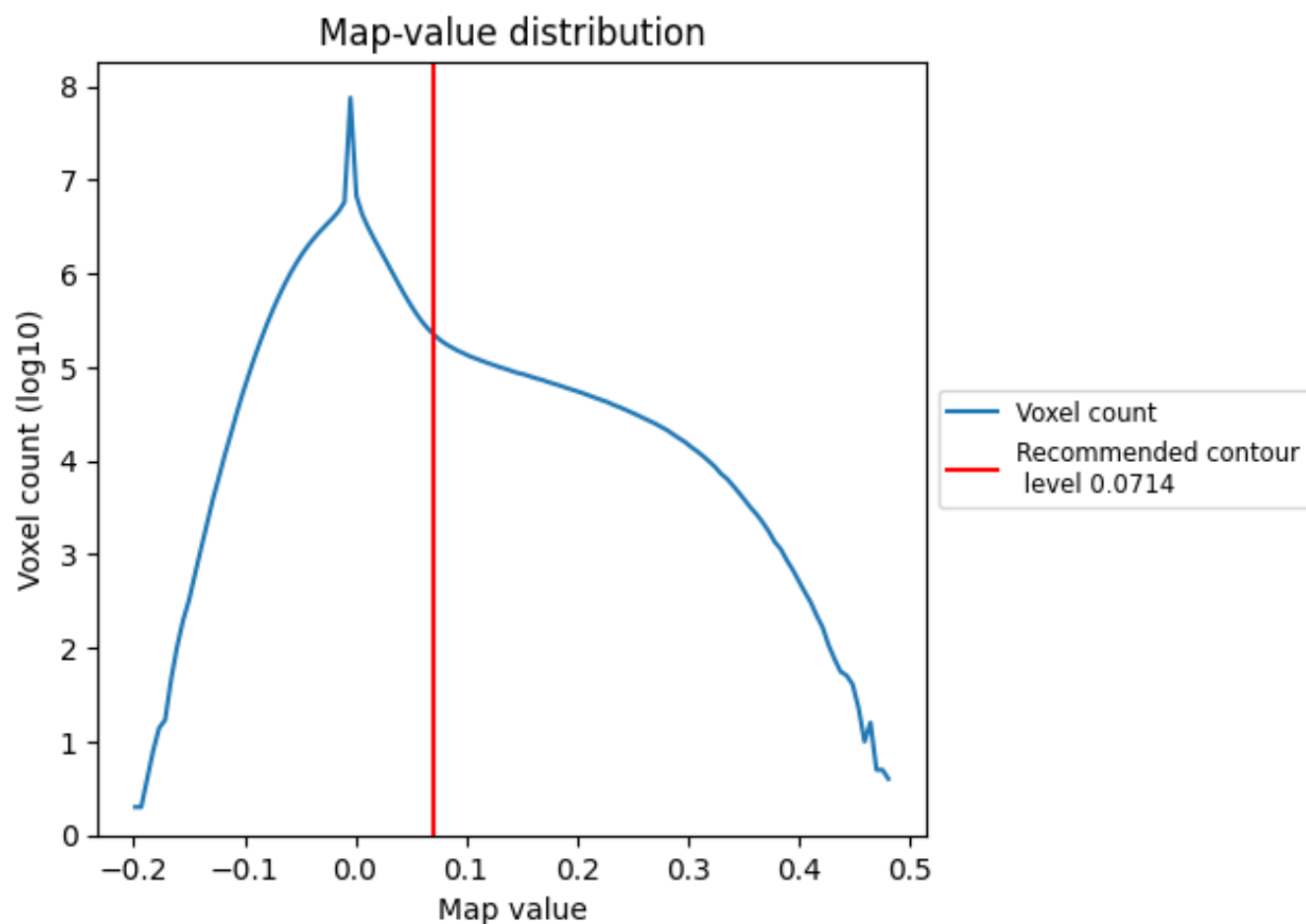
## 6.6 Mask visualisation [i](#)

This section was not generated. No masks/segmentation were deposited.

## 7 Map analysis [i](#)

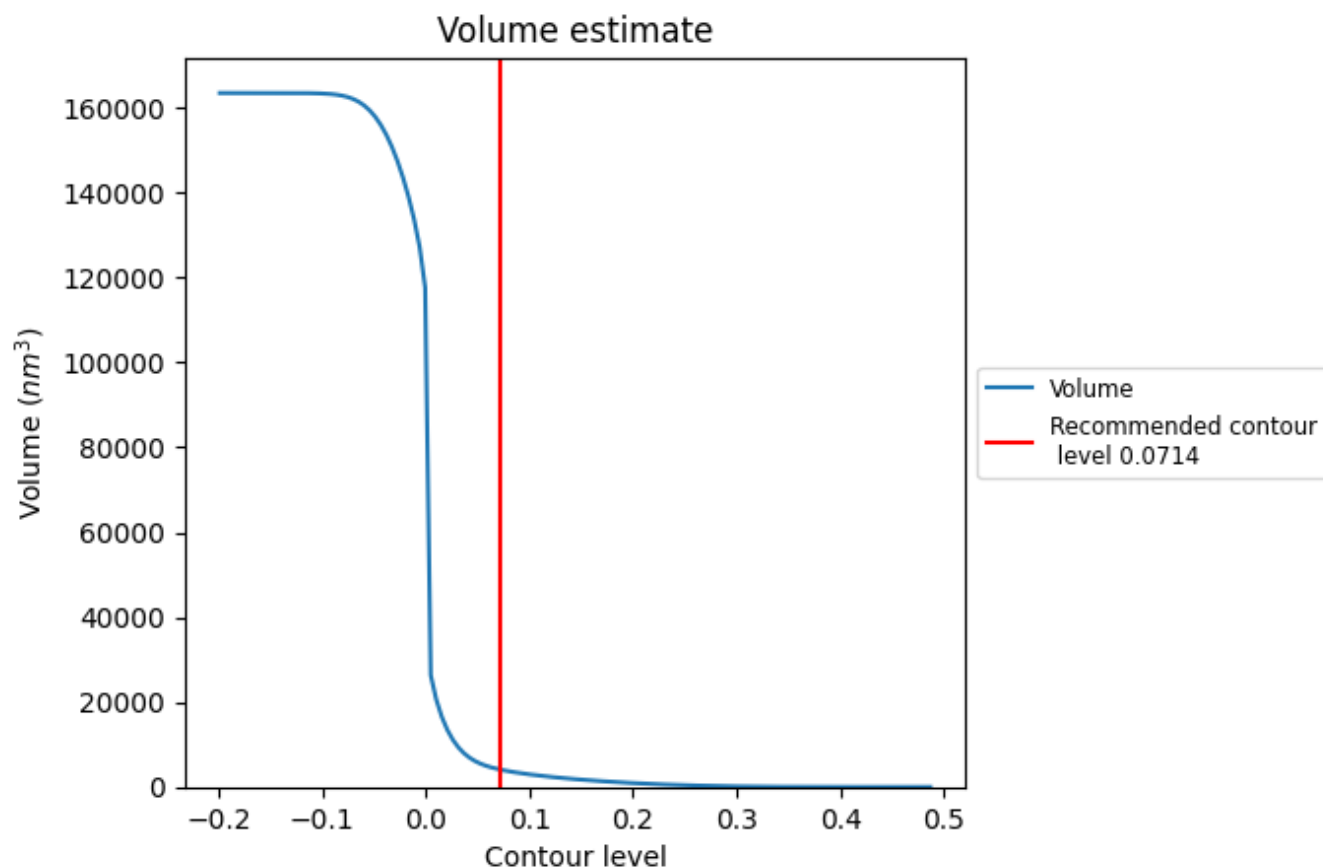
This section contains the results of statistical analysis of the map.

### 7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

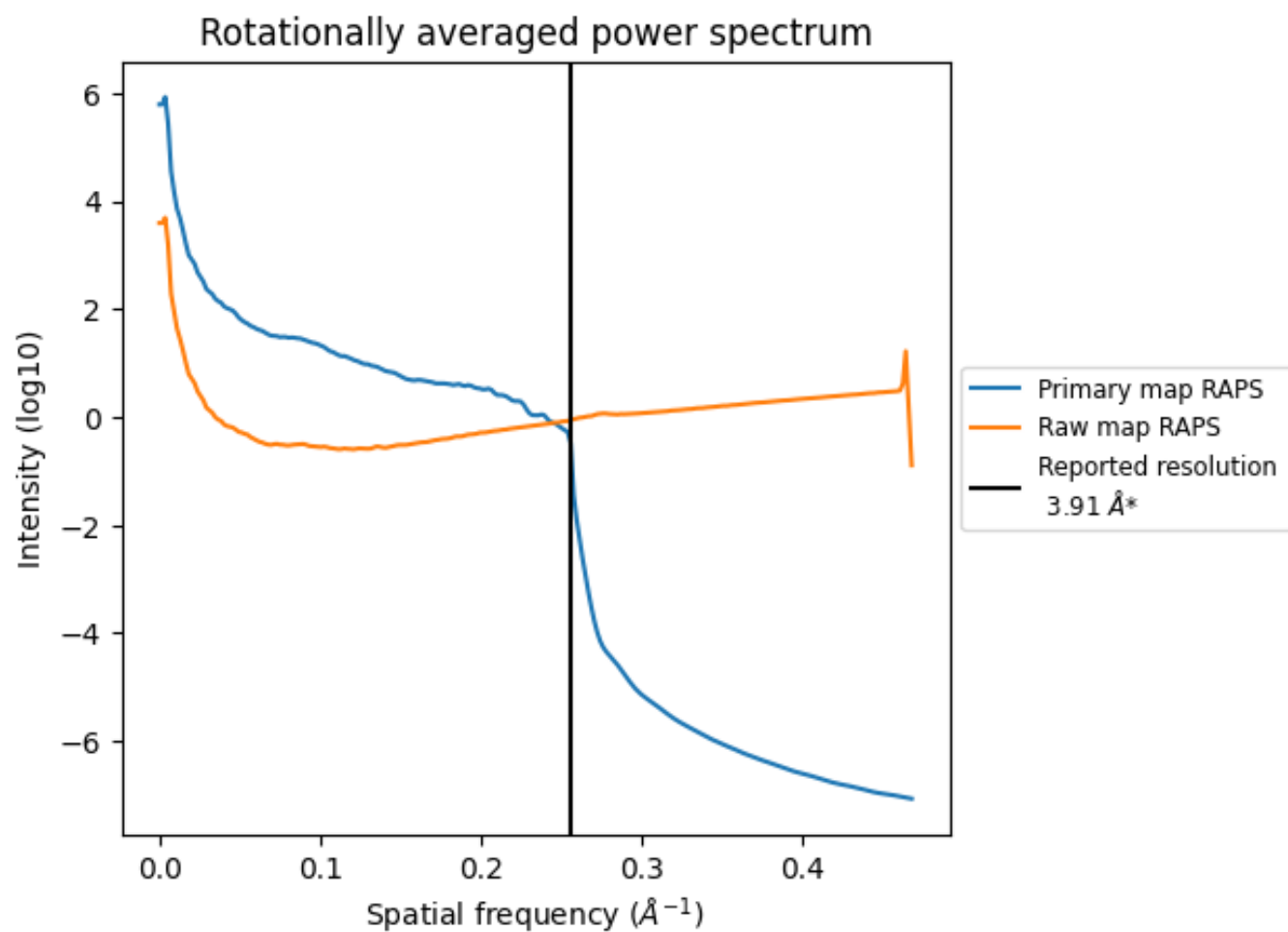
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 4121 nm<sup>3</sup>; this corresponds to an approximate mass of 3722 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

### 7.3 Rotationally averaged power spectrum ⓘ

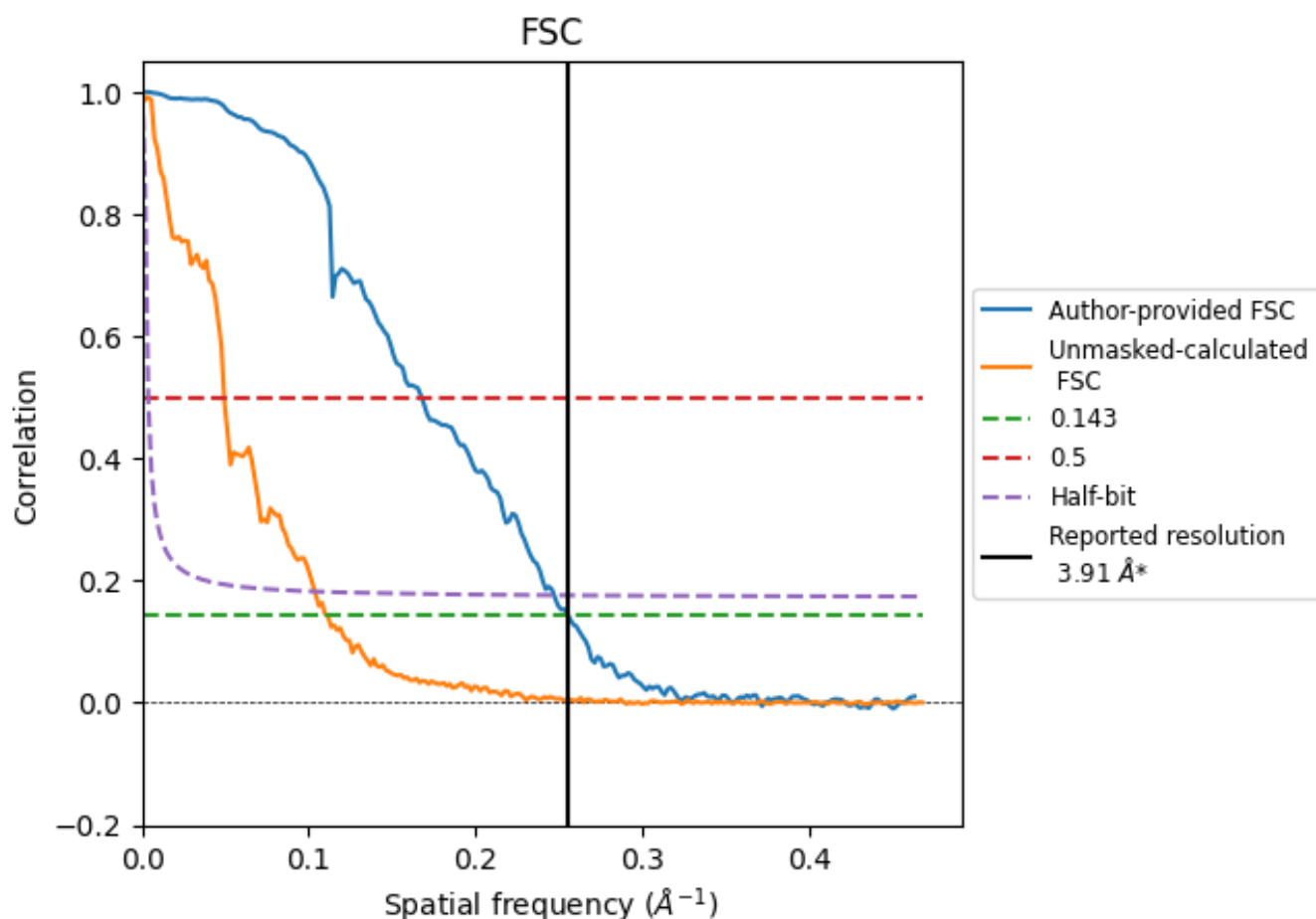


\*Reported resolution corresponds to spatial frequency of 0.256  $\text{\AA}^{-1}$

## 8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

### 8.1 FSC [i](#)



\*Reported resolution corresponds to spatial frequency of 0.256 Å<sup>-1</sup>

## 8.2 Resolution estimates [i](#)

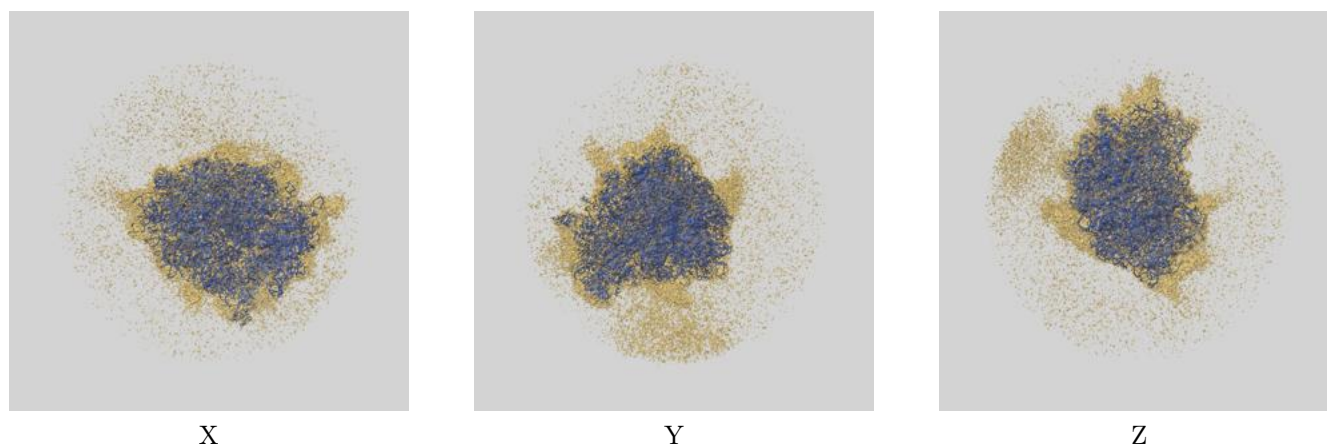
| Resolution estimate (Å)   | Estimation criterion (FSC cut-off) |       |          |
|---------------------------|------------------------------------|-------|----------|
|                           | 0.143                              | 0.5   | Half-bit |
| Reported by author        | 3.91                               | -     | -        |
| Author-provided FSC curve | 3.91                               | 5.96  | 4.05     |
| Unmasked-calculated*      | 9.03                               | 20.33 | 9.66     |

\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 9.03 differs from the reported value 3.91 by more than 10 %

## 9 Map-model fit [i](#)

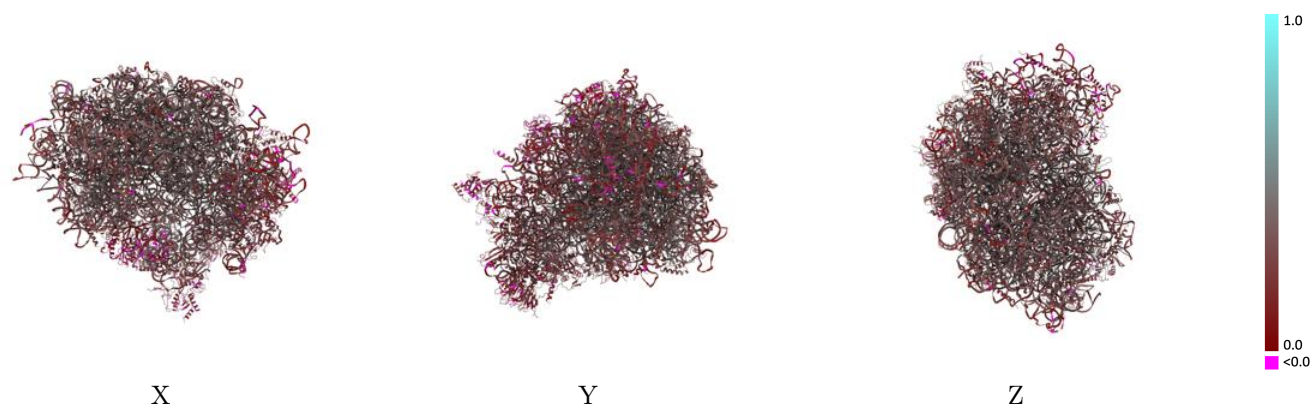
This section contains information regarding the fit between EMDB map EMD-71344 and PDB model 9P7J. Per-residue inclusion information can be found in section [3](#) on page [23](#).

### 9.1 Map-model overlay [i](#)



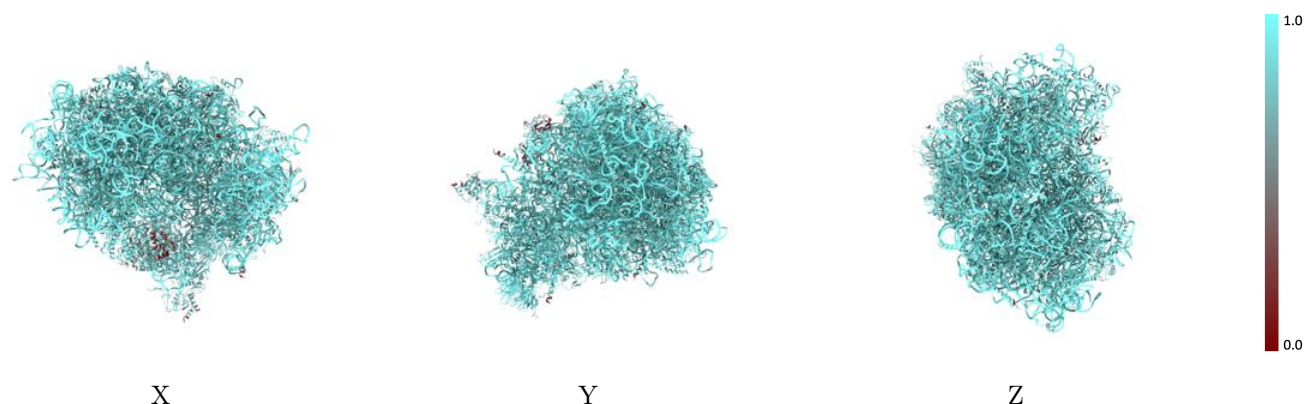
The images above show the 3D surface view of the map at the recommended contour level 0.0714 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

## 9.2 Q-score mapped to coordinate model [i](#)



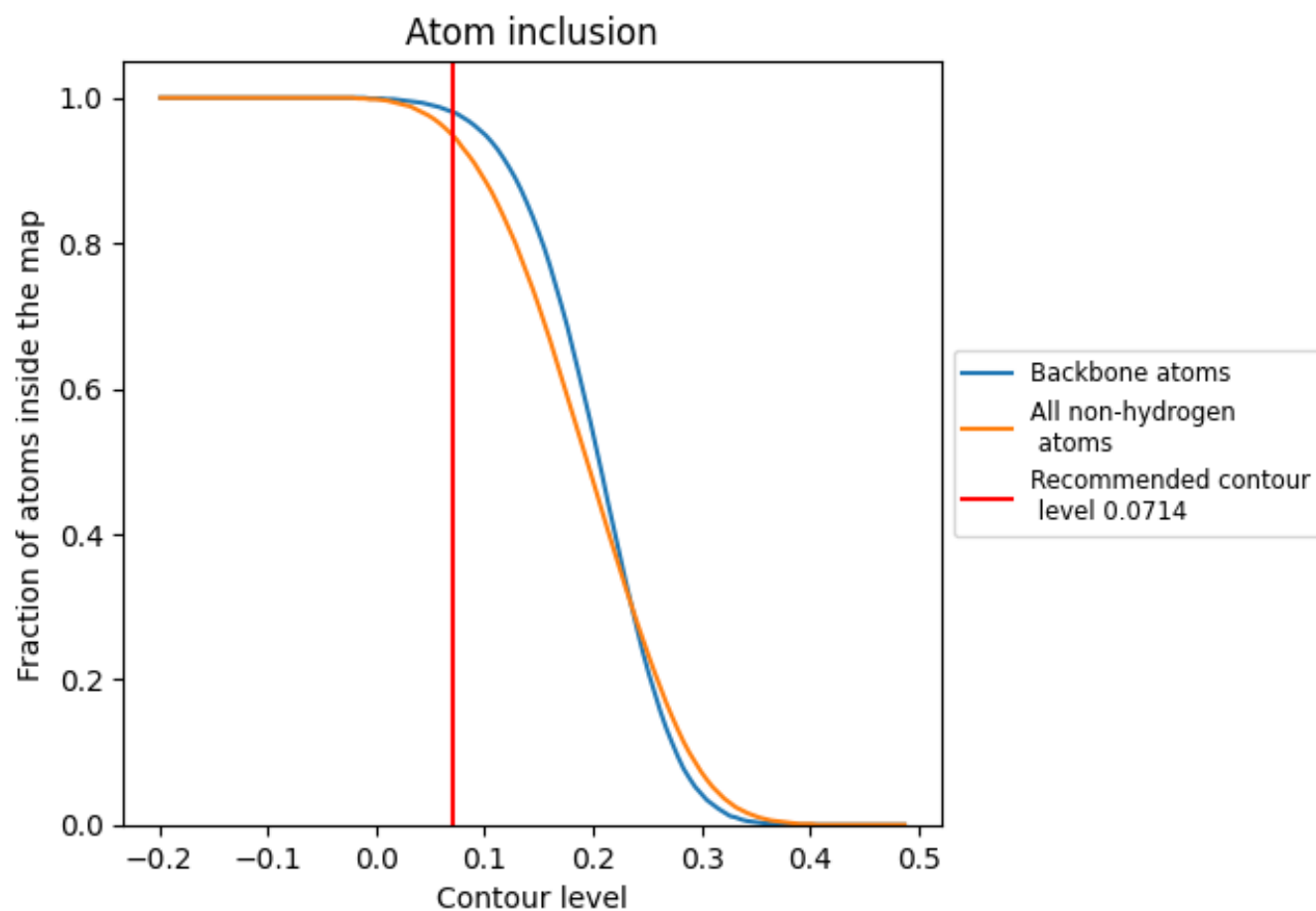
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

## 9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.0714).

## 9.4 Atom inclusion [i](#)



At the recommended contour level, 98% of all backbone atoms, 95% of all non-hydrogen atoms, are inside the map.

## 9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.0714) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion                                                                             | Q-score                                                                                    |
|-------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| All   |  0.9470   |  0.3160   |
| CI    |  0.5360   |  0.1590   |
| L5    |  0.9870   |  0.3420   |
| L7    |  1.0000   |  0.3620   |
| L8    |  0.9910   |  0.3520   |
| LA    |  0.9470   |  0.3730   |
| LB    |  0.9000   |  0.3530   |
| LC    |  0.9140   |  0.3470   |
| LD    |  0.9160   |  0.3070   |
| LE    |  0.9020   |  0.3040   |
| LF    |  0.9040   |  0.3300   |
| LG    |  0.8840   |  0.3030   |
| LH    |  0.8900   |  0.3300   |
| LI    |  0.8860   |  0.3450   |
| LJ    |  0.9110  |  0.2930  |
| LL    |  0.9150 |  0.3260 |
| LM    |  0.9350 |  0.3260 |
| LN    |  0.9550 |  0.3630 |
| LO    |  0.8990 |  0.3340 |
| LP    |  0.9120 |  0.3630 |
| LQ    |  0.9230 |  0.3610 |
| LR    |  0.8910 |  0.3120 |
| LS    |  0.9290 |  0.3680 |
| LT    |  0.9030 |  0.3520 |
| LU    |  0.8880 |  0.2970 |
| LV    |  0.8910 |  0.3750 |
| LW    |  0.8580 |  0.2390 |
| LX    |  0.9550 |  0.3450 |
| LY    |  0.9280 |  0.3260 |
| LZ    |  0.9240 |  0.3420 |
| La    |  0.9470 |  0.3650 |
| Lb    |  0.8830 |  0.2900 |
| Lc    |  0.8850 |  0.3240 |
| Ld    |  0.9160 |  0.3540 |
| Le    |  0.9260 |  0.3630 |



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| Chain | Atom inclusion                                                                             | Q-score                                                                                    |
|-------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Lf    |  0.9290   |  0.3690   |
| Lg    |  0.9260   |  0.3560   |
| Lh    |  0.9050   |  0.3100   |
| Li    |  0.9400   |  0.3250   |
| Lj    |  0.9730   |  0.3620   |
| Lk    |  0.8740   |  0.2930   |
| Ll    |  0.9360   |  0.3450   |
| Lm    |  0.9250   |  0.3440   |
| Ln    |  0.9040   |  0.2980   |
| Lo    |  0.9210   |  0.3620   |
| Lp    |  0.9380   |  0.3490   |
| Lr    |  0.9270   |  0.3510   |
| Ls    |  0.6440   |  0.1260   |
| Lt    |  0.4100   |  0.0790   |
| Pt    |  0.9520   |  0.2780   |
| S2    |  0.9910   |  0.3050   |
| SA    |  0.8910   |  0.2920   |
| SB    |  0.8970  |  0.3070  |
| SC    |  0.9210 |  0.3160 |
| SD    |  0.8990 |  0.2490 |
| SE    |  0.9290 |  0.2500 |
| SF    |  0.8430 |  0.2470 |
| SG    |  0.8810 |  0.2130 |
| SH    |  0.8630 |  0.2690 |
| SI    |  0.9060 |  0.2810 |
| SJ    |  0.8630 |  0.2470 |
| SK    |  0.8930 |  0.1770 |
| SL    |  0.9050 |  0.3060 |
| SM    |  0.6930 |  0.1260 |
| SN    |  0.8870 |  0.3200 |
| SO    |  0.8920 |  0.3060 |
| SP    |  0.8560 |  0.2200 |
| SQ    |  0.9170 |  0.2430 |
| SR    |  0.8890 |  0.2560 |
| SS    |  0.8500 |  0.2300 |
| ST    |  0.8960 |  0.2200 |
| SU    |  0.9100 |  0.2070 |
| SV    |  0.9210 |  0.3240 |
| SW    |  0.9390 |  0.3300 |
| SX    |  0.8740 |  0.2850 |
| SY    |  0.8340 |  0.1810 |
| SZ    |  0.8200 |  0.2420 |

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| Chain | Atom inclusion                                                                           | Q-score                                                                                  |
|-------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| Sa    |  0.9470 |  0.3290 |
| Sb    |  0.8870 |  0.3200 |
| Sc    |  0.8520 |  0.2570 |
| Sd    |  0.9570 |  0.2560 |
| Se    |  0.8130 |  0.2070 |
| Sf    |  0.8180 |  0.1660 |
| Sg    |  0.9040 |  0.1960 |