



## Full wwPDB EM Validation Report ⓘ

Dec 16, 2025 – 02:16 PM EST

PDB ID : 9P7K / pdb\_00009p7k  
EMDB ID : EMD-71345  
Title : In situ human post eEF1A-A/T-P-E state 80S ribosome  
Authors : Wei, Z.; Yong, X.  
Deposited on : 2025-06-20  
Resolution : 2.80 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

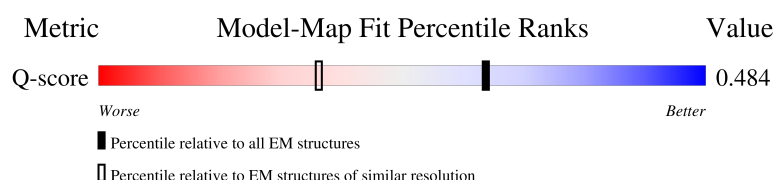
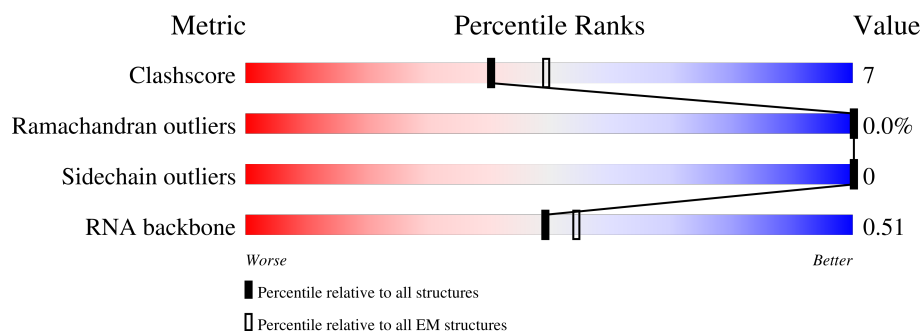
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 2.80 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.



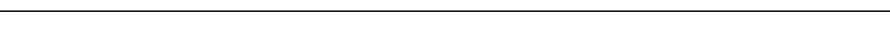
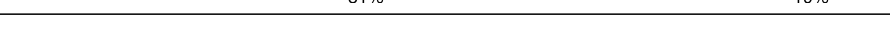
| Metric                | Whole archive<br>(#Entries) | EM structures<br>(#Entries) | Similar EM resolution<br>(#Entries, resolution range(Å)) |
|-----------------------|-----------------------------|-----------------------------|----------------------------------------------------------|
| Clashscore            | 210492                      | 15764                       | -                                                        |
| Ramachandran outliers | 207382                      | 16835                       | -                                                        |
| Sidechain outliers    | 206894                      | 16415                       | -                                                        |
| RNA backbone          | 6643                        | 2191                        | -                                                        |
| Q-score               | -                           | 25397                       | 11806 ( 2.30 - 3.30 )                                    |

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   | CI    | 31     |                  |
| 2   | Pt    | 74     |                  |
| 3   | Et    | 75     |                  |

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| Mol | Chain | Length | Quality of chain                                                                     |
|-----|-------|--------|--------------------------------------------------------------------------------------|
| 4   | L5    | 3655   |    |
| 5   | L7    | 120    |    |
| 6   | L8    | 156    |    |
| 7   | LA    | 248    |    |
| 8   | LB    | 402    |    |
| 9   | LC    | 368    |    |
| 10  | LD    | 293    |    |
| 11  | LE    | 250    |    |
| 12  | LF    | 225    |    |
| 13  | LG    | 241    |    |
| 14  | LH    | 190    |    |
| 15  | LI    | 213    |    |
| 16  | LJ    | 176    |  |
| 17  | LL    | 210    |  |
| 18  | LM    | 139    |  |
| 19  | LN    | 203    |  |
| 20  | LO    | 201    |  |
| 21  | LP    | 153    |  |
| 22  | LQ    | 187    |  |
| 23  | LR    | 187    |  |
| 24  | LS    | 175    |  |
| 25  | LT    | 159    |  |
| 26  | LU    | 101    |  |
| 27  | LV    | 131    |  |
| 28  | LW    | 124    |  |

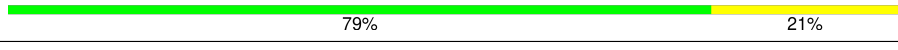
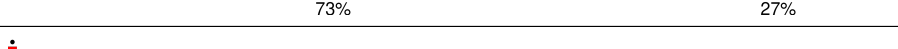
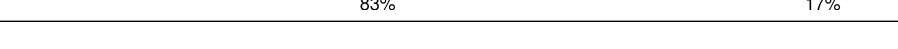
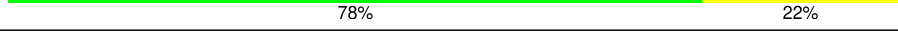
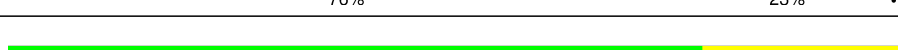
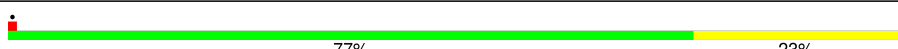
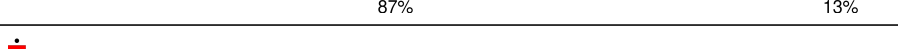
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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 29  | LX    | 120    |                  |
| 30  | LY    | 134    |                  |
| 31  | LZ    | 135    |                  |
| 32  | La    | 147    |                  |
| 33  | Lb    | 121    |                  |
| 34  | Lc    | 98     |                  |
| 35  | Ld    | 107    |                  |
| 36  | Le    | 128    |                  |
| 37  | Lf    | 109    |                  |
| 38  | Lg    | 114    |                  |
| 39  | Lh    | 122    |                  |
| 40  | Li    | 102    |                  |
| 41  | Lj    | 86     |                  |
| 42  | Lk    | 69     |                  |
| 43  | Ll    | 50     |                  |
| 44  | Lm    | 52     |                  |
| 45  | Ln    | 24     |                  |
| 46  | Lo    | 105    |                  |
| 47  | Lp    | 91     |                  |
| 48  | Lr    | 125    |                  |
| 49  | Ls    | 196    |                  |
| 50  | Lt    | 157    |                  |
| 51  | SD    | 227    |                  |
| 52  | SF    | 189    |                  |
| 53  | SK    | 98     |                  |

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| Mol | Chain | Length | Quality of chain                                                                     |
|-----|-------|--------|--------------------------------------------------------------------------------------|
| 54  | SM    | 122    |    |
| 55  | SP    | 121    |    |
| 56  | SQ    | 144    |    |
| 57  | SR    | 135    |    |
| 58  | SS    | 145    |    |
| 59  | ST    | 143    |    |
| 60  | SU    | 104    |    |
| 61  | SZ    | 75     |    |
| 62  | Sc    | 64     |    |
| 63  | Sd    | 55     |   |
| 64  | Sf    | 67     |  |
| 65  | Sg    | 313    |  |
| 66  | SA    | 221    |  |
| 67  | SB    | 214    |  |
| 68  | SC    | 222    |  |
| 69  | SE    | 262    |  |
| 70  | SG    | 237    |  |
| 71  | SH    | 189    |  |
| 72  | SI    | 206    |  |
| 73  | SJ    | 185    |  |
| 74  | SL    | 153    |  |
| 75  | SN    | 150    |  |
| 76  | SO    | 140    |  |
| 77  | SV    | 83     |  |
| 78  | SW    | 129    |  |

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| Mol | Chain | Length | Quality of chain                                                                             |
|-----|-------|--------|----------------------------------------------------------------------------------------------|
| 79  | SX    | 141    |  79%21%    |
| 80  | SY    | 131    |  5%78%22%  |
| 81  | Sa    | 102    |  79%20%    |
| 82  | Sb    | 83     |  75%25%    |
| 83  | Se    | 58     |  84%16%    |
| 84  | S2    | 1740   |  54%37%8%  |
| 85  | AT    | 76     |  16%49%36% |
| 86  | CF    | 441    |  45%73%27% |

## 2 Entry composition

There are 90 unique types of molecules in this entry. The entry contains 224970 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 protein called Transcription factor BTF3.

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

- Molecule 2 is a RNA chain called P site tRNA.

| Mol | Chain | Residues | Atoms |     |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 2   | Pt    | 74       | Total | C   | N   | O   | P  | 0       | 0     |
|     |       |          | 1576  | 705 | 286 | 512 | 73 |         |       |

There are 6 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment   | Reference |
|-------|---------|----------|--------|-----------|-----------|
| Pt    | 3       | C        | U      | conflict  | GB X64278 |
| Pt    | ?       | -        | U      | deletion  | GB X64278 |
| Pt    | ?       | -        | G      | deletion  | GB X64278 |
| Pt    | 19      | G        | U      | conflict  | GB X64278 |
| Pt    | 50      | U        | -      | insertion | GB X64278 |
| Pt    | 74      | C        | -      | insertion | GB X64278 |

- Molecule 3 is a RNA chain called E site tRNA.

| Mol | Chain | Residues | Atoms |     |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 3   | Et    | 75       | Total | C   | N   | O   | P  | 0       | 0     |
|     |       |          | 1593  | 712 | 281 | 526 | 74 |         |       |

- Molecule 4 is a RNA chain called 28S rRNA.

| Mol | Chain | Residues | Atoms |       |       |       |      | AltConf | Trace |
|-----|-------|----------|-------|-------|-------|-------|------|---------|-------|
| 4   | L5    | 3655     | Total | C     | N     | O     | P    | 1       | 0     |
|     |       |          | 78444 | 34968 | 14346 | 25475 | 3655 |         |       |

- Molecule 5 is a RNA chain called 5S rRNA.

| Mol | Chain | Residues | Atoms |      |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|-----|---------|-------|
| 5   | L7    | 120      | Total | C    | N   | O   | P   | 0       | 0     |
|     |       |          | 2561  | 1141 | 456 | 844 | 120 |         |       |

- Molecule 6 is a RNA chain called 5.8S rRNA.

| Mol | Chain | Residues | Atoms |      |     |      |     | AltConf | Trace |
|-----|-------|----------|-------|------|-----|------|-----|---------|-------|
| 6   | L8    | 156      | Total | C    | N   | O    | P   | 0       | 0     |
|     |       |          | 3315  | 1481 | 585 | 1094 | 155 |         |       |

- Molecule 7 is a protein called 60S ribosomal protein L8.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 7   | LA    | 248      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1898  | 1189 | 389 | 314 | 6 |         |       |

- Molecule 8 is a protein called Large ribosomal subunit protein uL3.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 8   | LB    | 402      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3238  | 2060 | 608 | 556 | 14 |         |       |

- Molecule 9 is a protein called 60S ribosomal protein L4.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 9   | LC    | 368      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 2927  | 1840 | 583 | 489 | 15 |         |       |

- Molecule 10 is a protein called Large ribosomal subunit protein uL18.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 10  | LD    | 293      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 2382  | 1507 | 434 | 427 | 14 |         |       |

- Molecule 11 is a protein called Large ribosomal subunit protein eL6.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 11  | LE    | 240      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1935  | 1242 | 368 | 321 | 4 |         |       |

- Molecule 12 is a protein called 60S ribosomal protein L7.



| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 12  | LF    | 225      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1870  | 1202 | 358 | 301 | 9 |         |       |

- Molecule 13 is a protein called 60S ribosomal protein L7a.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 13  | LG    | 241      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1927  | 1228 | 371 | 324 | 4 |         |       |

- Molecule 14 is a protein called 60S ribosomal protein L9.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 14  | LH    | 190      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1518  | 956 | 284 | 272 | 6 |         |       |

- Molecule 15 is a protein called Ribosomal protein uL16-like.

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

- Molecule 16 is a protein called 60S ribosomal protein L11.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 16  | LJ    | 170      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1362  | 861 | 254 | 241 | 6 |         |       |

- Molecule 17 is a protein called Large ribosomal subunit protein eL13.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 17  | LL    | 210      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1701  | 1064 | 352 | 281 | 4 |         |       |

- Molecule 18 is a protein called 60S ribosomal protein L14.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 18  | LM    | 139      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1138  | 730 | 218 | 183 | 7 |         |       |

- Molecule 19 is a protein called 60S ribosomal protein L15.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 19  | LN    | 203      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1701  | 1072 | 359 | 266 | 4 |         |       |

- Molecule 20 is a protein called 60S ribosomal protein L13a.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 20  | LO    | 201      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1650  | 1063 | 321 | 261 | 5 |         |       |

- Molecule 21 is a protein called 60S ribosomal protein L17.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 21  | LP    | 153      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1242  | 776 | 241 | 216 | 9 |         |       |

- Molecule 22 is a protein called 60S ribosomal protein L18.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 22  | LQ    | 187      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1513  | 944 | 314 | 250 | 5 |         |       |

- Molecule 23 is a protein called 60S ribosomal protein L19.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 23  | LR    | 187      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1566  | 971 | 336 | 250 | 9 |         |       |

- Molecule 24 is a protein called 60S ribosomal protein L18a.

| Mol | Chain | Residues | Atoms |     |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 24  | LS    | 175      | Total | C   | N   | O   | S  | 0       | 0     |
|     |       |          | 1453  | 925 | 283 | 235 | 10 |         |       |

- Molecule 25 is a protein called 60S ribosomal protein L21.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 25  | LT    | 159      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1298  | 823 | 252 | 217 | 6 |         |       |

- Molecule 26 is a protein called Heparin-binding protein HBp15.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 26  | LU    | 101      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 825   | 529 | 144 | 150 | 2 |         |       |

- Molecule 27 is a protein called 60S ribosomal protein L23.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 27  | LV    | 131      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 979   | 618 | 184 | 172 | 5 |         |       |

- Molecule 28 is a protein called Ribosomal protein L24.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 28  | LW    | 116      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 945   | 592 | 193 | 156 | 4 |         |       |

- Molecule 29 is a protein called 60S ribosomal protein L23a.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 29  | LX    | 120      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 985   | 630 | 185 | 169 | 1 |         |       |

- Molecule 30 is a protein called 60S ribosomal protein L26.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 30  | LY    | 134      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1115  | 700 | 226 | 186 | 3 |         |       |

- Molecule 31 is a protein called 60S ribosomal protein L27.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 31  | LZ    | 135      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1107  | 714 | 208 | 182 | 3 |         |       |

- Molecule 32 is a protein called 60S ribosomal protein L27a.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 32  | La    | 147      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1162  | 736 | 237 | 186 | 3 |         |       |

- Molecule 33 is a protein called Large ribosomal subunit protein eL29.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 33  | Lb    | 109      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 876   | 546 | 189 | 137 | 4 |         |       |

- Molecule 34 is a protein called 60S ribosomal protein L30.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 34  | Lc    | 98       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 764   | 485 | 135 | 138 | 6 |         |       |

- Molecule 35 is a protein called 60S ribosomal protein L31.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 35  | Ld    | 107      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 888   | 560 | 171 | 155 | 2 |         |       |

- Molecule 36 is a protein called 60S ribosomal protein L32.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 36  | Le    | 128      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1053  | 667 | 216 | 165 | 5 |         |       |

- Molecule 37 is a protein called 60S ribosomal protein L35a.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 37  | Lf    | 109      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 876   | 555 | 174 | 144 | 3 |         |       |

- Molecule 38 is a protein called 60S ribosomal protein L34.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 38  | Lg    | 114      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 906   | 566 | 187 | 147 | 6 |         |       |

- Molecule 39 is a protein called 60S ribosomal protein L35.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 39  | Lh    | 122      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1015  | 641 | 205 | 168 | 1 |         |       |

- Molecule 40 is a protein called 60S ribosomal protein L36.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 40  | Li    | 102      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 832   | 521 | 177 | 129 | 5 |         |       |

- Molecule 41 is a protein called 60S ribosomal protein L37.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 41  | Lj    | 86       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 705   | 434 | 155 | 111 | 5 |         |       |

- Molecule 42 is a protein called 60S ribosomal protein L38.

| Mol | Chain | Residues | Atoms |     |     |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 42  | Lk    | 69       | Total | C   | N   | O  | S | 0       | 0     |
|     |       |          | 569   | 366 | 103 | 99 | 1 |         |       |

- Molecule 43 is a protein called 60S ribosomal protein L39.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 43  | Ll    | 50       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 444   | 281 | 98 | 64 | 1 |         |       |

- Molecule 44 is a protein called Large ribosomal subunit protein eL40.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 44  | Lm    | 52       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 429   | 266 | 90 | 67 | 6 |         |       |

- Molecule 45 is a protein called 60S ribosomal protein L41.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 45  | Ln    | 24       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 230   | 139 | 62 | 26 | 3 |         |       |

- Molecule 46 is a protein called 60S ribosomal protein L36a.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 46  | Lo    | 105      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 862   | 542 | 175 | 139 | 6 |         |       |

- Molecule 47 is a protein called 60S ribosomal protein L37a.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 47  | Lp    | 91       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 708   | 445 | 136 | 120 | 7 |         |       |

- Molecule 48 is a protein called 60S ribosomal protein L28.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 48  | Lr    | 125      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1002  | 622 | 207 | 168 | 5 |         |       |

- Molecule 49 is a protein called 60S acidic ribosomal protein P0.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 49  | Ls    | 196      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1496  | 952 | 259 | 276 | 9 |         |       |

- Molecule 50 is a protein called Large ribosomal subunit protein uL11.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 50  | Lt    | 134      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 998   | 626 | 180 | 189 | 3 |         |       |

- Molecule 51 is a protein called Small ribosomal subunit protein uS3.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 51  | SD    | 227      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1765  | 1125 | 317 | 315 | 8 |         |       |

- Molecule 52 is a protein called 40S ribosomal protein S5.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 52  | SF    | 189      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1495  | 934 | 284 | 270 | 7 |         |       |

- Molecule 53 is a protein called 40S ribosomal protein S10.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 53  | SK    | 98       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 827   | 539 | 148 | 134 | 6 |         |       |

- Molecule 54 is a protein called Small ribosomal subunit protein eS12.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 54  | SM    | 122      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 940   | 590 | 164 | 177 | 9 |         |       |

- Molecule 55 is a protein called Small ribosomal subunit protein uS19.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 55  | SP    | 121      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 985   | 623 | 185 | 170 | 7 |         |       |

- Molecule 56 is a protein called Small ribosomal subunit protein uS9.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 56  | SQ    | 144      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1142  | 726 | 216 | 197 | 3 |         |       |

- Molecule 57 is a protein called Small ribosomal subunit protein eS17.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 57  | SR    | 135      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1090  | 685 | 202 | 198 | 5 |         |       |

- Molecule 58 is a protein called 40S ribosomal protein S18.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 58  | SS    | 145      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1198  | 751 | 242 | 203 | 2 |         |       |

- Molecule 59 is a protein called 40S ribosomal protein S19.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 59  | ST    | 143      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1112  | 697 | 214 | 198 | 3 |         |       |

- Molecule 60 is a protein called 40S ribosomal protein S20.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 60  | SU    | 104      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 821   | 514 | 155 | 148 | 4 |         |       |

- Molecule 61 is a protein called Small ribosomal subunit protein eS25.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 61  | SZ    | 75       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 598   | 382 | 111 | 104 | 1 |         |       |

- Molecule 62 is a protein called 40S ribosomal protein S28.

| Mol | Chain | Residues | Atoms |     |     |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 62  | Sc    | 64       | Total | C   | N   | O  | S | 0       | 0     |
|     |       |          | 506   | 308 | 102 | 94 | 2 |         |       |

- Molecule 63 is a protein called 40S ribosomal protein S29.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 63  | Sd    | 55       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 459   | 286 | 94 | 74 | 5 |         |       |

- Molecule 64 is a protein called Ubiquitin-40S ribosomal protein S27a.

| Mol | Chain | Residues | Atoms |     |     |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 64  | Sf    | 67       | Total | C   | N   | O  | S | 0       | 0     |
|     |       |          | 548   | 346 | 102 | 93 | 7 |         |       |

- Molecule 65 is a protein called Receptor of activated protein C kinase 1.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 65  | Sg    | 313      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 2436  | 1535 | 424 | 465 | 12 |         |       |

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

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 66  | SA    | 221      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1741  | 1106 | 305 | 322 | 8 |         |       |

- Molecule 67 is a protein called 40S ribosomal protein S3a.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 67  | SB    | 214      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 1738  | 1103 | 310 | 311 | 14 |         |       |

- Molecule 68 is a protein called 40S ribosomal protein S2.



| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 68  | SC    | 220      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 1707  | 1104 | 293 | 300 | 10 |         |       |

- Molecule 69 is a protein called Small ribosomal subunit protein eS4, X isoform.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 69  | SE    | 262      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 2076  | 1324 | 386 | 358 | 8 |         |       |

- Molecule 70 is a protein called 40S ribosomal protein S6.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 70  | SG    | 237      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1923  | 1200 | 387 | 329 | 7 |         |       |

- Molecule 71 is a protein called Small ribosomal subunit protein eS7.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 71  | SH    | 186      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1497  | 956 | 274 | 266 | 1 |         |       |

- Molecule 72 is a protein called 40S ribosomal protein S8.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 72  | SI    | 206      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1686  | 1058 | 332 | 291 | 5 |         |       |

- Molecule 73 is a protein called 40S ribosomal protein S9.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 73  | SJ    | 185      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1525  | 969 | 306 | 248 | 2 |         |       |

- Molecule 74 is a protein called 40S ribosomal protein S11.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 74  | SL    | 153      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1247  | 793 | 234 | 214 | 6 |         |       |

- Molecule 75 is a protein called 40S ribosomal protein S13.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 75  | SN    | 150      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1208  | 773 | 229 | 205 | 1 |         |       |

- Molecule 76 is a protein called Small ribosomal subunit protein uS11.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 76  | SO    | 137      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1024  | 627 | 200 | 191 | 6 |         |       |

- Molecule 77 is a protein called Small ribosomal subunit protein eS21.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 77  | SV    | 83       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 636   | 393 | 117 | 121 | 5 |         |       |

- Molecule 78 is a protein called 40S ribosomal protein S15a.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 78  | SW    | 129      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1034  | 659 | 193 | 176 | 6 |         |       |

- Molecule 79 is a protein called 40S ribosomal protein S23.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 79  | SX    | 141      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1098  | 693 | 219 | 183 | 3 |         |       |

- Molecule 80 is a protein called 40S ribosomal protein S24.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 80  | SY    | 131      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1065  | 673 | 209 | 178 | 5 |         |       |

- Molecule 81 is a protein called 40S ribosomal protein S26.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 81  | Sa    | 102      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 821   | 512 | 171 | 133 | 5 |         |       |

- Molecule 82 is a protein called Small ribosomal subunit protein eS27.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 82  | Sb    | 83       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 651   | 408 | 121 | 115 | 7 |         |       |

- Molecule 83 is a protein called Small ribosomal subunit protein eS30.

| Mol | Chain | Residues | Atoms |     |     |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 83  | Se    | 58       | Total | C   | N   | O  | S | 0       | 0     |
|     |       |          | 459   | 284 | 100 | 74 | 1 |         |       |

- Molecule 84 is a RNA chain called 18S rRNA.

| Mol | Chain | Residues | Atoms |       |      |       |      | AltConf | Trace |
|-----|-------|----------|-------|-------|------|-------|------|---------|-------|
| 84  | S2    | 1740     | Total | C     | N    | O     | P    | 0       | 0     |
|     |       |          | 36953 | 16508 | 6600 | 12106 | 1739 |         |       |

- Molecule 85 is a RNA chain called A/T site tRNA.

| Mol | Chain | Residues | Atoms |     |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 85  | AT    | 76       | Total | C   | N   | O   | P  | 0       | 0     |
|     |       |          | 1616  | 723 | 291 | 527 | 75 |         |       |

- Molecule 86 is a protein called Elongation factor 1-alpha 1.

| Mol | Chain | Residues | Atoms |      |     |     |      | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|------|---------|-------|
| 86  | CF    | 441      | Total | C    | N   | O   | P S  | 0       | 0     |
|     |       |          | 3383  | 2148 | 581 | 636 | 1 17 |         |       |

- Molecule 87 is MAGNESIUM ION (CCD ID: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

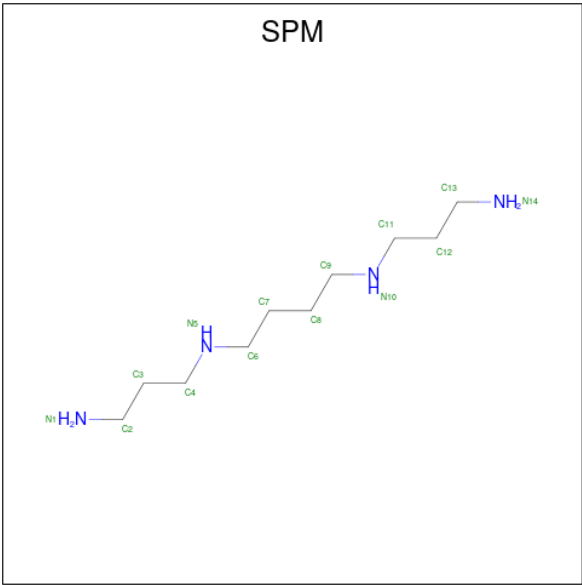
| Mol | Chain | Residues | Atoms |     | AltConf |
|-----|-------|----------|-------|-----|---------|
| 87  | L5    | 177      | Total | Mg  | 0       |
|     |       |          | 177   | 177 |         |
| 87  | L7    | 3        | Total | Mg  | 0       |
|     |       |          | 3     | 3   |         |
| 87  | L8    | 5        | Total | Mg  | 0       |
|     |       |          | 5     | 5   |         |
| 87  | LA    | 1        | Total | Mg  | 0       |
|     |       |          | 1     | 1   |         |
| 87  | LB    | 1        | Total | Mg  | 0       |
|     |       |          | 1     | 1   |         |
| 87  | LP    | 1        | Total | Mg  | 0       |
|     |       |          | 1     | 1   |         |

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| Mol | Chain | Residues | Atoms |    | AltConf |
|-----|-------|----------|-------|----|---------|
| 87  | LV    | 1        | Total | Mg | 0       |
|     |       |          | 1     | 1  |         |
| 87  | Le    | 1        | Total | Mg | 0       |
|     |       |          | 1     | 1  |         |
| 87  | Lj    | 1        | Total | Mg | 0       |
|     |       |          | 1     | 1  |         |
| 87  | SS    | 1        | Total | Mg | 0       |
|     |       |          | 1     | 1  |         |
| 87  | SG    | 1        | Total | Mg | 0       |
|     |       |          | 1     | 1  |         |
| 87  | S2    | 26       | Total | Mg | 0       |
|     |       |          | 26    | 26 |         |

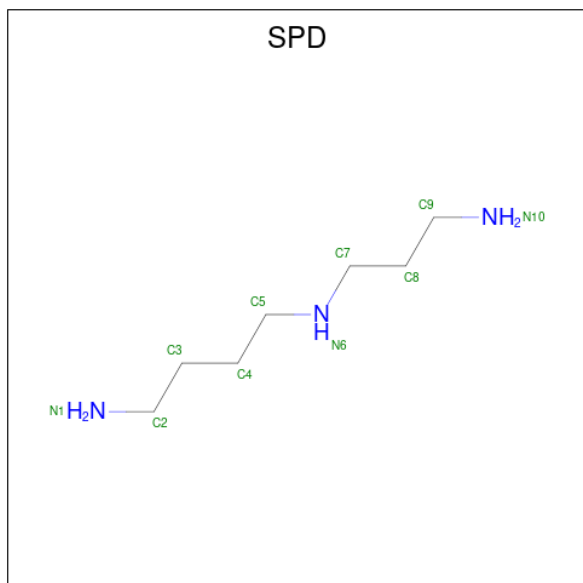
- Molecule 88 is SPERMINE (CCD ID: SPM) (formula: C<sub>10</sub>H<sub>26</sub>N<sub>4</sub>) (labeled as "Ligand of Interest" by depositor).



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| Mol | Chain | Residues | Atoms |    |   | AltConf |
|-----|-------|----------|-------|----|---|---------|
| 88  | L5    | 1        | Total | C  | N | 0       |
|     |       |          | 14    | 10 | 4 |         |
| 88  | L5    | 1        | Total | C  | N | 0       |
|     |       |          | 14    | 10 | 4 |         |

- Molecule 89 is SPERMIDINE (CCD ID: SPD) (formula:  $C_7H_{19}N_3$ ) (labeled as "Ligand of Interest" by depositor).



| Mol | Chain | Residues | Atoms |   |   | AltConf |
|-----|-------|----------|-------|---|---|---------|
| 89  | L5    | 1        | Total | C | N | 0       |
|     |       |          | 10    | 7 | 3 |         |
| 89  | L5    | 1        | Total | C | N | 0       |
|     |       |          | 10    | 7 | 3 |         |
| 89  | L5    | 1        | Total | C | N | 0       |
|     |       |          | 10    | 7 | 3 |         |
| 89  | L5    | 1        | Total | C | N | 0       |
|     |       |          | 10    | 7 | 3 |         |
| 89  | L5    | 1        | Total | C | N | 0       |
|     |       |          | 10    | 7 | 3 |         |
| 89  | L5    | 1        | Total | C | N | 0       |
|     |       |          | 10    | 7 | 3 |         |
| 89  | L5    | 1        | Total | C | N | 0       |
|     |       |          | 10    | 7 | 3 |         |
| 89  | L8    | 1        | Total | C | N | 0       |
|     |       |          | 10    | 7 | 3 |         |

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| Mol | Chain | Residues | Atoms |   |   | AltConf |
|-----|-------|----------|-------|---|---|---------|
| 89  | LN    | 1        | Total | C | N | 0       |
|     |       |          | 10    | 7 | 3 |         |

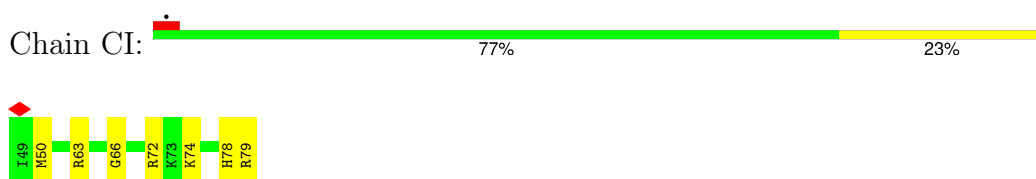
- Molecule 90 is ZINC ION (CCD ID: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

| Mol | Chain | Residues | Atoms |    | AltConf |
|-----|-------|----------|-------|----|---------|
| 90  | Lg    | 1        | Total | Zn | 0       |
|     |       |          | 1     | 1  |         |
| 90  | Lj    | 1        | Total | Zn | 0       |
|     |       |          | 1     | 1  |         |
| 90  | Lm    | 1        | Total | Zn | 0       |
|     |       |          | 1     | 1  |         |
| 90  | Lo    | 1        | Total | Zn | 0       |
|     |       |          | 1     | 1  |         |
| 90  | Lp    | 1        | Total | Zn | 0       |
|     |       |          | 1     | 1  |         |
| 90  | Sa    | 1        | Total | Zn | 0       |
|     |       |          | 1     | 1  |         |

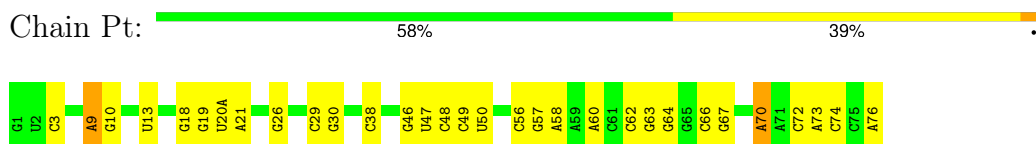
### 3 Residue-property plots

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.

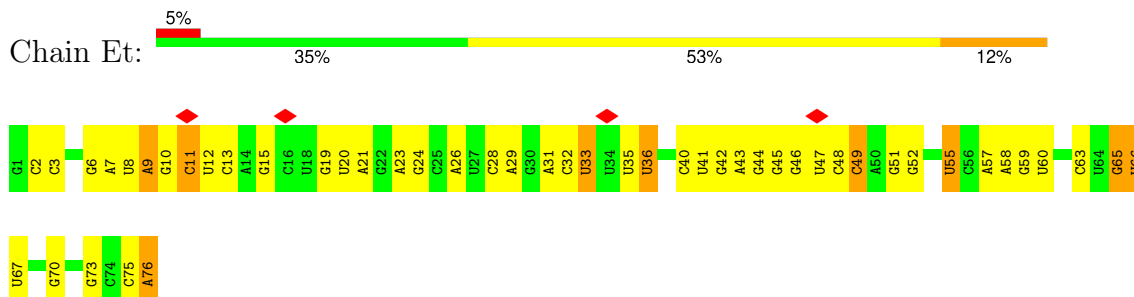
- Molecule 1: Transcription factor BTF3



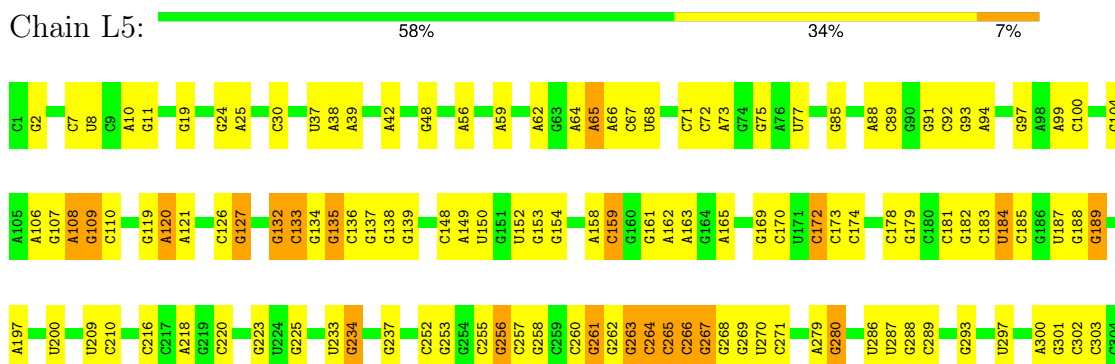
- Molecule 2: P site tRNA



- Molecule 3: E site tRNA



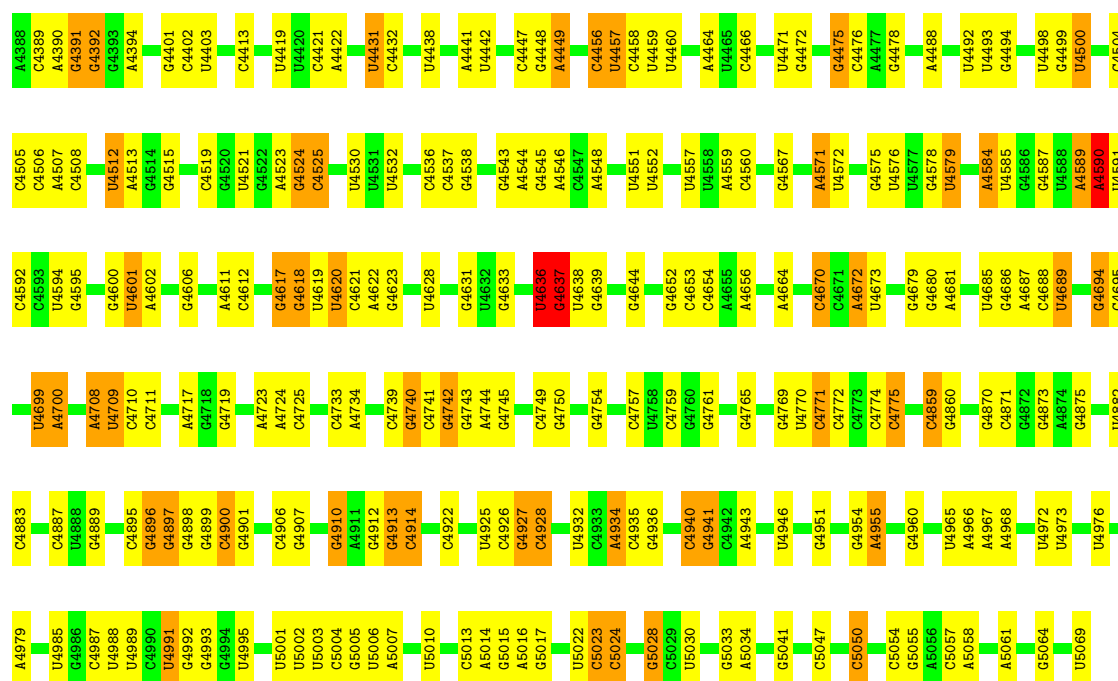
- Molecule 4: 28S rRNA





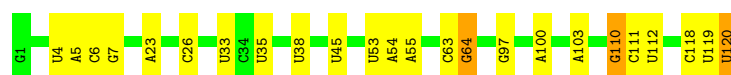






- Molecule 5: 5S rRNA

Chain L7: 80% 18%



- Molecule 6: 5.8S rRNA

Chain L8: 63% 35%

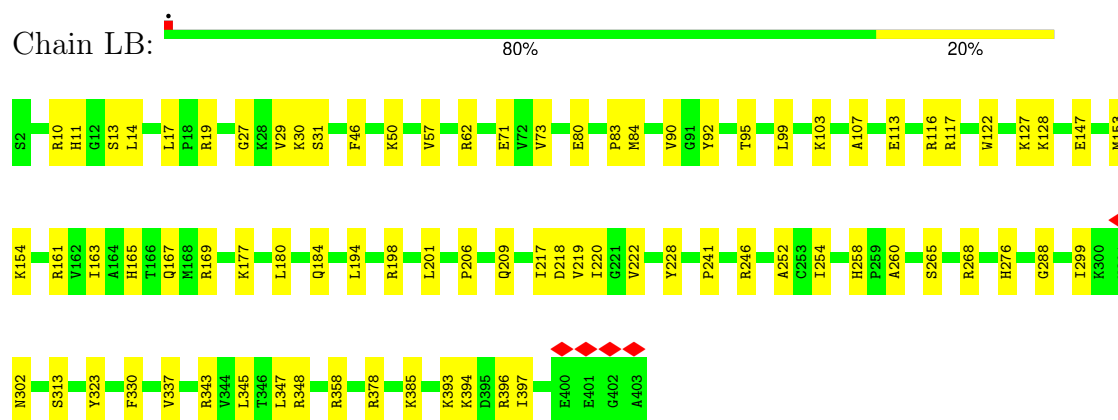


- Molecule 7: 60S ribosomal protein L8

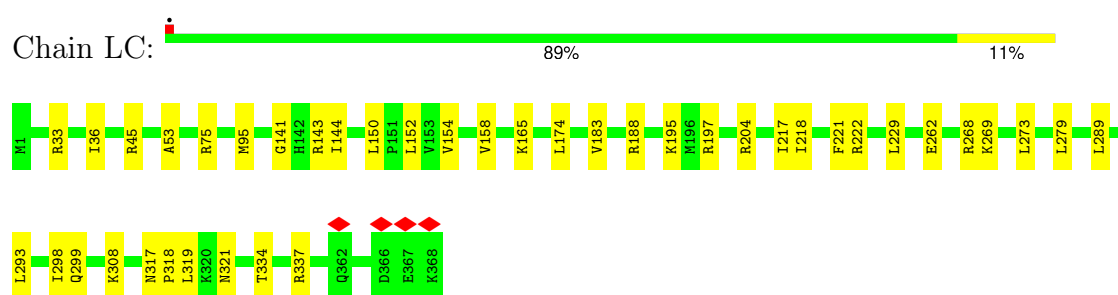
Chain LA: 76% 24%



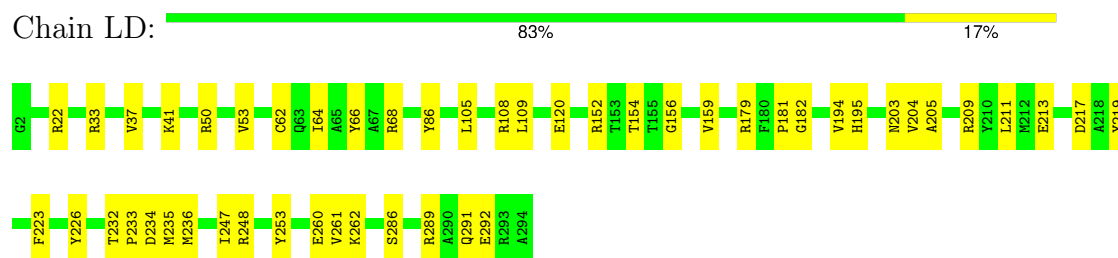
- Molecule 8: Large ribosomal subunit protein uL3



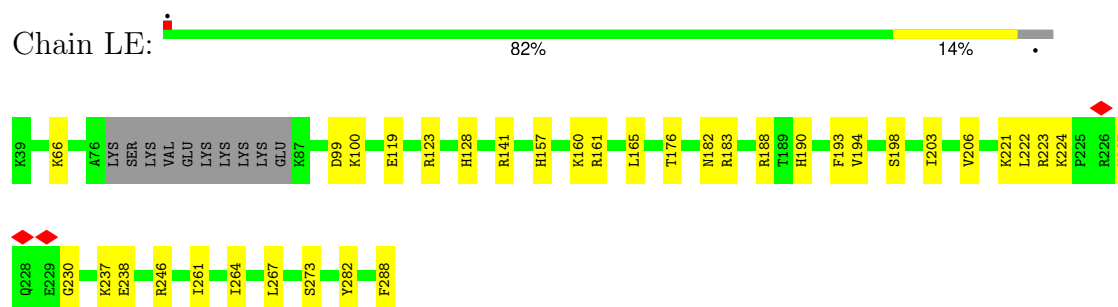
- Molecule 9: 60S ribosomal protein L4



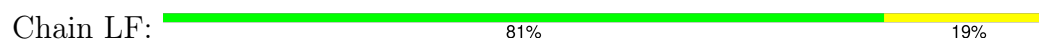
- Molecule 10: Large ribosomal subunit protein uL18

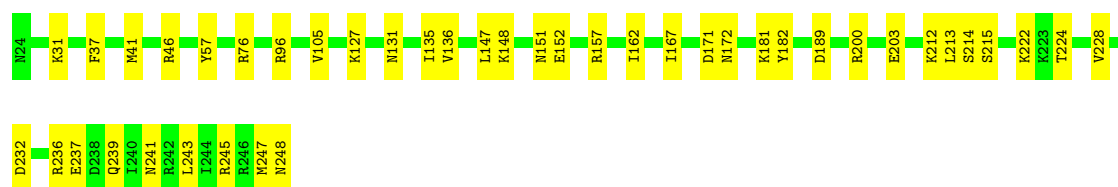


- Molecule 11: Large ribosomal subunit protein eL6



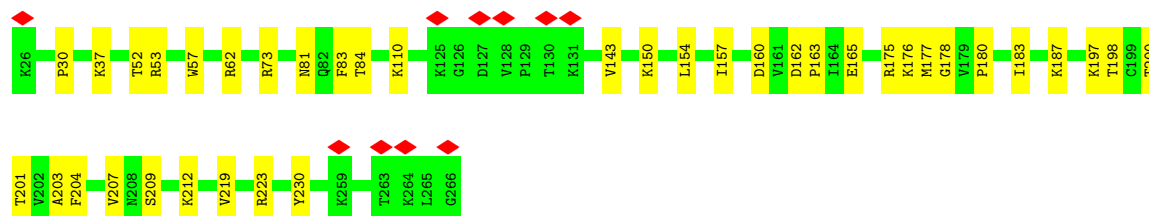
- Molecule 12: 60S ribosomal protein L7





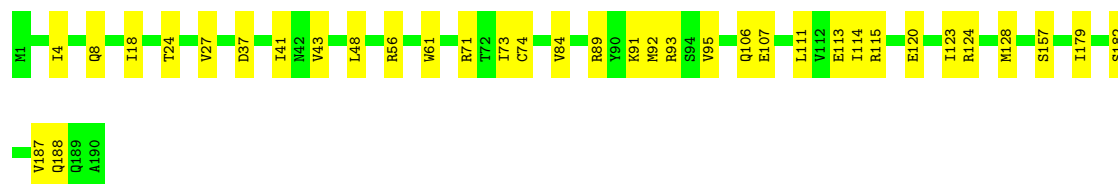
- Molecule 13: 60S ribosomal protein L7a

Chain LG: 84% 16%



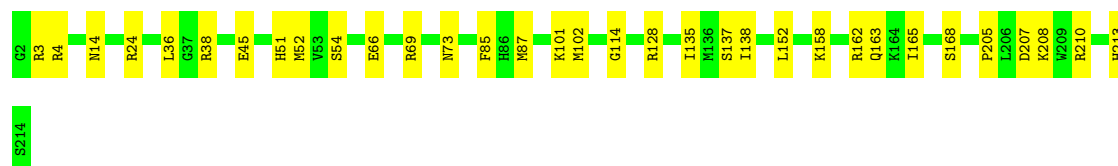
- Molecule 14: 60S ribosomal protein L9

Chain LH: 82% 18%



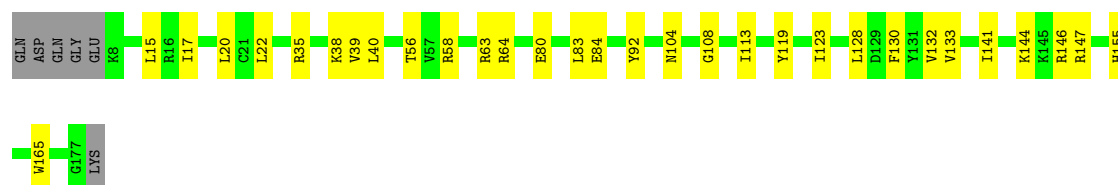
- Molecule 15: Ribosomal protein uL16-like

Chain LI: 85% 15%

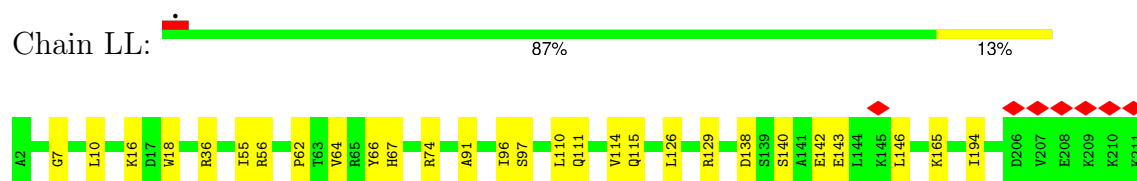


- Molecule 16: 60S ribosomal protein L11

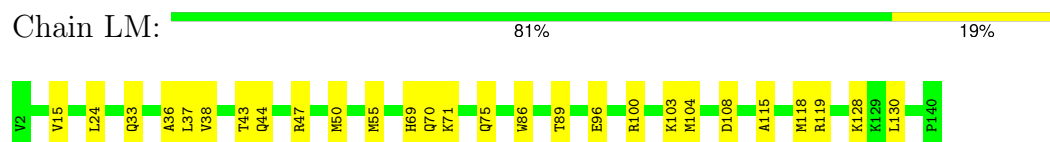
Chain LJ: 79% 18%



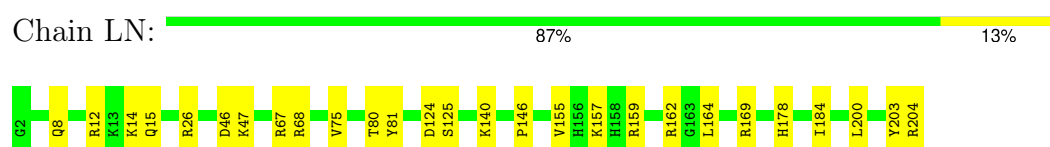
- Molecule 17: Large ribosomal subunit protein eL13



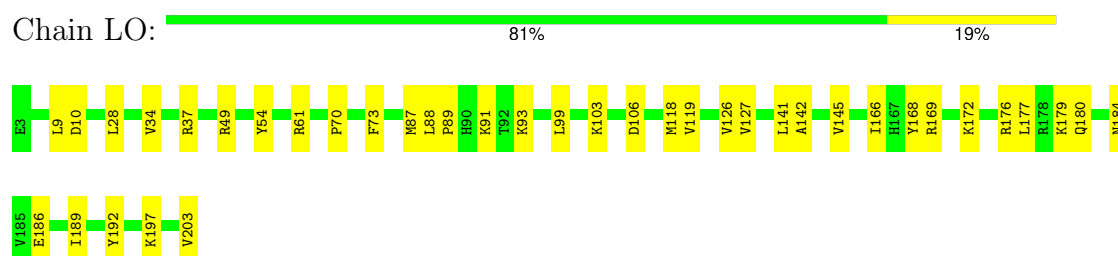
- Molecule 18: 60S ribosomal protein L14



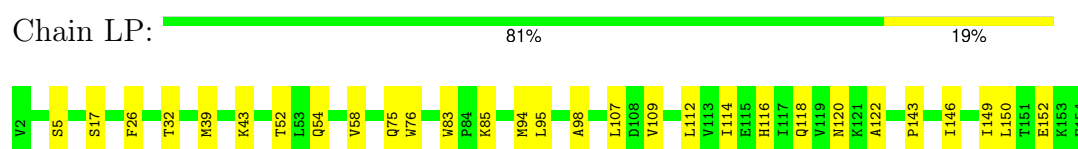
- Molecule 19: 60S ribosomal protein L15



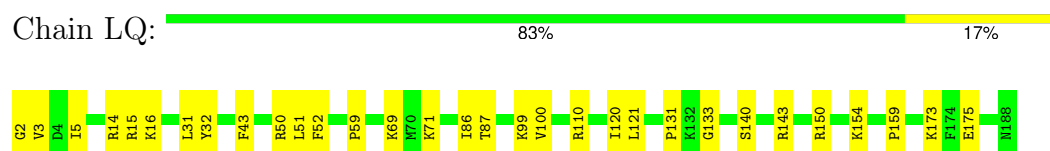
- Molecule 20: 60S ribosomal protein L13a



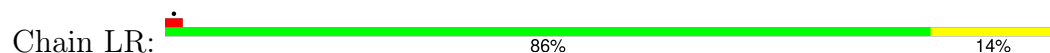
- Molecule 21: 60S ribosomal protein L17



- Molecule 22: 60S ribosomal protein L18

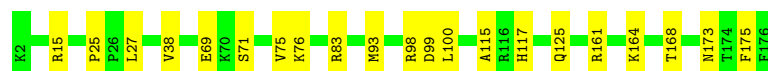
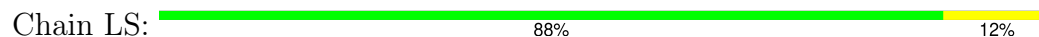


- Molecule 23: 60S ribosomal protein L19

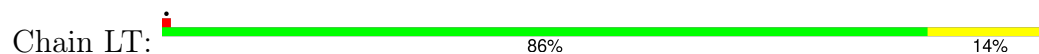




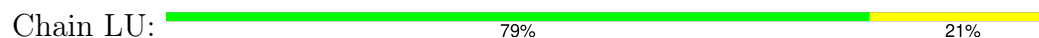
- Molecule 24: 60S ribosomal protein L18a



- Molecule 25: 60S ribosomal protein L21



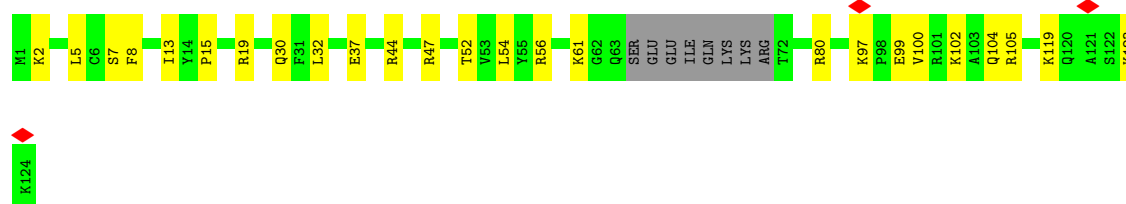
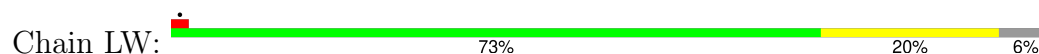
- Molecule 26: Heparin-binding protein HBp15



- Molecule 27: 60S ribosomal protein L23



- Molecule 28: Ribosomal protein L24



- Molecule 29: 60S ribosomal protein L23a



- Molecule 30: 60S ribosomal protein L26

Chain LY:  82% 18%



- Molecule 31: 60S ribosomal protein L27

Chain LZ:  84% 16%



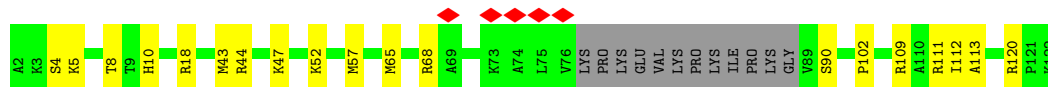
- Molecule 32: 60S ribosomal protein L27a

Chain La:  92% 8%



- Molecule 33: Large ribosomal subunit protein eL29

Chain Lb:  74% 16% 10%



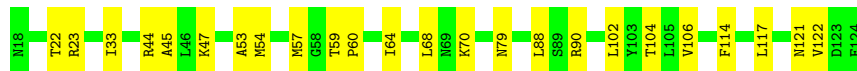
- Molecule 34: 60S ribosomal protein L30

Chain Lc:  85% 15%



- Molecule 35: 60S ribosomal protein L31

Chain Ld:  78% 22%



- Molecule 36: 60S ribosomal protein L32

Chain Le:  83% 17%



- Molecule 37: 60S ribosomal protein L35a

Chain Lf:  89% 11%



- Molecule 38: 60S ribosomal protein L34

Chain Lg:  89% 11%



- Molecule 39: 60S ribosomal protein L35

Chain Lh:  86% 14%



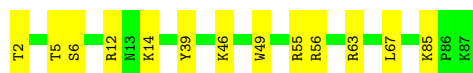
- Molecule 40: 60S ribosomal protein L36

Chain Li:  92% 8%



- Molecule 41: 60S ribosomal protein L37

Chain Lj:  85% 15%



- Molecule 42: 60S ribosomal protein L38

Chain Lk:  84% 14%



- Molecule 43: 60S ribosomal protein L39

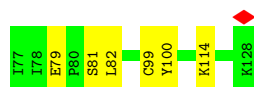
Chain Ll:  86% 14%



- Molecule 44: Large ribosomal subunit protein eL40



Chain Lm:  88% 12%



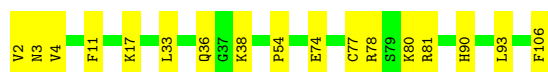
- Molecule 45: 60S ribosomal protein L41

Chain Ln:  75% 25%



- Molecule 46: 60S ribosomal protein L36a

Chain Lo:  84% 16%



- Molecule 47: 60S ribosomal protein L37a

Chain Lp:  90% 10%



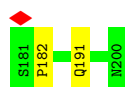
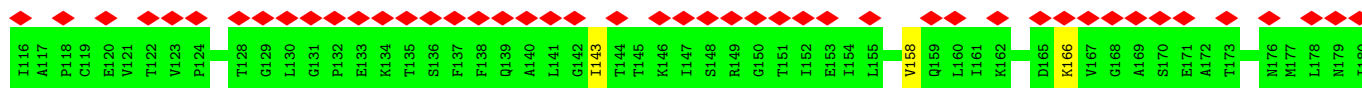
- Molecule 48: 60S ribosomal protein L28

Chain Lr:  92% 8%

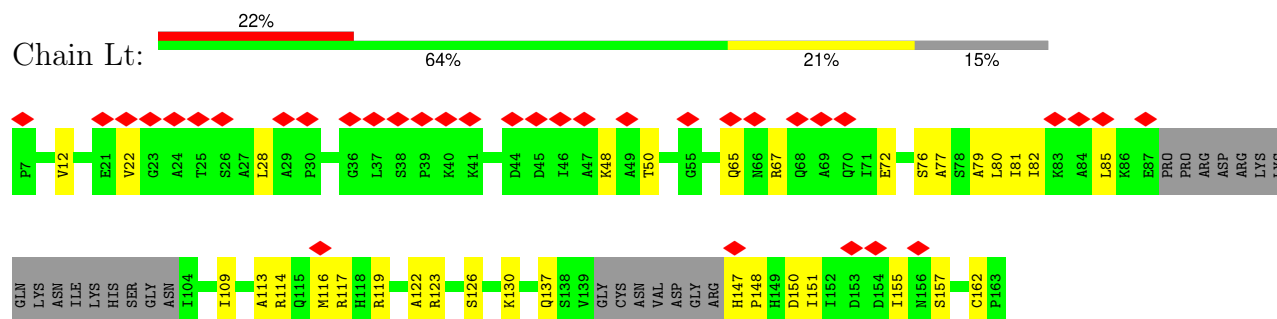


- Molecule 49: 60S acidic ribosomal protein P0

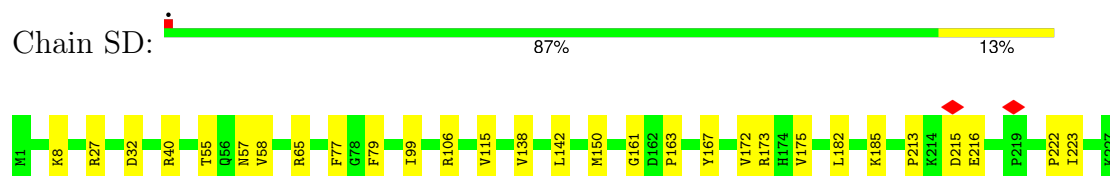
Chain Ls:  28% 84% 15%



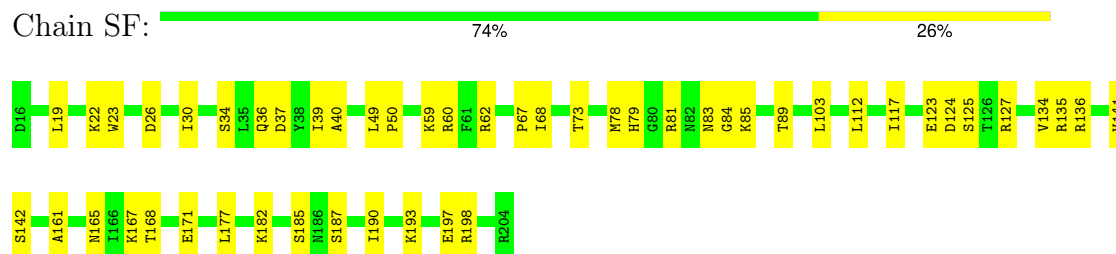
- Molecule 50: Large ribosomal subunit protein uL11



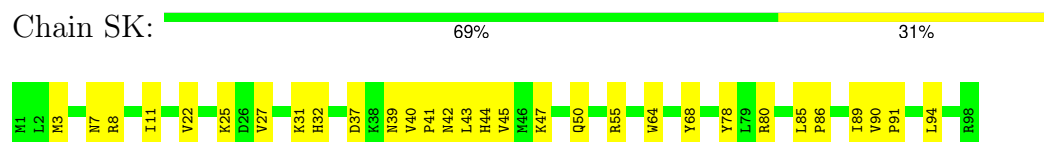
- Molecule 51: Small ribosomal subunit protein uS3



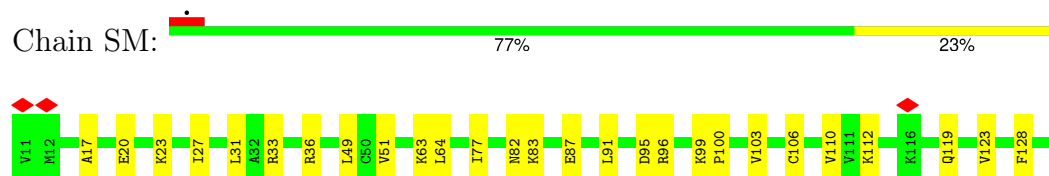
- Molecule 52: 40S ribosomal protein S5



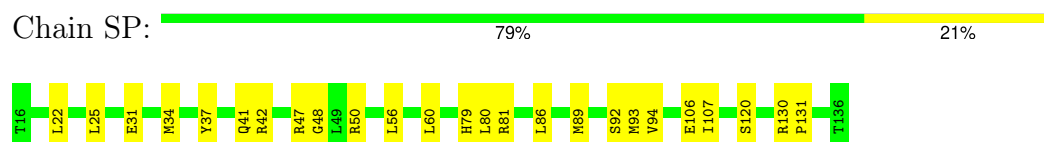
- Molecule 53: 40S ribosomal protein S10



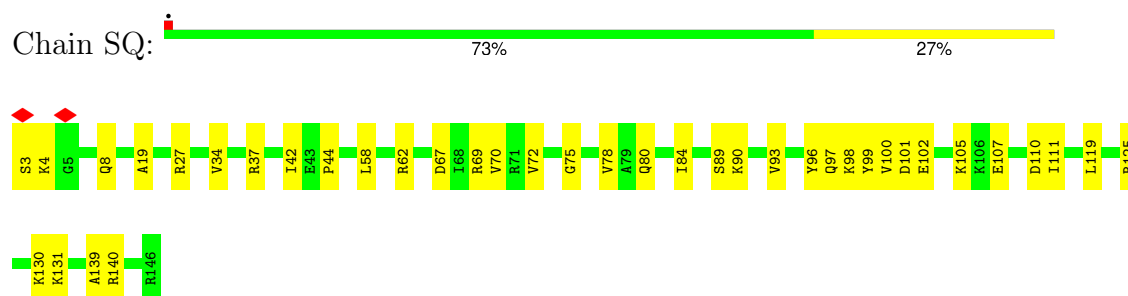
- Molecule 54: Small ribosomal subunit protein eS12



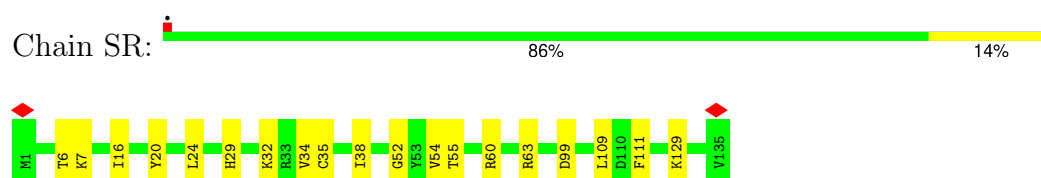
- Molecule 55: Small ribosomal subunit protein uS19



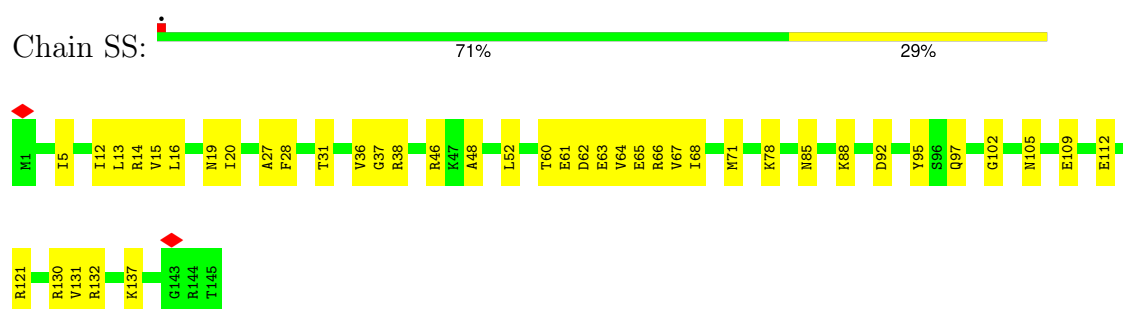
- Molecule 56: Small ribosomal subunit protein uS9



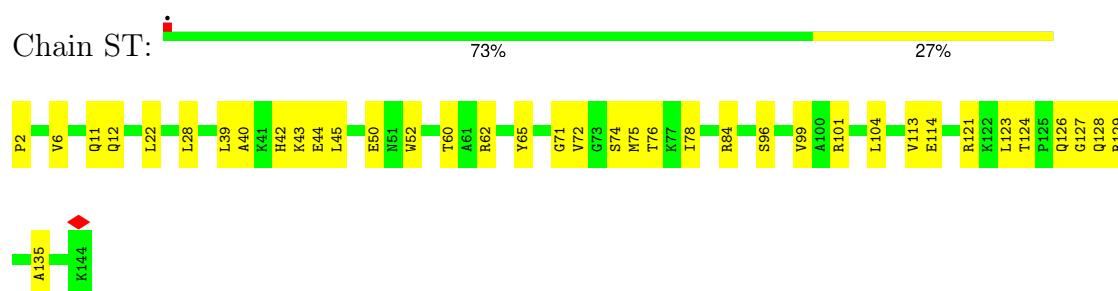
- Molecule 57: Small ribosomal subunit protein eS17



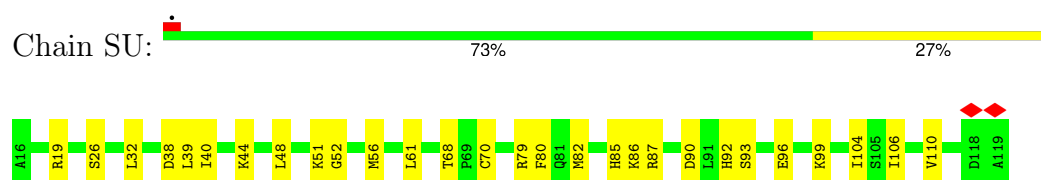
- Molecule 58: 40S ribosomal protein S18



- Molecule 59: 40S ribosomal protein S19

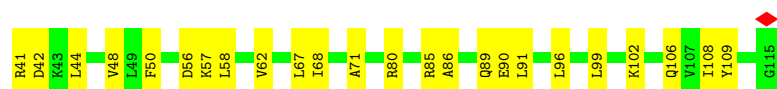


- Molecule 60: 40S ribosomal protein S20



- Molecule 61: Small ribosomal subunit protein eS25

Chain SZ:  68% 32%



- Molecule 62: 40S ribosomal protein S28

Chain Sc:  83% 17%



- Molecule 63: 40S ribosomal protein S29

Chain Sd:  67% 33%



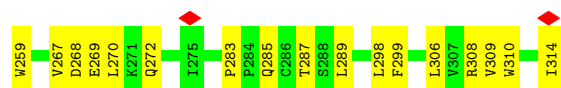
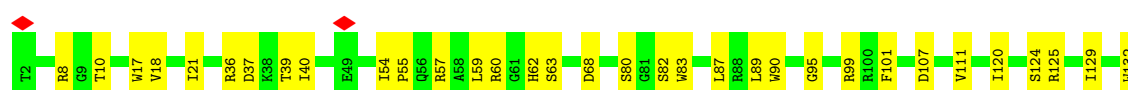
- Molecule 64: Ubiquitin-40S ribosomal protein S27a

Chain Sf:  66% 34%



- Molecule 65: Receptor of activated protein C kinase 1

Chain Sg:  72% 28%



- Molecule 66: 40S ribosomal protein SA

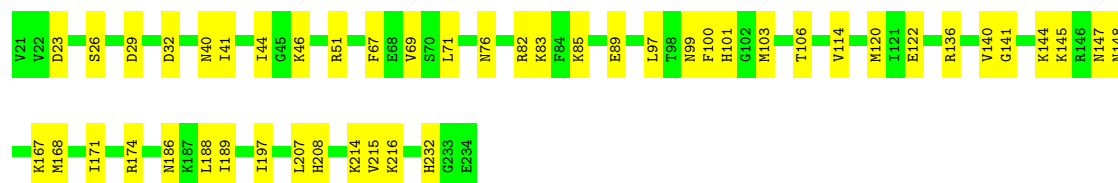
Chain SA:  73% 27%





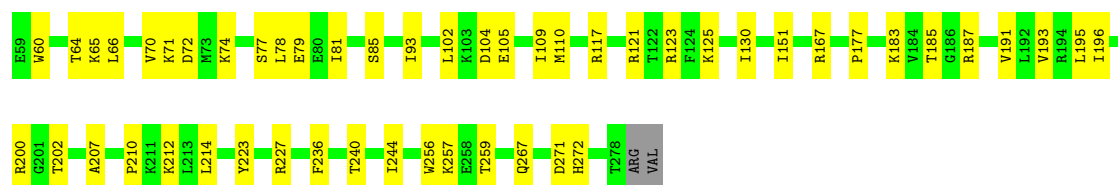
- Molecule 67: 40S ribosomal protein S3a

Chain SB: 78% 22%



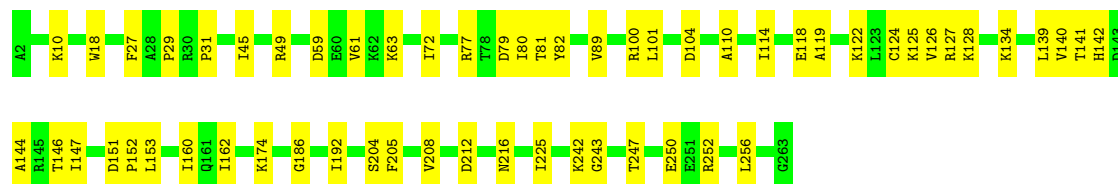
- Molecule 68: 40S ribosomal protein S2

Chain SC: 76% 23%



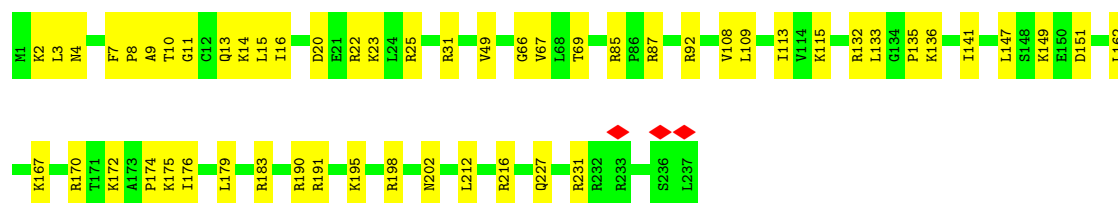
- Molecule 69: Small ribosomal subunit protein eS4, X isoform

Chain SE: 78% 22%



- Molecule 70: 40S ribosomal protein S6

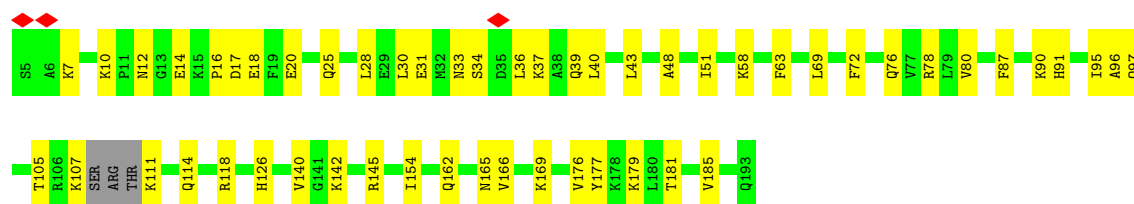
Chain SG: 77% 23%



- Molecule 71: Small ribosomal subunit protein eS7

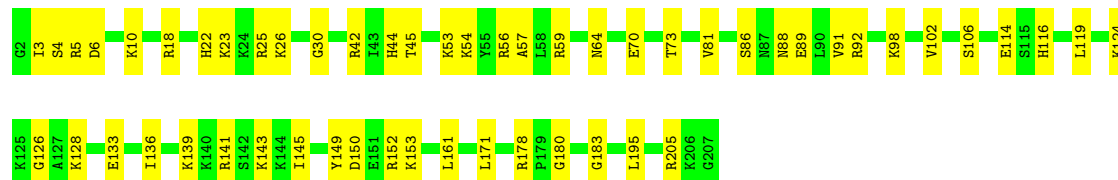
Chain SH: 70% 28%





- Molecule 72: 40S ribosomal protein S8

Chain SI: 74% 26%



- Molecule 73: 40S ribosomal protein S9

Chain SJ: 87% 13%



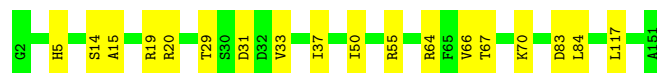
- Molecule 74: 40S ribosomal protein S11

Chain SL: 86% 14%



- Molecule 75: 40S ribosomal protein S13

Chain SN: 88% 12%



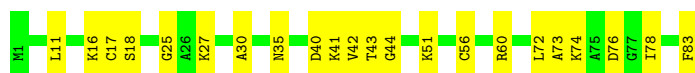
- Molecule 76: Small ribosomal subunit protein uS11

Chain SO: 81% 17%



- Molecule 77: Small ribosomal subunit protein eS21

Chain SV: 73% 27%



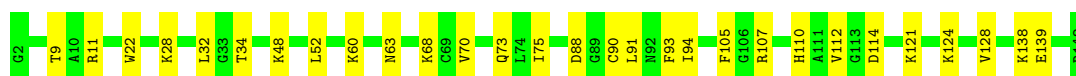
- Molecule 78: 40S ribosomal protein S15a

Chain SW: 81% 19%



- Molecule 79: 40S ribosomal protein S23

Chain SX: 79% 21%



- Molecule 80: 40S ribosomal protein S24

Chain SY: 5% 78% 22%



- Molecule 81: 40S ribosomal protein S26

Chain Sa: 79% 20%



- Molecule 82: Small ribosomal subunit protein eS27

Chain Sb: 75% 25%



- Molecule 83: Small ribosomal subunit protein eS30

Chain Se: 84% 16%

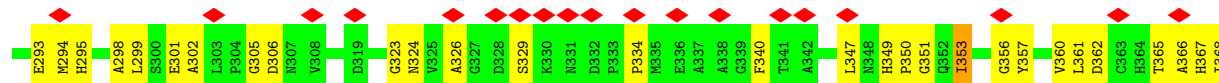


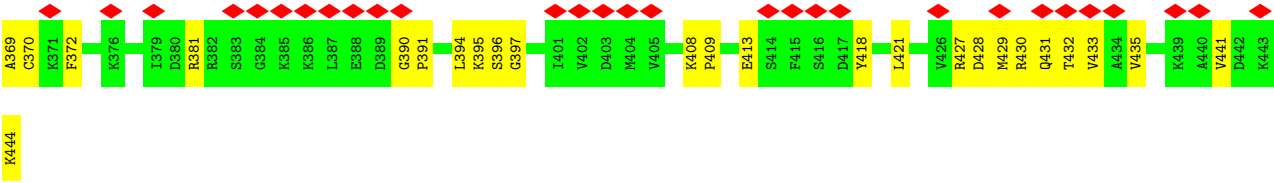
- Molecule 84: 18S rRNA

Chain S2: 54% 37% 8%

|       |       |       |       |         |       |       |       |      |      |      |      |      |      |      |      |      |
|-------|-------|-------|-------|---------|-------|-------|-------|------|------|------|------|------|------|------|------|------|
| A1388 | G1393 | G1394 | G1398 | G1207   | G1102 | A1001 | G902  | G821 | U675 | G592 | A516 | A433 | C325 | U172 | U93  | U1   |
| A1401 | G1399 | G1394 | G1398 | A1208   | C1103 | U1002 | A903  | U822 | U681 | C593 | C517 | G434 | C326 | A175 | G94  | C4   |
| A1402 | G1406 | G1394 | G1398 | C1215   | C1109 | U1003 | G907  | C823 | U682 | U595 | U595 | G435 | G327 | C179 | G95  | U5   |
| A1405 | G1406 | G1394 | G1398 | C1216   | C1117 | U1004 | A908  | A825 | G683 | U596 | A520 | G438 | G329 | C186 | A99  | G6   |
| U1407 | G1406 | G1394 | G1398 | A1217   | C1117 | U1008 | G909  | A830 | U686 | G598 | A521 | G439 | C331 | C192 | A102 | C13  |
| U1408 | G1406 | G1394 | G1398 | C1218   | C1117 | A1009 | G910  | A830 | G687 | G601 | A522 | G441 | G332 | G187 | A103 | C14  |
| G1413 | G1406 | G1394 | G1398 | G1221   | C1117 | G1010 | A913  | C834 | U688 | A604 | A525 | G442 | G333 | A190 | A104 | U15  |
| G1417 | G1406 | G1394 | G1398 | G1222   | C1117 | A1011 | A919  | C835 | U689 | A605 | A526 | G443 | G334 | G191 | U105 | G16  |
| C1418 | G1406 | G1394 | G1398 | A1223   | C1117 | U1012 | A920  | C836 | G692 | A606 | A527 | G444 | C339 | A191 | C106 | C17  |
| C1419 | G1406 | G1394 | G1398 | C1216   | C1117 | U1013 | A920  | C837 | G693 | G606 | A528 | G445 | A339 | C192 | A107 | C18  |
| G1420 | G1406 | G1394 | G1398 | C1217   | C1117 | U1016 | G925  | C838 | U694 | U607 | A529 | G448 | C340 | C194 | G108 | C24  |
| A1421 | G1406 | G1394 | G1398 | G1224   | C1117 | U1017 | G928  | C839 | U695 | C608 | U530 | A449 | G347 | C195 | U109 | C25  |
| G1422 | G1406 | G1394 | G1398 | C1225   | C1117 | A1020 | G929  | C840 | U696 | C609 | U531 | A450 | G348 | C196 | U26  | A27  |
| C1423 | G1406 | G1394 | G1398 | G1226   | C1117 | G1025 | G930  | C841 | U697 | G610 | A532 | G451 | A349 | U197 | U115 | U28  |
| C1433 | G1406 | G1394 | G1398 | C1227   | C1117 | U1026 | G931  | C842 | U698 | G614 | A536 | G452 | C350 | U198 | G29  | G29  |
| C1434 | G1406 | G1394 | G1398 | A1228   | C1117 | G1027 | G932  | C843 | U699 | C615 | C537 | G453 | U352 | G200 | G117 | C30  |
| C1435 | G1406 | G1394 | G1398 | G1229   | C1117 | A1028 | G933  | C844 | U700 | C616 | C537 | G454 | U353 | G201 | C118 | G33  |
| C1436 | G1406 | G1394 | G1398 | C1230   | C1117 | U1031 | G934  | C845 | U701 | C617 | C537 | G455 | U354 | G202 | U119 | U120 |
| C1437 | G1406 | G1394 | G1398 | G1231   | C1117 | G1032 | G935  | C846 | U702 | G617 | C537 | G456 | U354 | G203 | U121 | A38  |
| C1438 | G1406 | G1394 | G1398 | C1232   | C1117 | U1033 | G936  | C847 | U703 | G623 | C537 | G457 | A360 | G204 | G122 | G41  |
| C1439 | G1406 | G1394 | G1398 | G1233   | C1117 | G1034 | G937  | C848 | U704 | G624 | C537 | G458 | A361 | G207 | G126 | A42  |
| U1442 | G1406 | G1394 | G1398 | C1234   | C1117 | U1035 | G938  | C849 | U705 | U627 | C537 | G459 | A362 | G208 | G126 | U43  |
| G1447 | G1406 | G1394 | G1398 | U1244   | C1117 | G1036 | G939  | C850 | U706 | A629 | C537 | G460 | A363 | U214 | G130 | U44  |
| A1448 | G1406 | G1394 | G1398 | B801248 | C1117 | U1037 | G940  | C851 | U707 | U631 | C537 | G461 | U367 | C223 | G136 | A45  |
| G1449 | G1406 | G1394 | G1398 | A1251   | C1117 | U1038 | G941  | C852 | U708 | U631 | C537 | G462 | U368 | A224 | G137 | A46  |
| A1452 | G1406 | G1394 | G1398 | C1252   | C1117 | G1039 | G942  | C853 | U709 | C639 | C550 | G463 | C369 | G291 | C142 | C49  |
| A1453 | G1406 | G1394 | G1398 | G1253   | C1117 | U1040 | G943  | C854 | U710 | A640 | C550 | G464 | C370 | G292 | U143 | U51  |
| A1454 | G1406 | G1394 | G1398 | C1254   | C1117 | G1041 | G944  | C855 | U711 | A641 | C550 | G465 | A371 | A292 | G145 | G52  |
| U1463 | G1406 | G1394 | G1398 | G1255   | C1117 | U1042 | G945  | C856 | U712 | U642 | C550 | G466 | A372 | C293 | U144 | G56  |
| U1477 | G1406 | G1394 | G1398 | C1256   | C1117 | G1043 | G946  | C857 | U713 | U643 | C550 | G467 | A373 | U294 | G146 | U57  |
| U1478 | G1406 | G1394 | G1398 | G1257   | C1117 | U1044 | G947  | C858 | U714 | U644 | C550 | G468 | A374 | C295 | G147 | C58  |
| G1479 | G1406 | G1394 | G1398 | C1258   | C1117 | G1045 | G948  | C859 | U715 | U645 | C550 | G469 | C379 | G298 | U149 | U59  |
| A1480 | G1406 | G1394 | G1398 | A1259   | C1117 | U1046 | G949  | C860 | U716 | U646 | C550 | G470 | A380 | A302 | A151 | A64  |
| G1481 | G1406 | G1394 | G1398 | C1264   | C1117 | G1047 | G950  | C861 | U717 | U647 | C550 | G471 | G381 | A306 | C151 | G65  |
| A1487 | G1406 | G1394 | G1398 | G1265   | C1117 | U1048 | G951  | C862 | U718 | U648 | C550 | G472 | G382 | C306 | U152 | G66  |
| C1488 | G1406 | G1394 | G1398 | C1266   | C1117 | G1049 | G952  | C863 | U719 | U649 | C550 | G473 | U383 | G307 | G153 | G67  |
| G1489 | G1406 | G1394 | G1398 | U1280   | C1117 | U1050 | G953  | C864 | U720 | U650 | C550 | G474 | G384 | G308 | U154 | A68  |
| G1490 | G1406 | G1394 | G1398 | C1283   | C1117 | G1051 | G954  | C865 | U721 | U651 | C550 | G475 | G385 | C310 | A158 | G69  |
| U1492 | G1406 | G1394 | G1398 | G1286   | C1117 | U1052 | G955  | C866 | U722 | U652 | C550 | G476 | G386 | C311 | A159 | G70  |
| C1493 | G1406 | G1394 | G1398 |         | C1117 | U1053 | G956  | C867 | U723 | U653 | C550 | G477 | G387 | C312 | U160 | G71  |
|       |       |       |       |         | C1117 | U1054 | G957  | C868 | U724 | U654 | C550 | G478 | G388 | A313 | U161 | C72  |
|       |       |       |       |         | C1117 | U1055 | G958  | C869 | U725 | U655 | C550 | G479 | G389 | G316 | C162 | C73  |
|       |       |       |       |         | C1117 | U1056 | G959  | C870 | U726 | U656 | C550 | G480 | G390 | G317 | G165 | G74  |
|       |       |       |       |         | C1117 | U1057 | G960  | C871 | U727 | U657 | C550 | G481 | G391 | C318 | A166 | U76  |
|       |       |       |       |         | C1117 | U1058 | G961  | C872 | U728 | U658 | C550 | G482 | G392 | G319 | G167 | G83  |
|       |       |       |       |         | C1117 | U1059 | G962  | C873 | U729 | U659 | C550 | G483 | G393 | G320 | C168 | A84  |
|       |       |       |       |         | C1117 | U1060 | G963  | C874 | U730 | U660 | C550 | G484 | G394 | G321 | U169 | A85  |
|       |       |       |       |         | C1117 | U1061 | G964  | C875 | U731 | U661 | C550 | G485 | G395 | G322 | A170 |      |
|       |       |       |       |         | C1117 | U1062 | G965  | C876 | U732 | U662 | C550 | G486 | G396 | G323 | C324 |      |
|       |       |       |       |         | C1117 | U1063 | G966  | C877 | U733 | U663 | C550 | G487 | G397 | G324 |      |      |
|       |       |       |       |         | C1117 | U1064 | G967  | C878 | U734 | U664 | C550 | G488 | G398 | G325 |      |      |
|       |       |       |       |         | C1117 | U1065 | G968  | C879 | U735 | U665 | C550 | G489 | G399 | G326 |      |      |
|       |       |       |       |         | C1117 | U1066 | G969  | C880 | U736 | U666 | C550 | G490 | G400 | G327 |      |      |
|       |       |       |       |         | C1117 | U1067 | G970  | C881 | U737 | U667 | C550 | G491 | G401 | G328 |      |      |
|       |       |       |       |         | C1117 | U1068 | G971  | C882 | U738 | U668 | C550 | G492 | G402 | G329 |      |      |
|       |       |       |       |         | C1117 | U1069 | G972  | C883 | U739 | U669 | C550 | G493 | G403 | G330 |      |      |
|       |       |       |       |         | C1117 | U1070 | G973  | C884 | U740 | U670 | C550 | G494 | G404 | G331 |      |      |
|       |       |       |       |         | C1117 | U1071 | G974  | C885 | U741 | U671 | C550 | G495 | G405 | G332 |      |      |
|       |       |       |       |         | C1117 | U1072 | G975  | C886 | U742 | U672 | C550 | G496 | G406 | G333 |      |      |
|       |       |       |       |         | C1117 | U1073 | G976  | C887 | U743 | U673 | C550 | G497 | G407 | G334 |      |      |
|       |       |       |       |         | C1117 | U1074 | G977  | C888 | U744 | U674 | C550 | G498 | G408 | G335 |      |      |
|       |       |       |       |         | C1117 | U1075 | G978  | C889 | U745 | U675 | C550 | G499 | G409 | G336 |      |      |
|       |       |       |       |         | C1117 | U1076 | G979  | C890 | U746 | U676 | C550 | G500 | G410 | G337 |      |      |
|       |       |       |       |         | C1117 | U1077 | G980  | C891 | U747 | U677 | C550 | G501 | G411 | G338 |      |      |
|       |       |       |       |         | C1117 | U1078 | G981  | C892 | U748 | U678 | C550 | G502 | G412 | G339 |      |      |
|       |       |       |       |         | C1117 | U1079 | G982  | C893 | U749 | U679 | C550 | G503 | G413 | G340 |      |      |
|       |       |       |       |         | C1117 | U1080 | G983  | C894 | U750 | U680 | C550 | G504 | G414 | G341 |      |      |
|       |       |       |       |         | C1117 | U1081 | G984  | C895 | U751 | U681 | C550 | G505 | G415 | G342 |      |      |
|       |       |       |       |         | C1117 | U1082 | G985  | C896 | U752 | U682 | C550 | G506 | G416 | G343 |      |      |
|       |       |       |       |         | C1117 | U1083 | G986  | C897 | U753 | U683 | C550 | G507 | G417 | G344 |      |      |
|       |       |       |       |         | C1117 | U1084 | G987  | C898 | U754 | U684 | C550 | G508 | G418 | G345 |      |      |
|       |       |       |       |         | C1117 | U1085 | G988  | C899 | U755 | U685 | C550 | G509 | G419 | G346 |      |      |
|       |       |       |       |         | C1117 | U1086 | G989  | C900 | U756 | U686 | C550 | G510 | G420 | G347 |      |      |
|       |       |       |       |         | C1117 | U1087 | G990  | C901 | U757 | U687 | C550 | G511 | G421 | G348 |      |      |
|       |       |       |       |         | C1117 | U1088 | G991  | C902 | U758 | U688 | C550 | G512 | G422 | G349 |      |      |
|       |       |       |       |         | C1117 | U1089 | G992  | C903 | U759 | U689 | C550 | G513 | G423 | G350 |      |      |
|       |       |       |       |         | C1117 | U1090 | G993  | C904 | U760 | U690 | C550 | G514 | G424 | G351 |      |      |
|       |       |       |       |         | C1117 | U1091 | G994  | C905 | U761 | U691 | C550 | G515 | G425 | G352 |      |      |
|       |       |       |       |         | C1117 | U1092 | G995  | C906 | U762 | U692 | C550 | G516 | G426 | G353 |      |      |
|       |       |       |       |         | C1117 | U1093 | G996  | C907 | U763 | U693 | C550 | G517 | G427 | G354 |      |      |
|       |       |       |       |         | C1117 | U1094 | G997  | C908 | U764 | U694 | C550 | G518 | G428 | G355 |      |      |
|       |       |       |       |         | C1117 | U1095 | G998  | C909 | U765 | U695 | C550 | G519 | G429 | G356 |      |      |
|       |       |       |       |         | C1117 | U1096 | G999  | C910 | U766 | U696 | C550 | G520 | G430 | G357 |      |      |
|       |       |       |       |         | C1117 | U1097 | G1000 | C911 | U767 | U697 | C550 | G521 | G431 | G358 |      |      |
|       |       |       |       |         | C1117 | U1098 | G1001 | C912 | U768 | U698 | C550 | G522 | G432 | G359 |      |      |
|       |       |       |       |         | C1117 | U1099 | G1002 | C913 | U769 | U699 | C550 | G523 | G433 | G360 |      |      |
|       |       |       |       |         | C1117 | U1100 | G1003 | C914 | U770 | U700 | C550 | G524 | G434 | G361 |      |      |
|       |       |       |       |         | C1117 | U1101 | G1004 | C915 | U771 | U701 | C550 | G525 | G435 | G362 |      |      |
|       |       |       |       |         | C1117 | U1102 | G1005 | C916 | U772 | U702 | C550 | G526 | G436 | G363 |      |      |
|       |       |       |       |         | C1117 | U1103 | G1006 | C917 | U773 | U703 | C550 | G527 | G437 | G364 |      |      |
|       |       |       |       |         | C1117 | U1104 | G1007 | C918 | U774 | U704 | C550 | G528 | G438 | G365 |      |      |
|       |       |       |       |         | C1117 | U1105 | G1008 | C919 | U775 | U705 | C550 | G529 | G439 | G366 |      |      |
|       |       |       |       |         | C1117 | U1106 | G1009 | C920 | U776 | U706 | C550 | G530 | G440 | G367 |      |      |
|       |       |       |       |         | C     |       |       |      |      |      |      |      |      |      |      |      |







## 4 Experimental information

| Property                             | Value                                   | Source    |
|--------------------------------------|-----------------------------------------|-----------|
| EM reconstruction method             | SINGLE PARTICLE                         | Depositor |
| Imposed symmetry                     | POINT, Not provided                     |           |
| Number of particles used             | 48914                                   | Depositor |
| Resolution determination method      | FSC 0.143 CUT-OFF                       | Depositor |
| CTF correction method                | PHASE FLIPPING AND AMPLITUDE CORRECTION | 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                    | 0.310                                   | Depositor |
| Minimum map value                    | -0.085                                  | Depositor |
| Average map value                    | 0.001                                   | Depositor |
| Map value standard deviation         | 0.011                                   | Depositor |
| Recommended contour level            | 0.0226                                  | 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: SPD, OMC, 1MA, UY1, A2M, G7M, PSU, ZN, OMU, MA6, MG, SPM, UR3, SEP, B8N, 4AC, 6MZ, 5MC, OMG

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   | CI    | 0.16         | 0/247   | 0.30        | 0/323    |
| 2   | Pt    | 0.14         | 0/1761  | 0.25        | 0/2741   |
| 3   | Et    | 0.14         | 0/1778  | 0.31        | 0/2767   |
| 4   | L5    | 0.23         | 0/85098 | 0.30        | 0/132762 |
| 5   | L7    | 0.20         | 0/2861  | 0.25        | 0/4459   |
| 6   | L8    | 0.21         | 0/3631  | 0.27        | 0/5657   |
| 7   | LA    | 0.24         | 0/1936  | 0.40        | 0/2596   |
| 8   | LB    | 0.22         | 0/3306  | 0.37        | 0/4424   |
| 9   | LC    | 0.23         | 0/2981  | 0.36        | 0/4002   |
| 10  | LD    | 0.19         | 0/2428  | 0.31        | 0/3252   |
| 11  | LE    | 0.19         | 0/1973  | 0.39        | 0/2645   |
| 12  | LF    | 0.22         | 0/1905  | 0.31        | 0/2539   |
| 13  | LG    | 0.20         | 0/1960  | 0.37        | 0/2637   |
| 14  | LH    | 0.20         | 0/1537  | 0.32        | 0/2066   |
| 15  | LI    | 0.20         | 0/1751  | 0.33        | 0/2340   |
| 16  | LJ    | 0.17         | 0/1385  | 0.37        | 0/1852   |
| 17  | LL    | 0.19         | 0/1732  | 0.30        | 0/2315   |
| 18  | LM    | 0.22         | 0/1161  | 0.37        | 0/1554   |
| 19  | LN    | 0.23         | 0/1746  | 0.32        | 0/2338   |
| 20  | LO    | 0.23         | 0/1682  | 0.36        | 0/2250   |
| 21  | LP    | 0.23         | 0/1268  | 0.39        | 0/1701   |
| 22  | LQ    | 0.24         | 0/1537  | 0.36        | 0/2052   |
| 23  | LR    | 0.20         | 0/1582  | 0.36        | 0/2091   |
| 24  | LS    | 0.22         | 0/1493  | 0.33        | 0/2003   |
| 25  | LT    | 0.20         | 0/1326  | 0.31        | 0/1770   |
| 26  | LU    | 0.21         | 0/839   | 0.48        | 0/1126   |
| 27  | LV    | 0.20         | 0/993   | 0.36        | 0/1332   |
| 28  | LW    | 0.20         | 0/959   | 0.37        | 0/1270   |
| 29  | LX    | 0.20         | 0/1002  | 0.35        | 0/1345   |
| 30  | LY    | 0.22         | 0/1132  | 0.35        | 0/1504   |
| 31  | LZ    | 0.19         | 0/1130  | 0.34        | 0/1507   |

| Mol | Chain | Bond lengths |               | Bond angles |               |
|-----|-------|--------------|---------------|-------------|---------------|
|     |       | RMSZ         | # Z  >5       | RMSZ        | # Z  >5       |
| 32  | La    | 0.21         | 0/1191        | 0.31        | 0/1591        |
| 33  | Lb    | 0.19         | 0/889         | 0.38        | 0/1175        |
| 34  | Lc    | 0.21         | 0/774         | 0.37        | 0/1038        |
| 35  | Ld    | 0.21         | 0/903         | 0.34        | 0/1216        |
| 36  | Le    | 0.22         | 0/1071        | 0.33        | 0/1429        |
| 37  | Lf    | 0.23         | 0/895         | 0.35        | 0/1198        |
| 38  | Lg    | 0.20         | 0/916         | 0.33        | 0/1220        |
| 39  | Lh    | 0.18         | 0/1023        | 0.32        | 0/1351        |
| 40  | Li    | 0.17         | 0/843         | 0.29        | 0/1115        |
| 41  | Lj    | 0.23         | 0/720         | 0.36        | 0/952         |
| 42  | Lk    | 0.31         | 1/575 (0.2%)  | 0.47        | 0/761         |
| 43  | Ll    | 0.21         | 0/454         | 0.28        | 0/599         |
| 44  | Lm    | 0.19         | 0/435         | 0.33        | 0/575         |
| 45  | Ln    | 0.23         | 0/231         | 0.33        | 0/294         |
| 46  | Lo    | 0.22         | 0/876         | 0.33        | 0/1156        |
| 47  | Lp    | 0.21         | 0/718         | 0.33        | 0/953         |
| 48  | Lr    | 0.21         | 0/1017        | 0.32        | 0/1364        |
| 49  | Ls    | 0.29         | 1/1519 (0.1%) | 0.38        | 0/2052        |
| 50  | Lt    | 0.19         | 0/1009        | 0.49        | 0/1363        |
| 51  | SD    | 0.13         | 0/1793        | 0.28        | 0/2414        |
| 52  | SF    | 0.16         | 0/1516        | 0.35        | 0/2037        |
| 53  | SK    | 0.16         | 0/851         | 0.43        | 0/1147        |
| 54  | SM    | 0.14         | 0/950         | 0.38        | 0/1275        |
| 55  | SP    | 0.26         | 1/1003 (0.1%) | 0.40        | 0/1342        |
| 56  | SQ    | 0.16         | 0/1160        | 0.38        | 0/1553        |
| 57  | SR    | 0.18         | 0/1105        | 0.44        | 0/1484        |
| 58  | SS    | 0.16         | 0/1216        | 0.37        | 0/1628        |
| 59  | ST    | 0.15         | 0/1131        | 0.37        | 0/1515        |
| 60  | SU    | 0.17         | 0/831         | 0.46        | 0/1115        |
| 61  | SZ    | 0.22         | 0/604         | 0.47        | 0/810         |
| 62  | Sc    | 0.16         | 0/508         | 0.36        | 0/680         |
| 63  | Sd    | 0.17         | 0/470         | 0.37        | 0/623         |
| 64  | Sf    | 0.15         | 0/560         | 0.44        | 0/745         |
| 65  | Sg    | 0.14         | 0/2493        | 0.37        | 0/3394        |
| 66  | SA    | 0.16         | 0/1778        | 0.36        | 0/2416        |
| 67  | SB    | 0.16         | 0/1765        | 0.35        | 0/2362        |
| 68  | SC    | 0.19         | 0/1744        | 0.34        | 0/2357        |
| 69  | SE    | 0.18         | 0/2118        | 0.35        | 0/2849        |
| 70  | SG    | 0.14         | 0/1946        | 0.34        | 0/2590        |
| 71  | SH    | 0.18         | 0/1519        | 0.42        | 0/2033        |
| 72  | SI    | 0.19         | 0/1715        | 0.37        | 0/2287        |
| 73  | SJ    | 0.14         | 0/1550        | 0.34        | 1/2069 (0.0%) |
| 74  | SL    | 0.17         | 0/1268        | 0.29        | 0/1696        |

| Mol | Chain | Bond lengths |                 | Bond angles |                  |
|-----|-------|--------------|-----------------|-------------|------------------|
|     |       | RMSZ         | # Z  >5         | RMSZ        | # Z  >5          |
| 75  | SN    | 0.17         | 0/1232          | 0.26        | 0/1656           |
| 76  | SO    | 0.19         | 0/1037          | 0.38        | 0/1391           |
| 77  | SV    | 0.17         | 0/643           | 0.38        | 0/860            |
| 78  | SW    | 0.20         | 0/1051          | 0.34        | 0/1406           |
| 79  | SX    | 0.16         | 0/1116          | 0.35        | 0/1490           |
| 80  | SY    | 0.16         | 0/1083          | 0.39        | 0/1438           |
| 81  | Sa    | 0.43         | 1/836 (0.1%)    | 0.43        | 1/1121 (0.1%)    |
| 82  | Sb    | 0.18         | 0/665           | 0.36        | 0/891            |
| 83  | Se    | 0.14         | 0/465           | 0.37        | 0/612            |
| 84  | S2    | 0.20         | 1/39756 (0.0%)  | 0.28        | 0/61939          |
| 85  | AT    | 0.26         | 0/1805          | 0.44        | 1/2809 (0.0%)    |
| 86  | CF    | 0.48         | 3/3442 (0.1%)   | 0.80        | 7/4656 (0.2%)    |
| All | All   | 0.22         | 8/236904 (0.0%) | 0.33        | 10/347312 (0.0%) |

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 |
|-----|-------|---------------------|---------------------|
| 56  | SQ    | 0                   | 1                   |
| 76  | SO    | 0                   | 1                   |
| All | All   | 0                   | 2                   |

All (8) bond length outliers are listed below:

| Mol | Chain | Res  | Type | Atoms  | Z      | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|--------|--------|-------------|----------|
| 86  | CF    | 391  | PRO  | CB-CG  | -11.27 | 0.93        | 1.49     |
| 81  | Sa    | 98   | PRO  | CA-C   | -10.72 | 1.46        | 1.51     |
| 86  | CF    | 391  | PRO  | N-CA   | 10.18  | 1.59        | 1.47     |
| 49  | Ls    | 14   | PHE  | CE1-CZ | 8.26   | 1.63        | 1.38     |
| 86  | CF    | 390  | GLY  | C-N    | -8.16  | 1.22        | 1.33     |
| 55  | SP    | 94   | VAL  | C-N    | -6.13  | 1.30        | 1.33     |
| 42  | Lk    | 35   | LYS  | CB-CG  | -5.06  | 1.37        | 1.52     |
| 84  | S2    | 1288 | OMU  | O3'-P  | 5.02   | 1.61        | 1.56     |

All (10) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms    | Z      | Observed(°) | Ideal(°) |
|-----|-------|-----|------|----------|--------|-------------|----------|
| 86  | CF    | 391 | PRO  | CB-CG-CD | 23.08  | 179.97      | 106.10   |
| 86  | CF    | 391 | PRO  | N-CD-CG  | -18.19 | 75.92       | 103.20   |
| 86  | CF    | 391 | PRO  | CA-CB-CG | -17.07 | 72.08       | 104.50   |

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| Mol | Chain | Res | Type | Atoms      | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|------------|-------|-------------|----------|
| 86  | CF    | 391 | PRO  | CA-N-CD    | -9.43 | 98.80       | 112.00   |
| 81  | Sa    | 98  | PRO  | O-C-N      | -7.86 | 117.69      | 121.31   |
| 86  | CF    | 139 | LEU  | CD1-CG-CD2 | -7.02 | 95.35       | 110.80   |
| 86  | CF    | 353 | ILE  | CA-CB-CG2  | 5.65  | 120.10      | 110.50   |
| 86  | CF    | 8   | ILE  | CB-CA-C    | -5.64 | 103.45      | 111.34   |
| 85  | AT    | 38  | A    | N9-C1'-C2' | 5.23  | 119.84      | 112.00   |
| 73  | SJ    | 43  | VAL  | N-CA-C     | -5.17 | 107.79      | 112.96   |

There are no chirality outliers.

All (2) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group   |
|-----|-------|-----|------|---------|
| 76  | SO    | 137 | SER  | Peptide |
| 56  | SQ    | 107 | 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   | CI    | 247   | 0        | 283      | 12      | 0            |
| 2   | Pt    | 1576  | 0        | 803      | 14      | 0            |
| 3   | Et    | 1593  | 0        | 810      | 32      | 0            |
| 4   | L5    | 78444 | 0        | 39719    | 812     | 0            |
| 5   | L7    | 2561  | 0        | 1295     | 15      | 0            |
| 6   | L8    | 3315  | 0        | 1685     | 28      | 0            |
| 7   | LA    | 1898  | 0        | 1993     | 45      | 0            |
| 8   | LB    | 3238  | 0        | 3375     | 58      | 0            |
| 9   | LC    | 2927  | 0        | 3104     | 32      | 0            |
| 10  | LD    | 2382  | 0        | 2410     | 36      | 0            |
| 11  | LE    | 1935  | 0        | 2096     | 28      | 0            |
| 12  | LF    | 1870  | 0        | 1996     | 32      | 0            |
| 13  | LG    | 1927  | 0        | 2074     | 27      | 0            |
| 14  | LH    | 1518  | 0        | 1601     | 22      | 0            |
| 15  | LI    | 1711  | 0        | 1749     | 23      | 0            |
| 16  | LJ    | 1362  | 0        | 1399     | 21      | 0            |
| 17  | LL    | 1701  | 0        | 1818     | 24      | 0            |
| 18  | LM    | 1138  | 0        | 1204     | 20      | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 19  | LN    | 1701  | 0        | 1749     | 22      | 0            |
| 20  | LO    | 1650  | 0        | 1794     | 32      | 0            |
| 21  | LP    | 1242  | 0        | 1269     | 19      | 0            |
| 22  | LQ    | 1513  | 0        | 1628     | 22      | 0            |
| 23  | LR    | 1566  | 0        | 1729     | 22      | 0            |
| 24  | LS    | 1453  | 0        | 1490     | 15      | 0            |
| 25  | LT    | 1298  | 0        | 1366     | 19      | 0            |
| 26  | LU    | 825   | 0        | 850      | 15      | 0            |
| 27  | LV    | 979   | 0        | 1039     | 12      | 0            |
| 28  | LW    | 945   | 0        | 1003     | 24      | 0            |
| 29  | LX    | 985   | 0        | 1066     | 8       | 0            |
| 30  | LY    | 1115  | 0        | 1205     | 16      | 0            |
| 31  | LZ    | 1107  | 0        | 1182     | 15      | 0            |
| 32  | La    | 1162  | 0        | 1213     | 11      | 0            |
| 33  | Lb    | 876   | 0        | 948      | 19      | 0            |
| 34  | Lc    | 764   | 0        | 804      | 9       | 0            |
| 35  | Ld    | 888   | 0        | 930      | 15      | 0            |
| 36  | Le    | 1053  | 0        | 1147     | 15      | 0            |
| 37  | Lf    | 876   | 0        | 912      | 9       | 0            |
| 38  | Lg    | 906   | 0        | 998      | 11      | 0            |
| 39  | Lh    | 1015  | 0        | 1148     | 15      | 0            |
| 40  | Li    | 832   | 0        | 917      | 7       | 0            |
| 41  | Lj    | 705   | 0        | 737      | 13      | 0            |
| 42  | Lk    | 569   | 0        | 637      | 9       | 0            |
| 43  | Ll    | 444   | 0        | 483      | 7       | 0            |
| 44  | Lm    | 429   | 0        | 465      | 4       | 0            |
| 45  | Ln    | 230   | 0        | 276      | 5       | 0            |
| 46  | Lo    | 862   | 0        | 929      | 12      | 0            |
| 47  | Lp    | 708   | 0        | 756      | 8       | 0            |
| 48  | Lr    | 1002  | 0        | 1068     | 6       | 0            |
| 49  | Ls    | 1496  | 0        | 1540     | 21      | 0            |
| 50  | Lt    | 998   | 0        | 1032     | 24      | 0            |
| 51  | SD    | 1765  | 0        | 1865     | 19      | 0            |
| 52  | SF    | 1495  | 0        | 1549     | 40      | 0            |
| 53  | SK    | 827   | 0        | 854      | 23      | 0            |
| 54  | SM    | 940   | 0        | 965      | 16      | 0            |
| 55  | SP    | 985   | 0        | 1031     | 16      | 0            |
| 56  | SQ    | 1142  | 0        | 1213     | 27      | 0            |
| 57  | SR    | 1090  | 0        | 1149     | 16      | 0            |
| 58  | SS    | 1198  | 0        | 1261     | 30      | 0            |
| 59  | ST    | 1112  | 0        | 1146     | 28      | 0            |
| 60  | SU    | 821   | 0        | 883      | 22      | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 61  | SZ    | 598   | 0        | 656      | 18      | 0            |
| 62  | Sc    | 506   | 0        | 536      | 11      | 0            |
| 63  | Sd    | 459   | 0        | 452      | 16      | 0            |
| 64  | Sf    | 548   | 0        | 551      | 17      | 0            |
| 65  | Sg    | 2436  | 0        | 2393     | 55      | 0            |
| 66  | SA    | 1741  | 0        | 1746     | 41      | 0            |
| 67  | SB    | 1738  | 0        | 1809     | 31      | 0            |
| 68  | SC    | 1707  | 0        | 1791     | 36      | 0            |
| 69  | SE    | 2076  | 0        | 2177     | 38      | 0            |
| 70  | SG    | 1923  | 0        | 2089     | 49      | 0            |
| 71  | SH    | 1497  | 0        | 1590     | 38      | 0            |
| 72  | SI    | 1686  | 0        | 1772     | 40      | 0            |
| 73  | SJ    | 1525  | 0        | 1640     | 16      | 0            |
| 74  | SL    | 1247  | 0        | 1323     | 15      | 0            |
| 75  | SN    | 1208  | 0        | 1294     | 13      | 0            |
| 76  | SO    | 1024  | 0        | 1050     | 17      | 0            |
| 77  | SV    | 636   | 0        | 637      | 16      | 0            |
| 78  | SW    | 1034  | 0        | 1080     | 21      | 0            |
| 79  | SX    | 1098  | 0        | 1167     | 23      | 0            |
| 80  | SY    | 1065  | 0        | 1142     | 24      | 0            |
| 81  | Sa    | 821   | 0        | 870      | 15      | 0            |
| 82  | Sb    | 651   | 0        | 672      | 16      | 0            |
| 83  | Se    | 459   | 0        | 503      | 11      | 0            |
| 84  | S2    | 36953 | 0        | 18677    | 462     | 0            |
| 85  | AT    | 1616  | 0        | 824      | 55      | 0            |
| 86  | CF    | 3383  | 0        | 3432     | 83      | 0            |
| 87  | L5    | 177   | 0        | 0        | 0       | 0            |
| 87  | L7    | 3     | 0        | 0        | 0       | 0            |
| 87  | L8    | 5     | 0        | 0        | 0       | 0            |
| 87  | LA    | 1     | 0        | 0        | 0       | 0            |
| 87  | LB    | 1     | 0        | 0        | 0       | 0            |
| 87  | LP    | 1     | 0        | 0        | 0       | 0            |
| 87  | LV    | 1     | 0        | 0        | 0       | 0            |
| 87  | Le    | 1     | 0        | 0        | 0       | 0            |
| 87  | Lj    | 1     | 0        | 0        | 0       | 0            |
| 87  | S2    | 26    | 0        | 0        | 0       | 0            |
| 87  | SG    | 1     | 0        | 0        | 0       | 0            |
| 87  | SS    | 1     | 0        | 0        | 0       | 0            |
| 88  | L5    | 98    | 0        | 182      | 6       | 0            |
| 89  | L5    | 80    | 0        | 152      | 4       | 0            |
| 89  | L8    | 10    | 0        | 19       | 0       | 0            |
| 89  | LN    | 10    | 0        | 19       | 1       | 0            |

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| Mol | Chain | Non-H  | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|--------|----------|----------|---------|--------------|
| 90  | Lg    | 1      | 0        | 0        | 0       | 0            |
| 90  | Lj    | 1      | 0        | 0        | 0       | 0            |
| 90  | Lm    | 1      | 0        | 0        | 0       | 0            |
| 90  | Lo    | 1      | 0        | 0        | 0       | 0            |
| 90  | Lp    | 1      | 0        | 0        | 0       | 0            |
| 90  | Sa    | 1      | 0        | 0        | 0       | 0            |
| All | All   | 224970 | 0        | 167885   | 2611    | 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 7.

All (2611) 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) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:CI:79:ARG:NH1    | 4:L5:2708:U:O2'    | 1.68                     | 1.26              |
| 86:CF:362:ASP:HB3  | 86:CF:367:HIS:CD2  | 1.74                     | 1.22              |
| 80:SY:38:THR:O     | 80:SY:42:GLU:OE1   | 1.68                     | 1.10              |
| 4:L5:1996:C:H42    | 4:L5:2000:G:N2     | 1.55                     | 1.02              |
| 3:Et:26:A:H61      | 3:Et:44:G:H1       | 1.03                     | 1.00              |
| 2:Pt:50:U:H3       | 2:Pt:64:G:H1       | 1.10                     | 0.95              |
| 4:L5:1996:C:N4     | 4:L5:2000:G:H22    | 1.66                     | 0.94              |
| 86:CF:362:ASP:HB3  | 86:CF:367:HIS:HD2  | 1.24                     | 0.93              |
| 3:Et:26:A:N6       | 3:Et:44:G:H1       | 1.66                     | 0.92              |
| 84:S2:1748:G:H1    | 84:S2:1786:U:H3    | 0.99                     | 0.92              |
| 4:L5:3946:G:H1     | 4:L5:4067:U:H3     | 1.13                     | 0.92              |
| 1:CI:74:LYS:HA     | 26:LU:116:GLN:O    | 1.71                     | 0.90              |
| 4:L5:1996:C:H42    | 4:L5:2000:G:H22    | 0.95                     | 0.90              |
| 86:CF:362:ASP:CB   | 86:CF:367:HIS:CD2  | 2.55                     | 0.89              |
| 86:CF:97:ASP:OD1   | 86:CF:430:ARG:NH2  | 2.08                     | 0.87              |
| 67:SB:103:MET:HG3  | 67:SB:215:VAL:HG12 | 1.57                     | 0.86              |
| 4:L5:2007:G:H21    | 4:L5:2012:A:H62    | 1.22                     | 0.84              |
| 17:LL:64:VAL:HA    | 17:LL:67:HIS:HD2   | 1.39                     | 0.84              |
| 64:Sf:126:CYS:SG   | 64:Sf:144:CYS:N    | 2.51                     | 0.83              |
| 86:CF:96:ARG:NH2   | 86:CF:430:ARG:O    | 2.10                     | 0.83              |
| 4:L5:1100:U:H3     | 4:L5:1194:G:H1     | 1.27                     | 0.82              |
| 84:S2:925:G:H1     | 84:S2:1017:U:H3    | 1.29                     | 0.80              |
| 28:LW:100:VAL:HG12 | 28:LW:104:GLN:HE22 | 1.46                     | 0.79              |
| 68:SC:210:PRO:HB3  | 68:SC:240:THR:HG21 | 1.64                     | 0.79              |
| 84:S2:1776:G:N2    | 84:S2:1777:G:N7    | 2.32                     | 0.78              |
| 4:L5:1095:A:H2     | 4:L5:1200:G:H1     | 1.24                     | 0.77              |
| 4:L5:4910:G:H4'    | 8:LB:95:THR:HG22   | 1.66                     | 0.77              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 67:SB:122:GLU:HG2  | 67:SB:140:VAL:HG12 | 1.69                     | 0.75              |
| 68:SC:193:VAL:HG11 | 68:SC:240:THR:HG22 | 1.69                     | 0.75              |
| 4:L5:1982:G:H5'    | 50:Lt:28:LEU:HD13  | 1.68                     | 0.75              |
| 52:SF:134:VAL:HG12 | 52:SF:135:ARG:HG2  | 1.67                     | 0.74              |
| 4:L5:5024:C:H41    | 4:L5:5028:G:H21    | 1.32                     | 0.74              |
| 56:SQ:72:VAL:HG11  | 56:SQ:80:GLN:HG3   | 1.69                     | 0.74              |
| 4:L5:2611:A:H5'    | 4:L5:2688:G:H4'    | 1.70                     | 0.74              |
| 85:AT:38:A:H2'     | 85:AT:39:C:C6      | 2.23                     | 0.73              |
| 4:L5:1702:C:H4'    | 9:LC:308:LYS:HD2   | 1.71                     | 0.73              |
| 86:CF:49:MET:HE3   | 86:CF:51:LYS:HB2   | 1.69                     | 0.73              |
| 65:Sg:247:TRP:HB3  | 65:Sg:258:ILE:HD11 | 1.69                     | 0.73              |
| 84:S2:1825:A:N6    | 85:AT:38:A:N3      | 2.37                     | 0.73              |
| 4:L5:3701:OMC:H5   | 4:L5:3748:A:H62    | 1.37                     | 0.72              |
| 84:S2:94:G:HO2'    | 84:S2:508:A:HO2'   | 1.36                     | 0.72              |
| 86:CF:368:ILE:HD12 | 86:CF:408:LYS:HD3  | 1.71                     | 0.71              |
| 4:L5:664:G:N2      | 4:L5:666:G:O6      | 2.24                     | 0.71              |
| 35:Ld:90:ARG:HD3   | 35:Ld:102:LEU:HD13 | 1.73                     | 0.71              |
| 59:ST:12:GLN:NE2   | 84:S2:1593:C:O2    | 2.23                     | 0.71              |
| 21:LP:109:VAL:HA   | 21:LP:112:LEU:HD13 | 1.73                     | 0.71              |
| 69:SE:208:VAL:HG11 | 69:SE:225:ILE:HG13 | 1.73                     | 0.70              |
| 85:AT:18:G:H21     | 85:AT:59:A:H5'     | 1.55                     | 0.70              |
| 4:L5:3594:C:O2     | 4:L5:3597:G:N2     | 2.25                     | 0.70              |
| 71:SH:154:ILE:HB   | 71:SH:185:VAL:HG22 | 1.72                     | 0.70              |
| 4:L5:4546:A:N7     | 7:LA:215:ASN:ND2   | 2.40                     | 0.70              |
| 86:CF:104:THR:HG23 | 86:CF:365:THR:HG23 | 1.74                     | 0.70              |
| 18:LM:15:VAL:HG22  | 18:LM:50:MET:HE1   | 1.72                     | 0.70              |
| 4:L5:387:G:HO2'    | 4:L5:412:G:H1      | 1.39                     | 0.70              |
| 4:L5:3954:A:H1'    | 4:L5:4058:U:H5'    | 1.74                     | 0.70              |
| 35:Ld:68:LEU:HD22  | 35:Ld:106:VAL:HG12 | 1.72                     | 0.70              |
| 70:SG:2:LYS:HB2    | 70:SG:108:VAL:HG12 | 1.72                     | 0.70              |
| 65:Sg:176:VAL:HG23 | 65:Sg:185:LYS:HB2  | 1.72                     | 0.70              |
| 7:LA:104:VAL:HA    | 7:LA:107:MET:HE3   | 1.74                     | 0.69              |
| 4:L5:2702:C:OP1    | 26:LU:101:ARG:NH2  | 2.24                     | 0.69              |
| 71:SH:105:THR:HG23 | 71:SH:107:LYS:H    | 1.57                     | 0.69              |
| 4:L5:3937:C:H1'    | 19:LN:125:SER:HB3  | 1.73                     | 0.69              |
| 84:S2:1658:G:OP2   | 84:S2:1660:C:N4    | 2.25                     | 0.69              |
| 86:CF:353:ILE:HG23 | 86:CF:357:TYR:HE1  | 1.55                     | 0.69              |
| 4:L5:2092:G:O2'    | 4:L5:2262:G:N2     | 2.26                     | 0.69              |
| 4:L5:2484:A:H62    | 4:L5:2494:U:H3     | 1.41                     | 0.69              |
| 3:Et:9:A:H2'       | 3:Et:11:C:H41      | 1.57                     | 0.69              |
| 3:Et:32:C:OP1      | 52:SF:135:ARG:NH2  | 2.26                     | 0.69              |

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| Atom-1              | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|---------------------|--------------------|--------------------------|-------------------|
| 4:L5:4946:U:HO2'    | 37:Lf:2:SER:N      | 1.90                     | 0.69              |
| 86:CF:93:PRO:HD2    | 86:CF:102:MET:HB3  | 1.74                     | 0.69              |
| 4:L5:4242:U:H3      | 4:L5:4281:A:H2     | 1.39                     | 0.69              |
| 28:LW:80:ARG:NH2    | 70:SG:8:PRO:O      | 2.26                     | 0.69              |
| 4:L5:184:U:O2       | 4:L5:253:G:N2      | 2.24                     | 0.68              |
| 64:Sf:99:LYS:NZ     | 84:S2:1287:A:OP1   | 2.26                     | 0.68              |
| 4:L5:1995:G:O2'     | 50:Lt:122:ALA:O    | 2.11                     | 0.68              |
| 54:SM:51:VAL:HG12   | 54:SM:77:ILE:HB    | 1.74                     | 0.68              |
| 50:Lt:65:GLN:HG3    | 50:Lt:67:ARG:H     | 1.58                     | 0.68              |
| 82:Sb:14:GLU:HA     | 82:Sb:17:ARG:HG2   | 1.75                     | 0.68              |
| 84:S2:940:U:H3      | 84:S2:1002:U:H3    | 1.38                     | 0.68              |
| 85:AT:21:U:H5'      | 85:AT:49:C:H42     | 1.58                     | 0.68              |
| 4:L5:748:G:O6       | 24:LS:98:ARG:NH2   | 2.26                     | 0.68              |
| 65:Sg:87:LEU:HB2    | 65:Sg:101:PHE:HB2  | 1.75                     | 0.68              |
| 15:LI:205:PRO:HD2   | 15:LI:208:LYS:HE2  | 1.76                     | 0.68              |
| 4:L5:2520:C:O2      | 4:L5:2640:G:N2     | 2.26                     | 0.68              |
| 4:L5:2351:OMC:HM22  | 9:LC:95:MET:HG3    | 1.75                     | 0.68              |
| 4:L5:2554:U:O2      | 4:L5:2764:A:N7     | 2.27                     | 0.68              |
| 76:SO:104:ARG:NH2   | 84:S2:959:G:OP1    | 2.26                     | 0.68              |
| 4:L5:665:C:H4'      | 4:L5:666:G:H5'     | 1.75                     | 0.67              |
| 51:SD:106:ARG:HG3   | 51:SD:175:VAL:HG22 | 1.76                     | 0.67              |
| 4:L5:1414:C:H2'     | 4:L5:1415:G:H8     | 1.59                     | 0.67              |
| 85:AT:18:G:H1       | 85:AT:56:U:H1'     | 1.58                     | 0.67              |
| 7:LA:107:MET:HB3    | 7:LA:111:THR:HG21  | 1.74                     | 0.67              |
| 8:LB:90:VAL:HG23    | 8:LB:163:ILE:HD11  | 1.76                     | 0.67              |
| 19:LN:157:LYS:O     | 19:LN:162:ARG:NH1  | 2.27                     | 0.67              |
| 20:LO:34:VAL:HG22   | 20:LO:103:LYS:HB2  | 1.77                     | 0.67              |
| 4:L5:1870:C:H2'     | 4:L5:1871:A2M:H8   | 1.77                     | 0.67              |
| 88:L5:5290:SPM:H112 | 20:LO:91:LYS:HD3   | 1.75                     | 0.67              |
| 80:SY:39:GLU:HA     | 80:SY:42:GLU:OE2   | 1.94                     | 0.67              |
| 85:AT:2:U:H3        | 85:AT:72:A:H61     | 1.42                     | 0.67              |
| 4:L5:2458:C:H5''    | 19:LN:67:ARG:HD2   | 1.77                     | 0.67              |
| 14:LH:106:GLN:HB2   | 14:LH:111:LEU:HB3  | 1.77                     | 0.67              |
| 28:LW:56:ARG:HE     | 28:LW:61:LYS:HB2   | 1.59                     | 0.67              |
| 78:SW:107:SER:HB2   | 84:S2:860:G:H21    | 1.58                     | 0.67              |
| 86:CF:353:ILE:HG23  | 86:CF:357:TYR:CE1  | 2.29                     | 0.67              |
| 85:AT:57:C:N4       | 85:AT:58:G:O6      | 2.27                     | 0.67              |
| 59:ST:124:THR:HG23  | 59:ST:127:GLY:H    | 1.61                     | 0.66              |
| 70:SG:183:ARG:NH2   | 84:S2:316:G:OP2    | 2.27                     | 0.66              |
| 3:Et:26:A:N1        | 3:Et:44:G:N2       | 2.42                     | 0.66              |
| 7:LA:29:LEU:O       | 7:LA:123:ARG:NH1   | 2.28                     | 0.66              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 4:L5:2007:G:N2     | 4:L5:2012:A:H62    | 1.93                     | 0.66              |
| 27:LV:35:LYS:HB2   | 27:LV:67:LYS:HG3   | 1.76                     | 0.66              |
| 83:Se:41:ARG:NH2   | 84:S2:639:C:OP1    | 2.29                     | 0.66              |
| 4:L5:1669:A:OP1    | 33:Lb:18:ARG:NH2   | 2.29                     | 0.66              |
| 53:SK:50:GLN:HE22  | 84:S2:1276:A:H1'   | 1.60                     | 0.66              |
| 68:SC:187:ARG:NH2  | 84:S2:1143:A:OP2   | 2.29                     | 0.66              |
| 86:CF:277:VAL:HG13 | 86:CF:329:SER:HB3  | 1.76                     | 0.66              |
| 4:L5:1095:A:N1     | 4:L5:1200:G:O6     | 2.29                     | 0.66              |
| 4:L5:4910:G:N2     | 20:LO:106:ASP:O    | 2.28                     | 0.66              |
| 8:LB:222:VAL:O     | 8:LB:343:ARG:NH1   | 2.29                     | 0.66              |
| 84:S2:747:U:N3     | 84:S2:796:G:N1     | 2.44                     | 0.66              |
| 24:LS:76:LYS:NZ    | 24:LS:100:LEU:O    | 2.29                     | 0.66              |
| 42:Lk:8:ILE:HD11   | 42:Lk:56:LEU:HD13  | 1.77                     | 0.66              |
| 84:S2:1536:G:H2'   | 84:S2:1537:A:H8    | 1.61                     | 0.66              |
| 8:LB:10:ARG:NH1    | 8:LB:11:HIS:O      | 2.29                     | 0.65              |
| 52:SF:124:ASP:OD1  | 52:SF:125:SER:N    | 2.27                     | 0.65              |
| 49:Ls:58:ASN:ND2   | 49:Ls:84:GLY:O     | 2.23                     | 0.65              |
| 70:SG:132:ARG:NH2  | 84:S2:152:U:O4'    | 2.29                     | 0.65              |
| 85:AT:38:A:H2'     | 85:AT:39:C:H6      | 1.60                     | 0.65              |
| 86:CF:110:ASP:OD1  | 86:CF:266:ARG:NH2  | 2.29                     | 0.65              |
| 6:L8:75:OMG:OP2    | 30:LY:74:TYR:OH    | 2.15                     | 0.65              |
| 85:AT:9:A:N6       | 85:AT:23:U:OP2     | 2.30                     | 0.65              |
| 1:CI:79:ARG:NH1    | 4:L5:2708:U:HO2'   | 1.94                     | 0.65              |
| 84:S2:928:G:H2'    | 84:S2:929:G:C8     | 2.31                     | 0.65              |
| 32:La:84:GLU:OE1   | 32:La:87:ARG:NH2   | 2.30                     | 0.65              |
| 78:SW:71:LYS:NZ    | 84:S2:1156:U:OP1   | 2.30                     | 0.65              |
| 78:SW:2:VAL:N      | 84:S2:1091:C:HO2'  | 1.95                     | 0.65              |
| 23:LR:172:ARG:NH1  | 84:S2:909:G:OP1    | 2.29                     | 0.65              |
| 85:AT:61:A:OP1     | 85:AT:63:C:N4      | 2.29                     | 0.65              |
| 86:CF:273:LYS:HE3  | 86:CF:301:GLU:HG2  | 1.79                     | 0.65              |
| 86:CF:24:THR:HG23  | 86:CF:89:ILE:HD13  | 1.78                     | 0.65              |
| 4:L5:1079:C:O2     | 4:L5:1221:G:N2     | 2.23                     | 0.65              |
| 58:SS:85:ASN:OD1   | 58:SS:97:GLN:NE2   | 2.30                     | 0.65              |
| 84:S2:628:A:N6     | 84:S2:1500:G:O2'   | 2.29                     | 0.65              |
| 70:SG:135:PRO:HG2  | 70:SG:141:ILE:HG22 | 1.78                     | 0.64              |
| 84:S2:751:G:H1'    | 84:S2:793:G:H21    | 1.61                     | 0.64              |
| 1:CI:78:HIS:NE2    | 4:L5:2706:G:N7     | 2.44                     | 0.64              |
| 4:L5:68:U:OP1      | 19:LN:178:HIS:ND1  | 2.31                     | 0.64              |
| 25:LT:43:LYS:O     | 25:LT:58:HIS:ND1   | 2.30                     | 0.64              |
| 84:S2:533:A:H61    | 84:S2:550:C:H42    | 1.45                     | 0.64              |
| 4:L5:1994:C:H2'    | 4:L5:1995:G:C8     | 2.32                     | 0.64              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 50:Lt:130:LYS:NZ   | 50:Lt:157:SER:O    | 2.30                     | 0.64              |
| 84:S2:1829:G:H1'   | 84:S2:1850:MA6:H2  | 1.78                     | 0.64              |
| 4:L5:4525:C:OP1    | 8:LB:246:ARG:NH2   | 2.29                     | 0.64              |
| 72:SI:98:LYS:HB3   | 84:S2:377:G:H5'    | 1.80                     | 0.64              |
| 14:LH:106:GLN:NE2  | 14:LH:113:GLU:OE2  | 2.30                     | 0.64              |
| 52:SF:168:THR:OG1  | 52:SF:171:GLU:OE1  | 2.16                     | 0.64              |
| 4:L5:67:C:OP2      | 4:L5:312:G:N2      | 2.28                     | 0.64              |
| 4:L5:3641:U:OP2    | 4:L5:3646:A:N6     | 2.31                     | 0.64              |
| 21:LP:39:MET:HG2   | 21:LP:43:LYS:HD3   | 1.80                     | 0.64              |
| 70:SG:7:PHE:HD2    | 70:SG:10:THR:HG22  | 1.63                     | 0.64              |
| 7:LA:137:ILE:HD11  | 7:LA:149:LYS:HB2   | 1.80                     | 0.64              |
| 71:SH:114:GLN:HE22 | 84:S2:874:G:H21    | 1.45                     | 0.64              |
| 4:L5:2601:A:N6     | 4:L5:2744:A:OP2    | 2.28                     | 0.64              |
| 26:LU:65:ARG:HG2   | 26:LU:67:LYS:H     | 1.62                     | 0.64              |
| 33:Lb:109:ARG:HA   | 33:Lb:112:ILE:HG12 | 1.80                     | 0.63              |
| 65:Sg:252:THR:HG21 | 65:Sg:257:LYS:HD2  | 1.80                     | 0.63              |
| 4:L5:1704:C:O3'    | 12:LF:46:ARG:NH1   | 2.31                     | 0.63              |
| 42:Lk:54:GLU:OE2   | 42:Lk:58:GLN:NE2   | 2.28                     | 0.63              |
| 56:SQ:19:ALA:HB2   | 56:SQ:75:GLY:HA3   | 1.81                     | 0.63              |
| 51:SD:142:LEU:HD13 | 51:SD:150:MET:HE2  | 1.81                     | 0.63              |
| 61:SZ:99:LEU:HD21  | 61:SZ:102:LYS:HB2  | 1.80                     | 0.63              |
| 68:SC:259:THR:HG23 | 77:SV:16:LYS:HZ3   | 1.63                     | 0.63              |
| 66:SA:89:LYS:HD2   | 66:SA:201:LEU:HG   | 1.80                     | 0.63              |
| 69:SE:153:LEU:O    | 69:SE:174:LYS:NZ   | 2.31                     | 0.63              |
| 84:S2:106:C:H2'    | 84:S2:107:A:H8     | 1.64                     | 0.63              |
| 4:L5:2495:U:H2'    | 4:L5:2496:G:H8     | 1.64                     | 0.63              |
| 16:LJ:146:ARG:HG2  | 16:LJ:147:ARG:HG3  | 1.81                     | 0.63              |
| 51:SD:40:ARG:NH2   | 60:SU:106:ILE:O    | 2.31                     | 0.63              |
| 60:SU:51:LYS:HB3   | 60:SU:90:ASP:HB2   | 1.80                     | 0.63              |
| 48:Lr:26:SER:OG    | 48:Lr:28:GLU:OE1   | 2.16                     | 0.63              |
| 73:SJ:162:ARG:NH1  | 84:S2:582:U:OP1    | 2.30                     | 0.63              |
| 4:L5:327:U:O2'     | 40:Li:30:ARG:NH1   | 2.32                     | 0.63              |
| 4:L5:4281:A:H2'    | 4:L5:4282:A:H2'    | 1.80                     | 0.63              |
| 52:SF:127:ARG:HG2  | 52:SF:136:ARG:HE   | 1.63                     | 0.63              |
| 4:L5:4987:C:OP2    | 8:LB:116:ARG:NH2   | 2.32                     | 0.63              |
| 60:SU:70:CYS:SG    | 84:S2:1491:G:O2'   | 2.55                     | 0.63              |
| 4:L5:170:C:H42     | 4:L5:266:C:H42     | 1.47                     | 0.62              |
| 13:LG:209:SER:HA   | 13:LG:212:LYS:HG3  | 1.81                     | 0.62              |
| 69:SE:79:ASP:HB3   | 69:SE:82:TYR:HB2   | 1.81                     | 0.62              |
| 4:L5:1982:G:N2     | 4:L5:2009:A:O2'    | 2.33                     | 0.62              |
| 4:L5:3946:G:N2     | 4:L5:4067:U:O2     | 2.32                     | 0.62              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 4:L5:4431:PSU:OP2 | 15:LI:3:ARG:NH2    | 2.28                     | 0.62              |
| 7:LA:114:CYS:HB3  | 7:LA:165:VAL:HB    | 1.82                     | 0.62              |
| 42:Lk:26:LYS:HB2  | 42:Lk:69:LEU:HD12  | 1.81                     | 0.62              |
| 69:SE:45:ILE:HG13 | 69:SE:61:VAL:HG11  | 1.80                     | 0.62              |
| 70:SG:22:ARG:HG3  | 70:SG:25:ARG:HH12  | 1.64                     | 0.62              |
| 4:L5:1326:A2M:H2' | 4:L5:1327:C:C6     | 2.33                     | 0.62              |
| 4:L5:2899:C:OP1   | 23:LR:108:ARG:NH2  | 2.30                     | 0.62              |
| 84:S2:1536:G:H2'  | 84:S2:1537:A:C8    | 2.34                     | 0.62              |
| 28:LW:80:ARG:HH22 | 84:S2:167:G:H4'    | 1.64                     | 0.62              |
| 53:SK:85:LEU:HD21 | 53:SK:89:ILE:HB    | 1.80                     | 0.62              |
| 60:SU:80:PHE:HB3  | 63:Sd:52:PHE:HB3   | 1.81                     | 0.62              |
| 79:SX:105:PHE:HD1 | 79:SX:121:LYS:HB3  | 1.65                     | 0.62              |
| 4:L5:4992:G:H2'   | 4:L5:4993:G:C8     | 2.35                     | 0.62              |
| 69:SE:144:ALA:HB3 | 84:S2:121:OMU:HM23 | 1.80                     | 0.62              |
| 84:S2:587:A:H5'   | 84:S2:592:C:H41    | 1.65                     | 0.62              |
| 4:L5:1100:U:O3'   | 4:L5:1167:C:N4     | 2.32                     | 0.62              |
| 4:L5:2362:U:H2'   | 4:L5:2363:A2M:H8   | 1.82                     | 0.62              |
| 65:Sg:213:ASP:OD2 | 65:Sg:215:GLN:NE2  | 2.33                     | 0.62              |
| 84:S2:1825:A:N7   | 85:AT:38:A:H1'     | 2.15                     | 0.62              |
| 4:L5:2758:G:O2'   | 4:L5:2765:A:N3     | 2.30                     | 0.62              |
| 51:SD:8:LYS:HG2   | 60:SU:61:LEU:HD11  | 1.81                     | 0.62              |
| 84:S2:554:A:HO2'  | 84:S2:555:A:H8     | 1.46                     | 0.62              |
| 4:L5:3717:A:H2'   | 4:L5:3718:A2M:H8   | 1.81                     | 0.61              |
| 60:SU:26:SER:HB3  | 60:SU:110:VAL:HA   | 1.82                     | 0.61              |
| 84:S2:1417:C:O2   | 84:S2:1422:G:O6    | 2.18                     | 0.61              |
| 35:Ld:64:ILE:HG23 | 35:Ld:68:LEU:HD23  | 1.82                     | 0.61              |
| 4:L5:2557:G:H1    | 4:L5:2570:U:H3     | 1.47                     | 0.61              |
| 4:L5:4092:G:N7    | 4:L5:4114:C:N4     | 2.46                     | 0.61              |
| 20:LO:180:GLN:NE2 | 20:LO:184:ASN:OD1  | 2.34                     | 0.61              |
| 49:Ls:17:ILE:HD12 | 49:Ls:54:LEU:HD21  | 1.82                     | 0.61              |
| 56:SQ:58:LEU:HB3  | 56:SQ:62:ARG:HD2   | 1.82                     | 0.61              |
| 72:SI:70:GLU:OE2  | 74:SL:21:LYS:NZ    | 2.32                     | 0.61              |
| 85:AT:12:G:H22    | 85:AT:23:U:H3      | 1.48                     | 0.61              |
| 85:AT:37:C:H3'    | 85:AT:38:A:H8      | 1.65                     | 0.61              |
| 16:LJ:141:ILE:HA  | 16:LJ:144:LYS:HD2  | 1.83                     | 0.61              |
| 84:S2:1228:A:H2'  | 84:S2:1229:G:C8    | 2.35                     | 0.61              |
| 12:LF:243:LEU:O   | 12:LF:247:MET:HB2  | 2.00                     | 0.61              |
| 52:SF:84:GLY:O    | 84:S2:1673:U:O2'   | 2.16                     | 0.61              |
| 54:SM:91:LEU:HD12 | 54:SM:106:CYS:HB2  | 1.81                     | 0.61              |
| 80:SY:11:LYS:HB2  | 80:SY:24:VAL:HG12  | 1.83                     | 0.61              |
| 4:L5:1802:A:N3    | 25:LT:130:ARG:NH2  | 2.48                     | 0.61              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 4:L5:4618:OMG:H5'  | 27:LV:15:ARG:HB2   | 1.83                     | 0.61              |
| 52:SF:34:SER:HA    | 62:Sc:55:VAL:HG23  | 1.81                     | 0.61              |
| 64:Sf:108:VAL:HG12 | 64:Sf:114:ILE:HA   | 1.81                     | 0.61              |
| 84:S2:1277:C:H2'   | 84:S2:1278:A:H8    | 1.65                     | 0.61              |
| 84:S2:1422:G:H4'   | 84:S2:1423:C:H3'   | 1.82                     | 0.61              |
| 4:L5:1499:C:OP1    | 22:LQ:150:ARG:NH2  | 2.34                     | 0.61              |
| 8:LB:107:ALA:HB2   | 8:LB:201:LEU:HD22  | 1.81                     | 0.61              |
| 19:LN:155:VAL:O    | 19:LN:162:ARG:NH2  | 2.33                     | 0.61              |
| 73:SJ:40:LYS:NZ    | 84:S2:641:A:OP1    | 2.31                     | 0.61              |
| 85:AT:26:C:H2'     | 85:AT:27:G:H8      | 1.66                     | 0.61              |
| 4:L5:3811:G:O2'    | 4:L5:3814:U:OP2    | 2.18                     | 0.61              |
| 51:SD:99:ILE:HG23  | 51:SD:173:ARG:HH21 | 1.63                     | 0.61              |
| 74:SL:85:THR:HG21  | 84:S2:373:G:H4'    | 1.83                     | 0.61              |
| 86:CF:30:LYS:HE3   | 86:CF:201:MET:HB3  | 1.82                     | 0.61              |
| 4:L5:4088:C:OP1    | 7:LA:37:ARG:NH1    | 2.34                     | 0.60              |
| 57:SR:109:LEU:HD13 | 66:SA:52:LYS:HB2   | 1.83                     | 0.60              |
| 61:SZ:58:LEU:HD12  | 61:SZ:62:VAL:HG21  | 1.83                     | 0.60              |
| 72:SI:88:ASN:OD1   | 72:SI:205:ARG:NH2  | 2.34                     | 0.60              |
| 84:S2:838:G:H1     | 84:S2:840:C:HO2'   | 1.47                     | 0.60              |
| 86:CF:110:ASP:OD2  | 86:CF:240:ARG:NH2  | 2.34                     | 0.60              |
| 4:L5:1960:A:C8     | 49:Ls:63:LYS:HE2   | 2.37                     | 0.60              |
| 4:L5:4472:G:O2'    | 44:Lm:100:TYR:O    | 2.20                     | 0.60              |
| 4:L5:1175:A:H2     | 4:L5:1185:G:H22    | 1.49                     | 0.60              |
| 4:L5:4153:C:H5''   | 29:LX:38:LYS:HD2   | 1.83                     | 0.60              |
| 15:LI:87:MET:HG2   | 15:LI:138:ILE:HG12 | 1.82                     | 0.60              |
| 56:SQ:78:VAL:HG12  | 84:S2:1673:U:H5''  | 1.83                     | 0.60              |
| 59:ST:22:LEU:HG    | 59:ST:28:LEU:HD21  | 1.82                     | 0.60              |
| 69:SE:29:PRO:HA    | 84:S2:496:C:H5'    | 1.83                     | 0.60              |
| 86:CF:245:PRO:O    | 86:CF:269:THR:OG1  | 2.19                     | 0.60              |
| 4:L5:1739:G:N3     | 4:L5:1742:A:N6     | 2.49                     | 0.60              |
| 55:SP:130:ARG:HD3  | 55:SP:131:PRO:HD2  | 1.83                     | 0.60              |
| 74:SL:133:PRO:HG2  | 84:S2:383:G:H21    | 1.66                     | 0.60              |
| 53:SK:31:LYS:HZ3   | 53:SK:40:VAL:H     | 1.50                     | 0.60              |
| 63:Sd:54:LYS:NZ    | 84:S2:1482:C:OP1   | 2.35                     | 0.60              |
| 85:AT:10:G:O6      | 85:AT:46:G:N2      | 2.34                     | 0.60              |
| 10:LD:223:PHE:HB3  | 10:LD:226:TYR:HB2  | 1.84                     | 0.60              |
| 53:SK:25:LYS:NZ    | 84:S2:1497:G:N7    | 2.45                     | 0.60              |
| 68:SC:200:ARG:O    | 73:SJ:54:ARG:NH2   | 2.30                     | 0.60              |
| 70:SG:66:GLY:HA2   | 84:S2:1745:A:H1'   | 1.83                     | 0.60              |
| 74:SL:35:ARG:NH2   | 74:SL:55:TYR:O     | 2.35                     | 0.60              |
| 55:SP:48:GLY:O     | 55:SP:50:ARG:NH1   | 2.35                     | 0.60              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 79:SX:107:ARG:HG3  | 79:SX:110:HIS:HB3  | 1.83                     | 0.60              |
| 84:S2:1550:G:H3'   | 84:S2:1579:A:H61   | 1.67                     | 0.60              |
| 85:AT:49:C:H2'     | 85:AT:60:A:H1'     | 1.83                     | 0.60              |
| 4:L5:4076:G:OP1    | 13:LG:73:ARG:NE    | 2.34                     | 0.60              |
| 58:SS:27:ALA:HB2   | 58:SS:52:LEU:HD12  | 1.83                     | 0.60              |
| 66:SA:118:GLU:HG3  | 68:SC:65:LYS:HE2   | 1.83                     | 0.60              |
| 80:SY:21:LYS:HE2   | 80:SY:75:ILE:HD11  | 1.84                     | 0.60              |
| 84:S2:640:A:H2'    | 84:S2:641:A:C8     | 2.37                     | 0.60              |
| 23:LR:39:GLN:OE1   | 23:LR:42:ARG:NH1   | 2.35                     | 0.59              |
| 85:AT:24:C:H2'     | 85:AT:25:A:C8      | 2.37                     | 0.59              |
| 4:L5:1396:G:N7     | 32:La:110:LYS:NZ   | 2.48                     | 0.59              |
| 4:L5:2658:G:N2     | 4:L5:2676:A:OP2    | 2.34                     | 0.59              |
| 30:LY:67:ILE:O     | 30:LY:84:ARG:NH2   | 2.34                     | 0.59              |
| 46:Lo:2:VAL:N      | 46:Lo:90:HIS:O     | 2.35                     | 0.59              |
| 52:SF:185:SER:H    | 52:SF:190:ILE:HD11 | 1.68                     | 0.59              |
| 54:SM:63:LYS:HD3   | 54:SM:64:LEU:HD22  | 1.84                     | 0.59              |
| 58:SS:130:ARG:NH2  | 84:S2:1230:C:OP1   | 2.35                     | 0.59              |
| 4:L5:3688:U:OP2    | 7:LA:198:ARG:NH2   | 2.36                     | 0.59              |
| 72:SI:150:ASP:HA   | 72:SI:153:LYS:HG2  | 1.84                     | 0.59              |
| 84:S2:874:G:H2'    | 84:S2:875:A:H8     | 1.67                     | 0.59              |
| 86:CF:8:ILE:HG12   | 86:CF:85:TYR:HE2   | 1.67                     | 0.59              |
| 86:CF:26:HIS:HE1   | 86:CF:198:GLY:HA3  | 1.67                     | 0.59              |
| 4:L5:1366:G:H5''   | 17:LL:36:ARG:HH12  | 1.67                     | 0.59              |
| 4:L5:3868:G:H22    | 4:L5:3900:G:H1'    | 1.66                     | 0.59              |
| 4:L5:4594:U:H2'    | 4:L5:4595:G:H8     | 1.67                     | 0.59              |
| 28:LW:5:LEU:HD12   | 28:LW:30:GLN:NE2   | 2.18                     | 0.59              |
| 64:Sf:144:CYS:HB2  | 64:Sf:146:LEU:HD23 | 1.84                     | 0.59              |
| 80:SY:34:THR:O     | 84:S2:570:C:O2'    | 2.19                     | 0.59              |
| 86:CF:22:THR:HG23  | 86:CF:56:TYR:HB2   | 1.83                     | 0.59              |
| 18:LM:100:ARG:HA   | 18:LM:103:LYS:HG2  | 1.84                     | 0.59              |
| 4:L5:497:G:N2      | 4:L5:498:C:H41     | 2.01                     | 0.59              |
| 4:L5:500:G:OP1     | 4:L5:504:G:N2      | 2.36                     | 0.59              |
| 4:L5:513:U:N3      | 4:L5:516:C:OP2     | 2.32                     | 0.59              |
| 4:L5:1703:C:O2'    | 4:L5:1704:C:O4'    | 2.21                     | 0.59              |
| 45:Ln:1:MET:HG3    | 84:S2:1706:G:H5'   | 1.84                     | 0.59              |
| 69:SE:49:ARG:NH2   | 84:S2:496:C:OP1    | 2.33                     | 0.59              |
| 84:S2:165:G:OP2    | 84:S2:165:G:N2     | 2.29                     | 0.59              |
| 4:L5:919:C:OP1     | 18:LM:69:HIS:ND1   | 2.21                     | 0.59              |
| 65:Sg:206:LEU:HD12 | 65:Sg:218:LEU:HD12 | 1.84                     | 0.59              |
| 68:SC:267:GLN:OE1  | 77:SV:35:ASN:ND2   | 2.36                     | 0.59              |
| 86:CF:361:LEU:HD13 | 86:CF:370:CYS:HB2  | 1.83                     | 0.59              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 71:SH:7:LYS:HD3    | 71:SH:10:LYS:HB3   | 1.83                     | 0.59              |
| 51:SD:172:VAL:HG22 | 51:SD:185:LYS:HG2  | 1.85                     | 0.59              |
| 84:S2:488:U:OP2    | 86:CF:290:LYS:NZ   | 2.35                     | 0.59              |
| 4:L5:62:A:N3       | 4:L5:77:U:O2'      | 2.32                     | 0.58              |
| 4:L5:659:G:H2'     | 4:L5:660:A:H8      | 1.68                     | 0.58              |
| 44:Lm:79:GLU:OE2   | 44:Lm:81:SER:OG    | 2.19                     | 0.58              |
| 4:L5:2093:A:N3     | 4:L5:2094:G:N1     | 2.51                     | 0.58              |
| 4:L5:2516:G:O2'    | 38:Lg:62:LYS:NZ    | 2.36                     | 0.58              |
| 26:LU:44:GLN:HB2   | 26:LU:56:LEU:HD21  | 1.84                     | 0.58              |
| 28:LW:80:ARG:NH1   | 84:S2:167:G:O2'    | 2.36                     | 0.58              |
| 48:Lr:28:GLU:OE2   | 48:Lr:31:ASN:ND2   | 2.30                     | 0.58              |
| 65:Sg:68:ASP:HB3   | 65:Sg:111:VAL:HG22 | 1.84                     | 0.58              |
| 4:L5:3736:A:H2'    | 4:L5:3737:A:C8     | 2.38                     | 0.58              |
| 10:LD:62:CYS:HB3   | 10:LD:105:LEU:HD22 | 1.84                     | 0.58              |
| 10:LD:64:ILE:HD13  | 10:LD:109:LEU:HD22 | 1.85                     | 0.58              |
| 74:SL:33:LEU:HD12  | 74:SL:34:PRO:HD2   | 1.85                     | 0.58              |
| 76:SO:15:ILE:HG23  | 76:SO:16:SER:H     | 1.68                     | 0.58              |
| 84:S2:1825:A:N6    | 85:AT:38:A:C4      | 2.72                     | 0.58              |
| 4:L5:1339:U:H2'    | 4:L5:1340:OMC:C6   | 2.38                     | 0.58              |
| 8:LB:80:GLU:OE1    | 8:LB:323:TYR:OH    | 2.21                     | 0.58              |
| 41:Lj:14:LYS:NZ    | 43:Ll:51:LEU:OXT   | 2.37                     | 0.58              |
| 86:CF:194:SER:HB3  | 86:CF:199:ASP:HB3  | 1.85                     | 0.58              |
| 86:CF:340:PHE:HB3  | 86:CF:441:VAL:HG23 | 1.85                     | 0.58              |
| 4:L5:1996:C:O3'    | 49:Ls:44:ARG:NH1   | 2.35                     | 0.58              |
| 4:L5:4097:G:O6     | 4:L5:4098:A:N6     | 2.37                     | 0.58              |
| 70:SG:133:LEU:HD12 | 84:S2:65:C:C4      | 2.38                     | 0.58              |
| 70:SG:176:ILE:HG12 | 70:SG:179:LEU:HD11 | 1.85                     | 0.58              |
| 4:L5:184:U:O2'     | 4:L5:189:G:O4'     | 2.22                     | 0.58              |
| 4:L5:2020:U:H2'    | 4:L5:2021:G:H8     | 1.68                     | 0.58              |
| 44:Lm:99:CYS:HB2   | 44:Lm:114:LYS:HE3  | 1.86                     | 0.58              |
| 51:SD:32:ASP:OD1   | 51:SD:57:ASN:ND2   | 2.36                     | 0.58              |
| 59:ST:126:GLN:HB2  | 59:ST:129:ARG:HH21 | 1.68                     | 0.58              |
| 65:Sg:107:ASP:HB2  | 65:Sg:125:ARG:HG3  | 1.86                     | 0.58              |
| 85:AT:14:A:H2'     | 85:AT:15:G:O4'     | 2.04                     | 0.58              |
| 4:L5:1503:A:H62    | 22:LQ:87:THR:HG21  | 1.68                     | 0.58              |
| 8:LB:165:HIS:HB3   | 8:LB:180:LEU:HD23  | 1.86                     | 0.58              |
| 56:SQ:125:ARG:HB2  | 84:S2:1648:G:H5''  | 1.86                     | 0.58              |
| 61:SZ:80:ARG:O     | 84:S2:1598:G:O2'   | 2.19                     | 0.58              |
| 69:SE:146:THR:HG21 | 84:S2:122:G:H21    | 1.67                     | 0.58              |
| 4:L5:4887:C:H42    | 4:L5:4932:U:H3     | 1.50                     | 0.58              |
| 19:LN:164:LEU:O    | 19:LN:169:ARG:NH2  | 2.36                     | 0.58              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 4:L5:1332:C:H2'    | 4:L5:1333:A:H8     | 1.69                     | 0.58              |
| 4:L5:2017:A:O2'    | 4:L5:2018:C:H6     | 1.87                     | 0.58              |
| 4:L5:2017:A:O2'    | 4:L5:2018:C:O5'    | 2.19                     | 0.58              |
| 52:SF:81:ARG:O     | 52:SF:85:LYS:NZ    | 2.32                     | 0.58              |
| 85:AT:21:U:OP1     | 85:AT:49:C:N4      | 2.37                     | 0.58              |
| 4:L5:1961:G:N2     | 4:L5:2024:G:O2'    | 2.37                     | 0.58              |
| 4:L5:4107:G:N2     | 4:L5:4108:G:O6     | 2.34                     | 0.58              |
| 4:L5:5002:U:OP2    | 8:LB:385:LYS:NZ    | 2.37                     | 0.58              |
| 42:Lk:27:LYS:O     | 42:Lk:70:LYS:NZ    | 2.35                     | 0.58              |
| 4:L5:2468:U:O2'    | 4:L5:2506:G:N2     | 2.37                     | 0.57              |
| 4:L5:4873:G:N7     | 20:LO:179:LYS:NZ   | 2.49                     | 0.57              |
| 10:LD:120:GLU:O    | 10:LD:248:ARG:NH1  | 2.36                     | 0.57              |
| 72:SI:22:HIS:HB3   | 84:S2:433:A:H5''   | 1.84                     | 0.57              |
| 85:AT:29:U:H2'     | 85:AT:30:C:O4'     | 2.04                     | 0.57              |
| 11:LE:165:LEU:HD11 | 11:LE:176:THR:HG22 | 1.86                     | 0.57              |
| 40:Li:2:ALA:N      | 40:Li:5:TYR:HH     | 2.02                     | 0.57              |
| 50:Lt:77:ALA:HB3   | 50:Lt:80:LEU:HB2   | 1.86                     | 0.57              |
| 64:Sf:92:LYS:NZ    | 84:S2:1271:C:OP1   | 2.33                     | 0.57              |
| 84:S2:508:A:H3'    | 84:S2:509:OMG:H8   | 1.69                     | 0.57              |
| 84:S2:1228:A:H2'   | 84:S2:1229:G:H8    | 1.69                     | 0.57              |
| 72:SI:106:SER:HB3  | 72:SI:171:LEU:HG   | 1.87                     | 0.57              |
| 84:S2:695:C:N4     | 84:S2:736:C:O2'    | 2.37                     | 0.57              |
| 4:L5:24:G:N7       | 41:Lj:46:LYS:NZ    | 2.51                     | 0.57              |
| 67:SB:99:ASN:OD1   | 67:SB:100:PHE:N    | 2.38                     | 0.57              |
| 70:SG:11:GLY:HA2   | 84:S2:166:A2M:HM'1 | 1.86                     | 0.57              |
| 76:SO:135:ILE:O    | 84:S2:943:U:O2'    | 2.21                     | 0.57              |
| 4:L5:267:G:OP1     | 39:Lh:109:ARG:NH2  | 2.37                     | 0.57              |
| 4:L5:1942:A:H2'    | 4:L5:1943:A:C8     | 2.38                     | 0.57              |
| 4:L5:4537:C:H2'    | 4:L5:4538:G:H8     | 1.68                     | 0.57              |
| 11:LE:161:ARG:NH1  | 11:LE:273:SER:OG   | 2.37                     | 0.57              |
| 20:LO:54:TYR:CD1   | 20:LO:145:VAL:HG21 | 2.38                     | 0.57              |
| 86:CF:241:PRO:HG2  | 86:CF:269:THR:HG22 | 1.87                     | 0.57              |
| 4:L5:966:A:H5''    | 4:L5:2092:G:H22    | 1.68                     | 0.57              |
| 4:L5:2295:C:O2'    | 9:LC:45:ARG:NH2    | 2.38                     | 0.57              |
| 26:LU:28:PRO:HB2   | 26:LU:34:MET:HG3   | 1.86                     | 0.57              |
| 53:SK:8:ARG:NH2    | 84:S2:1314:U:O2'   | 2.37                     | 0.57              |
| 4:L5:935:A:O2'     | 18:LM:44:GLN:O     | 2.23                     | 0.57              |
| 4:L5:1094:G:O6     | 4:L5:1201:U:O2     | 2.22                     | 0.57              |
| 4:L5:2613:C:OP1    | 38:Lg:24:ARG:NH2   | 2.38                     | 0.57              |
| 4:L5:4098:A:H2'    | 4:L5:4099:G:H4'    | 1.86                     | 0.57              |
| 10:LD:41:LYS:NZ    | 25:LT:32:ARG:O     | 2.35                     | 0.57              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 65:Sg:63:SER:HB2   | 84:S2:1398:G:H1'   | 1.86                     | 0.57              |
| 70:SG:92:ARG:O     | 84:S2:453:C:O2'    | 2.21                     | 0.57              |
| 72:SI:133:GLU:HA   | 72:SI:136:ILE:HG12 | 1.86                     | 0.57              |
| 4:L5:4340:U:O2     | 89:L5:5260:SPD:N10 | 2.38                     | 0.57              |
| 4:L5:4413:C:O2     | 15:LI:158:LYS:NZ   | 2.38                     | 0.57              |
| 6:L8:52:A:H5'      | 43:Ll:21:ARG:HD3   | 1.87                     | 0.57              |
| 84:S2:1354:G:N2    | 84:S2:1357:A:OP2   | 2.34                     | 0.57              |
| 53:SK:31:LYS:NZ    | 53:SK:40:VAL:H     | 2.03                     | 0.57              |
| 86:CF:34:ILE:HG23  | 86:CF:78:TRP:HZ2   | 1.68                     | 0.57              |
| 86:CF:178:ILE:HG12 | 86:CF:183:TYR:HB2  | 1.86                     | 0.57              |
| 86:CF:350:PRO:O    | 86:CF:395:LYS:NZ   | 2.38                     | 0.57              |
| 4:L5:1992:U:H4'    | 4:L5:1993:C:H5''   | 1.86                     | 0.57              |
| 9:LC:298:ILE:HD13  | 22:LQ:131:PRO:HB3  | 1.85                     | 0.57              |
| 54:SM:36:ARG:NH1   | 84:S2:1310:U:OP1   | 2.37                     | 0.57              |
| 56:SQ:67:ASP:OD2   | 56:SQ:69:ARG:NH1   | 2.38                     | 0.57              |
| 65:Sg:254:PRO:O    | 65:Sg:272:GLN:NE2  | 2.38                     | 0.57              |
| 4:L5:4725:C:OP1    | 8:LB:103:LYS:NZ    | 2.36                     | 0.56              |
| 49:Ls:68:HIS:O     | 49:Ls:71:ASN:ND2   | 2.38                     | 0.56              |
| 4:L5:1993:C:H2'    | 4:L5:1994:C:C6     | 2.40                     | 0.56              |
| 69:SE:100:ARG:HB2  | 69:SE:114:ILE:HD13 | 1.86                     | 0.56              |
| 4:L5:2083:C:OP2    | 22:LQ:14:ARG:NH2   | 2.32                     | 0.56              |
| 6:L8:62:A:OP1      | 39:Lh:52:LYS:NZ    | 2.35                     | 0.56              |
| 18:LM:71:LYS:O     | 18:LM:75:GLN:HG3   | 2.06                     | 0.56              |
| 23:LR:176:ARG:NH2  | 84:S2:910:G:OP1    | 2.38                     | 0.56              |
| 43:Ll:28:ARG:HA    | 43:Ll:33:ASN:HD22  | 1.70                     | 0.56              |
| 58:SS:5:ILE:N      | 61:SZ:50:PHE:O     | 2.36                     | 0.56              |
| 77:SV:51:LYS:NZ    | 77:SV:76:ASP:OD1   | 2.26                     | 0.56              |
| 79:SX:68:LYS:HB3   | 79:SX:91:LEU:HD13  | 1.86                     | 0.56              |
| 86:CF:135:GLU:OE2  | 86:CF:432:THR:OG1  | 2.23                     | 0.56              |
| 3:Et:33:U:OP1      | 52:SF:135:ARG:NH1  | 2.39                     | 0.56              |
| 4:L5:2460:A:OP2    | 89:LN:301:SPD:N10  | 2.38                     | 0.56              |
| 4:L5:2478:C:N3     | 4:L5:2591:A:O2'    | 2.38                     | 0.56              |
| 5:L7:6:C:O2'       | 10:LD:50:ARG:NH2   | 2.38                     | 0.56              |
| 8:LB:10:ARG:NH2    | 8:LB:265:SER:O     | 2.37                     | 0.56              |
| 8:LB:83:PRO:O      | 8:LB:167:GLN:NE2   | 2.39                     | 0.56              |
| 13:LG:165:GLU:OE2  | 19:LN:26:ARG:NH1   | 2.35                     | 0.56              |
| 18:LM:36:ALA:HB3   | 18:LM:55:MET:HE1   | 1.86                     | 0.56              |
| 20:LO:9:LEU:HD23   | 20:LO:118:MET:HB2  | 1.88                     | 0.56              |
| 21:LP:17:SER:HB2   | 21:LP:98:ALA:HB2   | 1.87                     | 0.56              |
| 68:SC:109:ILE:HD11 | 68:SC:151:ILE:HD11 | 1.86                     | 0.56              |
| 76:SO:134:PRO:HB3  | 84:S2:944:A:H5''   | 1.87                     | 0.56              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 4:L5:4094:G:N2     | 4:L5:4115:G:OP2    | 2.39                     | 0.56              |
| 15:LI:38:ARG:NH1   | 15:LI:45:GLU:OE1   | 2.35                     | 0.56              |
| 60:SU:85:HIS:ND1   | 84:S2:1447:G:OP1   | 2.38                     | 0.56              |
| 84:S2:436:OMG:OP2  | 84:S2:471:G:O2'    | 2.23                     | 0.56              |
| 4:L5:966:A:OP2     | 4:L5:2092:G:N2     | 2.39                     | 0.56              |
| 4:L5:3760:A:N7     | 85:AT:39:C:H5''    | 2.21                     | 0.56              |
| 13:LG:180:PRO:HG3  | 13:LG:219:VAL:HG13 | 1.86                     | 0.56              |
| 52:SF:36:GLN:NE2   | 52:SF:37:ASP:OD1   | 2.39                     | 0.56              |
| 56:SQ:80:GLN:O     | 56:SQ:84:ILE:HG13  | 2.06                     | 0.56              |
| 80:SY:80:ASP:OD1   | 80:SY:81:TYR:N     | 2.39                     | 0.56              |
| 4:L5:1969:G:H4'    | 49:Ls:36:GLY:HA2   | 1.88                     | 0.56              |
| 10:LD:232:THR:OG1  | 10:LD:234:ASP:OD1  | 2.19                     | 0.56              |
| 22:LQ:15:ARG:NH1   | 22:LQ:52:PHE:O     | 2.37                     | 0.56              |
| 70:SG:198:ARG:NH1  | 84:S2:126:G:OP2    | 2.38                     | 0.56              |
| 71:SH:34:SER:OG    | 71:SH:78:ARG:NH2   | 2.37                     | 0.56              |
| 86:CF:191:VAL:HG12 | 86:CF:193:ILE:HG23 | 1.87                     | 0.56              |
| 10:LD:204:VAL:HB   | 10:LD:236:MET:HE1  | 1.87                     | 0.56              |
| 24:LS:161:ARG:HD2  | 24:LS:164:LYS:HB2  | 1.87                     | 0.56              |
| 38:Lg:45:ALA:HB3   | 38:Lg:82:MET:HE2   | 1.88                     | 0.56              |
| 46:Lo:33:LEU:HA    | 46:Lo:38:LYS:HG2   | 1.88                     | 0.56              |
| 64:Sf:97:LYS:NZ    | 84:S2:1289:U:OP2   | 2.37                     | 0.56              |
| 80:SY:105:LYS:NZ   | 84:S2:507:G:O6     | 2.35                     | 0.56              |
| 4:L5:3611:A:H2     | 4:L5:5016:A:H8     | 1.52                     | 0.56              |
| 4:L5:5023:C:OP2    | 72:SI:124:LYS:NZ   | 2.39                     | 0.56              |
| 63:Sd:19:ARG:NH2   | 84:S2:1661:A:OP1   | 2.38                     | 0.56              |
| 65:Sg:129:ILE:HB   | 65:Sg:142:VAL:HB   | 1.87                     | 0.56              |
| 4:L5:137:G:H2'     | 4:L5:138:G:H8      | 1.71                     | 0.56              |
| 4:L5:1281:G:N1     | 11:LE:128:HIS:HB2  | 2.21                     | 0.56              |
| 4:L5:1914:C:H4'    | 20:LO:89:PRO:HD3   | 1.87                     | 0.56              |
| 4:L5:2318:G:N2     | 4:L5:2321:G:OP2    | 2.33                     | 0.56              |
| 8:LB:17:LEU:O      | 8:LB:19:ARG:N      | 2.38                     | 0.56              |
| 50:Lt:50:THR:OG1   | 50:Lt:72:GLU:OE1   | 2.23                     | 0.56              |
| 74:SL:103:GLU:HG3  | 79:SX:11:ARG:HB2   | 1.86                     | 0.56              |
| 2:Pt:18:G:O2'      | 2:Pt:57:G:N2       | 2.30                     | 0.55              |
| 4:L5:1328:G:O2'    | 4:L5:2349:A:OP1    | 2.24                     | 0.55              |
| 4:L5:2007:G:H21    | 4:L5:2012:A:N6     | 2.00                     | 0.55              |
| 35:Ld:22:THR:HG23  | 35:Ld:122:VAL:HG13 | 1.87                     | 0.55              |
| 56:SQ:100:VAL:HG22 | 56:SQ:101:ASP:H    | 1.71                     | 0.55              |
| 71:SH:12:ASN:ND2   | 71:SH:14:GLU:OE2   | 2.40                     | 0.55              |
| 75:SN:55:ARG:HD3   | 84:S2:1017:U:H5'   | 1.89                     | 0.55              |
| 76:SO:34:PHE:HB3   | 76:SO:41:PHE:HB2   | 1.88                     | 0.55              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 84:S2:1226:G:N1    | 84:S2:1639:G7M:OP2 | 2.30                     | 0.55              |
| 86:CF:293:GLU:HG2  | 86:CF:298:ALA:HA   | 1.89                     | 0.55              |
| 2:Pt:50:U:O2       | 2:Pt:64:G:N2       | 2.29                     | 0.55              |
| 4:L5:4279:A:H5'    | 4:L5:4281:A:H1'    | 1.87                     | 0.55              |
| 15:LI:85:PHE:HE2   | 15:LI:87:MET:HE2   | 1.69                     | 0.55              |
| 50:Lt:117:ARG:HE   | 50:Lt:119:ARG:H    | 1.52                     | 0.55              |
| 86:CF:428:ASP:HB3  | 86:CF:433:VAL:HG11 | 1.88                     | 0.55              |
| 4:L5:184:U:H3      | 4:L5:253:G:H1      | 1.55                     | 0.55              |
| 4:L5:1759:G:H1     | 4:L5:1773:U:H3     | 1.54                     | 0.55              |
| 4:L5:2407:G:O6     | 43:Lt:2:SER:N      | 2.39                     | 0.55              |
| 4:L5:4220:6MZ:H5'2 | 4:L5:4221:C:P      | 2.46                     | 0.55              |
| 15:LI:152:LEU:HB3  | 15:LI:165:ILE:HD12 | 1.88                     | 0.55              |
| 84:S2:543:C:H3'    | 84:S2:544:G:H8     | 1.71                     | 0.55              |
| 84:S2:888:U:H4'    | 84:S2:889:U:H5'    | 1.88                     | 0.55              |
| 4:L5:1100:U:O4     | 4:L5:1194:G:O6     | 2.24                     | 0.55              |
| 4:L5:3717:A:H2'    | 4:L5:3718:A2M:C8   | 2.36                     | 0.55              |
| 22:LQ:99:LYS:HZ2   | 22:LQ:121:LEU:HD11 | 1.72                     | 0.55              |
| 69:SE:151:ASP:HA   | 70:SG:212:LEU:HD21 | 1.88                     | 0.55              |
| 1:CI:50:MET:HG3    | 26:LU:114:TYR:CD2  | 2.42                     | 0.55              |
| 4:L5:4163:U:OP2    | 13:LG:53:ARG:NH2   | 2.40                     | 0.55              |
| 7:LA:229:ALA:HB3   | 7:LA:234:LYS:HB3   | 1.87                     | 0.55              |
| 52:SF:171:GLU:OE2  | 61:SZ:106:GLN:NE2  | 2.36                     | 0.55              |
| 58:SS:48:ALA:O     | 58:SS:66:ARG:NH2   | 2.40                     | 0.55              |
| 84:S2:1513:C:H2'   | 84:S2:1514:G:H8    | 1.71                     | 0.55              |
| 4:L5:1591:U:OP2    | 4:L5:2856:C:O2'    | 2.18                     | 0.55              |
| 4:L5:4098:A:N1     | 4:L5:4112:C:N4     | 2.54                     | 0.55              |
| 4:L5:4617:G:OP2    | 8:LB:358:ARG:NH2   | 2.39                     | 0.55              |
| 32:La:87:ARG:HG3   | 32:La:120:GLN:HE22 | 1.72                     | 0.55              |
| 60:SU:48:LEU:HG    | 60:SU:93:SER:HB3   | 1.88                     | 0.55              |
| 63:Sd:17:GLY:O     | 63:Sd:27:ARG:NH1   | 2.40                     | 0.55              |
| 77:SV:42:VAL:HG23  | 77:SV:43:THR:HG23  | 1.88                     | 0.55              |
| 85:AT:4:U:H2'      | 85:AT:5:C:C6       | 2.42                     | 0.55              |
| 4:L5:121:A:OP1     | 13:LG:110:LYS:NZ   | 2.31                     | 0.55              |
| 4:L5:2745:A:H2'    | 4:L5:2746:A:C8     | 2.42                     | 0.55              |
| 7:LA:101:VAL:HG22  | 7:LA:165:VAL:HG22  | 1.88                     | 0.55              |
| 8:LB:219:VAL:HG11  | 8:LB:337:VAL:HG13  | 1.88                     | 0.55              |
| 26:LU:23:LEU:HD23  | 26:LU:110:TYR:HB2  | 1.89                     | 0.55              |
| 50:Lt:114:ARG:NH2  | 50:Lt:126:SER:OG   | 2.40                     | 0.55              |
| 71:SH:111:LYS:HE3  | 84:S2:796:G:H21    | 1.72                     | 0.55              |
| 86:CF:175:SER:HA   | 86:CF:178:ILE:HG22 | 1.87                     | 0.55              |
| 4:L5:261:G:H2'     | 4:L5:262:G:C8      | 2.42                     | 0.55              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 4:L5:1726:U:H5'    | 12:LF:135:ILE:HD11 | 1.89                     | 0.55              |
| 9:LC:262:GLU:HB3   | 9:LC:273:LEU:HD13  | 1.89                     | 0.55              |
| 24:LS:173:ASN:ND2  | 24:LS:175:PHE:O    | 2.40                     | 0.55              |
| 56:SQ:4:LYS:HE3    | 84:S2:1423:C:H41   | 1.72                     | 0.55              |
| 65:Sg:89:LEU:HB3   | 65:Sg:99:ARG:HB3   | 1.88                     | 0.55              |
| 72:SI:91:VAL:HG11  | 72:SI:205:ARG:HH12 | 1.72                     | 0.55              |
| 72:SI:143:LYS:NZ   | 84:S2:202:G:OP1    | 2.40                     | 0.55              |
| 76:SO:33:ILE:HB    | 76:SO:97:LEU:HD23  | 1.89                     | 0.55              |
| 4:L5:1734:G:N2     | 4:L5:1735:U:O4     | 2.33                     | 0.55              |
| 17:LL:91:ALA:HB1   | 17:LL:96:ILE:HB    | 1.89                     | 0.55              |
| 28:LW:105:ARG:NH2  | 70:SG:149:LYS:O    | 2.40                     | 0.55              |
| 54:SM:96:ARG:NH2   | 54:SM:100:PRO:O    | 2.40                     | 0.55              |
| 66:SA:22:GLY:O     | 66:SA:24:HIS:ND1   | 2.39                     | 0.55              |
| 68:SC:72:ASP:OD2   | 68:SC:272:HIS:NE2  | 2.39                     | 0.55              |
| 84:S2:795:A:H2'    | 84:S2:796:G:C8     | 2.42                     | 0.55              |
| 84:S2:1203:G:H2'   | 84:S2:1204:A:C8    | 2.41                     | 0.55              |
| 4:L5:109:G:OP2     | 17:LL:74:ARG:NH2   | 2.35                     | 0.55              |
| 4:L5:2845:A:H61    | 4:L5:3843:C:H42    | 1.53                     | 0.55              |
| 58:SS:36:VAL:HG21  | 58:SS:71:MET:HE3   | 1.89                     | 0.55              |
| 84:S2:553:U:O4     | 84:S2:554:A:N6     | 2.39                     | 0.55              |
| 7:LA:118:GLU:OE2   | 7:LA:156:LYS:NZ    | 2.40                     | 0.54              |
| 10:LD:260:GLU:OE1  | 10:LD:260:GLU:O    | 2.25                     | 0.54              |
| 34:Lc:99:PRO:HG3   | 34:Lc:104:ILE:HB   | 1.89                     | 0.54              |
| 56:SQ:130:LYS:NZ   | 56:SQ:131:LYS:O    | 2.40                     | 0.54              |
| 67:SB:144:LYS:HD3  | 67:SB:208:HIS:HB3  | 1.88                     | 0.54              |
| 84:S2:981:A:H2'    | 84:S2:982:G:C8     | 2.42                     | 0.54              |
| 4:L5:305:A:OP2     | 19:LN:15:GLN:NE2   | 2.36                     | 0.54              |
| 4:L5:1756:U:O2'    | 4:L5:1758:G:OP2    | 2.24                     | 0.54              |
| 4:L5:2745:A:H2'    | 4:L5:2746:A:H8     | 1.73                     | 0.54              |
| 4:L5:3910:C:H2'    | 4:L5:3911:C:C6     | 2.42                     | 0.54              |
| 4:L5:4537:C:H2'    | 4:L5:4538:G:C8     | 2.41                     | 0.54              |
| 7:LA:108:PRO:HB2   | 47:Lp:86:LEU:HD23  | 1.89                     | 0.54              |
| 30:LY:4:ASN:HB3    | 30:LY:7:VAL:HG22   | 1.88                     | 0.54              |
| 31:LZ:46:ILE:HA    | 31:LZ:70:SER:HA    | 1.88                     | 0.54              |
| 49:Ls:110:ALA:HA   | 49:Ls:182:PRO:HG2  | 1.89                     | 0.54              |
| 52:SF:40:ALA:HB3   | 52:SF:67:PRO:HA    | 1.88                     | 0.54              |
| 56:SQ:3:SER:OG     | 56:SQ:4:LYS:N      | 2.40                     | 0.54              |
| 59:ST:65:TYR:HE1   | 59:ST:128:GLN:HG3  | 1.72                     | 0.54              |
| 65:Sg:258:ILE:HG23 | 65:Sg:267:VAL:HG23 | 1.89                     | 0.54              |
| 66:SA:126:ASP:OD1  | 66:SA:165:ASN:ND2  | 2.39                     | 0.54              |
| 71:SH:31:GLU:HA    | 71:SH:37:LYS:HG3   | 1.89                     | 0.54              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 82:Sb:20:LYS:NZ   | 84:S2:1016:U:OP2  | 2.39                     | 0.54              |
| 84:S2:889:U:OP2   | 84:S2:896:U:N3    | 2.40                     | 0.54              |
| 4:L5:4571:A2M:H2' | 4:L5:4572:U:H6    | 1.72                     | 0.54              |
| 59:ST:62:ARG:NH2  | 84:S2:1543:U:OP2  | 2.35                     | 0.54              |
| 80:SY:39:GLU:HA   | 80:SY:42:GLU:CD   | 2.32                     | 0.54              |
| 84:S2:17:C:H2'    | 84:S2:18:C:C6     | 2.42                     | 0.54              |
| 4:L5:702:U:H2'    | 4:L5:703:G:O4'    | 2.07                     | 0.54              |
| 4:L5:1333:A:H2'   | 4:L5:1334:A:C8    | 2.42                     | 0.54              |
| 4:L5:4363:A:H5''  | 46:Lo:36:GLN:HG2  | 1.88                     | 0.54              |
| 38:Lg:44:SER:OG   | 38:Lg:46:CYS:SG   | 2.65                     | 0.54              |
| 55:SP:31:GLU:HA   | 55:SP:34:MET:HE2  | 1.88                     | 0.54              |
| 62:Sc:37:ASP:OD1  | 62:Sc:39:SER:OG   | 2.26                     | 0.54              |
| 66:SA:18:PHE:HD1  | 66:SA:23:THR:HG21 | 1.71                     | 0.54              |
| 4:L5:88:A:N7      | 22:LQ:173:LYS:NZ  | 2.55                     | 0.54              |
| 4:L5:729:G:H5''   | 12:LF:76:ARG:HD2  | 1.90                     | 0.54              |
| 4:L5:2495:U:H2'   | 4:L5:2496:G:C8    | 2.42                     | 0.54              |
| 17:LL:64:VAL:HA   | 17:LL:67:HIS:CD2  | 2.31                     | 0.54              |
| 34:Lc:38:ILE:HD11 | 34:Lc:46:VAL:HG21 | 1.90                     | 0.54              |
| 50:Lt:82:ILE:HG12 | 50:Lt:137:GLN:HG2 | 1.89                     | 0.54              |
| 53:SK:27:VAL:HB   | 53:SK:43:LEU:HD12 | 1.89                     | 0.54              |
| 59:ST:2:PRO:HD2   | 84:S2:1419:C:H42  | 1.72                     | 0.54              |
| 60:SU:68:THR:O    | 63:Sd:40:ARG:NH1  | 2.40                     | 0.54              |
| 2:Pt:20(A):U:O4'  | 16:LJ:58:ARG:NH2  | 2.41                     | 0.54              |
| 3:Et:28:C:H2'     | 3:Et:29:A:H8      | 1.73                     | 0.54              |
| 4:L5:502:C:H3'    | 4:L5:503:C:H3'    | 1.89                     | 0.54              |
| 6:L8:58:G:N7      | 41:Lj:63:ARG:NH2  | 2.44                     | 0.54              |
| 13:LG:57:TRP:O    | 13:LG:62:ARG:NH1  | 2.41                     | 0.54              |
| 39:Lh:80:PRO:HD2  | 39:Lh:83:LEU:HD12 | 1.89                     | 0.54              |
| 42:Lk:24:LYS:HD3  | 42:Lk:69:LEU:HD21 | 1.90                     | 0.54              |
| 66:SA:77:ILE:HG13 | 66:SA:99:ILE:HB   | 1.88                     | 0.54              |
| 84:S2:851:C:H5''  | 84:S2:852:G:H5'   | 1.89                     | 0.54              |
| 84:S2:1013:U:OP1  | 84:S2:1129:G:O2'  | 2.25                     | 0.54              |
| 4:L5:223:G:OP2    | 9:LC:165:LYS:NZ   | 2.40                     | 0.54              |
| 4:L5:691:C:H2'    | 4:L5:692:A:C8     | 2.42                     | 0.54              |
| 4:L5:1837:A:OP2   | 25:LT:130:ARG:NH1 | 2.37                     | 0.54              |
| 4:L5:1933:G:H2'   | 4:L5:1934:A:C8    | 2.43                     | 0.54              |
| 75:SN:66:VAL:HG13 | 75:SN:67:THR:HG23 | 1.89                     | 0.54              |
| 4:L5:907:C:H2'    | 4:L5:908:G:H8     | 1.73                     | 0.54              |
| 21:LP:118:GLN:OE1 | 21:LP:120:ASN:ND2 | 2.41                     | 0.54              |
| 57:SR:16:ILE:HD11 | 57:SR:54:VAL:HG21 | 1.89                     | 0.54              |
| 84:S2:942:G:H2'   | 84:S2:943:U:C6    | 2.43                     | 0.54              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 86:CF:360:VAL:HA   | 86:CF:369:ALA:HA   | 1.88                     | 0.54              |
| 1:CI:50:MET:HG3    | 26:LU:114:TYR:CE2  | 2.42                     | 0.54              |
| 4:L5:497:G:H21     | 4:L5:498:C:H41     | 1.55                     | 0.54              |
| 4:L5:654:C:H2'     | 4:L5:655:C:C6      | 2.43                     | 0.54              |
| 18:LM:119:ARG:HG3  | 20:LO:189:ILE:HG23 | 1.89                     | 0.54              |
| 21:LP:116:HIS:HB3  | 21:LP:149:ILE:HB   | 1.88                     | 0.54              |
| 58:SS:109:GLU:HA   | 58:SS:112:GLU:HG2  | 1.90                     | 0.54              |
| 59:ST:121:ARG:HH21 | 84:S2:1563:G:H5''  | 1.72                     | 0.54              |
| 79:SX:70:VAL:HG11  | 79:SX:94:ILE:HG21  | 1.88                     | 0.54              |
| 83:Se:58:ASN:ND2   | 84:S2:608:C:O4'    | 2.40                     | 0.54              |
| 1:CI:79:ARG:HH22   | 4:L5:2708:U:H1'    | 1.72                     | 0.54              |
| 4:L5:4260:U:H2'    | 4:L5:4261:C:C6     | 2.43                     | 0.54              |
| 4:L5:4717:A:OP2    | 8:LB:30:LYS:NZ     | 2.30                     | 0.54              |
| 4:L5:4967:A:H2'    | 4:L5:4968:A:C8     | 2.42                     | 0.54              |
| 16:LJ:84:GLU:OE2   | 16:LJ:92:TYR:OH    | 2.25                     | 0.54              |
| 52:SF:39:ILE:HG23  | 52:SF:68:ILE:HD13  | 1.89                     | 0.54              |
| 61:SZ:106:GLN:HG3  | 61:SZ:108:ILE:HD11 | 1.88                     | 0.54              |
| 64:Sf:110:GLU:HG2  | 64:Sf:113:LYS:HD3  | 1.90                     | 0.54              |
| 69:SE:125:LYS:O    | 69:SE:142:HIS:N    | 2.40                     | 0.54              |
| 84:S2:928:G:H1     | 84:S2:1013:U:H3    | 1.56                     | 0.54              |
| 37:Lf:43:LEU:O     | 37:Lf:109:ARG:NH2  | 2.41                     | 0.53              |
| 65:Sg:8:ARG:HB3    | 65:Sg:309:VAL:HG13 | 1.90                     | 0.53              |
| 70:SG:7:PHE:HD1    | 70:SG:113:ILE:HB   | 1.73                     | 0.53              |
| 74:SL:128:VAL:HG12 | 74:SL:142:VAL:HA   | 1.89                     | 0.53              |
| 82:Sb:62:VAL:HG23  | 82:Sb:74:THR:HG21  | 1.90                     | 0.53              |
| 30:LY:2:LYS:HD2    | 30:LY:7:VAL:HG23   | 1.88                     | 0.53              |
| 71:SH:10:LYS:NZ    | 71:SH:16:PRO:O     | 2.41                     | 0.53              |
| 84:S2:557:U:H2'    | 84:S2:558:G:C8     | 2.43                     | 0.53              |
| 2:Pt:38:C:O2'      | 84:S2:1058:A:OP1   | 2.26                     | 0.53              |
| 4:L5:4694:G:H4'    | 14:LH:71:ARG:HH12  | 1.73                     | 0.53              |
| 19:LN:146:PRO:HB2  | 39:Lh:104:THR:HG23 | 1.91                     | 0.53              |
| 41:Lj:2:THR:HB     | 41:Lj:6:SER:HB2    | 1.90                     | 0.53              |
| 51:SD:161:GLY:HA3  | 84:S2:1388:A:H61   | 1.74                     | 0.53              |
| 58:SS:88:LYS:H     | 58:SS:95:TYR:HD1   | 1.56                     | 0.53              |
| 65:Sg:18:VAL:O     | 65:Sg:287:THR:OG1  | 2.27                     | 0.53              |
| 66:SA:37:TYR:OH    | 66:SA:57:LYS:NZ    | 2.38                     | 0.53              |
| 84:S2:1610:G:O6    | 84:S2:1630:A:N6    | 2.41                     | 0.53              |
| 86:CF:413:GLU:CD   | 86:CF:421:LEU:HD13 | 2.33                     | 0.53              |
| 4:L5:735:G:H5''    | 18:LM:70:GLN:HG3   | 1.90                     | 0.53              |
| 4:L5:1241:C:O2'    | 33:Lb:120:ARG:O    | 2.27                     | 0.53              |
| 4:L5:2486:G:O6     | 4:L5:2493:G:O6     | 2.27                     | 0.53              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 4:L5:4941:G:OP2    | 11:LE:188:ARG:NH2  | 2.33                     | 0.53              |
| 27:LV:92:ASP:O     | 28:LW:2:LYS:NZ     | 2.41                     | 0.53              |
| 52:SF:30:ILE:HG23  | 52:SF:117:ILE:HD11 | 1.90                     | 0.53              |
| 56:SQ:131:LYS:HB2  | 56:SQ:140:ARG:HH22 | 1.74                     | 0.53              |
| 75:SN:70:LYS:NZ    | 84:S2:1020:A:N7    | 2.55                     | 0.53              |
| 78:SW:111:MET:HE1  | 78:SW:119:LYS:HD2  | 1.90                     | 0.53              |
| 84:S2:118:C:H1'    | 84:S2:445:A:C5     | 2.44                     | 0.53              |
| 84:S2:1606:G:N2    | 84:S2:1632:G:H1'   | 2.23                     | 0.53              |
| 85:AT:21:U:C4      | 85:AT:47:G:H1'     | 2.43                     | 0.53              |
| 4:L5:4274:A:H2'    | 4:L5:4275:G:C8     | 2.43                     | 0.53              |
| 51:SD:138:VAL:HG13 | 51:SD:182:LEU:HD21 | 1.91                     | 0.53              |
| 63:Sd:2:GLY:N      | 84:S2:1271:C:O2    | 2.41                     | 0.53              |
| 66:SA:10:MET:HE3   | 66:SA:55:TRP:HB2   | 1.89                     | 0.53              |
| 70:SG:136:LYS:NZ   | 70:SG:175:LYS:O    | 2.33                     | 0.53              |
| 86:CF:7:HIS:CE1    | 86:CF:306:ASP:HA   | 2.44                     | 0.53              |
| 4:L5:364:G:O6      | 41:Lj:55:ARG:NH2   | 2.42                     | 0.53              |
| 4:L5:1994:C:H2'    | 4:L5:1995:G:H8     | 1.73                     | 0.53              |
| 4:L5:4601:U:H2'    | 4:L5:4602:A:H8     | 1.74                     | 0.53              |
| 12:LF:96:ARG:HH12  | 12:LF:224:THR:HG22 | 1.73                     | 0.53              |
| 49:Ls:29:ILE:HG22  | 49:Ls:88:PHE:HD1   | 1.72                     | 0.53              |
| 55:SP:56:LEU:HD22  | 55:SP:80:LEU:HD11  | 1.90                     | 0.53              |
| 68:SC:102:LEU:HD22 | 68:SC:130:ILE:HD12 | 1.89                     | 0.53              |
| 82:Sb:34:ASP:O     | 82:Sb:79:PHE:HA    | 2.08                     | 0.53              |
| 4:L5:4620:OMU:OP2  | 4:L5:4670:C:N4     | 2.34                     | 0.53              |
| 20:LO:54:TYR:OH    | 20:LO:73:PHE:O     | 2.26                     | 0.53              |
| 20:LO:168:TYR:CE2  | 20:LO:172:LYS:HD2  | 2.44                     | 0.53              |
| 20:LO:186:GLU:OE1  | 20:LO:186:GLU:N    | 2.41                     | 0.53              |
| 66:SA:106:GLY:N    | 66:SA:136:GLU:OE2  | 2.34                     | 0.53              |
| 70:SG:13:GLN:NE2   | 84:S2:153:G:N3     | 2.57                     | 0.53              |
| 76:SO:145:GLY:O    | 81:Sa:22:ARG:NH2   | 2.42                     | 0.53              |
| 84:S2:1773:C:H2'   | 84:S2:1774:C:H5''  | 1.91                     | 0.53              |
| 10:LD:156:GLY:HA2  | 10:LD:181:PRO:HG3  | 1.91                     | 0.53              |
| 53:SK:55:ARG:NH1   | 53:SK:78:TYR:OH    | 2.41                     | 0.53              |
| 72:SI:10:LYS:O     | 72:SI:18:ARG:NH1   | 2.41                     | 0.53              |
| 80:SY:119:GLY:HA2  | 84:S2:85:A:H5'     | 1.90                     | 0.53              |
| 4:L5:2756:G:O6     | 31:LZ:51:ARG:NH2   | 2.29                     | 0.53              |
| 48:Lr:38:PHE:O     | 48:Lr:45:HIS:NE2   | 2.32                     | 0.53              |
| 58:SS:15:VAL:HG12  | 58:SS:16:LEU:HG    | 1.91                     | 0.53              |
| 64:Sf:102:VAL:HG22 | 64:Sf:104:LYS:HG2  | 1.90                     | 0.53              |
| 84:S2:455:A:H2'    | 84:S2:456:C:H6     | 1.74                     | 0.53              |
| 84:S2:1581:C:H5'   | 84:S2:1582:C:H5    | 1.74                     | 0.53              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 26:LU:36:ALA:HB1   | 26:LU:70:ILE:HD11  | 1.90                     | 0.53              |
| 28:LW:123:LYS:HD2  | 84:S2:320:G:H5''   | 1.90                     | 0.53              |
| 71:SH:20:GLU:HG2   | 71:SH:48:ALA:HB3   | 1.90                     | 0.53              |
| 74:SL:61:PRO:HG3   | 74:SL:141:ASN:HB3  | 1.91                     | 0.53              |
| 74:SL:133:PRO:O    | 84:S2:383:G:O2'    | 2.25                     | 0.53              |
| 75:SN:64:ARG:NH2   | 84:S2:919:A:OP2    | 2.40                     | 0.53              |
| 84:S2:1130:G:OP2   | 84:S2:1130:G:N2    | 2.32                     | 0.53              |
| 86:CF:272:LEU:HB3  | 86:CF:302:ALA:HB3  | 1.90                     | 0.53              |
| 4:L5:268:G:H2'     | 4:L5:269:G:H8      | 1.74                     | 0.52              |
| 4:L5:3911:C:H2'    | 4:L5:3912:U:H6     | 1.73                     | 0.52              |
| 16:LJ:104:ASN:HD22 | 16:LJ:133:VAL:HG13 | 1.73                     | 0.52              |
| 37:Lf:78:HIS:HB3   | 37:Lf:83:MET:HB3   | 1.91                     | 0.52              |
| 40:Li:55:ARG:O     | 40:Li:59:GLU:HG2   | 2.09                     | 0.52              |
| 56:SQ:42:ILE:HG23  | 56:SQ:44:PRO:HD2   | 1.91                     | 0.52              |
| 59:ST:11:GLN:HB2   | 84:S2:1542:C:H4'   | 1.92                     | 0.52              |
| 60:SU:40:ILE:O     | 60:SU:44:LYS:HG2   | 2.08                     | 0.52              |
| 69:SE:126:VAL:HA   | 69:SE:141:THR:HA   | 1.91                     | 0.52              |
| 78:SW:6:VAL:HG13   | 78:SW:29:PRO:HB2   | 1.90                     | 0.52              |
| 84:S2:367:U:H4'    | 84:S2:371:A:C8     | 2.44                     | 0.52              |
| 86:CF:30:LYS:HE3   | 86:CF:201:MET:CB   | 2.39                     | 0.52              |
| 4:L5:71:C:H1'      | 17:LL:62:PRO:O     | 2.10                     | 0.52              |
| 4:L5:93:G:H2'      | 4:L5:94:A:C8       | 2.45                     | 0.52              |
| 4:L5:1258:G:H2'    | 4:L5:1259:G:C8     | 2.44                     | 0.52              |
| 4:L5:1509:C:H5''   | 32:La:2:PRO:HD3    | 1.91                     | 0.52              |
| 4:L5:3898:G:H5'    | 8:LB:254:ILE:HG13  | 1.91                     | 0.52              |
| 4:L5:4220:6MZ:O5'  | 4:L5:4220:6MZ:H8   | 2.10                     | 0.52              |
| 4:L5:5016:A:C2     | 4:L5:5033:G:N2     | 2.73                     | 0.52              |
| 6:L8:21:C:OP1      | 9:LC:195:LYS:NZ    | 2.40                     | 0.52              |
| 9:LC:293:LEU:O     | 9:LC:299:GLN:NE2   | 2.40                     | 0.52              |
| 30:LY:76:LYS:HE2   | 43:Ll:31:THR:HB    | 1.90                     | 0.52              |
| 68:SC:77:SER:OG    | 68:SC:79:GLU:OE1   | 2.27                     | 0.52              |
| 68:SC:207:ALA:HB2  | 84:S2:4:C:H4'      | 1.92                     | 0.52              |
| 79:SX:48:LYS:HB3   | 79:SX:75:ILE:HD12  | 1.90                     | 0.52              |
| 84:S2:1748:G:O6    | 84:S2:1786:U:O4    | 2.27                     | 0.52              |
| 4:L5:1718:C:O2'    | 12:LF:181:LYS:NZ   | 2.42                     | 0.52              |
| 4:L5:2084:C:O2     | 22:LQ:16:LYS:NZ    | 2.42                     | 0.52              |
| 4:L5:3732:A:H2'    | 4:L5:3733:A:H8     | 1.74                     | 0.52              |
| 8:LB:57:VAL:HG22   | 8:LB:73:VAL:HG22   | 1.91                     | 0.52              |
| 62:Sc:66:ARG:HH12  | 62:Sc:68:LEU:HD23  | 1.74                     | 0.52              |
| 65:Sg:249:CYS:HB3  | 65:Sg:258:ILE:HD13 | 1.91                     | 0.52              |
| 71:SH:165:ASN:O    | 71:SH:169:LYS:NZ   | 2.32                     | 0.52              |

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| Atom-1               | Atom-2                | Interatomic distance (Å) | Clash overlap (Å) |
|----------------------|-----------------------|--------------------------|-------------------|
| 79: SX:139: GLU: HG2 | 86: CF:444: LYS: NZ   | 2.25                     | 0.52              |
| 4: L5:2624: G: OP2   | 26: LU:97: ARG: NH2   | 2.42                     | 0.52              |
| 53: SK:3: MET: HE1   | 53: SK:11: ILE: HD12  | 1.90                     | 0.52              |
| 65: Sg:40: ILE: HB   | 65: Sg:59: LEU: HB2   | 1.91                     | 0.52              |
| 3: Et:32: C: H5'     | 52: SF:134: VAL: HG13 | 1.92                     | 0.52              |
| 4: L5:97: G: OP1     | 17: LL:16: LYS: NZ    | 2.36                     | 0.52              |
| 4: L5:4219: A: H2'   | 4: L5:4220: 6MZ: C8   | 2.40                     | 0.52              |
| 4: L5:4478: G: O2'   | 4: L5:4602: A: N1     | 2.42                     | 0.52              |
| 20: LO:10: ASP: OD2  | 20: LO:37: ARG: NH2   | 2.43                     | 0.52              |
| 56: SQ:89: SER: OG   | 56: SQ:119: LEU: O    | 2.25                     | 0.52              |
| 66: SA:85: ARG: NH1  | 66: SA:203: PHE: O    | 2.41                     | 0.52              |
| 71: SH:51: ILE: HG21 | 71: SH:179: LYS: HG2  | 1.91                     | 0.52              |
| 84: S2:1777: G: H2'  | 84: S2:1778: C: H6    | 1.73                     | 0.52              |
| 4: L5:267: G: H2'    | 4: L5:268: G: H8      | 1.74                     | 0.52              |
| 4: L5:1214: C: N3    | 33: Lb:90: SER: OG    | 2.42                     | 0.52              |
| 28: LW:7: SER: OG    | 28: LW:8: PHE: N      | 2.43                     | 0.52              |
| 54: SM:82: ASN: OD1  | 54: SM:83: LYS: N     | 2.43                     | 0.52              |
| 55: SP:79: HIS: HD2  | 84: S2:1298: G: C4    | 2.28                     | 0.52              |
| 67: SB:32: ASP: OD1  | 67: SB:46: LYS: NZ    | 2.37                     | 0.52              |
| 84: S2:672: A: N6    | 84: S2:1027: A: OP1   | 2.40                     | 0.52              |
| 84: S2:902: G: O2'   | 84: S2:903: A: O4'    | 2.28                     | 0.52              |
| 84: S2:1801: A: H2'  | 84: S2:1802: C: C6    | 2.45                     | 0.52              |
| 4: L5:418: A: C2     | 6: L8:17: A: H1'      | 2.45                     | 0.52              |
| 56: SQ:140: ARG: HB2 | 84: S2:1644: C: H4'   | 1.91                     | 0.52              |
| 67: SB:26: SER: O    | 67: SB:51: ARG: NH2   | 2.43                     | 0.52              |
| 84: S2:525: A: H2'   | 84: S2:526: A: H8     | 1.74                     | 0.52              |
| 84: S2:1588: A: H2'  | 84: S2:1589: A: C8    | 2.45                     | 0.52              |
| 4: L5:303: C: OP2    | 19: LN:68: ARG: NH2   | 2.42                     | 0.52              |
| 33: Lb:102: PRO: O   | 33: Lb:109: ARG: NH2  | 2.42                     | 0.52              |
| 52: SF:60: ARG: HD2  | 84: S2:1679: A: H2'   | 1.92                     | 0.52              |
| 84: S2:28: U: H2'    | 84: S2:29: G: H8      | 1.75                     | 0.52              |
| 84: S2:1405: A: H2'  | 84: S2:1406: G: O4'   | 2.10                     | 0.52              |
| 6: L8:39: G: OP1     | 39: Lh:86: LYS: NZ    | 2.43                     | 0.52              |
| 10: LD:291: GLN: NE2 | 15: LI:213: HIS: O    | 2.33                     | 0.52              |
| 49: Ls:13: TYR: O    | 49: Ls:17: ILE: HG12  | 2.10                     | 0.52              |
| 69: SE:31: PRO: HA   | 69: SE:81: THR: HB    | 1.92                     | 0.52              |
| 82: Sb:11: SER: N    | 82: Sb:14: GLU: OE2   | 2.43                     | 0.52              |
| 4: L5:4967: A: H2'   | 4: L5:4968: A: H8     | 1.74                     | 0.52              |
| 9: LC:218: ILE: HA   | 9: LC:229: LEU: HD22  | 1.91                     | 0.52              |
| 12: LF:41: MET: HE2  | 33: Lb:113: ALA: HB2  | 1.91                     | 0.52              |
| 52: SF:78: MET: HE3  | 84: S2:1222: G: H5''  | 1.91                     | 0.52              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 64:Sf:103:LEU:HB2  | 64:Sf:105:TYR:CE2  | 2.44                     | 0.52              |
| 68:SC:191:VAL:HG11 | 68:SC:236:PHE:HA   | 1.92                     | 0.52              |
| 84:S2:604:A:N3     | 84:S2:639:C:O2'    | 2.40                     | 0.52              |
| 84:S2:1845:A:H2'   | 84:S2:1846:G:C8    | 2.45                     | 0.52              |
| 4:L5:1646:A:O2'    | 41:Lj:49:TRP:O     | 2.23                     | 0.51              |
| 4:L5:2568:C:H2'    | 4:L5:2569:G:H8     | 1.74                     | 0.51              |
| 50:Lt:117:ARG:HG3  | 50:Lt:119:ARG:HG3  | 1.92                     | 0.51              |
| 60:SU:96:GLU:OE1   | 60:SU:99:LYS:N     | 2.36                     | 0.51              |
| 71:SH:162:GLN:HE22 | 71:SH:166:VAL:HB   | 1.74                     | 0.51              |
| 80:SY:108:LYS:NZ   | 84:S2:506:G:OP1    | 2.36                     | 0.51              |
| 81:Sa:41:ILE:HD12  | 81:Sa:68:TYR:HD2   | 1.75                     | 0.51              |
| 66:SA:76:VAL:HG12  | 66:SA:123:VAL:HB   | 1.91                     | 0.51              |
| 70:SG:191:ARG:HH12 | 84:S2:312:G:H2'    | 1.75                     | 0.51              |
| 78:SW:6:VAL:HG12   | 78:SW:34:ILE:HD11  | 1.93                     | 0.51              |
| 84:S2:1010:G:H2'   | 84:S2:1011:A:C8    | 2.45                     | 0.51              |
| 11:LE:223:ARG:HH22 | 11:LE:238:GLU:HG3  | 1.75                     | 0.51              |
| 55:SP:37:TYR:O     | 58:SS:88:LYS:NZ    | 2.43                     | 0.51              |
| 79:SX:124:LYS:NZ   | 84:S2:29:G:OP1     | 2.40                     | 0.51              |
| 84:S2:57:U:OP1     | 84:S2:504:G:O2'    | 2.29                     | 0.51              |
| 4:L5:1268:G:N7     | 33:Lb:111:ARG:NH2  | 2.52                     | 0.51              |
| 4:L5:1270:A:H8     | 4:L5:2106:G:H21    | 1.57                     | 0.51              |
| 4:L5:1961:G:O2'    | 4:L5:2025:A:N6     | 2.44                     | 0.51              |
| 4:L5:3664:G:H2'    | 4:L5:3665:G:H8     | 1.75                     | 0.51              |
| 8:LB:288:GLY:HA3   | 8:LB:330:PHE:CE1   | 2.46                     | 0.51              |
| 11:LE:264:ILE:HD11 | 11:LE:267:LEU:HD22 | 1.93                     | 0.51              |
| 17:LL:7:GLY:O      | 32:La:49:HIS:NE2   | 2.39                     | 0.51              |
| 68:SC:60:TRP:O     | 68:SC:71:LYS:NZ    | 2.37                     | 0.51              |
| 70:SG:20:ASP:HB3   | 70:SG:23:LYS:HB2   | 1.91                     | 0.51              |
| 84:S2:964:A:H2'    | 84:S2:965:U:H6     | 1.76                     | 0.51              |
| 86:CF:294:MET:HE2  | 86:CF:299:LEU:HD21 | 1.92                     | 0.51              |
| 4:L5:173:C:OP1     | 17:LL:129:ARG:NH1  | 2.44                     | 0.51              |
| 4:L5:351:C:OP2     | 9:LC:197:ARG:NH1   | 2.33                     | 0.51              |
| 4:L5:500:G:N2      | 4:L5:504:G:O2'     | 2.37                     | 0.51              |
| 4:L5:5064:G:N2     | 21:LP:75:GLN:HE22  | 2.09                     | 0.51              |
| 74:SL:3:ASP:OD1    | 74:SL:4:ILE:N      | 2.43                     | 0.51              |
| 86:CF:347:LEU:O    | 86:CF:396:SER:OG   | 2.29                     | 0.51              |
| 3:Et:23:A:H2'      | 3:Et:24:G:C8       | 2.45                     | 0.51              |
| 4:L5:308:G:OP2     | 4:L5:308:G:N2      | 2.35                     | 0.51              |
| 4:L5:2809:G:O2'    | 4:L5:4644:G:OP1    | 2.26                     | 0.51              |
| 4:L5:4239:A:H2'    | 4:L5:4240:G:C8     | 2.45                     | 0.51              |
| 4:L5:4612:C:C2     | 14:LH:120:GLU:HB2  | 2.45                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 23:LR:92:LYS:HG2   | 23:LR:96:MET:HE3   | 1.93                     | 0.51              |
| 49:Ls:29:ILE:HG22  | 49:Ls:88:PHE:CD1   | 2.45                     | 0.51              |
| 78:SW:111:MET:HE3  | 78:SW:116:ALA:HA   | 1.93                     | 0.51              |
| 84:S2:17:C:O2'     | 84:S2:1194:A:N1    | 2.38                     | 0.51              |
| 4:L5:1655:C:OP2    | 32:La:26:ARG:NH1   | 2.44                     | 0.51              |
| 4:L5:2517:A:H5'    | 38:Lg:62:LYS:HD3   | 1.92                     | 0.51              |
| 9:LC:141:GLY:O     | 9:LC:204:ARG:NH1   | 2.33                     | 0.51              |
| 50:Lt:85:LEU:HD13  | 50:Lt:109:ILE:HD12 | 1.91                     | 0.51              |
| 67:SB:40:ASN:HD21  | 67:SB:76:ASN:HB2   | 1.76                     | 0.51              |
| 73:SJ:136:ARG:NH1  | 73:SJ:159:PHE:O    | 2.40                     | 0.51              |
| 82:Sb:67:THR:OG1   | 82:Sb:70:LYS:O     | 2.20                     | 0.51              |
| 84:S2:1589:A:N3    | 84:S2:1653:U:O2'   | 2.43                     | 0.51              |
| 4:L5:1332:C:H2'    | 4:L5:1333:A:C8     | 2.45                     | 0.51              |
| 4:L5:1411:C:H2'    | 4:L5:1412:G:C8     | 2.46                     | 0.51              |
| 4:L5:1548:G:O2'    | 4:L5:2812:A:N3     | 2.38                     | 0.51              |
| 4:L5:2492:C:H2'    | 4:L5:2493:G:H8     | 1.76                     | 0.51              |
| 4:L5:3823:G:OP2    | 4:L5:3823:G:N2     | 2.37                     | 0.51              |
| 4:L5:4459:U:H2'    | 4:L5:4460:U:C6     | 2.45                     | 0.51              |
| 16:LJ:22:LEU:HD22  | 16:LJ:128:LEU:HD12 | 1.93                     | 0.51              |
| 52:SF:141:VAL:HG12 | 62:Sc:47:LYS:HG2   | 1.91                     | 0.51              |
| 65:Sg:57:ARG:HE    | 65:Sg:95:GLY:HA3   | 1.76                     | 0.51              |
| 68:SC:85:SER:OG    | 77:SV:25:GLY:O     | 2.28                     | 0.51              |
| 70:SG:3:LEU:HD23   | 70:SG:109:LEU:HB3  | 1.92                     | 0.51              |
| 72:SI:45:THR:HG23  | 72:SI:53:LYS:HG3   | 1.93                     | 0.51              |
| 84:S2:107:A:H2'    | 84:S2:108:G:C8     | 2.46                     | 0.51              |
| 86:CF:185:PRO:HA   | 86:CF:188:VAL:HB   | 1.92                     | 0.51              |
| 4:L5:3760:A:C8     | 85:AT:39:C:H5''    | 2.46                     | 0.51              |
| 63:Sd:12:ARG:NH1   | 84:S2:1513:C:OP1   | 2.31                     | 0.51              |
| 69:SE:204:SER:OG   | 69:SE:205:PHE:N    | 2.39                     | 0.51              |
| 84:S2:145:G:H2'    | 84:S2:146:G:C8     | 2.45                     | 0.51              |
| 84:S2:149:A:H3'    | 84:S2:150:A:H8     | 1.75                     | 0.51              |
| 4:L5:1683:PSU:OP1  | 32:La:44:ASN:ND2   | 2.42                     | 0.51              |
| 4:L5:1867:A:H2'    | 4:L5:1868:A:C8     | 2.46                     | 0.51              |
| 4:L5:3659:G:OP1    | 7:LA:241:ARG:NH1   | 2.44                     | 0.51              |
| 4:L5:4636:PSU:N1   | 35:Ld:79:ASN:OD1   | 2.43                     | 0.51              |
| 9:LC:154:VAL:HG11  | 9:LC:174:LEU:HD11  | 1.93                     | 0.51              |
| 20:LO:197:LYS:NZ   | 20:LO:203:VAL:O    | 2.43                     | 0.51              |
| 53:SK:85:LEU:HD12  | 53:SK:86:PRO:HD2   | 1.92                     | 0.51              |
| 68:SC:196:ILE:HB   | 68:SC:223:TYR:HB2  | 1.92                     | 0.51              |
| 70:SG:190:ARG:NH2  | 84:S2:334:C:OP2    | 2.39                     | 0.51              |
| 4:L5:3707:U:H2'    | 4:L5:3708:C:C6     | 2.46                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 4:L5:3910:C:H2'    | 4:L5:3911:C:H6     | 1.76                     | 0.50              |
| 49:Ls:99:ARG:HG3   | 49:Ls:103:LEU:HD13 | 1.93                     | 0.50              |
| 58:SS:14:ARG:HH11  | 58:SS:19:ASN:HB3   | 1.76                     | 0.50              |
| 86:CF:142:THR:HG23 | 86:CF:435:VAL:HG13 | 1.92                     | 0.50              |
| 1:CI:78:HIS:NE2    | 4:L5:2706:G:C8     | 2.75                     | 0.50              |
| 2:Pt:3:C:H42       | 2:Pt:70:A:H61      | 1.57                     | 0.50              |
| 4:L5:2102:G:H1'    | 4:L5:2103:G:C8     | 2.46                     | 0.50              |
| 4:L5:3796:U:HO2'   | 84:S2:1720:U:HO2'  | 1.53                     | 0.50              |
| 8:LB:378:ARG:HE    | 28:LW:32:LEU:HD21  | 1.75                     | 0.50              |
| 10:LD:182:GLY:HA2  | 10:LD:194:VAL:HG23 | 1.93                     | 0.50              |
| 15:LI:207:ASP:OD1  | 15:LI:210:ARG:NH1  | 2.43                     | 0.50              |
| 16:LJ:38:LYS:HD2   | 16:LJ:123:ILE:HD11 | 1.94                     | 0.50              |
| 61:SZ:41:ARG:HH12  | 61:SZ:44:LEU:HG    | 1.76                     | 0.50              |
| 71:SH:10:LYS:HE3   | 71:SH:17:ASP:HB3   | 1.94                     | 0.50              |
| 80:SY:119:GLY:O    | 84:S2:84:A:O2'     | 2.26                     | 0.50              |
| 4:L5:1070:G:O2'    | 4:L5:1071:C:O5'    | 2.27                     | 0.50              |
| 4:L5:2835:A:O2'    | 8:LB:228:TYR:O     | 2.25                     | 0.50              |
| 11:LE:141:ARG:NH2  | 37:Lf:110:ILE:O    | 2.44                     | 0.50              |
| 84:S2:1033:G:N1    | 84:S2:1080:A:O2'   | 2.39                     | 0.50              |
| 84:S2:1421:A:H5''  | 84:S2:1422:G:H2'   | 1.92                     | 0.50              |
| 4:L5:10:A:H2'      | 4:L5:11:G:C8       | 2.47                     | 0.50              |
| 4:L5:369:G:N2      | 4:L5:372:A:OP2     | 2.40                     | 0.50              |
| 4:L5:1390:G:N2     | 4:L5:1393:G:OP2    | 2.39                     | 0.50              |
| 4:L5:1438:U:H4'    | 12:LF:31:LYS:HE3   | 1.93                     | 0.50              |
| 4:L5:1628:C:OP1    | 7:LA:14:SER:OG     | 2.29                     | 0.50              |
| 20:LO:141:LEU:O    | 20:LO:145:VAL:HG12 | 2.11                     | 0.50              |
| 27:LV:87:SER:OG    | 28:LW:19:ARG:NH1   | 2.44                     | 0.50              |
| 35:Ld:59:THR:OG1   | 35:Ld:104:THR:OG1  | 2.26                     | 0.50              |
| 52:SF:22:LYS:HG3   | 52:SF:23:TRP:CD2   | 2.46                     | 0.50              |
| 4:L5:433:A:C2      | 4:L5:3867:A2M:H4'  | 2.46                     | 0.50              |
| 4:L5:2764:A:H2'    | 4:L5:2765:A:H8     | 1.76                     | 0.50              |
| 4:L5:3641:U:H5     | 4:L5:3646:A:N7     | 2.09                     | 0.50              |
| 4:L5:4457:PSU:H1'  | 8:LB:252:ALA:HB3   | 1.93                     | 0.50              |
| 31:LZ:50:PRO:HD3   | 31:LZ:68:ILE:HG12  | 1.94                     | 0.50              |
| 60:SU:79:ARG:NH2   | 84:S2:1669:G:OP1   | 2.41                     | 0.50              |
| 66:SA:137:ALA:HB1  | 66:SA:142:LEU:HB3  | 1.94                     | 0.50              |
| 72:SI:141:ARG:HD3  | 72:SI:145:ILE:HG21 | 1.93                     | 0.50              |
| 84:S2:49:C:H2'     | 84:S2:472:C:H41    | 1.75                     | 0.50              |
| 84:S2:482:G:N1     | 84:S2:485:A:OP2    | 2.38                     | 0.50              |
| 85:AT:23:U:H2'     | 85:AT:24:C:C6      | 2.46                     | 0.50              |
| 3:Et:9:A:O2'       | 3:Et:45:G:N3       | 2.44                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 4:L5:325:U:H2'     | 4:L5:326:C:C6      | 2.46                     | 0.50              |
| 4:L5:717:U:H2'     | 4:L5:718:C:C6      | 2.46                     | 0.50              |
| 4:L5:1480:C:O2'    | 4:L5:1482:G:OP2    | 2.30                     | 0.50              |
| 4:L5:1802:A:H5''   | 4:L5:1803:G:H5'    | 1.94                     | 0.50              |
| 4:L5:4188:U:H2'    | 4:L5:4189:U:C6     | 2.47                     | 0.50              |
| 17:LL:111:GLN:O    | 17:LL:115:GLN:HG2  | 2.12                     | 0.50              |
| 28:LW:100:VAL:O    | 28:LW:104:GLN:NE2  | 2.45                     | 0.50              |
| 68:SC:78:LEU:HD12  | 68:SC:81:ILE:HD12  | 1.94                     | 0.50              |
| 76:SO:45:THR:HA    | 76:SO:52:THR:HA    | 1.94                     | 0.50              |
| 84:S2:1562:C:H2'   | 84:S2:1563:G:H8    | 1.75                     | 0.50              |
| 4:L5:387:G:O2'     | 4:L5:412:G:N1      | 2.36                     | 0.50              |
| 4:L5:1320:U:O2'    | 4:L5:1891:A:N1     | 2.44                     | 0.50              |
| 4:L5:2018:C:H2'    | 4:L5:2019:C:C6     | 2.47                     | 0.50              |
| 4:L5:2539:C:H2'    | 4:L5:2540:C:C6     | 2.47                     | 0.50              |
| 4:L5:3720:G:H22    | 4:L5:3733:A:H2     | 1.58                     | 0.50              |
| 4:L5:4347:G:H2'    | 4:L5:4348:A:C8     | 2.46                     | 0.50              |
| 12:LF:171:ASP:OD1  | 12:LF:172:ASN:N    | 2.45                     | 0.50              |
| 24:LS:27:LEU:HB3   | 25:LT:148:PRO:HB3  | 1.93                     | 0.50              |
| 28:LW:2:LYS:HE3    | 28:LW:15:PRO:HB3   | 1.93                     | 0.50              |
| 65:Sg:239:LEU:HD11 | 65:Sg:248:LEU:HD21 | 1.94                     | 0.50              |
| 68:SC:121:ARG:NH1  | 68:SC:123:ARG:HE   | 2.10                     | 0.50              |
| 68:SC:183:LYS:HA   | 68:SC:195:LEU:O    | 2.11                     | 0.50              |
| 70:SG:135:PRO:HA   | 84:S2:169:U:H5''   | 1.93                     | 0.50              |
| 85:AT:51:U:H2'     | 85:AT:52:C:C6      | 2.47                     | 0.50              |
| 4:L5:1503:A:H4'    | 4:L5:1504:G:H5'    | 1.94                     | 0.50              |
| 4:L5:1743:A:N1     | 4:L5:1789:C:O2'    | 2.42                     | 0.50              |
| 4:L5:3619:G:H22    | 4:L5:3624:A:H1'    | 1.75                     | 0.50              |
| 4:L5:4591:U:H2'    | 4:L5:4592:C:C6     | 2.47                     | 0.50              |
| 4:L5:4633:G:N2     | 4:L5:4664:A:N7     | 2.59                     | 0.50              |
| 4:L5:4699:U:H1'    | 4:L5:4700:A:H5''   | 1.93                     | 0.50              |
| 8:LB:147:GLU:OE2   | 8:LB:198:ARG:NH2   | 2.32                     | 0.50              |
| 14:LH:107:GLU:N    | 14:LH:107:GLU:OE1  | 2.45                     | 0.50              |
| 78:SW:44:HIS:NE2   | 78:SW:112:ASP:OD2  | 2.41                     | 0.50              |
| 80:SY:51:THR:OG1   | 80:SY:53:ASP:OD1   | 2.23                     | 0.50              |
| 84:S2:1277:C:H2'   | 84:S2:1278:A:C8    | 2.46                     | 0.50              |
| 86:CF:248:LEU:HB2  | 86:CF:326:ALA:HB3  | 1.94                     | 0.50              |
| 4:L5:4896:G:H2'    | 4:L5:4897:G:C8     | 2.47                     | 0.50              |
| 23:LR:127:VAL:HG12 | 23:LR:132:PHE:HD2  | 1.76                     | 0.50              |
| 58:SS:46:ARG:NH1   | 59:ST:50:GLU:OE2   | 2.45                     | 0.50              |
| 69:SE:247:THR:N    | 69:SE:250:GLU:OE2  | 2.41                     | 0.50              |
| 73:SJ:38:ARG:N     | 73:SJ:42:GLU:OE2   | 2.30                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 84:S2:455:A:H2'    | 84:S2:456:C:C6     | 2.46                     | 0.50              |
| 4:L5:4225:G:OP1    | 15:LI:24:ARG:NH2   | 2.37                     | 0.49              |
| 8:LB:50:LYS:HB2    | 8:LB:345:LEU:HD11  | 1.94                     | 0.49              |
| 58:SS:28:PHE:O     | 58:SS:31:THR:OG1   | 2.26                     | 0.49              |
| 66:SA:184:ARG:HE   | 66:SA:191:ARG:HA   | 1.77                     | 0.49              |
| 67:SB:167:LYS:O    | 67:SB:171:ILE:HG12 | 2.11                     | 0.49              |
| 84:S2:1288:OMU:HN3 | 84:S2:1311:C:H42   | 1.60                     | 0.49              |
| 86:CF:282:PRO:HG2  | 86:CF:324:ASN:HD22 | 1.75                     | 0.49              |
| 4:L5:1307:A:H2'    | 4:L5:1308:C:C6     | 2.47                     | 0.49              |
| 4:L5:1617:G:H1'    | 4:L5:2513:A:N6     | 2.26                     | 0.49              |
| 4:L5:2577:C:OP1    | 31:LZ:111:ARG:NH2  | 2.45                     | 0.49              |
| 4:L5:3697:U:H5''   | 4:L5:3698:G:H5'    | 1.93                     | 0.49              |
| 4:L5:4966:A:H5''   | 8:LB:128:LYS:HG3   | 1.93                     | 0.49              |
| 7:LA:181:LYS:HB2   | 7:LA:184:ARG:HG3   | 1.94                     | 0.49              |
| 8:LB:394:LYS:HA    | 8:LB:397:ILE:HG12  | 1.94                     | 0.49              |
| 10:LD:217:ASP:N    | 10:LD:217:ASP:OD1  | 2.41                     | 0.49              |
| 49:Ls:143:ILE:HD12 | 49:Ls:158:VAL:HG11 | 1.94                     | 0.49              |
| 59:ST:44:GLU:HG3   | 59:ST:45:LEU:HD12  | 1.94                     | 0.49              |
| 59:ST:60:THR:HG22  | 59:ST:75:MET:HE2   | 1.94                     | 0.49              |
| 66:SA:128:ARG:NH2  | 66:SA:151:ASP:O    | 2.44                     | 0.49              |
| 71:SH:140:VAL:HG12 | 75:SN:19:ARG:HD3   | 1.94                     | 0.49              |
| 84:S2:159:A2M:O5'  | 84:S2:159:A2M:H8   | 2.12                     | 0.49              |
| 4:L5:1662:C:H2'    | 4:L5:1663:C:C6     | 2.47                     | 0.49              |
| 4:L5:2300:A:N7     | 9:LC:143:ARG:NH1   | 2.61                     | 0.49              |
| 4:L5:2588:C:OP1    | 4:L5:2768:C:O2'    | 2.26                     | 0.49              |
| 50:Lt:76:SER:OG    | 50:Lt:116:MET:SD   | 2.69                     | 0.49              |
| 71:SH:63:PHE:HA    | 71:SH:95:ILE:O     | 2.12                     | 0.49              |
| 81:Sa:41:ILE:HD12  | 81:Sa:68:TYR:CD2   | 2.46                     | 0.49              |
| 84:S2:1720:U:H5''  | 84:S2:1721:U:H5''  | 1.94                     | 0.49              |
| 4:L5:1516:G:O2'    | 17:LL:18:TRP:NE1   | 2.45                     | 0.49              |
| 4:L5:1697:G:H22    | 4:L5:2084:C:P      | 2.36                     | 0.49              |
| 4:L5:3615:G:H1'    | 28:LW:44:ARG:HD3   | 1.94                     | 0.49              |
| 8:LB:153:MET:HB3   | 8:LB:194:LEU:HD11  | 1.94                     | 0.49              |
| 8:LB:217:ILE:HD12  | 8:LB:347:LEU:HB3   | 1.95                     | 0.49              |
| 19:LN:46:ASP:OD1   | 19:LN:47:LYS:N     | 2.45                     | 0.49              |
| 52:SF:60:ARG:NH2   | 84:S2:1679:A:OP1   | 2.44                     | 0.49              |
| 53:SK:64:TRP:HB3   | 63:Sd:23:VAL:HA    | 1.95                     | 0.49              |
| 59:ST:74:SER:O     | 59:ST:78:ILE:HD12  | 2.12                     | 0.49              |
| 61:SZ:42:ASP:OD1   | 61:SZ:42:ASP:N     | 2.43                     | 0.49              |
| 64:Sf:95:ARG:HH12  | 84:S2:1291:A:H62   | 1.59                     | 0.49              |
| 84:S2:960:U:O2'    | 84:S2:962:A:N7     | 2.38                     | 0.49              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 4:L5:280:G:H5''    | 19:LN:14:LYS:HE2   | 1.93                     | 0.49              |
| 4:L5:2284:G:OP1    | 32:La:7:LYS:NZ     | 2.41                     | 0.49              |
| 4:L5:2739:C:O2     | 7:LA:188:LYS:NZ    | 2.43                     | 0.49              |
| 4:L5:3732:A:H2'    | 4:L5:3733:A:C8     | 2.47                     | 0.49              |
| 4:L5:3880:G:H2'    | 4:L5:3881:G:C8     | 2.47                     | 0.49              |
| 4:L5:4305:G:N7     | 25:LT:87:LYS:NZ    | 2.52                     | 0.49              |
| 4:L5:4769:G:H5''   | 20:LO:176:ARG:HD3  | 1.95                     | 0.49              |
| 12:LF:237:GLU:HG2  | 24:LS:38:VAL:HG22  | 1.94                     | 0.49              |
| 14:LH:48:LEU:HD21  | 14:LH:56:ARG:HB2   | 1.93                     | 0.49              |
| 47:Lp:75:SER:O     | 47:Lp:79:VAL:HG23  | 2.13                     | 0.49              |
| 54:SM:49:LEU:HD21  | 54:SM:123:VAL:HG11 | 1.94                     | 0.49              |
| 57:SR:32:LYS:NZ    | 84:S2:1452:A:OP2   | 2.45                     | 0.49              |
| 71:SH:87:PHE:HB3   | 71:SH:90:LYS:HD2   | 1.95                     | 0.49              |
| 81:Sa:8:ASN:ND2    | 84:S2:1861:G:OP1   | 2.42                     | 0.49              |
| 84:S2:793:G:H2'    | 84:S2:794:A:H8     | 1.78                     | 0.49              |
| 84:S2:1098:C:H2'   | 84:S2:1099:G:C8    | 2.47                     | 0.49              |
| 84:S2:1528:G:O2'   | 84:S2:1666:C:OP1   | 2.30                     | 0.49              |
| 85:AT:8:U:O2'      | 85:AT:21:U:N3      | 2.42                     | 0.49              |
| 86:CF:82:THR:HG21  | 86:CF:232:LEU:HD22 | 1.95                     | 0.49              |
| 4:L5:512:U:H3      | 4:L5:647:G:H1      | 1.60                     | 0.49              |
| 4:L5:1500:A:H5''   | 4:L5:1501:C:H5''   | 1.95                     | 0.49              |
| 4:L5:2411:C:H2'    | 4:L5:2412:A:C8     | 2.47                     | 0.49              |
| 4:L5:2491:C:H2'    | 4:L5:2492:C:C6     | 2.47                     | 0.49              |
| 36:Le:108:ARG:HD2  | 36:Le:128:ARG:HB2  | 1.93                     | 0.49              |
| 66:SA:134:LEU:HD21 | 66:SA:144:THR:HG21 | 1.95                     | 0.49              |
| 70:SG:170:ARG:HG3  | 84:S2:72:C:N3      | 2.27                     | 0.49              |
| 71:SH:126:HIS:CE1  | 71:SH:181:THR:HG23 | 2.48                     | 0.49              |
| 79:SX:28:LYS:HE2   | 79:SX:32:LEU:HD22  | 1.93                     | 0.49              |
| 1:CI:78:HIS:CD2    | 4:L5:2706:G:N7     | 2.80                     | 0.49              |
| 4:L5:121:A:H62     | 4:L5:152:U:H3      | 1.61                     | 0.49              |
| 4:L5:148:C:OP2     | 13:LG:197:LYS:NZ   | 2.42                     | 0.49              |
| 4:L5:1283:G:N1     | 4:L5:2076:G:OP1    | 2.32                     | 0.49              |
| 11:LE:190:HIS:HB3  | 11:LE:193:PHE:HD2  | 1.78                     | 0.49              |
| 14:LH:41:ILE:HG22  | 14:LH:43:VAL:HG13  | 1.94                     | 0.49              |
| 35:Ld:23:ARG:HG2   | 35:Ld:121:ASN:HA   | 1.95                     | 0.49              |
| 52:SF:161:ALA:O    | 52:SF:165:ASN:ND2  | 2.39                     | 0.49              |
| 58:SS:132:ARG:NH1  | 84:S2:1623:A:N1    | 2.60                     | 0.49              |
| 78:SW:3:ARG:HH22   | 78:SW:28:ARG:HH21  | 1.60                     | 0.49              |
| 80:SY:7:ILE:HG12   | 80:SY:43:LYS:HD3   | 1.94                     | 0.49              |
| 84:S2:84:A:N3      | 84:S2:150:A:O2'    | 2.45                     | 0.49              |
| 85:AT:10:G:H2'     | 85:AT:11:U:C6      | 2.47                     | 0.49              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 85:AT:12:G:H2'     | 85:AT:13:U:O4'     | 2.13                     | 0.49              |
| 3:Et:55:U:H2'      | 3:Et:57:A:N7       | 2.28                     | 0.49              |
| 4:L5:417:G:OP1     | 4:L5:2329:U:O2'    | 2.26                     | 0.49              |
| 4:L5:1985:G:N2     | 4:L5:2003:G:O2'    | 2.46                     | 0.49              |
| 4:L5:2049:G:HO2'   | 4:L5:3884:PSU:HO2' | 1.54                     | 0.49              |
| 4:L5:2298:U:OP1    | 9:LC:204:ARG:NE    | 2.45                     | 0.49              |
| 4:L5:2744:A:H2'    | 4:L5:2745:A:C8     | 2.47                     | 0.49              |
| 4:L5:4769:G:OP1    | 20:LO:176:ARG:NH1  | 2.42                     | 0.49              |
| 4:L5:4774:C:O2'    | 4:L5:4775:C:O2     | 2.25                     | 0.49              |
| 4:L5:4940:C:O2'    | 11:LE:246:ARG:NH2  | 2.45                     | 0.49              |
| 8:LB:258:HIS:HA    | 8:LB:260:ALA:N     | 2.27                     | 0.49              |
| 13:LG:157:ILE:HA   | 13:LG:201:THR:HG22 | 1.95                     | 0.49              |
| 52:SF:142:SER:HB3  | 62:Sc:50:VAL:HG22  | 1.93                     | 0.49              |
| 79:SX:128:VAL:HG23 | 79:SX:138:LYS:HD2  | 1.95                     | 0.49              |
| 84:S2:1171:G:O2'   | 84:S2:1187:G:O6    | 2.28                     | 0.49              |
| 84:S2:1337:4AC:O5' | 84:S2:1337:4AC:H6  | 2.12                     | 0.49              |
| 86:CF:26:HIS:CE1   | 86:CF:198:GLY:HA3  | 2.47                     | 0.49              |
| 86:CF:26:HIS:C     | 86:CF:30:LYS:HZ3   | 2.21                     | 0.49              |
| 86:CF:86:TYR:OH    | 86:CF:295:HIS:ND1  | 2.42                     | 0.49              |
| 4:L5:423:G:H21     | 21:LP:118:GLN:NE2  | 2.10                     | 0.49              |
| 4:L5:1942:A:H2'    | 4:L5:1943:A:H8     | 1.77                     | 0.49              |
| 11:LE:119:GLU:HG3  | 36:Le:7:LEU:HD22   | 1.94                     | 0.49              |
| 14:LH:61:TRP:CZ3   | 18:LM:33:GLN:HG3   | 2.48                     | 0.49              |
| 14:LH:92:MET:HE2   | 14:LH:179:ILE:HG22 | 1.94                     | 0.49              |
| 17:LL:56:ARG:NH1   | 17:LL:74:ARG:O     | 2.40                     | 0.49              |
| 45:Ln:12:ARG:HG2   | 45:Ln:15:ARG:HH21  | 1.77                     | 0.49              |
| 71:SH:69:LEU:HD13  | 71:SH:96:ALA:HB2   | 1.95                     | 0.49              |
| 75:SN:29:THR:OG1   | 75:SN:31:ASP:OD1   | 2.26                     | 0.49              |
| 84:S2:207:G:H3'    | 84:S2:208:G:H8     | 1.78                     | 0.49              |
| 84:S2:454:U:H2'    | 84:S2:455:A:H8     | 1.78                     | 0.49              |
| 4:L5:308:G:O6      | 19:LN:12:ARG:NH1   | 2.46                     | 0.49              |
| 4:L5:2411:C:H2'    | 4:L5:2412:A:H8     | 1.77                     | 0.49              |
| 4:L5:2568:C:H2'    | 4:L5:2569:G:C8     | 2.48                     | 0.49              |
| 12:LF:157:ARG:HE   | 12:LF:248:ASN:HB2  | 1.78                     | 0.49              |
| 67:SB:97:LEU:HB3   | 67:SB:232:HIS:NE2  | 2.28                     | 0.49              |
| 69:SE:104:ASP:HB3  | 69:SE:110:ALA:HB2  | 1.93                     | 0.49              |
| 72:SI:116:HIS:O    | 72:SI:152:ARG:NH2  | 2.38                     | 0.49              |
| 73:SJ:60:LEU:HD22  | 73:SJ:70:ARG:HA    | 1.95                     | 0.49              |
| 83:Se:41:ARG:HG3   | 83:Se:42:PHE:HD1   | 1.78                     | 0.49              |
| 4:L5:711:A:H2'     | 4:L5:712:C:C6      | 2.48                     | 0.48              |
| 4:L5:1461:C:H2'    | 4:L5:1462:A:C8     | 2.48                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 4:L5:4149:C:OP1    | 31:LZ:59:LYS:N     | 2.46                     | 0.48              |
| 21:LP:54:GLN:HA    | 21:LP:83:TRP:CD1   | 2.47                     | 0.48              |
| 36:Le:91:CYS:HB3   | 36:Le:95:TYR:HD2   | 1.78                     | 0.48              |
| 56:SQ:96:TYR:HA    | 56:SQ:100:VAL:HG12 | 1.95                     | 0.48              |
| 65:Sg:195:LEU:HA   | 65:Sg:211:GLY:HA3  | 1.94                     | 0.48              |
| 67:SB:168:MET:HB2  | 67:SB:197:ILE:HD13 | 1.95                     | 0.48              |
| 67:SB:171:ILE:HG22 | 67:SB:174:ARG:HE   | 1.78                     | 0.48              |
| 68:SC:227:ARG:NH2  | 84:S2:663:C:O2'    | 2.45                     | 0.48              |
| 77:SV:73:ALA:HB1   | 77:SV:78:ILE:HB    | 1.95                     | 0.48              |
| 82:Sb:49:HIS:ND1   | 82:Sb:69:GLY:O     | 2.46                     | 0.48              |
| 84:S2:5:U:H2'      | 84:S2:6:G:H8       | 1.78                     | 0.48              |
| 84:S2:1595:U:H2'   | 84:S2:1596:U:C6    | 2.48                     | 0.48              |
| 4:L5:2101:C:H2'    | 4:L5:2102:G:C8     | 2.47                     | 0.48              |
| 4:L5:4935:C:H2'    | 4:L5:4936:G:C8     | 2.47                     | 0.48              |
| 14:LH:18:ILE:HG12  | 14:LH:27:VAL:HG22  | 1.95                     | 0.48              |
| 20:LO:119:VAL:N    | 24:LS:168:THR:O    | 2.45                     | 0.48              |
| 28:LW:56:ARG:HE    | 28:LW:61:LYS:CB    | 2.26                     | 0.48              |
| 68:SC:257:LYS:O    | 77:SV:16:LYS:NZ    | 2.40                     | 0.48              |
| 70:SG:172:LYS:NZ   | 84:S2:67:C:OP2     | 2.35                     | 0.48              |
| 72:SI:54:LYS:NZ    | 84:S2:381:C:OP2    | 2.44                     | 0.48              |
| 84:S2:1407:U:H2'   | 84:S2:1408:U:C6    | 2.48                     | 0.48              |
| 84:S2:1438:A:H2'   | 84:S2:1439:A:C8    | 2.48                     | 0.48              |
| 85:AT:2:U:H3       | 85:AT:72:A:N6      | 2.10                     | 0.48              |
| 4:L5:158:A:H5''    | 4:L5:159:C:H2'     | 1.96                     | 0.48              |
| 4:L5:667:A:H5''    | 4:L5:668:C:H5''    | 1.95                     | 0.48              |
| 4:L5:1095:A:N1     | 4:L5:1200:G:C6     | 2.81                     | 0.48              |
| 4:L5:1344:C:H1'    | 17:LL:10:LEU:HD11  | 1.95                     | 0.48              |
| 4:L5:1727:U:OP1    | 12:LF:131:ASN:ND2  | 2.45                     | 0.48              |
| 4:L5:2903:G:H1'    | 4:L5:2904:U:H5     | 1.78                     | 0.48              |
| 8:LB:218:ASP:OD2   | 8:LB:348:ARG:NH2   | 2.34                     | 0.48              |
| 33:Lb:5:LYS:HE2    | 33:Lb:8:THR:HB     | 1.94                     | 0.48              |
| 52:SF:19:LEU:HD11  | 52:SF:50:PRO:HD3   | 1.94                     | 0.48              |
| 65:Sg:133:ASN:HB3  | 65:Sg:139:LYS:HD2  | 1.96                     | 0.48              |
| 77:SV:30:ALA:O     | 77:SV:60:ARG:HD3   | 2.13                     | 0.48              |
| 86:CF:34:ILE:HG23  | 86:CF:78:TRP:CZ2   | 2.47                     | 0.48              |
| 4:L5:178:C:N4      | 4:L5:179:G:O6      | 2.46                     | 0.48              |
| 4:L5:500:G:H1'     | 4:L5:504:G:H3'     | 1.95                     | 0.48              |
| 4:L5:1176:C:H42    | 4:L5:1184:A:H61    | 1.60                     | 0.48              |
| 4:L5:1866:U:OP1    | 15:LI:4:ARG:NH1    | 2.36                     | 0.48              |
| 4:L5:2279:A:O2'    | 36:Le:48:ARG:NH2   | 2.46                     | 0.48              |
| 4:L5:2846:G:OP1    | 27:LV:85:ARG:NH2   | 2.46                     | 0.48              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 6:L8:150:C:N4      | 13:LG:52:THR:O    | 2.46                     | 0.48              |
| 8:LB:299:ILE:HB    | 8:LB:313:SER:HB3  | 1.95                     | 0.48              |
| 21:LP:107:LEU:HD13 | 21:LP:152:GLU:HG3 | 1.95                     | 0.48              |
| 67:SB:85:LYS:HB2   | 67:SB:101:HIS:HB3 | 1.94                     | 0.48              |
| 75:SN:14:SER:HB3   | 84:S2:1016:U:H5'' | 1.96                     | 0.48              |
| 84:S2:996:A:H2'    | 84:S2:997:A:C8    | 2.48                     | 0.48              |
| 84:S2:1115:U:O2'   | 84:S2:1117:C:OP2  | 2.30                     | 0.48              |
| 84:S2:1435:C:O2'   | 84:S2:1436:C:O4'  | 2.30                     | 0.48              |
| 4:L5:4301:U:OP2    | 4:L5:4303:C:N4    | 2.46                     | 0.48              |
| 6:L8:141:C:H2'     | 6:L8:142:U:C6     | 2.48                     | 0.48              |
| 9:LC:144:ILE:HG13  | 9:LC:144:ILE:O    | 2.12                     | 0.48              |
| 10:LD:66:TYR:HE2   | 10:LD:68:ARG:HE   | 1.61                     | 0.48              |
| 13:LG:150:LYS:NZ   | 13:LG:177:MET:O   | 2.47                     | 0.48              |
| 14:LH:89:ARG:HD3   | 14:LH:91:LYS:HE3  | 1.95                     | 0.48              |
| 42:Lk:35:LYS:HD3   | 42:Lk:42:LEU:HD21 | 1.95                     | 0.48              |
| 53:SK:22:VAL:HG22  | 53:SK:68:TYR:HD1  | 1.78                     | 0.48              |
| 54:SM:23:LYS:O     | 54:SM:27:ILE:HG12 | 2.13                     | 0.48              |
| 70:SG:202:ASN:ND2  | 84:S2:125:C:OP1   | 2.39                     | 0.48              |
| 75:SN:15:ALA:HB2   | 82:Sb:20:LYS:HD3  | 1.95                     | 0.48              |
| 85:AT:60:A:C2      | 85:AT:61:A:H1'    | 2.49                     | 0.48              |
| 86:CF:240:ARG:HH12 | 86:CF:266:ARG:NH2 | 2.11                     | 0.48              |
| 4:L5:172:C:H4'     | 4:L5:173:C:H5'    | 1.96                     | 0.48              |
| 4:L5:2029:A:H2'    | 4:L5:2030:A:C8    | 2.48                     | 0.48              |
| 58:SS:64:VAL:O     | 58:SS:68:ILE:HG12 | 2.12                     | 0.48              |
| 79:SX:105:PHE:CD1  | 79:SX:121:LYS:HB3 | 2.45                     | 0.48              |
| 83:Se:41:ARG:HG3   | 83:Se:42:PHE:CD1  | 2.49                     | 0.48              |
| 4:L5:1097:C:H2'    | 4:L5:1098:G:C8    | 2.49                     | 0.48              |
| 4:L5:2716:C:O3'    | 26:LU:107:LYS:NZ  | 2.46                     | 0.48              |
| 4:L5:4345:C:H2'    | 4:L5:4346:U:C6    | 2.48                     | 0.48              |
| 9:LC:268:ARG:NH1   | 9:LC:269:LYS:HE2  | 2.29                     | 0.48              |
| 12:LF:127:LYS:HB2  | 25:LT:133:ALA:HB3 | 1.96                     | 0.48              |
| 25:LT:102:ARG:O    | 25:LT:106:LEU:HG  | 2.13                     | 0.48              |
| 27:LV:43:LYS:HE2   | 27:LV:62:MET:HE3  | 1.95                     | 0.48              |
| 54:SM:110:VAL:O    | 54:SM:112:LYS:NZ  | 2.44                     | 0.48              |
| 69:SE:192:ILE:HG12 | 69:SE:243:GLY:HA3 | 1.96                     | 0.48              |
| 82:Sb:11:SER:OG    | 82:Sb:14:GLU:OE1  | 2.29                     | 0.48              |
| 85:AT:12:G:N2      | 85:AT:23:U:H3     | 2.10                     | 0.48              |
| 4:L5:737:C:C5      | 4:L5:739:G:H5''   | 2.48                     | 0.48              |
| 4:L5:2640:G:H2'    | 4:L5:2641:A:C8    | 2.49                     | 0.48              |
| 4:L5:3908:A:N7     | 4:L5:4449:A:N6    | 2.62                     | 0.48              |
| 4:L5:4220:6MZ:H2'  | 4:L5:4222:G:H5''  | 1.96                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 8:LB:14:LEU:HD22   | 8:LB:17:LEU:HD11   | 1.94                     | 0.48              |
| 10:LD:179:ARG:HD3  | 10:LD:179:ARG:HA   | 1.72                     | 0.48              |
| 10:LD:205:ALA:HB1  | 10:LD:233:PRO:HB3  | 1.95                     | 0.48              |
| 12:LF:105:VAL:HG13 | 12:LF:136:VAL:HG12 | 1.96                     | 0.48              |
| 16:LJ:63:ARG:HH11  | 46:Lo:106:PHE:HB2  | 1.79                     | 0.48              |
| 20:LO:126:VAL:HG13 | 20:LO:127:VAL:HG13 | 1.94                     | 0.48              |
| 53:SK:41:PRO:HG2   | 53:SK:44:HIS:CG    | 2.49                     | 0.48              |
| 61:SZ:85:ARG:NH2   | 84:S2:1597:C:OP2   | 2.39                     | 0.48              |
| 67:SB:171:ILE:HD11 | 67:SB:197:ILE:HA   | 1.95                     | 0.48              |
| 71:SH:51:ILE:HD11  | 71:SH:176:VAL:HG12 | 1.96                     | 0.48              |
| 84:S2:106:C:H2'    | 84:S2:107:A:C8     | 2.46                     | 0.48              |
| 84:S2:907:G:H2'    | 84:S2:908:A:C8     | 2.48                     | 0.48              |
| 84:S2:1144:A:H2'   | 84:S2:1145:A:C8    | 2.49                     | 0.48              |
| 84:S2:1736:G:H2'   | 84:S2:1737:G:C8    | 2.48                     | 0.48              |
| 12:LF:241:ASN:O    | 12:LF:245:ARG:HG2  | 2.14                     | 0.48              |
| 22:LQ:50:ARG:HH21  | 22:LQ:140:SER:HB2  | 1.79                     | 0.48              |
| 72:SI:57:ALA:HB2   | 72:SI:183:GLY:HA2  | 1.95                     | 0.48              |
| 84:S2:223:C:H2'    | 84:S2:224:A:C8     | 2.49                     | 0.48              |
| 84:S2:1652:G:H1    | 84:S2:1672:U:H3    | 1.60                     | 0.48              |
| 85:AT:30:C:H2'     | 85:AT:31:G:C8      | 2.49                     | 0.48              |
| 86:CF:240:ARG:CZ   | 86:CF:305:GLY:HA3  | 2.43                     | 0.48              |
| 4:L5:138:G:H2'     | 4:L5:139:G:H8      | 1.79                     | 0.48              |
| 4:L5:233:U:HO2'    | 4:L5:234:G:H8      | 1.61                     | 0.48              |
| 4:L5:490:C:H2'     | 4:L5:491:G:C8      | 2.48                     | 0.48              |
| 4:L5:1396:G:HO2'   | 4:L5:1468:C:HO2'   | 1.57                     | 0.48              |
| 4:L5:3661:G:N7     | 7:LA:152:SER:OG    | 2.43                     | 0.48              |
| 4:L5:4584:A:H2'    | 4:L5:4585:U:O4'    | 2.14                     | 0.48              |
| 12:LF:213:LEU:HB3  | 12:LF:247:MET:HG3  | 1.96                     | 0.48              |
| 13:LG:154:LEU:HB3  | 13:LG:204:PHE:HB2  | 1.96                     | 0.48              |
| 62:Sc:39:SER:HB2   | 81:Sa:51:ARG:HH12  | 1.78                     | 0.48              |
| 81:Sa:87:ARG:NH1   | 81:Sa:94:ASP:OD1   | 2.47                     | 0.48              |
| 84:S2:329:G:H2'    | 84:S2:330:G:C8     | 2.49                     | 0.48              |
| 84:S2:598:G:O2'    | 84:S2:605:A:N1     | 2.45                     | 0.48              |
| 84:S2:1568:C:H2'   | 84:S2:1569:A:C8    | 2.49                     | 0.48              |
| 84:S2:1692:U:H2'   | 84:S2:1693:G:C8    | 2.49                     | 0.48              |
| 86:CF:395:LYS:HD3  | 86:CF:396:SER:H    | 1.79                     | 0.48              |
| 4:L5:99:A:H5''     | 19:LN:184:ILE:HD12 | 1.95                     | 0.47              |
| 4:L5:519:C:H1'     | 4:L5:643:C:C2      | 2.49                     | 0.47              |
| 4:L5:1095:A:C2     | 4:L5:1200:G:N1     | 2.65                     | 0.47              |
| 4:L5:1367:C:O2'    | 4:L5:1369:C:OP2    | 2.26                     | 0.47              |
| 4:L5:1461:C:H2'    | 4:L5:1462:A:H8     | 1.78                     | 0.47              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 4:L5:1877:G:O6    | 33:Lb:10:HIS:NE2   | 2.45                     | 0.47              |
| 6:L8:75:OMG:HM23  | 6:L8:75:OMG:H1'    | 1.70                     | 0.47              |
| 52:SF:49:LEU:HD12 | 52:SF:50:PRO:HD2   | 1.95                     | 0.47              |
| 70:SG:4:ASN:ND2   | 84:S2:154:U:O2     | 2.46                     | 0.47              |
| 71:SH:30:LEU:O    | 71:SH:33:ASN:ND2   | 2.47                     | 0.47              |
| 72:SI:3:ILE:O     | 72:SI:30:GLY:N     | 2.41                     | 0.47              |
| 79:SX:28:LYS:NZ   | 84:S2:1189:A:OP1   | 2.39                     | 0.47              |
| 79:SX:52:LEU:HD11 | 79:SX:73:GLN:HB2   | 1.95                     | 0.47              |
| 4:L5:257:C:H2'    | 4:L5:258:G:C8      | 2.49                     | 0.47              |
| 4:L5:1846:G:H2'   | 4:L5:1847:C:C6     | 2.49                     | 0.47              |
| 4:L5:1998:A:O2'   | 4:L5:1999:A:O4'    | 2.30                     | 0.47              |
| 4:L5:2725:A:N6    | 23:LR:88:ARG:O     | 2.47                     | 0.47              |
| 4:L5:2869:U:O2'   | 4:L5:2881:A:N7     | 2.43                     | 0.47              |
| 4:L5:4113:U:H4'   | 4:L5:4115:G:C6     | 2.49                     | 0.47              |
| 6:L8:102:G:OP2    | 6:L8:104:A:O2'     | 2.29                     | 0.47              |
| 7:LA:180:LEU:HD22 | 47:Lp:18:TYR:HB3   | 1.96                     | 0.47              |
| 8:LB:27:GLY:HA2   | 8:LB:276:HIS:CD2   | 2.49                     | 0.47              |
| 35:Ld:53:ALA:HA   | 35:Ld:88:LEU:HD21  | 1.96                     | 0.47              |
| 57:SR:29:HIS:CD2  | 65:Sg:36:ARG:HH21  | 2.33                     | 0.47              |
| 72:SI:25:ARG:HA   | 84:S2:448:A:H5''   | 1.96                     | 0.47              |
| 72:SI:89:GLU:OE1  | 72:SI:92:ARG:NH2   | 2.47                     | 0.47              |
| 84:S2:1144:A:H5'  | 84:S2:1355:C:H41   | 1.79                     | 0.47              |
| 4:L5:169:G:O6     | 4:L5:170:C:N4      | 2.47                     | 0.47              |
| 4:L5:256:G:H2'    | 4:L5:257:C:C6      | 2.49                     | 0.47              |
| 4:L5:444:G:H2'    | 4:L5:445:U:C6      | 2.49                     | 0.47              |
| 4:L5:907:C:H2'    | 4:L5:908:G:C8      | 2.49                     | 0.47              |
| 4:L5:1333:A:H2'   | 4:L5:1334:A:H8     | 1.77                     | 0.47              |
| 4:L5:2832:A:OP1   | 35:Ld:47:LYS:NZ    | 2.30                     | 0.47              |
| 4:L5:4606:G:N2    | 85:AT:63:C:O2'     | 2.47                     | 0.47              |
| 5:L7:23:A:N3      | 5:L7:118:C:O2'     | 2.37                     | 0.47              |
| 8:LB:29:VAL:HG12  | 8:LB:31:SER:H      | 1.79                     | 0.47              |
| 21:LP:114:ILE:HA  | 21:LP:150:LEU:HD23 | 1.96                     | 0.47              |
| 23:LR:157:ASP:OD1 | 23:LR:158:GLN:N    | 2.47                     | 0.47              |
| 52:SF:83:ASN:OD1  | 84:S2:1651:A:O2'   | 2.28                     | 0.47              |
| 59:ST:84:ARG:NH1  | 84:S2:1605:G:OP1   | 2.40                     | 0.47              |
| 65:Sg:124:SER:OG  | 65:Sg:125:ARG:N    | 2.46                     | 0.47              |
| 65:Sg:207:CYS:HB3 | 65:Sg:221:LEU:HD21 | 1.96                     | 0.47              |
| 69:SE:127:ARG:HG3 | 69:SE:142:HIS:HA   | 1.96                     | 0.47              |
| 80:SY:105:LYS:O   | 80:SY:109:GLU:HG2  | 2.14                     | 0.47              |
| 84:S2:16:G:H2'    | 84:S2:17:C:C6      | 2.49                     | 0.47              |
| 3:Et:66:U:H2'     | 3:Et:67:U:C6       | 2.49                     | 0.47              |

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| Atom-1              | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|---------------------|--------------------|--------------------------|-------------------|
| 4:L5:1855:G:OP1     | 33:Lb:4:SER:HB2    | 2.14                     | 0.47              |
| 4:L5:2021:G:OP1     | 49:Ls:58:ASN:N     | 2.43                     | 0.47              |
| 4:L5:3799:A:N3      | 4:L5:4506:C:O2'    | 2.41                     | 0.47              |
| 4:L5:3917:A:H2'     | 4:L5:3918:G:H8     | 1.79                     | 0.47              |
| 4:L5:4622:A:H4'     | 8:LB:13:SER:HB2    | 1.95                     | 0.47              |
| 6:L8:19:C:H2'       | 6:L8:20:A:C8       | 2.49                     | 0.47              |
| 17:LL:110:LEU:O     | 17:LL:114:VAL:HG13 | 2.15                     | 0.47              |
| 19:LN:140:LYS:HD3   | 19:LN:140:LYS:HA   | 1.66                     | 0.47              |
| 54:SM:128:PHE:HA    | 54:SM:131:LYS:HG2  | 1.97                     | 0.47              |
| 58:SS:137:LYS:NZ    | 84:S2:1236:G:O6    | 2.47                     | 0.47              |
| 65:Sg:39:THR:HG22   | 65:Sg:60:ARG:HG2   | 1.96                     | 0.47              |
| 84:S2:1383:A2M:HM'3 | 84:S2:1383:A2M:H1' | 1.64                     | 0.47              |
| 84:S2:1491:G:H2'    | 84:S2:1492:U:C6    | 2.49                     | 0.47              |
| 4:L5:300:A:H2'      | 4:L5:301:G:H8      | 1.80                     | 0.47              |
| 4:L5:1899:G:O2'     | 36:Le:57:ASN:OD1   | 2.31                     | 0.47              |
| 4:L5:2580:U:OP1     | 31:LZ:36:ARG:NH1   | 2.41                     | 0.47              |
| 4:L5:2811:G:N1      | 4:L5:2814:C:OP2    | 2.42                     | 0.47              |
| 4:L5:3923:A:H2'     | 4:L5:3924:C:C6     | 2.50                     | 0.47              |
| 10:LD:234:ASP:OD1   | 10:LD:235:MET:N    | 2.48                     | 0.47              |
| 14:LH:114:ILE:HB    | 14:LH:124:ARG:HB2  | 1.96                     | 0.47              |
| 51:SD:115:VAL:HG21  | 51:SD:138:VAL:HG11 | 1.97                     | 0.47              |
| 69:SE:247:THR:OG1   | 69:SE:250:GLU:OE1  | 2.33                     | 0.47              |
| 80:SY:41:ARG:NH2    | 80:SY:52:PRO:O     | 2.47                     | 0.47              |
| 4:L5:1326:A2M:HM'3  | 4:L5:1326:A2M:H1'  | 1.63                     | 0.47              |
| 4:L5:1577:G:O2'     | 4:L5:1612:G:H4'    | 2.14                     | 0.47              |
| 4:L5:2018:C:H2'     | 4:L5:2019:C:H6     | 1.79                     | 0.47              |
| 4:L5:4251:A:H5''    | 16:LJ:108:GLY:HA3  | 1.96                     | 0.47              |
| 15:LI:36:LEU:HD11   | 15:LI:69:ARG:HD2   | 1.97                     | 0.47              |
| 26:LU:63:ILE:HD13   | 26:LU:72:VAL:HG22  | 1.97                     | 0.47              |
| 59:ST:40:ALA:HB3    | 59:ST:43:LYS:HG2   | 1.97                     | 0.47              |
| 84:S2:656:G:N2      | 84:S2:663:C:H5''   | 2.29                     | 0.47              |
| 84:S2:656:G:H5'     | 84:S2:662:G:N2     | 2.29                     | 0.47              |
| 84:S2:1656:G:H1     | 84:S2:1668:U:H3    | 1.62                     | 0.47              |
| 86:CF:349:HIS:ND1   | 86:CF:351:GLY:O    | 2.48                     | 0.47              |
| 3:Et:35:U:H2'       | 3:Et:36:U:H6       | 1.79                     | 0.47              |
| 4:L5:374:G:OP2      | 41:Lj:56:ARG:NH1   | 2.38                     | 0.47              |
| 4:L5:467:U:C4       | 4:L5:468:U:H1'     | 2.49                     | 0.47              |
| 4:L5:1601:A:OP1     | 41:Lj:5:THR:OG1    | 2.23                     | 0.47              |
| 4:L5:1857:C:H2'     | 4:L5:1858:A:C8     | 2.49                     | 0.47              |
| 4:L5:1932:A:OP1     | 20:LO:49:ARG:NH2   | 2.27                     | 0.47              |
| 4:L5:1995:G:H2'     | 4:L5:1996:C:C6     | 2.49                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 4:L5:2583:C:OP2    | 38:Lg:76:ARG:NH1   | 2.47                     | 0.47              |
| 4:L5:4274:A:H2'    | 4:L5:4275:G:H8     | 1.79                     | 0.47              |
| 4:L5:4742:G:H2'    | 4:L5:4743:G:H8     | 1.80                     | 0.47              |
| 4:L5:4897:G:OP1    | 18:LM:128:LYS:NZ   | 2.45                     | 0.47              |
| 10:LD:86:TYR:HE1   | 10:LD:247:ILE:HG13 | 1.79                     | 0.47              |
| 17:LL:142:GLU:HA   | 17:LL:146:LEU:HD12 | 1.96                     | 0.47              |
| 21:LP:122:ALA:HB3  | 21:LP:143:PRO:HG2  | 1.96                     | 0.47              |
| 37:Lf:45:LYS:NZ    | 37:Lf:108:SER:HA   | 2.30                     | 0.47              |
| 52:SF:26:ASP:N     | 52:SF:26:ASP:OD1   | 2.46                     | 0.47              |
| 56:SQ:8:GLN:HG3    | 56:SQ:27:ARG:HE    | 1.80                     | 0.47              |
| 56:SQ:110:ASP:OD1  | 56:SQ:111:ILE:HD12 | 2.14                     | 0.47              |
| 63:Sd:46:TYR:O     | 63:Sd:50:ILE:HD12  | 2.14                     | 0.47              |
| 68:SC:110:MET:HG2  | 68:SC:125:LYS:HB3  | 1.97                     | 0.47              |
| 70:SG:162:LEU:HG   | 70:SG:167:LYS:HE3  | 1.95                     | 0.47              |
| 77:SV:17:CYS:HB2   | 77:SV:56:CYS:HB3   | 1.97                     | 0.47              |
| 81:Sa:34:LYS:NZ    | 84:S2:1862:G:N7    | 2.62                     | 0.47              |
| 84:S2:520:A:O2'    | 84:S2:825:A:N3     | 2.40                     | 0.47              |
| 84:S2:528:A:H2'    | 84:S2:529:A:C8     | 2.49                     | 0.47              |
| 84:S2:747:U:C2     | 84:S2:796:G:N1     | 2.83                     | 0.47              |
| 84:S2:1221:G:O2'   | 84:S2:1676:U:O2    | 2.31                     | 0.47              |
| 84:S2:1286:G:N2    | 84:S2:1312:G:O2'   | 2.48                     | 0.47              |
| 84:S2:1337:4AC:H2' | 84:S2:1338:G:H8    | 1.79                     | 0.47              |
| 84:S2:1736:G:H2'   | 84:S2:1737:G:H8    | 1.80                     | 0.47              |
| 4:L5:318:A:H2'     | 4:L5:319:A:C8      | 2.50                     | 0.47              |
| 4:L5:2111:G:N2     | 4:L5:2251:G:O2'    | 2.48                     | 0.47              |
| 4:L5:2492:C:H2'    | 4:L5:2493:G:C8     | 2.49                     | 0.47              |
| 13:LG:162:ASP:HB3  | 13:LG:163:PRO:HD3  | 1.96                     | 0.47              |
| 15:LI:54:SER:HB3   | 15:LI:135:ILE:HD11 | 1.96                     | 0.47              |
| 24:LS:99:ASP:OD1   | 24:LS:100:LEU:N    | 2.45                     | 0.47              |
| 51:SD:32:ASP:OD2   | 51:SD:65:ARG:NH1   | 2.48                     | 0.47              |
| 72:SI:4:SER:OG     | 72:SI:6:ASP:OD2    | 2.26                     | 0.47              |
| 84:S2:102:A:H4'    | 84:S2:104:A:C8     | 2.50                     | 0.47              |
| 84:S2:1533:A:H2    | 84:S2:1536:G:N3    | 2.13                     | 0.47              |
| 84:S2:1643:U:H2'   | 84:S2:1644:C:C6    | 2.49                     | 0.47              |
| 86:CF:10:ILE:HG12  | 86:CF:111:CYS:HB3  | 1.95                     | 0.47              |
| 4:L5:1188:C:H2'    | 4:L5:1189:G:H8     | 1.80                     | 0.47              |
| 4:L5:4088:C:H2'    | 4:L5:4089:G:C8     | 2.50                     | 0.47              |
| 14:LH:115:ARG:HD3  | 14:LH:123:ILE:HD12 | 1.96                     | 0.47              |
| 18:LM:96:GLU:O     | 18:LM:100:ARG:HG2  | 2.15                     | 0.47              |
| 18:LM:130:LEU:HB3  | 20:LO:177:LEU:HD11 | 1.96                     | 0.47              |
| 26:LU:39:PHE:HD1   | 26:LU:90:TYR:CD2   | 2.33                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 48:Lr:47:LYS:O     | 48:Lr:103:ARG:HD2  | 2.15                     | 0.47              |
| 49:Ls:114:GLY:HA2  | 49:Ls:166:LYS:HD2  | 1.97                     | 0.47              |
| 59:ST:42:HIS:NE2   | 59:ST:43:LYS:HE3   | 2.30                     | 0.47              |
| 64:Sf:124:ASP:OD1  | 64:Sf:124:ASP:N    | 2.44                     | 0.47              |
| 68:SC:104:ASP:OD1  | 68:SC:105:GLU:N    | 2.48                     | 0.47              |
| 79:SX:90:CYS:HA    | 79:SX:93:PHE:HD2   | 1.79                     | 0.47              |
| 84:S2:159:A2M:HM'3 | 84:S2:159:A2M:H1'  | 1.59                     | 0.47              |
| 4:L5:455:C:O2'     | 4:L5:456:C:H5'     | 2.14                     | 0.47              |
| 4:L5:1414:C:H2'    | 4:L5:1415:G:C8     | 2.47                     | 0.47              |
| 4:L5:1695:U:O2'    | 4:L5:1719:A:N3     | 2.39                     | 0.47              |
| 4:L5:1942:A:N3     | 4:L5:4432:C:O2'    | 2.44                     | 0.47              |
| 4:L5:2112:G:H5''   | 4:L5:2251:G:H1     | 1.79                     | 0.47              |
| 4:L5:4095:G:H2'    | 4:L5:4096:C:C6     | 2.50                     | 0.47              |
| 4:L5:4954:G:H2'    | 4:L5:4955:A:C8     | 2.49                     | 0.47              |
| 6:L8:67:U:H2'      | 6:L8:68:G:H8       | 1.80                     | 0.47              |
| 7:LA:114:CYS:N     | 7:LA:165:VAL:O     | 2.47                     | 0.47              |
| 7:LA:116:LEU:HB3   | 7:LA:126:LEU:HB2   | 1.96                     | 0.47              |
| 48:Lr:119:ARG:HA   | 48:Lr:122:LYS:HE3  | 1.95                     | 0.47              |
| 53:SK:7:ASN:HB2    | 53:SK:40:VAL:HG22  | 1.97                     | 0.47              |
| 67:SB:23:ASP:N     | 67:SB:23:ASP:OD1   | 2.48                     | 0.47              |
| 68:SC:70:VAL:HG21  | 68:SC:93:ILE:HG23  | 1.97                     | 0.47              |
| 70:SG:85:ARG:O     | 70:SG:87:ARG:NH1   | 2.48                     | 0.47              |
| 73:SJ:59:GLU:O     | 73:SJ:62:THR:OG1   | 2.30                     | 0.47              |
| 84:S2:51:U:H2'     | 84:S2:52:G:C8      | 2.50                     | 0.47              |
| 84:S2:329:G:H2'    | 84:S2:330:G:H8     | 1.80                     | 0.47              |
| 84:S2:468:A2M:HM'3 | 84:S2:468:A2M:H1'  | 1.67                     | 0.47              |
| 84:S2:1189:A:H2'   | 84:S2:1190:A:H8    | 1.80                     | 0.47              |
| 84:S2:1189:A:H2'   | 84:S2:1190:A:C8    | 2.50                     | 0.47              |
| 84:S2:1550:G:O2'   | 84:S2:1558:C:O2    | 2.24                     | 0.47              |
| 4:L5:1340:OMC:HM23 | 4:L5:1340:OMC:H1'  | 1.74                     | 0.46              |
| 4:L5:1408:G:O2'    | 4:L5:1411:C:N4     | 2.48                     | 0.46              |
| 4:L5:2033:A:OP1    | 15:LI:162:ARG:NH2  | 2.46                     | 0.46              |
| 60:SU:56:MET:HB2   | 60:SU:86:LYS:HG3   | 1.96                     | 0.46              |
| 63:Sd:14:PHE:HB2   | 84:S2:1661:A:H8    | 1.81                     | 0.46              |
| 65:Sg:212:LYS:HA   | 65:Sg:235:ILE:HG13 | 1.96                     | 0.46              |
| 66:SA:102:ARG:NH1  | 84:S2:1378:A:OP2   | 2.46                     | 0.46              |
| 73:SJ:145:PRO:HD2  | 84:S2:522:A:H5''   | 1.97                     | 0.46              |
| 84:S2:962:A:N1     | 84:S2:1055:A:O2'   | 2.47                     | 0.46              |
| 4:L5:1298:C:H2'    | 4:L5:1299:G:C8     | 2.51                     | 0.46              |
| 4:L5:1324:A:O2'    | 4:L5:1326:A2M:OP1  | 2.26                     | 0.46              |
| 4:L5:2299:G:O6     | 9:LC:188:ARG:NH2   | 2.49                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 4:L5:3796:U:O2'    | 84:S2:1720:U:O2'   | 2.26                     | 0.46              |
| 4:L5:3867:A2M:HM'3 | 4:L5:3867:A2M:H1'  | 1.64                     | 0.46              |
| 4:L5:3950:U:H3     | 4:L5:4063:U:H3     | 1.62                     | 0.46              |
| 11:LE:223:ARG:HB3  | 11:LE:224:LYS:HB2  | 1.97                     | 0.46              |
| 11:LE:261:ILE:HG23 | 11:LE:267:LEU:HD23 | 1.96                     | 0.46              |
| 53:SK:32:HIS:CD2   | 53:SK:45:VAL:HG11  | 2.50                     | 0.46              |
| 56:SQ:139:ALA:HB2  | 84:S2:1650:A:H5''  | 1.96                     | 0.46              |
| 59:ST:114:GLU:OE1  | 59:ST:114:GLU:N    | 2.47                     | 0.46              |
| 64:Sf:105:TYR:HE1  | 64:Sf:131:PHE:HD2  | 1.63                     | 0.46              |
| 65:Sg:82:SER:OG    | 65:Sg:83:TRP:N     | 2.47                     | 0.46              |
| 72:SI:98:LYS:HG3   | 72:SI:178:ARG:HG2  | 1.98                     | 0.46              |
| 84:S2:51:U:H2'     | 84:S2:52:G:H8      | 1.80                     | 0.46              |
| 84:S2:325:C:N3     | 84:S2:326:C:O2'    | 2.46                     | 0.46              |
| 86:CF:356:GLY:H    | 86:CF:372:PHE:HB2  | 1.80                     | 0.46              |
| 2:Pt:29:C:H2'      | 2:Pt:30:G:H8       | 1.80                     | 0.46              |
| 3:Et:12:U:H2'      | 3:Et:13:C:C6       | 2.51                     | 0.46              |
| 4:L5:106:A:H2'     | 4:L5:107:G:O4'     | 2.15                     | 0.46              |
| 4:L5:162:A:H2'     | 4:L5:163:A:C8      | 2.51                     | 0.46              |
| 4:L5:965:G:N2      | 4:L5:2092:G:H1'    | 2.30                     | 0.46              |
| 4:L5:1308:C:OP1    | 20:LO:93:LYS:NZ    | 2.46                     | 0.46              |
| 4:L5:1725:U:H2'    | 4:L5:1726:U:H6     | 1.81                     | 0.46              |
| 4:L5:2382:A:N1     | 4:L5:2829:U:O2'    | 2.45                     | 0.46              |
| 4:L5:2848:G:O2'    | 4:L5:3838:U:O4     | 2.23                     | 0.46              |
| 4:L5:2910:G:N2     | 4:L5:3585:G:O2'    | 2.48                     | 0.46              |
| 4:L5:4492:U:O2'    | 4:L5:4512:U:O2     | 2.27                     | 0.46              |
| 12:LF:57:TYR:OH    | 12:LF:189:ASP:OD1  | 2.31                     | 0.46              |
| 12:LF:182:TYR:HB3  | 12:LF:200:ARG:HG3  | 1.97                     | 0.46              |
| 22:LQ:154:LYS:NZ   | 22:LQ:159:PRO:O    | 2.47                     | 0.46              |
| 34:Lc:47:ILE:HD12  | 34:Lc:94:LEU:HD11  | 1.97                     | 0.46              |
| 34:Lc:48:LEU:HD13  | 34:Lc:57:LYS:HG3   | 1.97                     | 0.46              |
| 51:SD:223:ILE:HD11 | 65:Sg:189:ILE:HD12 | 1.97                     | 0.46              |
| 67:SB:186:ASN:HA   | 67:SB:189:ILE:HD12 | 1.98                     | 0.46              |
| 83:Se:11:LYS:O     | 83:Se:15:GLN:HG3   | 2.16                     | 0.46              |
| 84:S2:420:G:O2'    | 84:S2:660:C:N3     | 2.45                     | 0.46              |
| 84:S2:674:C:H2'    | 84:S2:675:U:C6     | 2.50                     | 0.46              |
| 84:S2:1231:C:O2'   | 84:S2:1253:A:N6    | 2.49                     | 0.46              |
| 4:L5:170:C:H42     | 4:L5:266:C:N4      | 2.13                     | 0.46              |
| 4:L5:1398:A:N1     | 4:L5:1419:G:O2'    | 2.47                     | 0.46              |
| 4:L5:2580:U:O2'    | 31:LZ:79:HIS:ND1   | 2.43                     | 0.46              |
| 4:L5:3664:G:H2'    | 4:L5:3665:G:C8     | 2.50                     | 0.46              |
| 4:L5:3932:U:H2'    | 4:L5:3933:G:C8     | 2.51                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 4:L5:4476:C:O2'    | 4:L5:4478:G:OP2    | 2.26                     | 0.46              |
| 4:L5:4775:C:H41    | 4:L5:4859:C:N4     | 2.13                     | 0.46              |
| 50:Lt:28:LEU:HD23  | 50:Lt:28:LEU:H     | 1.80                     | 0.46              |
| 56:Sg:98:LYS:O     | 65:Sg:57:ARG:NH1   | 2.37                     | 0.46              |
| 65:Sg:120:ILE:HB   | 65:Sg:132:TRP:HB2  | 1.97                     | 0.46              |
| 66:SA:74:VAL:HG23  | 66:SA:121:LEU:HB3  | 1.96                     | 0.46              |
| 70:SG:2:LYS:HB3    | 70:SG:15:LEU:HD11  | 1.97                     | 0.46              |
| 84:S2:66:G:H2'     | 84:S2:67:C:H4'     | 1.97                     | 0.46              |
| 85:AT:2:U:H2'      | 85:AT:3:C:C6       | 2.50                     | 0.46              |
| 86:CF:178:ILE:CG1  | 86:CF:183:TYR:HB2  | 2.45                     | 0.46              |
| 86:CF:381:ARG:HH22 | 86:CF:397:GLY:HA2  | 1.80                     | 0.46              |
| 4:L5:2611:A:H2'    | 4:L5:2612:G:C8     | 2.50                     | 0.46              |
| 4:L5:2696:A:H62    | 42:Lk:35:LYS:NZ    | 2.13                     | 0.46              |
| 4:L5:3861:A:H2'    | 4:L5:3862:A:C8     | 2.50                     | 0.46              |
| 4:L5:4441:A:H5''   | 15:LI:114:GLY:HA2  | 1.97                     | 0.46              |
| 6:L8:96:C:H5''     | 39:Lh:66:LYS:HG2   | 1.98                     | 0.46              |
| 7:LA:131:GLY:H     | 7:LA:169:VAL:HG13  | 1.80                     | 0.46              |
| 7:LA:206:PRO:HG3   | 7:LA:213:GLY:HA3   | 1.97                     | 0.46              |
| 12:LF:37:PHE:HZ    | 33:Lb:113:ALA:HB1  | 1.81                     | 0.46              |
| 13:LG:143:VAL:HG22 | 13:LG:203:ALA:HB2  | 1.97                     | 0.46              |
| 32:La:72:THR:HG22  | 32:La:110:LYS:HB3  | 1.97                     | 0.46              |
| 59:ST:6:VAL:HG12   | 59:ST:135:ALA:HB2  | 1.98                     | 0.46              |
| 65:Sg:10:THR:HG22  | 65:Sg:308:ARG:HG2  | 1.97                     | 0.46              |
| 66:SA:184:ARG:HG2  | 66:SA:189:ILE:HB   | 1.97                     | 0.46              |
| 71:SH:33:ASN:ND2   | 71:SH:36:LEU:HB3   | 2.30                     | 0.46              |
| 3:Et:7:A:O2'       | 3:Et:49:C:O4'      | 2.30                     | 0.46              |
| 4:L5:327:U:HO2'    | 40:Li:30:ARG:HH11  | 1.59                     | 0.46              |
| 4:L5:4775:C:H41    | 4:L5:4859:C:H42    | 1.64                     | 0.46              |
| 7:LA:142:GLU:O     | 7:LA:143:THR:OG1   | 2.31                     | 0.46              |
| 8:LB:50:LYS:NZ     | 8:LB:337:VAL:O     | 2.46                     | 0.46              |
| 11:LE:161:ARG:O    | 11:LE:182:ASN:ND2  | 2.48                     | 0.46              |
| 12:LF:162:ILE:HD12 | 12:LF:167:ILE:HB   | 1.98                     | 0.46              |
| 16:LJ:56:THR:OG1   | 16:LJ:64:ARG:N     | 2.45                     | 0.46              |
| 72:SI:44:HIS:ND1   | 84:S2:1740:C:OP1   | 2.37                     | 0.46              |
| 4:L5:1194:G:H2'    | 4:L5:1195:G:C8     | 2.51                     | 0.46              |
| 4:L5:1696:C:H5'    | 4:L5:1719:A:H1'    | 1.98                     | 0.46              |
| 4:L5:1811:G:H21    | 33:Lb:57:MET:HE2   | 1.81                     | 0.46              |
| 20:LO:166:ILE:HG12 | 20:LO:169:ARG:HH21 | 1.81                     | 0.46              |
| 49:Ls:91:THR:HG21  | 49:Ls:98:ILE:HG13  | 1.98                     | 0.46              |
| 69:SE:134:LYS:N    | 84:S2:298:G:OP1    | 2.45                     | 0.46              |
| 71:SH:30:LEU:HG    | 71:SH:33:ASN:HD22  | 1.81                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 84:S2:693:A:H2'    | 84:S2:694:G:C8     | 2.51                     | 0.46              |
| 84:S2:1755:C:H2'   | 84:S2:1756:C:C6    | 2.51                     | 0.46              |
| 4:L5:3932:U:H2'    | 4:L5:3933:G:H8     | 1.81                     | 0.46              |
| 4:L5:4093:G:H3'    | 4:L5:4094:G:H8     | 1.81                     | 0.46              |
| 4:L5:4389:C:H2'    | 4:L5:4390:A:C8     | 2.51                     | 0.46              |
| 11:LE:222:LEU:HB2  | 11:LE:237:LYS:HD2  | 1.97                     | 0.46              |
| 12:LF:46:ARG:HH21  | 33:Lb:102:PRO:HG3  | 1.81                     | 0.46              |
| 14:LH:4:ILE:HG12   | 14:LH:61:TRP:CH2   | 2.51                     | 0.46              |
| 23:LR:175:GLU:O    | 23:LR:178:GLN:HG3  | 2.16                     | 0.46              |
| 27:LV:42:VAL:HB    | 27:LV:45:ILE:HG13  | 1.98                     | 0.46              |
| 38:Lg:82:MET:HE3   | 38:Lg:82:MET:HB2   | 1.88                     | 0.46              |
| 51:SD:77:PHE:HB2   | 51:SD:79:PHE:CE1   | 2.50                     | 0.46              |
| 52:SF:127:ARG:HG2  | 52:SF:136:ARG:HB2  | 1.98                     | 0.46              |
| 65:Sg:289:LEU:HD11 | 65:Sg:298:LEU:HD21 | 1.98                     | 0.46              |
| 67:SB:214:LYS:NZ   | 84:S2:943:U:OP1    | 2.39                     | 0.46              |
| 84:S2:5:U:H2'      | 84:S2:6:G:C8       | 2.51                     | 0.46              |
| 84:S2:1215:C:O2'   | 84:S2:1645:C:OP2   | 2.33                     | 0.46              |
| 84:S2:1775:U:H2'   | 84:S2:1776:G:C2    | 2.51                     | 0.46              |
| 3:Et:8:U:H5'       | 3:Et:49:C:H5''     | 1.98                     | 0.46              |
| 3:Et:51:G:H2'      | 3:Et:52:G:C8       | 2.51                     | 0.46              |
| 4:L5:1494:U:H2'    | 4:L5:1495:G:H8     | 1.80                     | 0.46              |
| 4:L5:2724:G:O2'    | 4:L5:2726:G:OP2    | 2.31                     | 0.46              |
| 4:L5:4504:C:H2'    | 4:L5:4505:C:C6     | 2.51                     | 0.46              |
| 4:L5:4543:G:H2'    | 4:L5:4544:A:C8     | 2.51                     | 0.46              |
| 10:LD:181:PRO:HD2  | 10:LD:195:HIS:CD2  | 2.51                     | 0.46              |
| 11:LE:99:ASP:OD1   | 11:LE:99:ASP:N     | 2.49                     | 0.46              |
| 13:LG:83:PHE:HA    | 13:LG:183:ILE:HD13 | 1.98                     | 0.46              |
| 22:LQ:3:VAL:HG13   | 22:LQ:5:ILE:HG12   | 1.98                     | 0.46              |
| 35:Ld:57:MET:HG2   | 35:Ld:88:LEU:HD23  | 1.98                     | 0.46              |
| 61:SZ:91:LEU:HG    | 61:SZ:96:LEU:HD21  | 1.98                     | 0.46              |
| 65:Sg:21:ILE:HG21  | 65:Sg:299:PHE:HB2  | 1.97                     | 0.46              |
| 68:SC:185:THR:OG1  | 84:S2:1155:U:OP1   | 2.24                     | 0.46              |
| 69:SE:59:ASP:O     | 69:SE:63:LYS:HG3   | 2.16                     | 0.46              |
| 78:SW:62:VAL:HG11  | 82:Sb:8:LEU:HG     | 1.97                     | 0.46              |
| 84:S2:1337:4AC:H2' | 84:S2:1338:G:C8    | 2.50                     | 0.46              |
| 86:CF:8:ILE:HD12   | 86:CF:10:ILE:HG13  | 1.97                     | 0.46              |
| 4:L5:162:A:H2'     | 4:L5:163:A:H8      | 1.80                     | 0.46              |
| 4:L5:1194:G:H2'    | 4:L5:1195:G:H8     | 1.81                     | 0.46              |
| 4:L5:1669:A:H4'    | 4:L5:1685:G:N2     | 2.30                     | 0.46              |
| 4:L5:4302:U:H4'    | 25:LT:5:LYS:HD3    | 1.98                     | 0.46              |
| 4:L5:4524:G:C2     | 8:LB:252:ALA:HB1   | 2.51                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 16:LJ:15:LEU:HD12  | 16:LJ:165:TRP:HB2  | 1.98                     | 0.46              |
| 54:SM:87:GLU:HG3   | 54:SM:103:VAL:HG11 | 1.98                     | 0.46              |
| 58:SS:121:ARG:HG3  | 58:SS:131:VAL:HB   | 1.98                     | 0.46              |
| 70:SG:49:VAL:HB    | 70:SG:115:LYS:HG2  | 1.97                     | 0.46              |
| 71:SH:142:LYS:HB3  | 78:SW:54:ASP:HB3   | 1.98                     | 0.46              |
| 73:SJ:64:ASP:OD1   | 73:SJ:65:GLU:N     | 2.49                     | 0.46              |
| 79:SX:60:LYS:H     | 79:SX:114:ASP:HB2  | 1.81                     | 0.46              |
| 83:Se:31:ARG:NH2   | 84:S2:525:A:O3'    | 2.48                     | 0.46              |
| 84:S2:327:G:H5''   | 84:S2:328:U:C2     | 2.50                     | 0.46              |
| 84:S2:563:G:O2'    | 84:S2:564:A:OP1    | 2.32                     | 0.46              |
| 84:S2:1201:U:H2'   | 84:S2:1202:U:C6    | 2.51                     | 0.46              |
| 3:Et:26:A:N6       | 3:Et:44:G:N1       | 2.35                     | 0.45              |
| 4:L5:1327:C:H2'    | 4:L5:1328:G:C8     | 2.52                     | 0.45              |
| 4:L5:4401:G:H2'    | 4:L5:4402:C:H6     | 1.80                     | 0.45              |
| 4:L5:4419:U:H1'    | 85:AT:57:C:H42     | 1.81                     | 0.45              |
| 8:LB:302:ASN:HB2   | 8:LB:313:SER:HA    | 1.98                     | 0.45              |
| 9:LC:183:VAL:HA    | 9:LC:204:ARG:HB3   | 1.98                     | 0.45              |
| 9:LC:334:THR:HG22  | 9:LC:337:ARG:HH21  | 1.80                     | 0.45              |
| 10:LD:108:ARG:CZ   | 10:LD:253:TYR:HB2  | 2.46                     | 0.45              |
| 15:LI:101:LYS:NZ   | 15:LI:102:MET:O    | 2.47                     | 0.45              |
| 58:SS:60:THR:OG1   | 58:SS:62:ASP:OD1   | 2.26                     | 0.45              |
| 72:SI:141:ARG:NH2  | 84:S2:192:C:OP2    | 2.49                     | 0.45              |
| 75:SN:5:HIS:HB3    | 75:SN:117:LEU:HD13 | 1.98                     | 0.45              |
| 84:S2:115:U:H2'    | 84:S2:116:OMU:C6   | 2.46                     | 0.45              |
| 84:S2:1850:MA6:H8  | 84:S2:1850:MA6:O5' | 2.16                     | 0.45              |
| 85:AT:5:C:H2'      | 85:AT:6:C:C6       | 2.51                     | 0.45              |
| 4:L5:715:G:OP1     | 9:LC:321:ASN:ND2   | 2.46                     | 0.45              |
| 4:L5:1733:G:N3     | 4:L5:4214:A:H2'    | 2.30                     | 0.45              |
| 4:L5:4571:A2M:H2'  | 4:L5:4572:U:C6     | 2.50                     | 0.45              |
| 12:LF:222:LYS:N    | 12:LF:232:ASP:OD1  | 2.48                     | 0.45              |
| 13:LG:187:LYS:HB2  | 13:LG:198:THR:HG23 | 1.98                     | 0.45              |
| 36:Le:76:LYS:HD2   | 36:Le:98:GLU:CD    | 2.42                     | 0.45              |
| 52:SF:103:LEU:HD11 | 61:SZ:67:LEU:HD22  | 1.98                     | 0.45              |
| 56:SQ:102:GLU:HA   | 56:SQ:105:LYS:HB3  | 1.98                     | 0.45              |
| 57:SR:29:HIS:HA    | 57:SR:32:LYS:HG2   | 1.98                     | 0.45              |
| 62:Sc:10:LYS:HE2   | 62:Sc:34:PHE:HD2   | 1.82                     | 0.45              |
| 72:SI:126:GLY:O    | 72:SI:128:LYS:NZ   | 2.48                     | 0.45              |
| 79:SX:63:ASN:OD1   | 84:S2:624:C:N4     | 2.41                     | 0.45              |
| 83:Se:8:ARG:HG2    | 83:Se:11:LYS:HD3   | 1.98                     | 0.45              |
| 4:L5:1751:A:H2'    | 4:L5:1752:G:C8     | 2.52                     | 0.45              |
| 4:L5:2521:G:H4'    | 38:Lg:26:PRO:HD2   | 1.97                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 4:L5:2846:G:O2'    | 27:LV:19:GLY:O     | 2.27                     | 0.45              |
| 4:L5:4934:A:H2'    | 4:L5:4935:C:C6     | 2.51                     | 0.45              |
| 10:LD:152:ARG:HG3  | 10:LD:154:THR:HG23 | 1.99                     | 0.45              |
| 56:SQ:37:ARG:NH2   | 84:S2:1543:U:OP1   | 2.40                     | 0.45              |
| 70:SG:67:VAL:HG12  | 70:SG:69:THR:HG22  | 1.99                     | 0.45              |
| 70:SG:191:ARG:HH22 | 84:S2:312:G:H2'    | 1.81                     | 0.45              |
| 77:SV:74:LYS:HZ1   | 77:SV:83:PHE:HB3   | 1.82                     | 0.45              |
| 82:Sb:68:GLY:O     | 84:S2:928:G:N2     | 2.45                     | 0.45              |
| 86:CF:55:LYS:HE3   | 86:CF:56:TYR:CE2   | 2.52                     | 0.45              |
| 4:L5:197:A:N1      | 4:L5:225:G:O2'     | 2.47                     | 0.45              |
| 4:L5:381:U:H4'     | 4:L5:415:G:H5'     | 1.98                     | 0.45              |
| 4:L5:4219:A:H2'    | 4:L5:4220:6MZ:H8   | 1.98                     | 0.45              |
| 4:L5:4345:C:H2'    | 4:L5:4346:U:H6     | 1.81                     | 0.45              |
| 88:L5:5290:SPM:H31 | 88:L5:5290:SPM:H62 | 1.80                     | 0.45              |
| 8:LB:92:TYR:HB3    | 8:LB:99:LEU:HD22   | 1.98                     | 0.45              |
| 8:LB:258:HIS:HA    | 8:LB:260:ALA:H     | 1.80                     | 0.45              |
| 14:LH:93:ARG:HG2   | 14:LH:182:SER:HB3  | 1.97                     | 0.45              |
| 28:LW:7:SER:HB2    | 28:LW:13:ILE:HD11  | 1.98                     | 0.45              |
| 57:SR:52:GLY:O     | 57:SR:55:THR:OG1   | 2.34                     | 0.45              |
| 80:SY:76:TYR:OH    | 80:SY:86:GLU:OE1   | 2.20                     | 0.45              |
| 84:S2:29:G:H2'     | 84:S2:30:C:C6      | 2.52                     | 0.45              |
| 84:S2:830:A:OP2    | 84:S2:846:G:N2     | 2.49                     | 0.45              |
| 84:S2:929:G:H2'    | 84:S2:930:C:O4'    | 2.17                     | 0.45              |
| 84:S2:1084:A:OP1   | 84:S2:1858:G:O2'   | 2.28                     | 0.45              |
| 84:S2:1139:C:H5    | 84:S2:1149:A:H62   | 1.65                     | 0.45              |
| 84:S2:1221:G:H2'   | 84:S2:1222:G:C8    | 2.52                     | 0.45              |
| 84:S2:1232:PSU:H2' | 84:S2:1233:G:C8    | 2.52                     | 0.45              |
| 84:S2:1420:G:O2'   | 84:S2:1421:A:N3    | 2.49                     | 0.45              |
| 86:CF:241:PRO:HB2  | 86:CF:244:LYS:HG3  | 1.99                     | 0.45              |
| 4:L5:659:G:H2'     | 4:L5:660:A:C8      | 2.51                     | 0.45              |
| 4:L5:662:C:H2'     | 4:L5:663:G:H8      | 1.82                     | 0.45              |
| 4:L5:1683:PSU:H2'  | 4:L5:1684:A:C8     | 2.51                     | 0.45              |
| 4:L5:2676:A:OP2    | 4:L5:2676:A:H8     | 2.00                     | 0.45              |
| 4:L5:3611:A:C2     | 4:L5:5016:A:H8     | 2.34                     | 0.45              |
| 4:L5:4315:A:OP1    | 25:LT:69:GLN:NE2   | 2.47                     | 0.45              |
| 4:L5:4456:OMC:HM21 | 8:LB:241:PRO:HD3   | 1.98                     | 0.45              |
| 30:LY:10:ASP:HB3   | 30:LY:13:LYS:HB2   | 1.99                     | 0.45              |
| 31:LZ:123:LYS:O    | 31:LZ:124:THR:OG1  | 2.25                     | 0.45              |
| 55:SP:34:MET:HB3   | 55:SP:42:ARG:HG3   | 1.97                     | 0.45              |
| 58:SS:63:GLU:O     | 58:SS:67:VAL:HG23  | 2.17                     | 0.45              |
| 65:Sg:62:HIS:NE2   | 65:Sg:80:SER:OG    | 2.35                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 71:SH:37:LYS:HA    | 71:SH:40:LEU:HB3   | 1.98                     | 0.45              |
| 84:S2:1240:A:N3    | 84:S2:1267:C:O2'   | 2.41                     | 0.45              |
| 84:S2:1259:A:N6    | 84:S2:1519:U:O5'   | 2.50                     | 0.45              |
| 84:S2:1667:U:H2'   | 84:S2:1668:U:C6    | 2.51                     | 0.45              |
| 84:S2:1801:A:H2'   | 84:S2:1802:C:H6    | 1.81                     | 0.45              |
| 85:AT:59:A:O2'     | 85:AT:61:A:OP2     | 2.34                     | 0.45              |
| 4:L5:252:C:H2'     | 4:L5:253:G:H8      | 1.82                     | 0.45              |
| 4:L5:3861:A:H2'    | 4:L5:3862:A:H8     | 1.82                     | 0.45              |
| 4:L5:3893:C:O2'    | 4:L5:4979:A:N1     | 2.49                     | 0.45              |
| 4:L5:4260:U:H2'    | 4:L5:4261:C:H6     | 1.82                     | 0.45              |
| 4:L5:4536:OMC:HM22 | 4:L5:4537:C:O4'    | 2.17                     | 0.45              |
| 13:LG:81:ASN:O     | 13:LG:84:THR:OG1   | 2.31                     | 0.45              |
| 20:LO:61:ARG:HA    | 20:LO:70:PRO:HD2   | 1.99                     | 0.45              |
| 21:LP:5:SER:OG     | 21:LP:118:GLN:NE2  | 2.50                     | 0.45              |
| 22:LQ:32:TYR:HD2   | 22:LQ:51:LEU:HD11  | 1.80                     | 0.45              |
| 35:Ld:114:PHE:HA   | 35:Ld:117:LEU:HD12 | 1.99                     | 0.45              |
| 39:Lh:89:ARG:O     | 39:Lh:93:ARG:HG2   | 2.17                     | 0.45              |
| 52:SF:187:SER:OG   | 52:SF:190:ILE:HG12 | 2.16                     | 0.45              |
| 55:SP:81:ARG:NH1   | 55:SP:120:SER:OG   | 2.49                     | 0.45              |
| 65:Sg:191:HIS:ND1  | 65:Sg:195:LEU:HD21 | 2.31                     | 0.45              |
| 66:SA:206:ASP:HB3  | 66:SA:209:GLU:OE1  | 2.17                     | 0.45              |
| 67:SB:136:ARG:HB3  | 67:SB:216:LYS:HG3  | 1.97                     | 0.45              |
| 74:SL:132:ARG:HD3  | 84:S2:114:G:H5'    | 1.98                     | 0.45              |
| 82:Sb:42:LYS:HZ1   | 82:Sb:58:GLY:H     | 1.65                     | 0.45              |
| 84:S2:1255:G:OP1   | 84:S2:1256:G:O2'   | 2.24                     | 0.45              |
| 4:L5:423:G:H5'     | 21:LP:26:PHE:HZ    | 1.82                     | 0.45              |
| 4:L5:1346:C:H2'    | 4:L5:1347:G:H8     | 1.81                     | 0.45              |
| 4:L5:2079:G:H2'    | 4:L5:2080:U:C6     | 2.52                     | 0.45              |
| 4:L5:3760:A:C5     | 84:S2:1826:G:H4'   | 2.52                     | 0.45              |
| 4:L5:4524:G:N3     | 8:LB:252:ALA:HB1   | 2.31                     | 0.45              |
| 9:LC:150:LEU:O     | 9:LC:152:LEU:N     | 2.50                     | 0.45              |
| 13:LG:73:ARG:HD3   | 13:LG:73:ARG:HA    | 1.81                     | 0.45              |
| 18:LM:24:LEU:HB2   | 18:LM:43:THR:HG21  | 1.99                     | 0.45              |
| 28:LW:19:ARG:NH2   | 28:LW:37:GLU:OE2   | 2.50                     | 0.45              |
| 58:SS:37:GLY:N     | 84:S2:1630:A:H5'   | 2.32                     | 0.45              |
| 66:SA:42:LYS:HD3   | 66:SA:46:ILE:HB    | 1.98                     | 0.45              |
| 69:SE:10:LYS:NZ    | 84:S2:95:G:OP1     | 2.33                     | 0.45              |
| 71:SH:145:ARG:HE   | 78:SW:51:GLU:HB2   | 1.82                     | 0.45              |
| 72:SI:56:ARG:HA    | 72:SI:180:GLY:HA2  | 1.98                     | 0.45              |
| 86:CF:10:ILE:HD12  | 86:CF:87:VAL:HG21  | 1.98                     | 0.45              |
| 4:L5:150:U:OP2     | 13:LG:200:THR:OG1  | 2.27                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 4:L5:2474:G:H2'    | 4:L5:2502:G:N2     | 2.31                     | 0.45              |
| 4:L5:2878:G:OP2    | 4:L5:2879:A:O2'    | 2.29                     | 0.45              |
| 4:L5:3595:U:H5''   | 4:L5:3597:G:OP2    | 2.17                     | 0.45              |
| 4:L5:3856:A:H5''   | 21:LP:83:TRP:O     | 2.17                     | 0.45              |
| 4:L5:4088:C:H2'    | 4:L5:4089:G:H8     | 1.82                     | 0.45              |
| 5:L7:120:U:H5''    | 10:LD:262:LYS:HG2  | 1.97                     | 0.45              |
| 6:L8:66:A:H2'      | 6:L8:67:U:C6       | 2.51                     | 0.45              |
| 14:LH:24:THR:HA    | 14:LH:37:ASP:HA    | 1.99                     | 0.45              |
| 14:LH:187:VAL:HG12 | 14:LH:188:GLN:HG3  | 1.99                     | 0.45              |
| 21:LP:52:THR:HG23  | 21:LP:85:LYS:HG3   | 1.99                     | 0.45              |
| 31:LZ:11:VAL:HG12  | 31:LZ:82:PRO:HA    | 1.99                     | 0.45              |
| 55:SP:22:LEU:HA    | 55:SP:25:LEU:HB2   | 1.99                     | 0.45              |
| 58:SS:62:ASP:OD1   | 58:SS:62:ASP:N     | 2.49                     | 0.45              |
| 67:SB:145:LYS:HB2  | 67:SB:145:LYS:HE3  | 1.72                     | 0.45              |
| 70:SG:147:LEU:HD12 | 70:SG:151:ASP:HB2  | 1.99                     | 0.45              |
| 84:S2:629:A:O2'    | 84:S2:631:U:OP1    | 2.34                     | 0.45              |
| 84:S2:639:C:H2'    | 84:S2:640:A:C8     | 2.52                     | 0.45              |
| 84:S2:1217:A:H2'   | 84:S2:1218:C:C6    | 2.50                     | 0.45              |
| 2:Pt:10:G:N2       | 2:Pt:26:G:H1'      | 2.32                     | 0.45              |
| 4:L5:1647:U:OP1    | 89:L5:5288:SPD:H51 | 2.17                     | 0.45              |
| 4:L5:3726:A:H2'    | 4:L5:3727:A:C8     | 2.51                     | 0.45              |
| 4:L5:4238:G:H2'    | 4:L5:4239:A:H8     | 1.82                     | 0.45              |
| 4:L5:4587:G:OP1    | 20:LO:61:ARG:NH1   | 2.46                     | 0.45              |
| 16:LJ:83:LEU:HD22  | 16:LJ:132:VAL:HG11 | 1.99                     | 0.45              |
| 72:SI:45:THR:OG1   | 84:S2:308:G:OP1    | 2.27                     | 0.45              |
| 74:SL:127:THR:HB   | 74:SL:144:LYS:HB3  | 1.99                     | 0.45              |
| 84:S2:186:C:H2'    | 84:S2:187:G:H8     | 1.82                     | 0.45              |
| 84:S2:494:C:N4     | 84:S2:509:OMG:HN22 | 2.15                     | 0.45              |
| 84:S2:1243:U:OP2   | 84:S2:1518:C:O2'   | 2.24                     | 0.45              |
| 3:Et:6:G:H2'       | 3:Et:7:A:C8        | 2.52                     | 0.45              |
| 4:L5:66:A:O2'      | 4:L5:326:C:O2      | 2.35                     | 0.45              |
| 4:L5:137:G:H2'     | 4:L5:138:G:C8      | 2.50                     | 0.45              |
| 4:L5:1912:G:N2     | 20:LO:87:MET:HE2   | 2.32                     | 0.45              |
| 4:L5:2870:A:H2'    | 4:L5:2871:A:C8     | 2.52                     | 0.45              |
| 4:L5:3841:OMC:HM23 | 4:L5:3841:OMC:H1'  | 1.73                     | 0.45              |
| 4:L5:4419:U:H1'    | 85:AT:57:C:N4      | 2.32                     | 0.45              |
| 6:L8:5:U:H2'       | 6:L8:6:C:C6        | 2.52                     | 0.45              |
| 8:LB:206:PRO:HG2   | 8:LB:209:GLN:HG3   | 1.98                     | 0.45              |
| 15:LI:52:MET:HE3   | 15:LI:163:GLN:HG2  | 1.99                     | 0.45              |
| 39:Lh:107:GLN:O    | 39:Lh:111:GLU:HG3  | 2.17                     | 0.45              |
| 53:SK:42:ASN:HA    | 53:SK:45:VAL:HG12  | 1.99                     | 0.45              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 57:SR:99:ASP:OD2   | 66:SA:42:LYS:NZ   | 2.31                     | 0.45              |
| 58:SS:38:ARG:HD2   | 59:ST:45:LEU:HD11 | 1.99                     | 0.45              |
| 59:ST:39:LEU:HD21  | 59:ST:52:TRP:CZ3  | 2.52                     | 0.45              |
| 70:SG:7:PHE:CE2    | 70:SG:9:ALA:HB3   | 2.52                     | 0.45              |
| 81:Sa:12:LYS:HG3   | 81:Sa:15:ARG:HB2  | 1.99                     | 0.45              |
| 84:S2:349:A:H2'    | 84:S2:350:C:C6    | 2.51                     | 0.45              |
| 84:S2:563:G:HO2'   | 84:S2:564:A:P     | 2.39                     | 0.45              |
| 4:L5:424:U:H2'     | 4:L5:425:U:C6     | 2.52                     | 0.44              |
| 4:L5:684:G:H5''    | 11:LE:100:LYS:HE3 | 1.99                     | 0.44              |
| 4:L5:1818:G:O2'    | 4:L5:1820:C:OP2   | 2.26                     | 0.44              |
| 4:L5:2072:C:OP1    | 22:LQ:2:GLY:N     | 2.50                     | 0.44              |
| 4:L5:2306:G:H1'    | 4:L5:2332:A:N6    | 2.32                     | 0.44              |
| 4:L5:5004:C:H2'    | 4:L5:5005:G:O4'   | 2.15                     | 0.44              |
| 8:LB:17:LEU:HD23   | 8:LB:17:LEU:HA    | 1.79                     | 0.44              |
| 11:LE:198:SER:OG   | 11:LE:288:PHE:O   | 2.25                     | 0.44              |
| 19:LN:75:VAL:HG21  | 19:LN:80:THR:HG22 | 1.99                     | 0.44              |
| 27:LV:107:ASN:ND2  | 27:LV:111:GLU:OE2 | 2.44                     | 0.44              |
| 50:Lt:114:ARG:NH2  | 50:Lt:162:CYS:SG  | 2.90                     | 0.44              |
| 65:Sg:268:ASP:OD1  | 65:Sg:269:GLU:N   | 2.50                     | 0.44              |
| 79:SX:105:PHE:CE2  | 79:SX:112:VAL:HB  | 2.52                     | 0.44              |
| 84:S2:348:A:H2'    | 84:S2:349:A:C8    | 2.51                     | 0.44              |
| 84:S2:441:C:H2'    | 84:S2:442:C:C6    | 2.52                     | 0.44              |
| 84:S2:454:U:H2'    | 84:S2:455:A:C8    | 2.52                     | 0.44              |
| 84:S2:1681:U:H2'   | 84:S2:1682:C:C6   | 2.51                     | 0.44              |
| 86:CF:248:LEU:HD23 | 86:CF:267:VAL:HA  | 1.99                     | 0.44              |
| 4:L5:85:G:O2'      | 4:L5:97:G:O6      | 2.29                     | 0.44              |
| 4:L5:138:G:H2'     | 4:L5:139:G:C8     | 2.52                     | 0.44              |
| 4:L5:1282:G:OP2    | 11:LE:128:HIS:NE2 | 2.50                     | 0.44              |
| 4:L5:1824:G:H5''   | 25:LT:35:LYS:HE2  | 1.99                     | 0.44              |
| 4:L5:1960:A:C4     | 49:Ls:14:PHE:HE2  | 2.35                     | 0.44              |
| 4:L5:3654:G:O2'    | 4:L5:3693:U:OP1   | 2.26                     | 0.44              |
| 4:L5:4897:G:H2'    | 4:L5:4898:G:H8    | 1.81                     | 0.44              |
| 13:LG:175:ARG:HG2  | 13:LG:230:TYR:CD2 | 2.52                     | 0.44              |
| 17:LL:126:LEU:N    | 17:LL:138:ASP:OD2 | 2.27                     | 0.44              |
| 51:SD:55:THR:HA    | 51:SD:58:VAL:HG12 | 1.99                     | 0.44              |
| 53:SK:32:HIS:HD2   | 53:SK:45:VAL:HG11 | 1.82                     | 0.44              |
| 64:Sf:107:LYS:NZ   | 64:Sf:108:VAL:O   | 2.51                     | 0.44              |
| 70:SG:87:ARG:HD3   | 70:SG:87:ARG:HA   | 1.70                     | 0.44              |
| 71:SH:18:GLU:OE1   | 71:SH:18:GLU:N    | 2.50                     | 0.44              |
| 80:SY:9:THR:HG22   | 84:S2:837:A:N6    | 2.32                     | 0.44              |
| 4:L5:454:U:H2'     | 4:L5:455:C:O4'    | 2.17                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 4:L5:965:G:H21     | 4:L5:2092:G:H1'    | 1.82                     | 0.44              |
| 4:L5:1881:C:H5'    | 4:L5:2281:U:H1'    | 1.98                     | 0.44              |
| 4:L5:1895:G:OP1    | 12:LF:96:ARG:NH2   | 2.47                     | 0.44              |
| 4:L5:4238:G:H2'    | 4:L5:4239:A:C8     | 2.52                     | 0.44              |
| 4:L5:4419:U:OP1    | 4:L5:4475:G:N2     | 2.48                     | 0.44              |
| 17:LL:140:SER:HA   | 17:LL:143:GLU:HG2  | 1.99                     | 0.44              |
| 50:Lt:151:ILE:O    | 50:Lt:155:ILE:HB   | 2.18                     | 0.44              |
| 61:SZ:86:ALA:HA    | 61:SZ:89:GLN:HE21  | 1.81                     | 0.44              |
| 66:SA:18:PHE:CD1   | 66:SA:23:THR:HG21  | 2.51                     | 0.44              |
| 69:SE:18:TRP:HH2   | 69:SE:31:PRO:HD3   | 1.81                     | 0.44              |
| 69:SE:72:ILE:HD12  | 69:SE:77:ARG:HB2   | 1.99                     | 0.44              |
| 80:SY:77:ASP:OD1   | 80:SY:77:ASP:N     | 2.47                     | 0.44              |
| 4:L5:1998:A:N6     | 49:Ls:40:MET:SD    | 2.90                     | 0.44              |
| 4:L5:2434:G:H5''   | 29:LX:83:THR:CG2   | 2.48                     | 0.44              |
| 4:L5:2876:OMG:HM22 | 4:L5:2877:G:H5'    | 1.99                     | 0.44              |
| 4:L5:4084:G:O6     | 7:LA:72:ARG:NH2    | 2.49                     | 0.44              |
| 4:L5:4508:C:N3     | 4:L5:4512:U:H5     | 2.15                     | 0.44              |
| 4:L5:4594:U:H2'    | 4:L5:4595:G:C8     | 2.48                     | 0.44              |
| 4:L5:4611:A:H2'    | 4:L5:4612:C:H6     | 1.83                     | 0.44              |
| 7:LA:80:GLU:HB2    | 7:LA:170:ALA:HA    | 1.98                     | 0.44              |
| 8:LB:113:GLU:OE2   | 8:LB:169:ARG:NH1   | 2.50                     | 0.44              |
| 35:Ld:44:ARG:HA    | 35:Ld:47:LYS:HE3   | 1.99                     | 0.44              |
| 56:SQ:97:GLN:HB2   | 56:SQ:105:LYS:HG3  | 1.98                     | 0.44              |
| 59:ST:39:LEU:HA    | 59:ST:39:LEU:HD23  | 1.74                     | 0.44              |
| 66:SA:6:ASP:OD1    | 66:SA:6:ASP:N      | 2.50                     | 0.44              |
| 69:SE:152:PRO:HG2  | 70:SG:216:ARG:HG3  | 1.99                     | 0.44              |
| 75:SN:83:ASP:OD1   | 75:SN:84:LEU:N     | 2.50                     | 0.44              |
| 76:SO:149:ARG:NH2  | 84:S2:961:G:OP1    | 2.50                     | 0.44              |
| 77:SV:18:SER:HB3   | 77:SV:72:LEU:HD21  | 2.00                     | 0.44              |
| 84:S2:99:A2M:H8    | 84:S2:99:A2M:O5'   | 2.18                     | 0.44              |
| 84:S2:1560:U:O2    | 84:S2:1575:G:O6    | 2.35                     | 0.44              |
| 3:Et:43:A:H2'      | 3:Et:44:G:H8       | 1.82                     | 0.44              |
| 4:L5:979:C:OP2     | 11:LE:66:LYS:HD3   | 2.17                     | 0.44              |
| 4:L5:4364:G:H2'    | 4:L5:4365:C:H6     | 1.83                     | 0.44              |
| 6:L8:26:C:O2'      | 9:LC:53:ALA:O      | 2.34                     | 0.44              |
| 22:LQ:86:ILE:HD11  | 22:LQ:100:VAL:HG11 | 1.98                     | 0.44              |
| 40:Li:35:LYS:HE3   | 40:Li:35:LYS:HB3   | 1.82                     | 0.44              |
| 55:SP:37:TYR:HB3   | 55:SP:41:GLN:HB2   | 1.99                     | 0.44              |
| 57:SR:24:LEU:HD23  | 57:SR:34:VAL:HG21  | 2.00                     | 0.44              |
| 69:SE:100:ARG:NH2  | 69:SE:118:GLU:OE2  | 2.50                     | 0.44              |
| 84:S2:932:G:O2'    | 84:S2:934:G:OP2    | 2.27                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 84:S2:1010:G:H2'   | 84:S2:1011:A:H8    | 1.82                     | 0.44              |
| 84:S2:1037:G:H4'   | 84:S2:1845:A:H4'   | 1.98                     | 0.44              |
| 86:CF:256:ILE:HB   | 86:CF:259:ILE:HG22 | 2.00                     | 0.44              |
| 86:CF:353:ILE:CG2  | 86:CF:394:LEU:HB2  | 2.47                     | 0.44              |
| 4:L5:473:C:H2'     | 4:L5:474:C:C6      | 2.52                     | 0.44              |
| 4:L5:4742:G:OP1    | 4:L5:4900:C:N4     | 2.36                     | 0.44              |
| 5:L7:110:G:H2'     | 5:L7:111:C:C6      | 2.53                     | 0.44              |
| 7:LA:28:ARG:HD2    | 7:LA:123:ARG:HG3   | 1.99                     | 0.44              |
| 34:Lc:38:ILE:HG21  | 34:Lc:63:TYR:HB3   | 1.98                     | 0.44              |
| 65:Sg:59:LEU:HD23  | 65:Sg:90:TRP:CD2   | 2.53                     | 0.44              |
| 68:SC:121:ARG:HH12 | 68:SC:123:ARG:HE   | 1.65                     | 0.44              |
| 72:SI:86:SER:OG    | 84:S2:376:A:N3     | 2.44                     | 0.44              |
| 73:SJ:5:ARG:HB3    | 84:S2:38:A:H5''    | 2.00                     | 0.44              |
| 85:AT:30:C:O2'     | 85:AT:42:G:N2      | 2.49                     | 0.44              |
| 4:L5:1084:C:H2'    | 4:L5:1085:C:H6     | 1.83                     | 0.44              |
| 4:L5:1359:G:H4'    | 19:LN:203:TYR:HB2  | 2.00                     | 0.44              |
| 4:L5:2399:G:O2'    | 4:L5:2822:G:O2'    | 2.34                     | 0.44              |
| 11:LE:183:ARG:HA   | 11:LE:183:ARG:HD2  | 1.80                     | 0.44              |
| 17:LL:111:GLN:HA   | 17:LL:114:VAL:HG22 | 2.00                     | 0.44              |
| 29:LX:122:ALA:N    | 29:LX:139:ARG:O    | 2.44                     | 0.44              |
| 56:SQ:90:LYS:HA    | 56:SQ:93:VAL:HG22  | 1.99                     | 0.44              |
| 59:ST:96:SER:HB3   | 59:ST:99:VAL:HB    | 1.99                     | 0.44              |
| 63:Sd:8:TRP:HZ3    | 84:S2:1512:C:H5''  | 1.83                     | 0.44              |
| 79:SX:107:ARG:HG2  | 79:SX:112:VAL:HG22 | 2.00                     | 0.44              |
| 83:Se:12:VAL:HG23  | 84:S2:616:A:H1'    | 1.98                     | 0.44              |
| 84:S2:495:U:H2'    | 84:S2:496:C:O4'    | 2.18                     | 0.44              |
| 84:S2:1563:G:H2'   | 84:S2:1564:C:H6    | 1.82                     | 0.44              |
| 4:L5:132:G:H2'     | 4:L5:133:C:H4'     | 1.99                     | 0.44              |
| 4:L5:173:C:H2'     | 4:L5:174:C:C6      | 2.53                     | 0.44              |
| 4:L5:1613:A:H5''   | 7:LA:183:GLY:CA    | 2.48                     | 0.44              |
| 4:L5:2694:G:OP2    | 42:Lk:35:LYS:NZ    | 2.46                     | 0.44              |
| 4:L5:5057:C:H2'    | 4:L5:5058:A:C8     | 2.53                     | 0.44              |
| 29:LX:127:LEU:HD11 | 29:LX:135:LYS:HE3  | 2.00                     | 0.44              |
| 35:Ld:54:MET:HE3   | 35:Ld:60:PRO:HA    | 1.99                     | 0.44              |
| 51:SD:27:ARG:NH1   | 84:S2:1498:A:OP2   | 2.42                     | 0.44              |
| 65:Sg:183:LYS:HA   | 65:Sg:183:LYS:HD2  | 1.83                     | 0.44              |
| 67:SB:29:ASP:OD1   | 67:SB:29:ASP:N     | 2.51                     | 0.44              |
| 72:SI:150:ASP:HA   | 72:SI:153:LYS:CG   | 2.48                     | 0.44              |
| 81:Sa:59:PHE:HB2   | 81:Sa:62:TYR:HB2   | 2.00                     | 0.44              |
| 82:Sb:42:LYS:HE3   | 82:Sb:57:VAL:HG22  | 2.00                     | 0.44              |
| 84:S2:525:A:H2'    | 84:S2:526:A:C8     | 2.50                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 84:S2:573:U:O2     | 84:S2:576:A2M:H8   | 2.17                     | 0.44              |
| 84:S2:1628:C:H2'   | 84:S2:1629:C:C6    | 2.52                     | 0.44              |
| 84:S2:1683:C:H2'   | 84:S2:1684:C:H6    | 1.83                     | 0.44              |
| 84:S2:1777:G:H2'   | 84:S2:1778:C:C6    | 2.53                     | 0.44              |
| 85:AT:38:A:C2      | 85:AT:39:C:C2      | 3.05                     | 0.44              |
| 86:CF:155:MET:HE3  | 86:CF:192:PRO:CB   | 2.48                     | 0.44              |
| 4:L5:494:U:H2'     | 4:L5:495:C:C6      | 2.53                     | 0.44              |
| 4:L5:696:C:H42     | 11:LE:221:LYS:HG3  | 1.82                     | 0.44              |
| 4:L5:716:C:OP1     | 9:LC:317:ASN:HB2   | 2.18                     | 0.44              |
| 4:L5:1537:A:H2'    | 4:L5:1538:U:C6     | 2.53                     | 0.44              |
| 4:L5:1677:PSU:H4'  | 4:L5:1680:G:C2     | 2.53                     | 0.44              |
| 4:L5:2364:OMG:HM23 | 4:L5:2364:OMG:H1'  | 1.84                     | 0.44              |
| 4:L5:2667:C:O4'    | 23:LR:96:MET:HG2   | 2.17                     | 0.44              |
| 4:L5:2765:A:H2'    | 4:L5:2766:A:C8     | 2.52                     | 0.44              |
| 4:L5:2809:G:H5''   | 23:LR:63:CYS:SG    | 2.58                     | 0.44              |
| 4:L5:3813:A:N3     | 4:L5:4538:G:O2'    | 2.45                     | 0.44              |
| 4:L5:4327:C:OP1    | 25:LT:70:HIS:NE2   | 2.50                     | 0.44              |
| 14:LH:128:MET:SD   | 14:LH:157:SER:HB3  | 2.58                     | 0.44              |
| 18:LM:104:MET:HG3  | 18:LM:108:ASP:HB2  | 2.00                     | 0.44              |
| 34:Lc:47:ILE:HB    | 34:Lc:94:LEU:HG    | 2.00                     | 0.44              |
| 34:Lc:82:GLY:HA2   | 34:Lc:91:VAL:HG12  | 2.00                     | 0.44              |
| 49:Ls:18:ILE:HD12  | 49:Ls:21:LEU:HD11  | 1.99                     | 0.44              |
| 57:SR:35:CYS:HA    | 57:SR:38:ILE:HG12  | 1.99                     | 0.44              |
| 58:SS:13:LEU:HD22  | 58:SS:20:ILE:HD11  | 1.99                     | 0.44              |
| 59:ST:101:ARG:NH2  | 84:S2:1566:G:N7    | 2.65                     | 0.44              |
| 60:SU:87:ARG:HH22  | 84:S2:1447:G:P     | 2.41                     | 0.44              |
| 66:SA:220:LYS:HA   | 66:SA:220:LYS:HD3  | 1.84                     | 0.44              |
| 86:CF:360:VAL:HG13 | 86:CF:427:ARG:HB2  | 2.00                     | 0.44              |
| 4:L5:1563:A:N6     | 84:S2:1028:A:N1    | 2.65                     | 0.43              |
| 4:L5:2303:C:H5''   | 36:Le:104:SER:HB3  | 2.00                     | 0.43              |
| 4:L5:2570:U:H2'    | 4:L5:2571:C:C6     | 2.53                     | 0.43              |
| 4:L5:2607:C:O5'    | 23:LR:96:MET:HE1   | 2.18                     | 0.43              |
| 4:L5:2808:G:O3'    | 23:LR:60:ARG:NH1   | 2.51                     | 0.43              |
| 10:LD:33:ARG:O     | 10:LD:37:VAL:HG22  | 2.18                     | 0.43              |
| 12:LF:46:ARG:NH2   | 33:Lb:102:PRO:HG3  | 2.33                     | 0.43              |
| 12:LF:182:TYR:CZ   | 12:LF:203:GLU:HG2  | 2.53                     | 0.43              |
| 18:LM:115:ALA:HB1  | 20:LO:192:TYR:HB3  | 2.00                     | 0.43              |
| 28:LW:119:LYS:O    | 28:LW:123:LYS:HB2  | 2.18                     | 0.43              |
| 53:SK:37:ASP:OD1   | 53:SK:37:ASP:N     | 2.47                     | 0.43              |
| 58:SS:102:GLY:HA2  | 58:SS:105:ASN:HD21 | 1.83                     | 0.43              |
| 69:SE:101:LEU:HD12 | 69:SE:101:LEU:HA   | 1.86                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 84:S2:293:C:O2'    | 84:S2:294:U:H3'    | 2.18                     | 0.43              |
| 84:S2:835:C:H4'    | 84:S2:836:G:C8     | 2.53                     | 0.43              |
| 86:CF:350:PRO:HG2  | 86:CF:429:MET:HE1  | 1.99                     | 0.43              |
| 1:CI:66:GLY:HA3    | 35:Ld:70:LYS:NZ    | 2.33                     | 0.43              |
| 3:Et:41:U:O3'      | 52:SF:198:ARG:NE   | 2.51                     | 0.43              |
| 4:L5:1538:U:H2'    | 4:L5:1539:G:H8     | 1.83                     | 0.43              |
| 4:L5:3606:U:H2'    | 4:L5:3607:U:C6     | 2.53                     | 0.43              |
| 4:L5:4111:U:H2'    | 4:L5:4112:C:H5     | 1.83                     | 0.43              |
| 4:L5:4364:G:H2'    | 4:L5:4365:C:C6     | 2.53                     | 0.43              |
| 12:LF:147:LEU:O    | 12:LF:151:ASN:ND2  | 2.43                     | 0.43              |
| 64:Sf:139:HIS:O    | 64:Sf:147:THR:HA   | 2.17                     | 0.43              |
| 69:SE:80:ILE:HG23  | 69:SE:81:THR:HG23  | 2.00                     | 0.43              |
| 74:SL:23:VAL:HG23  | 74:SL:25:LEU:HG    | 2.00                     | 0.43              |
| 76:SO:101:GLY:HA3  | 76:SO:134:PRO:HD2  | 2.00                     | 0.43              |
| 85:AT:8:U:HO2'     | 85:AT:21:U:H3      | 1.64                     | 0.43              |
| 4:L5:268:G:H2'     | 4:L5:269:G:C8      | 2.51                     | 0.43              |
| 4:L5:1662:C:H2'    | 4:L5:1663:C:H6     | 1.84                     | 0.43              |
| 4:L5:2696:A:OP1    | 42:Lk:26:LYS:NZ    | 2.41                     | 0.43              |
| 4:L5:2845:A:H61    | 4:L5:3843:C:N4     | 2.16                     | 0.43              |
| 4:L5:2864:A:H2'    | 4:L5:2865:U:C6     | 2.52                     | 0.43              |
| 4:L5:3599:A:H2'    | 4:L5:3600:G:C8     | 2.52                     | 0.43              |
| 4:L5:3873:G:H2'    | 4:L5:3874:G:C8     | 2.54                     | 0.43              |
| 4:L5:3911:C:H2'    | 4:L5:3912:U:C6     | 2.52                     | 0.43              |
| 4:L5:3928:A:H2'    | 4:L5:3929:G:O4'    | 2.17                     | 0.43              |
| 4:L5:4076:G:H5'    | 13:LG:73:ARG:HG3   | 1.99                     | 0.43              |
| 4:L5:4126:C:OP1    | 13:LG:37:LYS:NZ    | 2.52                     | 0.43              |
| 4:L5:4291:G:H5'    | 4:L5:4293:PSU:C6   | 2.53                     | 0.43              |
| 4:L5:4743:G:H2'    | 4:L5:4744:A:C8     | 2.53                     | 0.43              |
| 4:L5:4927:G:H5''   | 4:L5:4928:C:H5     | 1.82                     | 0.43              |
| 5:L7:55:A:H4'      | 16:LJ:155:HIS:HB2  | 1.99                     | 0.43              |
| 5:L7:119:U:C2      | 10:LD:261:VAL:HG11 | 2.53                     | 0.43              |
| 14:LH:8:GLN:HG2    | 14:LH:74:CYS:SG    | 2.58                     | 0.43              |
| 16:LJ:17:ILE:HD12  | 16:LJ:80:GLU:HG2   | 2.00                     | 0.43              |
| 18:LM:118:MET:HG2  | 20:LO:192:TYR:CZ   | 2.53                     | 0.43              |
| 36:Le:85:LEU:HD21  | 36:Le:115:ALA:HB2  | 2.00                     | 0.43              |
| 54:SM:91:LEU:HD23  | 54:SM:91:LEU:HA    | 1.80                     | 0.43              |
| 56:SQ:98:LYS:HE3   | 56:SQ:99:TYR:CZ    | 2.54                     | 0.43              |
| 65:Sg:10:THR:HB    | 65:Sg:306:LEU:HD21 | 2.00                     | 0.43              |
| 66:SA:42:LYS:HD2   | 66:SA:48:ILE:HD11  | 2.00                     | 0.43              |
| 66:SA:145:ILE:HG12 | 66:SA:159:ILE:HB   | 1.99                     | 0.43              |
| 69:SE:122:LYS:HE2  | 69:SE:124:CYS:SG   | 2.58                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 70:SG:174:PRO:HB3  | 84:S2:65:C:C6      | 2.54                     | 0.43              |
| 84:S2:601:OMG:HM23 | 84:S2:601:OMG:H1'  | 1.71                     | 0.43              |
| 85:AT:4:U:H2'      | 85:AT:5:C:H6       | 1.82                     | 0.43              |
| 86:CF:418:TYR:CD2  | 86:CF:421:LEU:HD12 | 2.53                     | 0.43              |
| 3:Et:2:C:H2'       | 3:Et:3:C:C6        | 2.52                     | 0.43              |
| 3:Et:76:A:H62      | 4:L5:4371:G:H5'    | 1.83                     | 0.43              |
| 4:L5:1081:C:C2'    | 4:L5:1082:C:H5'    | 2.49                     | 0.43              |
| 4:L5:1826:G:H4'    | 33:Lb:43:MET:HE3   | 2.00                     | 0.43              |
| 4:L5:2017:A:HO2'   | 4:L5:2018:C:P      | 2.42                     | 0.43              |
| 4:L5:2664:G:H4'    | 4:L5:2677:G:H4'    | 1.99                     | 0.43              |
| 4:L5:3690:U:H2'    | 4:L5:3691:G:O4'    | 2.19                     | 0.43              |
| 4:L5:4156:G:H5''   | 4:L5:4157:A:H2'    | 2.00                     | 0.43              |
| 4:L5:4590:A2M:HM'3 | 4:L5:4590:A2M:H1'  | 1.78                     | 0.43              |
| 17:LL:55:ILE:O     | 17:LL:97:SER:OG    | 2.33                     | 0.43              |
| 29:LX:121:VAL:HA   | 29:LX:140:LEU:HA   | 2.00                     | 0.43              |
| 38:Lg:69:LYS:HG3   | 38:Lg:73:HIS:CD2   | 2.53                     | 0.43              |
| 46:Lo:74:GLU:HB3   | 46:Lo:77:CYS:HB3   | 2.01                     | 0.43              |
| 49:Ls:29:ILE:HD11  | 49:Ls:191:GLN:HG2  | 1.99                     | 0.43              |
| 61:SZ:86:ALA:O     | 61:SZ:90:GLU:HG2   | 2.18                     | 0.43              |
| 65:Sg:135:LEU:HD23 | 65:Sg:135:LEU:HA   | 1.88                     | 0.43              |
| 66:SA:184:ARG:NE   | 66:SA:191:ARG:HD3  | 2.33                     | 0.43              |
| 71:SH:18:GLU:C     | 71:SH:20:GLU:H     | 2.26                     | 0.43              |
| 71:SH:177:TYR:O    | 71:SH:181:THR:HB   | 2.19                     | 0.43              |
| 84:S2:136:C:H5''   | 84:S2:137:U:H5''   | 2.00                     | 0.43              |
| 84:S2:152:U:H2'    | 84:S2:153:G:C8     | 2.53                     | 0.43              |
| 84:S2:867:OMG:H1'  | 84:S2:867:OMG:HM23 | 1.74                     | 0.43              |
| 84:S2:1533:A:C8    | 84:S2:1604:G:H1'   | 2.53                     | 0.43              |
| 4:L5:691:C:H2'     | 4:L5:692:A:H8      | 1.83                     | 0.43              |
| 4:L5:1195:G:H2'    | 4:L5:1196:G:C8     | 2.54                     | 0.43              |
| 4:L5:2347:A:C4     | 36:Le:31:ILE:HD11  | 2.54                     | 0.43              |
| 6:L8:36:G:C5       | 39:Lh:89:ARG:HD3   | 2.53                     | 0.43              |
| 7:LA:22:HIS:O      | 7:LA:24:LYS:NZ     | 2.48                     | 0.43              |
| 8:LB:29:VAL:HA     | 8:LB:220:ILE:HD13  | 2.00                     | 0.43              |
| 11:LE:194:VAL:O    | 37:Lf:108:SER:OG   | 2.29                     | 0.43              |
| 37:Lf:45:LYS:HA    | 37:Lf:107:PRO:HD2  | 2.00                     | 0.43              |
| 45:Ln:17:ARG:NH1   | 84:S2:1173:A:OP1   | 2.52                     | 0.43              |
| 70:SG:170:ARG:NH1  | 84:S2:72:C:O2      | 2.52                     | 0.43              |
| 77:SV:74:LYS:NZ    | 77:SV:83:PHE:HB3   | 2.33                     | 0.43              |
| 85:AT:18:G:H4'     | 85:AT:61:A:C6      | 2.53                     | 0.43              |
| 4:L5:1977:C:O2'    | 4:L5:1978:C:OP1    | 2.36                     | 0.43              |
| 4:L5:2421:G:OP2    | 4:L5:2828:U:H1'    | 2.19                     | 0.43              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 4:L5:2671:C:H2'   | 4:L5:2672:C:C6     | 2.54                     | 0.43              |
| 4:L5:2730:U:H2'   | 4:L5:2731:C:C6     | 2.53                     | 0.43              |
| 4:L5:4458:C:H2'   | 4:L5:4459:U:C6     | 2.54                     | 0.43              |
| 4:L5:4507:A:HO2'  | 27:LV:41:SER:HG    | 1.66                     | 0.43              |
| 7:LA:115:CYS:SG   | 7:LA:124:GLY:HA3   | 2.59                     | 0.43              |
| 20:LO:88:LEU:HD12 | 20:LO:99:LEU:HD13  | 2.01                     | 0.43              |
| 28:LW:97:LYS:O    | 28:LW:99:GLU:N     | 2.50                     | 0.43              |
| 50:Lt:81:ILE:HD13 | 50:Lt:113:ALA:HB1  | 2.01                     | 0.43              |
| 53:SK:31:LYS:HZ3  | 53:SK:39:ASN:N     | 2.16                     | 0.43              |
| 72:SI:149:TYR:O   | 72:SI:153:LYS:HG2  | 2.19                     | 0.43              |
| 80:SY:9:THR:HG22  | 84:S2:837:A:H61    | 1.84                     | 0.43              |
| 84:S2:27:A2M:HM'3 | 84:S2:27:A2M:H1'   | 1.62                     | 0.43              |
| 84:S2:1047:C:H2'  | 84:S2:1048:G:O4'   | 2.19                     | 0.43              |
| 84:S2:1101:U:H2'  | 84:S2:1102:G:C8    | 2.54                     | 0.43              |
| 4:L5:92:C:OP2     | 4:L5:4341:C:O2'    | 2.28                     | 0.43              |
| 4:L5:408:A:O2'    | 4:L5:411:G:OP2     | 2.25                     | 0.43              |
| 4:L5:498:C:C2     | 4:L5:499:G:H1'     | 2.54                     | 0.43              |
| 4:L5:1466:G:OP2   | 33:Lb:44:ARG:NH2   | 2.51                     | 0.43              |
| 4:L5:4685:U:H2'   | 4:L5:4686:G:C8     | 2.53                     | 0.43              |
| 8:LB:46:PHE:CZ    | 8:LB:84:MET:HG2    | 2.53                     | 0.43              |
| 10:LD:203:ASN:OD1 | 10:LD:203:ASN:N    | 2.51                     | 0.43              |
| 12:LF:214:SER:OG  | 12:LF:215:SER:N    | 2.51                     | 0.43              |
| 19:LN:159:ARG:HB3 | 19:LN:164:LEU:HB2  | 1.99                     | 0.43              |
| 30:LY:72:GLN:HE21 | 30:LY:74:TYR:HD1   | 1.67                     | 0.43              |
| 33:Lb:43:MET:HE2  | 33:Lb:47:LYS:NZ    | 2.33                     | 0.43              |
| 45:Ln:2:ARG:NE    | 84:S2:1842:4AC:OP2 | 2.42                     | 0.43              |
| 62:Sc:10:LYS:HE2  | 62:Sc:34:PHE:CD2   | 2.54                     | 0.43              |
| 67:SB:147:ASN:OD1 | 67:SB:148:ASN:N    | 2.51                     | 0.43              |
| 68:SC:64:THR:HG22 | 68:SC:66:LEU:H     | 1.83                     | 0.43              |
| 70:SG:136:LYS:HB2 | 84:S2:65:C:H41     | 1.84                     | 0.43              |
| 72:SI:139:LYS:HE2 | 72:SI:139:LYS:HB2  | 1.70                     | 0.43              |
| 76:SO:63:LYS:HD3  | 76:SO:63:LYS:HA    | 1.86                     | 0.43              |
| 84:S2:1347:U:H2'  | 84:S2:1348:G:N3    | 2.33                     | 0.43              |
| 84:S2:1653:U:H2'  | 84:S2:1654:G:C8    | 2.53                     | 0.43              |
| 84:S2:1839:U:H2'  | 84:S2:1840:U:C6    | 2.54                     | 0.43              |
| 4:L5:457:G:H2'    | 4:L5:458:C:C6      | 2.54                     | 0.43              |
| 4:L5:1645:C:H2'   | 4:L5:1646:A:C8     | 2.54                     | 0.43              |
| 4:L5:3610:A:H2'   | 4:L5:3611:A:C8     | 2.54                     | 0.43              |
| 4:L5:4742:G:H2'   | 4:L5:4743:G:C8     | 2.54                     | 0.43              |
| 4:L5:4913:G:H4'   | 4:L5:4914:C:O5'    | 2.18                     | 0.43              |
| 6:L8:39:G:H1'     | 6:L8:103:A:N6      | 2.34                     | 0.43              |

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| Atom-1             | Atom-2              | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|---------------------|--------------------------|-------------------|
| 6:L8:90:C:H1'      | 30:LY:24:HIS:HB3    | 2.00                     | 0.43              |
| 9:LC:221:PHE:O     | 9:LC:222:ARG:HG2    | 2.19                     | 0.43              |
| 18:LM:37:LEU:HD22  | 24:LS:75:VAL:HG23   | 2.00                     | 0.43              |
| 28:LW:52:THR:O     | 28:LW:56:ARG:HG2    | 2.18                     | 0.43              |
| 30:LY:23:SER:HA    | 30:LY:26:ARG:HB2    | 2.00                     | 0.43              |
| 35:Ld:33:ILE:HD11  | 35:Ld:45:ALA:HA     | 1.99                     | 0.43              |
| 39:Lh:95:LEU:HD22  | 39:Lh:99:GLU:HG3    | 1.99                     | 0.43              |
| 43:Ll:12:PHE:CE2   | 43:Ll:51:LEU:HD22   | 2.54                     | 0.43              |
| 50:Lt:150:ASP:OD1  | 50:Lt:151:ILE:N     | 2.51                     | 0.43              |
| 57:SR:111:PHE:HE1  | 66:SA:12:GLU:HG3    | 1.84                     | 0.43              |
| 60:SU:19:ARG:HB3   | 60:SU:92:HIS:CD2    | 2.54                     | 0.43              |
| 66:SA:177:MET:SD   | 66:SA:180:ARG:NH2   | 2.92                     | 0.43              |
| 68:SC:74:LYS:HA    | 68:SC:74:LYS:HD3    | 1.88                     | 0.43              |
| 71:SH:58:LYS:HA    | 71:SH:58:LYS:HD2    | 1.82                     | 0.43              |
| 84:S2:116:OMU:HN3  | 84:S2:347:G:H1      | 1.66                     | 0.43              |
| 84:S2:194:C:H2'    | 84:S2:195:C:H6      | 1.84                     | 0.43              |
| 84:S2:609:U:H2'    | 84:S2:610:G:H8      | 1.82                     | 0.43              |
| 85:AT:60:A:H3'     | 85:AT:61:A:H8       | 1.83                     | 0.43              |
| 4:L5:400:A2M:H1'   | 4:L5:400:A2M:HM'3   | 1.63                     | 0.43              |
| 4:L5:490:C:H2'     | 4:L5:491:G:H8       | 1.82                     | 0.43              |
| 4:L5:730:G:OP2     | 12:LF:76:ARG:NE     | 2.47                     | 0.43              |
| 4:L5:1404:G:N7     | 4:L5:1408:G:N1      | 2.66                     | 0.43              |
| 4:L5:1847:C:H2'    | 4:L5:1848:C:C6      | 2.54                     | 0.43              |
| 4:L5:2465:C:H2'    | 4:L5:2466:G:O4'     | 2.19                     | 0.43              |
| 4:L5:3785:A2M:H2   | 4:L5:4551:U:O2      | 2.18                     | 0.43              |
| 4:L5:4187:G:OP1    | 88:L5:5266:SPM:H111 | 2.19                     | 0.43              |
| 8:LB:393:LYS:HG3   | 8:LB:396:ARG:HH21   | 1.83                     | 0.43              |
| 10:LD:211:LEU:HB3  | 10:LD:219:TYR:HB2   | 2.01                     | 0.43              |
| 11:LE:203:ILE:O    | 11:LE:206:VAL:HG22  | 2.19                     | 0.43              |
| 19:LN:200:LEU:HD22 | 19:LN:204:ARG:NH1   | 2.33                     | 0.43              |
| 23:LR:182:GLU:HA   | 23:LR:185:ILE:HD13  | 2.01                     | 0.43              |
| 46:Lo:78:ARG:O     | 46:Lo:80:LYS:NZ     | 2.52                     | 0.43              |
| 61:SZ:48:VAL:HG23  | 61:SZ:80:ARG:HD2    | 2.00                     | 0.43              |
| 65:Sg:17:TRP:HB2   | 65:Sg:36:ARG:HD3    | 2.00                     | 0.43              |
| 72:SI:64:ASN:OD1   | 72:SI:73:THR:HG22   | 2.18                     | 0.43              |
| 84:S2:1279:C:H2'   | 84:S2:1280:G:H8     | 1.84                     | 0.43              |
| 84:S2:1754:G:N7    | 84:S2:1779:G:N2     | 2.66                     | 0.43              |
| 84:S2:1759:G:N2    | 84:S2:1760:G:O6     | 2.50                     | 0.43              |
| 85:AT:10:G:H2'     | 85:AT:11:U:H6       | 1.83                     | 0.43              |
| 86:CF:244:LYS:H    | 86:CF:244:LYS:HG2   | 1.63                     | 0.43              |
| 3:Et:15:G:N1       | 3:Et:59:G:N7        | 2.66                     | 0.43              |

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| Atom-1             | Atom-2              | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|---------------------|--------------------------|-------------------|
| 4:L5:108:A:N1      | 4:L5:333:U:O2'      | 2.49                     | 0.43              |
| 4:L5:262:G:H2'     | 4:L5:263:G:C8       | 2.53                     | 0.43              |
| 4:L5:1392:A:H2'    | 4:L5:1393:G:C8      | 2.54                     | 0.43              |
| 4:L5:1751:A:H2'    | 4:L5:1752:G:H8      | 1.84                     | 0.43              |
| 4:L5:2415:U:H2'    | 4:L5:2416:G:C8      | 2.54                     | 0.43              |
| 4:L5:3722:G:H2'    | 4:L5:3723:A:H8      | 1.83                     | 0.43              |
| 88:L5:5262:SPM:HN0 | 88:L5:5262:SPM:H131 | 1.54                     | 0.43              |
| 5:L7:63:C:H5'      | 5:L7:64:G:H5''      | 2.01                     | 0.43              |
| 41:Lj:67:LEU:HD23  | 41:Lj:67:LEU:HA     | 1.87                     | 0.43              |
| 59:ST:104:LEU:HD22 | 59:ST:121:ARG:HD2   | 2.01                     | 0.43              |
| 60:SU:38:ASP:OD1   | 60:SU:39:LEU:N      | 2.51                     | 0.43              |
| 63:Sd:56:ASP:OXT   | 84:S2:1480:A:O2'    | 2.31                     | 0.43              |
| 68:SC:167:ARG:HB3  | 68:SC:177:PRO:HB2   | 2.00                     | 0.43              |
| 68:SC:214:LEU:HD22 | 68:SC:244:ILE:HD11  | 2.01                     | 0.43              |
| 76:SO:113:GLN:OE1  | 81:Sa:46:GLU:N      | 2.52                     | 0.43              |
| 80:SY:68:LYS:HE2   | 80:SY:68:LYS:HB3    | 1.76                     | 0.43              |
| 84:S2:1102:G:H2'   | 84:S2:1103:C:C6     | 2.54                     | 0.43              |
| 84:S2:1278:A:H2'   | 84:S2:1279:C:C6     | 2.54                     | 0.43              |
| 84:S2:1540:G:H2'   | 84:S2:1541:G:H8     | 1.84                     | 0.43              |
| 84:S2:1797:U:H2'   | 84:S2:1798:C:C6     | 2.54                     | 0.43              |
| 84:S2:1845:A:H2'   | 84:S2:1846:G:H8     | 1.82                     | 0.43              |
| 86:CF:281:ALA:HB2  | 86:CF:334:PRO:HB2   | 2.00                     | 0.43              |
| 4:L5:264:C:H2'     | 4:L5:265:C:C4       | 2.54                     | 0.42              |
| 4:L5:1084:C:H2'    | 4:L5:1085:C:C6      | 2.53                     | 0.42              |
| 4:L5:2864:A:H2'    | 4:L5:2865:U:H6      | 1.84                     | 0.42              |
| 4:L5:3782:5MC:OP1  | 45:Ln:23:ARG:NH2    | 2.52                     | 0.42              |
| 4:L5:3867:A2M:H2'  | 4:L5:3868:G:O4'     | 2.18                     | 0.42              |
| 4:L5:4392:OMG:H2'  | 4:L5:4447:5MC:HM51  | 2.01                     | 0.42              |
| 4:L5:4589:A:N1     | 4:L5:4621:C:O2'     | 2.40                     | 0.42              |
| 5:L7:111:C:H2'     | 5:L7:112:U:O4'      | 2.19                     | 0.42              |
| 6:L8:67:U:H2'      | 6:L8:68:G:C8        | 2.54                     | 0.42              |
| 7:LA:20:VAL:HA     | 7:LA:23:ARG:HG3     | 1.99                     | 0.42              |
| 15:LI:73:ASN:HB2   | 15:LI:87:MET:HE1    | 2.00                     | 0.42              |
| 29:LX:82:THR:HG21  | 39:Lh:37:THR:HG22   | 2.01                     | 0.42              |
| 55:SP:120:SER:OG   | 55:SP:120:SER:O     | 2.35                     | 0.42              |
| 65:Sg:270:LEU:HD13 | 65:Sg:310:TRP:CE3   | 2.54                     | 0.42              |
| 65:Sg:283:PRO:O    | 65:Sg:285:GLN:NE2   | 2.52                     | 0.42              |
| 66:SA:147:LEU:HD13 | 66:SA:161:ILE:HB    | 2.01                     | 0.42              |
| 78:SW:28:ARG:HB3   | 78:SW:29:PRO:HD3    | 2.00                     | 0.42              |
| 79:SX:88:ASP:HA    | 84:S2:617:G:H4'     | 2.01                     | 0.42              |
| 85:AT:51:U:H3      | 85:AT:65:G:H1       | 1.67                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 4:L5:252:C:H2'     | 4:L5:253:G:C8      | 2.54                     | 0.42              |
| 4:L5:922:C:H2'     | 4:L5:923:C:O4'     | 2.19                     | 0.42              |
| 4:L5:1625:OMG:HM23 | 19:LN:81:TYR:HE2   | 1.84                     | 0.42              |
| 4:L5:2638:G:H22    | 4:L5:2719:C:P      | 2.41                     | 0.42              |
| 4:L5:3718:A2M:H2'  | 4:L5:3719:A:O4'    | 2.19                     | 0.42              |
| 4:L5:4322:G:N2     | 4:L5:4325:A:OP2    | 2.43                     | 0.42              |
| 4:L5:4887:C:N4     | 4:L5:4932:U:H3     | 2.16                     | 0.42              |
| 89:L5:5282:SPD:H82 | 89:L5:5282:SPD:H51 | 1.78                     | 0.42              |
| 5:L7:4:U:H2'       | 5:L7:5:A:H8        | 1.84                     | 0.42              |
| 25:LT:28:ALA:O     | 25:LT:32:ARG:HG2   | 2.19                     | 0.42              |
| 41:Lj:85:LYS:HB3   | 41:Lj:85:LYS:HE3   | 1.71                     | 0.42              |
| 51:SD:215:ASP:OD1  | 51:SD:216:GLU:N    | 2.46                     | 0.42              |
| 52:SF:79:HIS:O     | 52:SF:81:ARG:N     | 2.48                     | 0.42              |
| 52:SF:167:LYS:HA   | 61:SZ:71:ALA:HB1   | 2.01                     | 0.42              |
| 56:SQ:110:ASP:OD1  | 56:SQ:110:ASP:N    | 2.49                     | 0.42              |
| 67:SB:83:LYS:HD3   | 67:SB:106:THR:HG22 | 2.01                     | 0.42              |
| 76:SO:147:ARG:HH22 | 84:S2:1854:U:P     | 2.42                     | 0.42              |
| 84:S2:166:A2M:HM'3 | 84:S2:166:A2M:H1'  | 1.66                     | 0.42              |
| 84:S2:186:C:H2'    | 84:S2:187:G:C8     | 2.54                     | 0.42              |
| 84:S2:194:C:H2'    | 84:S2:195:C:C6     | 2.53                     | 0.42              |
| 84:S2:693:A:H2'    | 84:S2:694:G:N7     | 2.33                     | 0.42              |
| 84:S2:1217:A:H2'   | 84:S2:1218:C:H6    | 1.84                     | 0.42              |
| 84:S2:1259:A:H1'   | 84:S2:1264:C:N4    | 2.34                     | 0.42              |
| 84:S2:1719:A:N6    | 84:S2:1814:G:O2'   | 2.52                     | 0.42              |
| 1:CI:72:ARG:NH2    | 23:LR:25:ASP:OD2   | 2.47                     | 0.42              |
| 3:Et:35:U:H2'      | 3:Et:36:U:C6       | 2.54                     | 0.42              |
| 4:L5:908:G:H2'     | 4:L5:909:A:H8      | 1.83                     | 0.42              |
| 4:L5:1175:A:H2     | 4:L5:1185:G:H1     | 1.66                     | 0.42              |
| 4:L5:1178:G:H2'    | 10:LD:286:SER:HB3  | 2.00                     | 0.42              |
| 4:L5:1278:C:H2'    | 4:L5:1279:A:O4'    | 2.19                     | 0.42              |
| 4:L5:1510:G:H2'    | 4:L5:1511:U:C6     | 2.55                     | 0.42              |
| 4:L5:1981:G:N1     | 4:L5:1982:G:O6     | 2.52                     | 0.42              |
| 4:L5:2335:C:H2'    | 4:L5:2336:G:H8     | 1.85                     | 0.42              |
| 4:L5:2448:G:H2'    | 4:L5:2449:A:C8     | 2.55                     | 0.42              |
| 4:L5:4524:G:OP1    | 4:L5:4559:A:N6     | 2.47                     | 0.42              |
| 4:L5:4987:C:P      | 8:LB:116:ARG:HH22  | 2.41                     | 0.42              |
| 20:LO:142:ALA:HA   | 20:LO:145:VAL:HG12 | 2.00                     | 0.42              |
| 22:LQ:110:ARG:HG3  | 22:LQ:120:ILE:HD12 | 2.00                     | 0.42              |
| 36:Le:35:TRP:CZ2   | 36:Le:56:PRO:HD2   | 2.54                     | 0.42              |
| 53:SK:91:PRO:HB2   | 53:SK:94:LEU:HD23  | 2.01                     | 0.42              |
| 67:SB:214:LYS:HE2  | 67:SB:216:LYS:HE3  | 2.02                     | 0.42              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 69:SE:186:GLY:HA3  | 84:S2:809:A:OP1   | 2.20                     | 0.42              |
| 84:S2:659:G:O2'    | 84:S2:662:G:O2'   | 2.29                     | 0.42              |
| 84:S2:1112:U:O2    | 84:S2:1121:G:O6   | 2.38                     | 0.42              |
| 84:S2:1401:A:H2'   | 84:S2:1402:A:C8   | 2.53                     | 0.42              |
| 84:S2:1563:G:H2'   | 84:S2:1564:C:C6   | 2.55                     | 0.42              |
| 86:CF:237:PRO:HA   | 86:CF:238:PRO:HD3 | 1.92                     | 0.42              |
| 86:CF:347:LEU:C    | 86:CF:396:SER:HG  | 2.27                     | 0.42              |
| 4:L5:1352:C:O2'    | 4:L5:1356:U:OP1   | 2.32                     | 0.42              |
| 4:L5:1979:A:H1'    | 4:L5:1988:G:N2    | 2.34                     | 0.42              |
| 4:L5:3656:A:H2'    | 4:L5:3657:U:H6    | 1.83                     | 0.42              |
| 4:L5:3937:C:O2'    | 19:LN:124:ASP:OD1 | 2.37                     | 0.42              |
| 4:L5:5006:U:H4'    | 4:L5:5007:A:H5'   | 2.01                     | 0.42              |
| 6:L8:102:G:H5''    | 41:Lj:39:TYR:HE1  | 1.83                     | 0.42              |
| 10:LD:37:VAL:HG12  | 10:LD:50:ARG:HD3  | 2.01                     | 0.42              |
| 16:LJ:35:ARG:O     | 16:LJ:39:VAL:HG23 | 2.20                     | 0.42              |
| 20:LO:28:LEU:HD23  | 20:LO:28:LEU:HA   | 1.94                     | 0.42              |
| 23:LR:176:ARG:NH1  | 23:LR:177:LEU:HG  | 2.35                     | 0.42              |
| 25:LT:39:ILE:HG13  | 25:LT:102:ARG:HE  | 1.85                     | 0.42              |
| 58:SS:78:LYS:HD3   | 58:SS:78:LYS:HA   | 1.75                     | 0.42              |
| 68:SC:202:THR:HG23 | 73:SJ:54:ARG:HH22 | 1.84                     | 0.42              |
| 73:SJ:28:GLU:OE2   | 73:SJ:44:TRP:NE1  | 2.41                     | 0.42              |
| 78:SW:5:ASN:HB3    | 78:SW:8:ALA:HB3   | 2.00                     | 0.42              |
| 84:S2:517:OMC:H2'  | 84:S2:518:G:O4'   | 2.19                     | 0.42              |
| 84:S2:888:U:O2'    | 84:S2:898:U:N3    | 2.49                     | 0.42              |
| 84:S2:1279:C:H2'   | 84:S2:1280:G:C8   | 2.54                     | 0.42              |
| 84:S2:1733:U:H2'   | 84:S2:1734:G:O4'  | 2.20                     | 0.42              |
| 84:S2:1779:G:H2'   | 84:S2:1780:G:C8   | 2.53                     | 0.42              |
| 85:AT:22:A:H2'     | 85:AT:23:U:C6     | 2.53                     | 0.42              |
| 4:L5:37:U:H2'      | 4:L5:38:A:O4'     | 2.19                     | 0.42              |
| 4:L5:491:G:H2'     | 4:L5:492:U:C6     | 2.55                     | 0.42              |
| 4:L5:1410:U:H3     | 33:Lb:52:LYS:NZ   | 2.17                     | 0.42              |
| 4:L5:1631:A:C8     | 7:LA:199:VAL:HG21 | 2.55                     | 0.42              |
| 4:L5:1806:G:H2'    | 4:L5:1807:C:H6    | 1.83                     | 0.42              |
| 4:L5:2017:A:HO2'   | 4:L5:2018:C:C5'   | 2.31                     | 0.42              |
| 4:L5:2517:A:N3     | 4:L5:2539:C:O2'   | 2.49                     | 0.42              |
| 7:LA:145:LYS:HA    | 7:LA:145:LYS:HD3  | 1.84                     | 0.42              |
| 43:Ll:28:ARG:HA    | 43:Ll:33:ASN:ND2  | 2.32                     | 0.42              |
| 51:SD:163:PRO:O    | 51:SD:167:TYR:HB2 | 2.20                     | 0.42              |
| 53:SK:64:TRP:CD2   | 63:Sd:23:VAL:HG22 | 2.54                     | 0.42              |
| 59:ST:72:VAL:O     | 59:ST:76:THR:HG23 | 2.19                     | 0.42              |
| 66:SA:104:THR:O    | 66:SA:107:THR:OG1 | 2.36                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 66:SA:215:GLN:O    | 66:SA:219:GLU:HG2  | 2.19                     | 0.42              |
| 70:SG:227:GLN:HB3  | 70:SG:231:ARG:HH21 | 1.83                     | 0.42              |
| 71:SH:118:ARG:HD3  | 71:SH:118:ARG:HA   | 1.90                     | 0.42              |
| 76:SO:96:LYS:HD3   | 76:SO:132:VAL:HG11 | 2.02                     | 0.42              |
| 79:SX:9:THR:HG22   | 84:S2:681:PSU:H4'  | 2.02                     | 0.42              |
| 79:SX:28:LYS:O     | 79:SX:32:LEU:HB2   | 2.19                     | 0.42              |
| 84:S2:1597:C:H4'   | 84:S2:1603:G:O6    | 2.19                     | 0.42              |
| 85:AT:18:G:H4'     | 85:AT:61:A:N1      | 2.34                     | 0.42              |
| 85:AT:53:G:C2      | 85:AT:64:G:C2      | 3.07                     | 0.42              |
| 4:L5:1308:C:H2'    | 4:L5:1309:C:C6     | 2.55                     | 0.42              |
| 4:L5:2543:A:H2     | 4:L5:2773:G:H22    | 1.67                     | 0.42              |
| 4:L5:2844:A:O2'    | 4:L5:4631:G:H4'    | 2.20                     | 0.42              |
| 4:L5:3822:PSU:OP1  | 88:L5:5289:SPM:N5  | 2.31                     | 0.42              |
| 4:L5:4389:C:H2'    | 4:L5:4390:A:H8     | 1.85                     | 0.42              |
| 4:L5:4637:OMG:HM23 | 4:L5:4637:OMG:H1'  | 1.77                     | 0.42              |
| 6:L8:144:U:H2'     | 6:L8:145:C:C6      | 2.54                     | 0.42              |
| 8:LB:337:VAL:HG11  | 8:LB:345:LEU:HD13  | 2.02                     | 0.42              |
| 10:LD:53:VAL:HG11  | 10:LD:159:VAL:HA   | 2.01                     | 0.42              |
| 11:LE:227:HIS:HE1  | 11:LE:230:GLY:HA2  | 1.83                     | 0.42              |
| 12:LF:236:ARG:HD3  | 12:LF:239:GLN:HB2  | 2.02                     | 0.42              |
| 22:LQ:69:LYS:HA    | 22:LQ:69:LYS:HD3   | 1.89                     | 0.42              |
| 31:LZ:41:ALA:HB2   | 31:LZ:77:TYR:HE1   | 1.84                     | 0.42              |
| 36:Le:99:ILE:HD13  | 36:Le:108:ARG:HB2  | 2.02                     | 0.42              |
| 46:Lo:4:VAL:HG23   | 46:Lo:93:LEU:HD23  | 2.02                     | 0.42              |
| 49:Ls:78:LEU:O     | 49:Ls:82:ILE:HG12  | 2.19                     | 0.42              |
| 52:SF:112:LEU:HD13 | 52:SF:177:LEU:HD21 | 2.02                     | 0.42              |
| 62:Sc:44:ARG:NH2   | 62:Sc:63:ARG:HH11  | 2.18                     | 0.42              |
| 72:SI:141:ARG:HA   | 72:SI:141:ARG:CZ   | 2.50                     | 0.42              |
| 77:SV:11:LEU:HD23  | 77:SV:11:LEU:H     | 1.84                     | 0.42              |
| 79:SX:34:THR:HG21  | 84:S2:1189:A:H4'   | 2.01                     | 0.42              |
| 84:S2:382:C:H2'    | 84:S2:383:G:C8     | 2.55                     | 0.42              |
| 4:L5:72:C:H5       | 17:LL:67:HIS:HD1   | 1.66                     | 0.42              |
| 4:L5:1613:A:H5''   | 7:LA:183:GLY:HA2   | 2.02                     | 0.42              |
| 4:L5:2326:G:H5''   | 36:Le:127:ALA:HB1  | 2.00                     | 0.42              |
| 4:L5:4113:U:H4'    | 4:L5:4115:G:C5     | 2.55                     | 0.42              |
| 4:L5:4578:G:H2'    | 4:L5:4579:PSU:C6   | 2.55                     | 0.42              |
| 4:L5:4638:U:H2'    | 4:L5:4639:G:N3     | 2.35                     | 0.42              |
| 4:L5:4940:C:H5'    | 4:L5:4941:G:H5''   | 2.01                     | 0.42              |
| 9:LC:279:LEU:HD23  | 9:LC:279:LEU:HA    | 1.88                     | 0.42              |
| 15:LI:14:ASN:O     | 15:LI:128:ARG:NH2  | 2.24                     | 0.42              |
| 15:LI:51:HIS:CD2   | 15:LI:168:SER:HB3  | 2.54                     | 0.42              |

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| Atom-1             | Atom-2              | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|---------------------|--------------------------|-------------------|
| 21:LP:76:TRP:CD1   | 21:LP:76:TRP:H      | 2.37                     | 0.42              |
| 24:LS:69:GLU:HG3   | 24:LS:71:SER:H      | 1.84                     | 0.42              |
| 24:LS:93:MET:HE1   | 24:LS:117:HIS:CE1   | 2.54                     | 0.42              |
| 28:LW:47:ARG:HE    | 28:LW:54:LEU:HD22   | 1.85                     | 0.42              |
| 30:LY:50:ARG:HB3   | 30:LY:53:ASP:OD2    | 2.19                     | 0.42              |
| 40:Li:76:ARG:HD3   | 40:Li:76:ARG:HA     | 1.80                     | 0.42              |
| 50:Lt:119:ARG:NH2  | 50:Lt:123:ARG:HH12  | 2.18                     | 0.42              |
| 60:SU:19:ARG:HH11  | 60:SU:92:HIS:HB3    | 1.85                     | 0.42              |
| 71:SH:63:PHE:HB3   | 71:SH:97:GLN:HG3    | 2.01                     | 0.42              |
| 84:S2:24:C:HO2'    | 84:S2:25:A:H8       | 1.66                     | 0.42              |
| 84:S2:496:C:H2'    | 84:S2:497:C:H6      | 1.85                     | 0.42              |
| 3:Et:2:C:H2'       | 3:Et:3:C:H6         | 1.85                     | 0.42              |
| 4:L5:1172:C:O2'    | 4:L5:1173:G:H8      | 2.02                     | 0.42              |
| 4:L5:1177:U:O2'    | 10:LD:286:SER:OG    | 2.28                     | 0.42              |
| 4:L5:1703:C:O2'    | 4:L5:1704:C:O5'     | 2.38                     | 0.42              |
| 4:L5:2521:G:H5'    | 4:L5:2640:G:H1'     | 2.02                     | 0.42              |
| 4:L5:2823:G:N7     | 23:LR:20:LYS:HD3    | 2.35                     | 0.42              |
| 4:L5:3684:G:H2'    | 4:L5:3685:C:C6      | 2.55                     | 0.42              |
| 13:LG:176:LYS:HD3  | 40:Li:43:MET:HE1    | 2.02                     | 0.42              |
| 23:LR:82:LYS:HA    | 23:LR:82:LYS:HD2    | 1.87                     | 0.42              |
| 33:Lb:65:MET:HG3   | 33:Lb:68:ARG:HH12   | 1.85                     | 0.42              |
| 52:SF:123:GLU:OE1  | 62:Sc:63:ARG:NH2    | 2.53                     | 0.42              |
| 53:SK:47:LYS:HZ2   | 84:S2:1274:G:H4'    | 1.84                     | 0.42              |
| 54:SM:20:GLU:HG2   | 54:SM:119:GLN:HB2   | 2.00                     | 0.42              |
| 57:SR:7:LYS:NZ     | 84:S2:1373:C:OP1    | 2.41                     | 0.42              |
| 58:SS:92:ASP:OD1   | 58:SS:92:ASP:N      | 2.51                     | 0.42              |
| 60:SU:61:LEU:HB2   | 60:SU:82:MET:HB3    | 2.02                     | 0.42              |
| 69:SE:27:PHE:O     | 84:S2:495:U:O2'     | 2.37                     | 0.42              |
| 69:SE:139:LEU:HD22 | 69:SE:147:ILE:HD11  | 2.01                     | 0.42              |
| 70:SG:31:ARG:NH1   | 84:S2:1745:A:O3'    | 2.52                     | 0.42              |
| 72:SI:161:LEU:HD23 | 72:SI:195:LEU:HG    | 2.01                     | 0.42              |
| 84:S2:1139:C:H2'   | 84:S2:1140:G:O4'    | 2.19                     | 0.42              |
| 84:S2:1328:OMG:H1' | 84:S2:1328:OMG:HM23 | 1.80                     | 0.42              |
| 84:S2:1533:A:H62   | 84:S2:1602:U:H3     | 1.67                     | 0.42              |
| 1:CI:63:ARG:HD2    | 1:CI:63:ARG:HA      | 1.85                     | 0.42              |
| 3:Et:43:A:H2'      | 3:Et:44:G:C8        | 2.55                     | 0.42              |
| 4:L5:89:C:OP1      | 32:La:59:LYS:NZ     | 2.42                     | 0.42              |
| 4:L5:120:A:H2'     | 4:L5:149:A:H61      | 1.85                     | 0.42              |
| 4:L5:959:G:C8      | 11:LE:123:ARG:HG2   | 2.55                     | 0.42              |
| 4:L5:982:U:H2'     | 4:L5:983:C:C6       | 2.55                     | 0.42              |
| 4:L5:4192:A:H2'    | 4:L5:4193:C:H6      | 1.84                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 4:L5:4239:A:H2'    | 4:L5:4240:G:H8     | 1.85                     | 0.42              |
| 4:L5:4305:G:C6     | 25:LT:80:VAL:HG21  | 2.55                     | 0.42              |
| 5:L7:4:U:H2'       | 5:L7:5:A:C8        | 2.55                     | 0.42              |
| 6:L8:58:G:O6       | 41:Lj:63:ARG:NH1   | 2.53                     | 0.42              |
| 7:LA:7:GLY:HA2     | 7:LA:10:LYS:HG3    | 2.02                     | 0.42              |
| 24:LS:15:ARG:HD2   | 24:LS:25:PRO:HG2   | 2.00                     | 0.42              |
| 25:LT:4:THR:OG1    | 25:LT:9:ARG:HD3    | 2.20                     | 0.42              |
| 30:LY:22:PRO:HD2   | 30:LY:25:ILE:HD11  | 2.01                     | 0.42              |
| 51:SD:213:PRO:HB3  | 57:SR:20:TYR:CE1   | 2.55                     | 0.42              |
| 54:SM:17:ALA:O     | 54:SM:20:GLU:HG3   | 2.18                     | 0.42              |
| 55:SP:56:LEU:HG    | 55:SP:60:LEU:HD13  | 2.02                     | 0.42              |
| 60:SU:104:ILE:HB   | 60:SU:106:ILE:HG12 | 2.01                     | 0.42              |
| 67:SB:120:MET:HE1  | 84:S2:987:A:C6     | 2.55                     | 0.42              |
| 67:SB:141:GLY:HA3  | 67:SB:207:LEU:HD23 | 2.02                     | 0.42              |
| 68:SC:64:THR:HG22  | 68:SC:66:LEU:N     | 2.35                     | 0.42              |
| 69:SE:160:ILE:HD12 | 69:SE:162:ILE:HD11 | 2.00                     | 0.42              |
| 71:SH:43:LEU:HB3   | 71:SH:72:PHE:CE1   | 2.55                     | 0.42              |
| 81:Sa:13:LYS:HA    | 81:Sa:13:LYS:HD3   | 1.71                     | 0.42              |
| 84:S2:64:A:N6      | 84:S2:83:A:OP2     | 2.53                     | 0.42              |
| 84:S2:352:U:H2'    | 84:S2:353:C:C6     | 2.55                     | 0.42              |
| 84:S2:692:G:N7     | 84:S2:693:A:N6     | 2.67                     | 0.42              |
| 84:S2:804:U:H2'    | 84:S2:805:U:C6     | 2.55                     | 0.42              |
| 84:S2:808:A:H2     | 84:S2:855:G:H22    | 1.68                     | 0.42              |
| 84:S2:1232:PSU:H2' | 84:S2:1233:G:H8    | 1.85                     | 0.42              |
| 84:S2:1393:G:H2'   | 84:S2:1394:G:C8    | 2.55                     | 0.42              |
| 84:S2:1670:C:H2'   | 84:S2:1671:G:C8    | 2.55                     | 0.42              |
| 84:S2:1705:C:H2'   | 84:S2:1706:G:C8    | 2.55                     | 0.42              |
| 2:Pt:9:A:O2'       | 2:Pt:10:G:N7       | 2.37                     | 0.42              |
| 4:L5:223:G:H4'     | 4:L5:225:G:C8      | 2.54                     | 0.42              |
| 4:L5:270:U:H2'     | 4:L5:271:C:C6      | 2.55                     | 0.42              |
| 4:L5:1345:A:H2'    | 4:L5:1346:C:C6     | 2.54                     | 0.42              |
| 4:L5:1444:G:H22    | 4:L5:2104:G:N2     | 2.18                     | 0.42              |
| 4:L5:4991:U:H2'    | 4:L5:4992:G:C8     | 2.55                     | 0.42              |
| 11:LE:157:HIS:HA   | 11:LE:160:LYS:HE3  | 2.01                     | 0.42              |
| 14:LH:43:VAL:HG21  | 14:LH:73:ILE:HD13  | 2.02                     | 0.42              |
| 24:LS:83:ARG:HG3   | 24:LS:125:GLN:HB2  | 2.01                     | 0.42              |
| 50:Lt:79:ALA:HA    | 50:Lt:82:ILE:HG22  | 2.01                     | 0.42              |
| 52:SF:59:LYS:HB3   | 52:SF:62:ARG:HG3   | 2.02                     | 0.42              |
| 54:SM:31:LEU:HG    | 54:SM:33:ARG:HG3   | 2.01                     | 0.42              |
| 61:SZ:102:LYS:HA   | 61:SZ:102:LYS:HD3  | 1.80                     | 0.42              |
| 75:SN:29:THR:O     | 75:SN:33:VAL:HG23  | 2.20                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 86:CF:218:ARG:HD3  | 86:CF:236:LEU:HD11 | 2.02                     | 0.42              |
| 86:CF:353:ILE:HG22 | 86:CF:394:LEU:HB2  | 2.02                     | 0.42              |
| 4:L5:10:A:H2'      | 4:L5:11:G:H8       | 1.83                     | 0.41              |
| 4:L5:153:G:H2'     | 4:L5:154:G:H8      | 1.84                     | 0.41              |
| 4:L5:1405:C:N3     | 4:L5:1413:C:N4     | 2.68                     | 0.41              |
| 4:L5:2558:C:H2'    | 4:L5:2559:G:H8     | 1.84                     | 0.41              |
| 4:L5:4102:C:H1'    | 4:L5:4108:G:H1     | 1.85                     | 0.41              |
| 4:L5:4723:A:H2'    | 4:L5:4724:A:C8     | 2.55                     | 0.41              |
| 6:L8:92:U:H2'      | 6:L8:93:C:O4'      | 2.20                     | 0.41              |
| 9:LC:33:ARG:HG2    | 9:LC:36:ILE:HD12   | 2.02                     | 0.41              |
| 9:LC:318:PRO:O     | 9:LC:319:LEU:HB2   | 2.20                     | 0.41              |
| 12:LF:228:VAL:HG12 | 24:LS:38:VAL:HG12  | 2.02                     | 0.41              |
| 16:LJ:20:LEU:HD21  | 16:LJ:130:PHE:CD2  | 2.55                     | 0.41              |
| 16:LJ:113:ILE:HD11 | 58:SS:14:ARG:HD3   | 2.01                     | 0.41              |
| 23:LR:105:LEU:HD23 | 23:LR:138:LEU:HD23 | 2.01                     | 0.41              |
| 30:LY:50:ARG:NH1   | 30:LY:51:LYS:HB3   | 2.34                     | 0.41              |
| 47:Lp:23:ARG:HA    | 47:Lp:26:VAL:HG12  | 2.03                     | 0.41              |
| 50:Lt:147:HIS:HA   | 50:Lt:148:PRO:HD3  | 1.83                     | 0.41              |
| 52:SF:193:LYS:O    | 52:SF:197:GLU:HG2  | 2.20                     | 0.41              |
| 58:SS:61:GLU:HA    | 58:SS:64:VAL:HG12  | 2.02                     | 0.41              |
| 59:ST:71:GLY:O     | 59:ST:75:MET:HG2   | 2.19                     | 0.41              |
| 65:Sg:101:PHE:CD2  | 65:Sg:136:GLY:HA2  | 2.55                     | 0.41              |
| 65:Sg:227:LEU:HD23 | 65:Sg:228:TYR:HB2  | 2.02                     | 0.41              |
| 66:SA:180:ARG:HH11 | 66:SA:184:ARG:HH11 | 1.68                     | 0.41              |
| 67:SB:71:LEU:HD22  | 67:SB:82:ARG:HD2   | 2.02                     | 0.41              |
| 69:SE:212:ASP:OD1  | 69:SE:216:ASN:N    | 2.52                     | 0.41              |
| 71:SH:25:GLN:O     | 71:SH:28:LEU:HG    | 2.19                     | 0.41              |
| 72:SI:141:ARG:NE   | 84:S2:191:A:OP1    | 2.53                     | 0.41              |
| 74:SL:48:LYS:HD3   | 74:SL:52:GLU:OE2   | 2.20                     | 0.41              |
| 76:SO:140:THR:HB   | 84:S2:1046:PSU:H1' | 2.01                     | 0.41              |
| 84:S2:43:U:OP2     | 84:S2:485:A:N6     | 2.45                     | 0.41              |
| 84:S2:71:G:H2'     | 84:S2:72:C:H4'     | 2.01                     | 0.41              |
| 4:L5:279:A:OP2     | 19:LN:8:GLN:NE2    | 2.42                     | 0.41              |
| 4:L5:1346:C:H2'    | 4:L5:1347:G:C8     | 2.54                     | 0.41              |
| 4:L5:1631:A:C2     | 7:LA:204:MET:HG2   | 2.54                     | 0.41              |
| 4:L5:1973:G:O2'    | 50:Lt:117:ARG:NH2  | 2.48                     | 0.41              |
| 4:L5:4578:G:H2'    | 4:L5:4579:PSU:H6   | 1.86                     | 0.41              |
| 8:LB:154:LYS:HE2   | 8:LB:154:LYS:HB2   | 1.72                     | 0.41              |
| 29:LX:80:PRO:HA    | 29:LX:98:PHE:HA    | 2.00                     | 0.41              |
| 50:Lt:12:VAL:HG11  | 50:Lt:65:GLN:N     | 2.35                     | 0.41              |
| 64:Sf:123:SER:HG   | 64:Sf:144:CYS:HB3  | 1.86                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 65:Sg:54:ILE:HD12  | 65:Sg:55:PRO:HD2   | 2.02                     | 0.41              |
| 79:SX:22:TRP:HE3   | 79:SX:28:LYS:HD2   | 1.84                     | 0.41              |
| 84:S2:433:A:H2'    | 84:S2:434:G:C8     | 2.56                     | 0.41              |
| 84:S2:562:U:H2'    | 84:S2:563:G:C8     | 2.55                     | 0.41              |
| 84:S2:1713:C:H2'   | 84:S2:1714:U:C6    | 2.55                     | 0.41              |
| 86:CF:78:TRP:CD1   | 86:CF:79:LYS:N     | 2.88                     | 0.41              |
| 86:CF:96:ARG:HH22  | 86:CF:431:GLN:HG2  | 1.84                     | 0.41              |
| 4:L5:1086:C:H2'    | 4:L5:1087:A:H8     | 1.85                     | 0.41              |
| 4:L5:1317:U:H2'    | 4:L5:1318:C:C6     | 2.54                     | 0.41              |
| 4:L5:1693:U:H2'    | 4:L5:1694:C:O4'    | 2.20                     | 0.41              |
| 4:L5:2424:OMG:H1'  | 4:L5:2424:OMG:HM23 | 1.80                     | 0.41              |
| 4:L5:2656:U:H5''   | 31:LZ:38:TYR:HB3   | 2.02                     | 0.41              |
| 4:L5:2803:U:H2'    | 4:L5:2804:OMC:H6   | 1.85                     | 0.41              |
| 4:L5:3607:U:H2'    | 4:L5:3608:A:C8     | 2.55                     | 0.41              |
| 4:L5:4617:G:OP1    | 8:LB:62:ARG:NH1    | 2.41                     | 0.41              |
| 4:L5:4653:C:H2'    | 4:L5:4654:C:C6     | 2.55                     | 0.41              |
| 4:L5:4680:G:H2'    | 4:L5:4681:A:C8     | 2.55                     | 0.41              |
| 5:L7:7:G:H5''      | 10:LD:22:ARG:HD3   | 2.02                     | 0.41              |
| 5:L7:35:U:O2       | 5:L7:45:U:O2'      | 2.35                     | 0.41              |
| 7:LA:131:GLY:N     | 7:LA:169:VAL:HG13  | 2.34                     | 0.41              |
| 13:LG:30:PRO:HG2   | 31:LZ:124:THR:HA   | 2.02                     | 0.41              |
| 13:LG:207:VAL:O    | 13:LG:212:LYS:NZ   | 2.54                     | 0.41              |
| 18:LM:86:TRP:O     | 18:LM:89:THR:OG1   | 2.34                     | 0.41              |
| 31:LZ:95:VAL:HG12  | 31:LZ:110:ALA:HA   | 2.02                     | 0.41              |
| 34:Lc:18:LEU:O     | 34:Lc:22:MET:HG2   | 2.20                     | 0.41              |
| 49:Ls:57:LYS:O     | 49:Ls:61:MET:HG2   | 2.20                     | 0.41              |
| 64:Sf:108:VAL:HB   | 64:Sf:113:LYS:H    | 1.85                     | 0.41              |
| 66:SA:5:LEU:HD11   | 77:SV:41:LYS:HD2   | 2.01                     | 0.41              |
| 70:SG:136:LYS:O    | 70:SG:176:ILE:HG13 | 2.19                     | 0.41              |
| 73:SJ:81:LEU:HD23  | 73:SJ:81:LEU:HA    | 1.92                     | 0.41              |
| 73:SJ:176:LYS:HA   | 73:SJ:179:LYS:HG2  | 2.01                     | 0.41              |
| 77:SV:40:ASP:OD1   | 77:SV:44:GLY:N     | 2.53                     | 0.41              |
| 84:S2:484:A2M:H8   | 84:S2:484:A2M:O5'  | 2.19                     | 0.41              |
| 84:S2:1199:A:H2'   | 84:S2:1200:A:C8    | 2.55                     | 0.41              |
| 84:S2:1348:G:OP2   | 84:S2:1348:G:N2    | 2.50                     | 0.41              |
| 4:L5:1497:A:N6     | 22:LQ:175:GLU:O    | 2.53                     | 0.41              |
| 4:L5:2073:C:OP1    | 12:LF:212:LYS:HE3  | 2.20                     | 0.41              |
| 4:L5:2368:A:N6     | 4:L5:2827:G:O2'    | 2.52                     | 0.41              |
| 4:L5:2743:A:H2'    | 4:L5:2744:A:C8     | 2.55                     | 0.41              |
| 4:L5:4069:U:H2'    | 4:L5:4070:U:C6     | 2.55                     | 0.41              |
| 4:L5:4227:OMU:HM23 | 4:L5:4227:OMU:H1'  | 1.85                     | 0.41              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 4:L5:4619:U:H2'    | 4:L5:4620:OMU:H6  | 2.01                     | 0.41              |
| 4:L5:4670:C:O2'    | 4:L5:4672:A:OP2   | 2.29                     | 0.41              |
| 6:L8:148:A:H2'     | 6:L8:149:G:C8     | 2.55                     | 0.41              |
| 7:LA:75:LEU:HD12   | 7:LA:75:LEU:HA    | 1.89                     | 0.41              |
| 23:LR:99:MET:HE2   | 23:LR:99:MET:HA   | 2.02                     | 0.41              |
| 52:SF:182:LYS:HE3  | 52:SF:182:LYS:HB2 | 1.88                     | 0.41              |
| 55:SP:86:LEU:H     | 55:SP:89:MET:CE   | 2.33                     | 0.41              |
| 55:SP:93:MET:HE1   | 55:SP:106:GLU:OE1 | 2.19                     | 0.41              |
| 66:SA:122:LEU:HD22 | 66:SA:137:ALA:HB2 | 2.01                     | 0.41              |
| 68:SC:256:TRP:CE2  | 78:SW:68:ARG:HD3  | 2.55                     | 0.41              |
| 69:SE:89:VAL:HG11  | 69:SE:119:ALA:HB1 | 2.01                     | 0.41              |
| 69:SE:242:LYS:HD3  | 69:SE:242:LYS:HA  | 1.76                     | 0.41              |
| 80:SY:42:GLU:O     | 80:SY:46:LYS:HG3  | 2.20                     | 0.41              |
| 84:S2:834:C:H42    | 84:S2:839:C:H42   | 1.68                     | 0.41              |
| 84:S2:1025:U:H2'   | 84:S2:1026:C:O4'  | 2.20                     | 0.41              |
| 84:S2:1417:C:O2    | 84:S2:1422:G:C6   | 2.74                     | 0.41              |
| 4:L5:126:C:H2'     | 4:L5:127:G:H8     | 1.84                     | 0.41              |
| 4:L5:462:G:H2'     | 4:L5:463:A:C8     | 2.55                     | 0.41              |
| 4:L5:1419:G:H5''   | 22:LQ:71:LYS:NZ   | 2.36                     | 0.41              |
| 4:L5:1972:G:H2'    | 4:L5:1973:G:C8    | 2.55                     | 0.41              |
| 4:L5:5002:U:H2'    | 4:L5:5003:U:C6    | 2.55                     | 0.41              |
| 21:LP:32:THR:HG23  | 21:LP:58:VAL:HG11 | 2.01                     | 0.41              |
| 57:SR:60:ARG:HA    | 57:SR:63:ARG:HG2  | 2.02                     | 0.41              |
| 59:ST:62:ARG:CZ    | 84:S2:1542:C:H5'' | 2.50                     | 0.41              |
| 62:Sc:44:ARG:HH22  | 62:Sc:63:ARG:HH11 | 1.69                     | 0.41              |
| 74:SL:82:MET:HE3   | 74:SL:82:MET:HB2  | 1.94                     | 0.41              |
| 78:SW:106:THR:OG1  | 78:SW:111:MET:HE2 | 2.20                     | 0.41              |
| 84:S2:595:U:H2'    | 84:S2:596:U:C6    | 2.56                     | 0.41              |
| 84:S2:880:G:H3'    | 84:S2:881:G:H8    | 1.85                     | 0.41              |
| 85:AT:25:A:H2'     | 85:AT:26:C:O4'    | 2.21                     | 0.41              |
| 85:AT:36:A:C6      | 85:AT:37:C:C5     | 3.08                     | 0.41              |
| 3:Et:51:G:H2'      | 3:Et:52:G:H8      | 1.84                     | 0.41              |
| 4:L5:398:A2M:HM'3  | 4:L5:398:A2M:H1'  | 1.79                     | 0.41              |
| 4:L5:513:U:H3'     | 4:L5:514:U:H4'    | 2.02                     | 0.41              |
| 4:L5:956:A:H1'     | 4:L5:2076:G:H5''  | 2.02                     | 0.41              |
| 4:L5:1558:A:H2'    | 4:L5:1559:G:C8    | 2.55                     | 0.41              |
| 4:L5:2749:C:H2'    | 4:L5:2750:G:C8    | 2.56                     | 0.41              |
| 4:L5:3689:G:O2'    | 4:L5:3818:UY1:OP2 | 2.34                     | 0.41              |
| 4:L5:4196:OMG:HM23 | 4:L5:4196:OMG:H1' | 1.70                     | 0.41              |
| 4:L5:4749:C:H2'    | 4:L5:4750:G:O4'   | 2.20                     | 0.41              |
| 5:L7:7:G:OP1       | 10:LD:33:ARG:NH1  | 2.51                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 7:LA:13:GLY:O      | 7:LA:17:ARG:HG3    | 2.20                     | 0.41              |
| 21:LP:94:MET:HE1   | 21:LP:146:ILE:HB   | 2.03                     | 0.41              |
| 30:LY:47:MET:HE3   | 30:LY:48:PRO:HD2   | 2.01                     | 0.41              |
| 31:LZ:135:ARG:HD2  | 31:LZ:135:ARG:HA   | 1.85                     | 0.41              |
| 36:Le:89:LEU:HD13  | 36:Le:118:LEU:HD22 | 2.02                     | 0.41              |
| 39:Lh:52:LYS:HA    | 39:Lh:52:LYS:HD3   | 1.80                     | 0.41              |
| 57:SR:6:THR:HA     | 84:S2:1373:C:H5'   | 2.02                     | 0.41              |
| 60:SU:70:CYS:HG    | 84:S2:1491:G:HO2'  | 1.53                     | 0.41              |
| 64:Sf:117:LEU:HD12 | 64:Sf:118:ARG:HD3  | 2.01                     | 0.41              |
| 65:Sg:207:CYS:SG   | 65:Sg:219:TRP:HB2  | 2.61                     | 0.41              |
| 65:Sg:251:ALA:HA   | 65:Sg:256:ILE:HD13 | 2.03                     | 0.41              |
| 72:SI:5:ARG:NE     | 84:S2:379:C:O2     | 2.53                     | 0.41              |
| 72:SI:23:LYS:NZ    | 84:S2:435:A:OP1    | 2.54                     | 0.41              |
| 83:Se:56:ASN:ND2   | 84:S2:606:G:O4'    | 2.49                     | 0.41              |
| 84:S2:943:U:C2     | 84:S2:944:A:C8     | 3.09                     | 0.41              |
| 84:S2:1351:G:O2'   | 84:S2:1378:A:N1    | 2.53                     | 0.41              |
| 86:CF:111:CYS:SG   | 86:CF:112:ALA:N    | 2.94                     | 0.41              |
| 4:L5:260:C:H2'     | 4:L5:261:G:C8      | 2.55                     | 0.41              |
| 4:L5:302:C:H2'     | 4:L5:303:C:C6      | 2.55                     | 0.41              |
| 4:L5:330:G:N7      | 89:L5:5282:SPD:N1  | 2.68                     | 0.41              |
| 4:L5:1504:G:H2'    | 4:L5:1505:C:C6     | 2.56                     | 0.41              |
| 4:L5:2264:C:H2'    | 4:L5:2265:G:O4'    | 2.20                     | 0.41              |
| 4:L5:2376:A:H2'    | 4:L5:2377:C:C6     | 2.55                     | 0.41              |
| 4:L5:2622:G:O6     | 26:LU:81:ARG:NH2   | 2.53                     | 0.41              |
| 4:L5:2632:PSU:H2'  | 4:L5:2633:U:C6     | 2.55                     | 0.41              |
| 4:L5:4184:G:H5'    | 7:LA:233:ARG:HB2   | 2.03                     | 0.41              |
| 4:L5:4232:U:H5'    | 46:Lo:3:ASN:HB3    | 2.03                     | 0.41              |
| 4:L5:4739:C:H2'    | 4:L5:4740:G:H5'    | 2.03                     | 0.41              |
| 4:L5:5047:C:O2'    | 4:L5:5050:C:OP2    | 2.29                     | 0.41              |
| 9:LC:158:VAL:HG12  | 9:LC:217:ILE:HD12  | 2.02                     | 0.41              |
| 16:LJ:40:LEU:HD23  | 16:LJ:40:LEU:HA    | 1.91                     | 0.41              |
| 17:LL:18:TRP:CD1   | 17:LL:18:TRP:H     | 2.38                     | 0.41              |
| 22:LQ:43:PHE:CD2   | 22:LQ:133:GLY:HA3  | 2.56                     | 0.41              |
| 60:SU:32:LEU:CD1   | 60:SU:85:HIS:HB2   | 2.51                     | 0.41              |
| 66:SA:11:LYS:O     | 66:SA:15:VAL:HG23  | 2.20                     | 0.41              |
| 70:SG:14:LYS:HE2   | 70:SG:16:ILE:HD11  | 2.03                     | 0.41              |
| 70:SG:133:LEU:HB2  | 84:S2:65:C:C2      | 2.56                     | 0.41              |
| 70:SG:191:ARG:NH1  | 84:S2:312:G:H2'    | 2.34                     | 0.41              |
| 72:SI:26:LYS:HE3   | 84:S2:444:G:O6     | 2.20                     | 0.41              |
| 80:SY:93:ARG:HH21  | 84:S2:575:A:P      | 2.43                     | 0.41              |
| 84:S2:116:OMU:H1'  | 84:S2:116:OMU:HM23 | 1.88                     | 0.41              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 84:S2:120:U:H2'    | 84:S2:121:OMU:H6  | 2.02                     | 0.41              |
| 84:S2:291:G:HO2'   | 84:S2:292:A:P     | 2.43                     | 0.41              |
| 84:S2:463:C:O2'    | 84:S2:466:G:O6    | 2.36                     | 0.41              |
| 4:L5:7:C:H2'       | 4:L5:8:U:C6       | 2.56                     | 0.41              |
| 4:L5:423:G:H2'     | 4:L5:424:U:C6     | 2.56                     | 0.41              |
| 4:L5:499:G:H2'     | 4:L5:499:G:N3     | 2.36                     | 0.41              |
| 4:L5:2464:C:HO2'   | 4:L5:2465:C:H6    | 1.64                     | 0.41              |
| 4:L5:2610:G:H2'    | 4:L5:2611:A:C8    | 2.56                     | 0.41              |
| 4:L5:3893:C:H2'    | 4:L5:3894:A:C8    | 2.56                     | 0.41              |
| 4:L5:4391:G:OP1    | 9:LC:75:ARG:NH1   | 2.35                     | 0.41              |
| 8:LB:71:GLU:HB2    | 28:LW:2:LYS:HD3   | 2.01                     | 0.41              |
| 15:LI:51:HIS:ND1   | 15:LI:137:SER:OG  | 2.48                     | 0.41              |
| 17:LL:194:ILE:HD12 | 17:LL:194:ILE:HA  | 1.89                     | 0.41              |
| 23:LR:35:ALA:HA    | 23:LR:40:GLN:OE1  | 2.20                     | 0.41              |
| 27:LV:111:GLU:H    | 27:LV:111:GLU:CD  | 2.29                     | 0.41              |
| 36:Le:19:LYS:HE3   | 36:Le:19:LYS:HB3  | 1.90                     | 0.41              |
| 50:Lt:114:ARG:NH1  | 50:Lt:126:SER:O   | 2.44                     | 0.41              |
| 52:SF:60:ARG:HE    | 84:S2:1679:A:P    | 2.43                     | 0.41              |
| 55:SP:47:ARG:NE    | 84:S2:1619:A:OP1  | 2.40                     | 0.41              |
| 57:SR:109:LEU:HG   | 57:SR:111:PHE:HD2 | 1.86                     | 0.41              |
| 60:SU:52:GLY:HA3   | 84:S2:1401:A:H4'  | 2.02                     | 0.41              |
| 65:Sg:314:ILE:HD12 | 65:Sg:314:ILE:HA  | 1.91                     | 0.41              |
| 66:SA:80:ARG:HH21  | 66:SA:126:ASP:HB2 | 1.86                     | 0.41              |
| 67:SB:44:ILE:HG23  | 67:SB:69:VAL:HG11 | 2.02                     | 0.41              |
| 67:SB:114:VAL:O    | 84:S2:1869:A:N6   | 2.53                     | 0.41              |
| 69:SE:128:LYS:HG2  | 69:SE:140:VAL:HB  | 2.03                     | 0.41              |
| 81:Sa:39:PHE:CE2   | 81:Sa:41:ILE:HD11 | 2.55                     | 0.41              |
| 84:S2:815:U:C2     | 84:S2:816:A:C8    | 3.09                     | 0.41              |
| 84:S2:1406:G:H2'   | 84:S2:1407:U:C6   | 2.56                     | 0.41              |
| 86:CF:241:PRO:HB2  | 86:CF:244:LYS:CG  | 2.50                     | 0.41              |
| 3:Et:32:C:H2'      | 3:Et:33:U:C2      | 2.56                     | 0.41              |
| 4:L5:302:C:H2'     | 4:L5:303:C:H6     | 1.86                     | 0.41              |
| 4:L5:1186:U:H2'    | 4:L5:1187:G:N3    | 2.36                     | 0.41              |
| 4:L5:1494:U:H2'    | 4:L5:1495:G:C8    | 2.56                     | 0.41              |
| 4:L5:1974:U:H4'    | 4:L5:1975:G:H3'   | 2.03                     | 0.41              |
| 4:L5:2412:A:H2'    | 4:L5:2413:U:C6    | 2.56                     | 0.41              |
| 4:L5:3687:A:O2'    | 7:LA:236:GLY:N    | 2.52                     | 0.41              |
| 4:L5:3865:A:H61    | 4:L5:3881:G:H1    | 1.67                     | 0.41              |
| 4:L5:3871:A:H2'    | 4:L5:3872:A:C8    | 2.56                     | 0.41              |
| 4:L5:4070:U:H2'    | 4:L5:4071:U:C6    | 2.56                     | 0.41              |
| 4:L5:4232:U:H5''   | 46:Lo:3:ASN:O     | 2.20                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 4:L5:4688:C:H2'    | 4:L5:4689:PSU:C6   | 2.56                     | 0.41              |
| 4:L5:4708:A:N3     | 4:L5:4709:U:H5'    | 2.36                     | 0.41              |
| 7:LA:112:ILE:HD11  | 47:Lp:79:VAL:HG22  | 2.03                     | 0.41              |
| 8:LB:122:TRP:CE2   | 8:LB:127:LYS:HE3   | 2.56                     | 0.41              |
| 13:LG:178:GLY:O    | 13:LG:223:ARG:NH2  | 2.54                     | 0.41              |
| 14:LH:27:VAL:HG12  | 14:LH:84:VAL:HG21  | 2.02                     | 0.41              |
| 14:LH:95:VAL:HG12  | 44:Lm:82:LEU:HD13  | 2.03                     | 0.41              |
| 20:LO:145:VAL:O    | 20:LO:145:VAL:HG22 | 2.21                     | 0.41              |
| 21:LP:95:LEU:HD23  | 21:LP:95:LEU:HA    | 1.96                     | 0.41              |
| 25:LT:44:GLY:HA2   | 25:LT:95:HIS:HB3   | 2.03                     | 0.41              |
| 27:LV:87:SER:HA    | 27:LV:97:TYR:HB3   | 2.03                     | 0.41              |
| 29:LX:64:SER:HB2   | 39:Lh:69:LEU:HD13  | 2.02                     | 0.41              |
| 30:LY:13:LYS:O     | 30:LY:17:ARG:HD3   | 2.21                     | 0.41              |
| 34:Lc:20:LEU:O     | 34:Lc:24:SER:HB3   | 2.21                     | 0.41              |
| 37:Lf:25:THR:HB    | 37:Lf:87:LYS:HD3   | 2.02                     | 0.41              |
| 38:Lg:41:ALA:O     | 38:Lg:52:ARG:HD3   | 2.21                     | 0.41              |
| 48:Lr:47:LYS:HB2   | 48:Lr:102:TYR:CZ   | 2.55                     | 0.41              |
| 55:SP:92:SER:HB2   | 55:SP:107:ILE:HD13 | 2.03                     | 0.41              |
| 59:ST:113:VAL:HG22 | 59:ST:123:LEU:HD23 | 2.02                     | 0.41              |
| 61:SZ:68:ILE:HB    | 61:SZ:109:TYR:HB2  | 2.03                     | 0.41              |
| 63:Sd:13:LYS:HG3   | 84:S2:1556:A:C8    | 2.56                     | 0.41              |
| 66:SA:172:GLY:HA3  | 66:SA:203:PHE:HD1  | 1.85                     | 0.41              |
| 68:SC:212:LYS:HE2  | 68:SC:212:LYS:HB3  | 1.87                     | 0.41              |
| 68:SC:271:ASP:OD1  | 68:SC:272:HIS:N    | 2.52                     | 0.41              |
| 69:SE:252:ARG:O    | 69:SE:256:LEU:HG   | 2.21                     | 0.41              |
| 70:SG:174:PRO:HG3  | 84:S2:65:C:C2      | 2.55                     | 0.41              |
| 71:SH:91:HIS:ND1   | 71:SH:169:LYS:HG2  | 2.35                     | 0.41              |
| 72:SI:114:GLU:HG3  | 72:SI:119:LEU:O    | 2.21                     | 0.41              |
| 75:SN:37:ILE:HG23  | 75:SN:50:ILE:HG21  | 2.03                     | 0.41              |
| 76:SO:131:ASP:OD1  | 76:SO:133:THR:OG1  | 2.33                     | 0.41              |
| 77:SV:27:LYS:HD3   | 77:SV:27:LYS:HA    | 1.86                     | 0.41              |
| 78:SW:57:ARG:HG2   | 84:S2:920:A:H4'    | 2.02                     | 0.41              |
| 83:Se:8:ARG:NH1    | 84:S2:615:C:O3'    | 2.54                     | 0.41              |
| 84:S2:28:U:H2'     | 84:S2:29:G:C8      | 2.54                     | 0.41              |
| 84:S2:67:C:N4      | 84:S2:70:G:N7      | 2.68                     | 0.41              |
| 84:S2:436:OMG:HM23 | 84:S2:436:OMG:H1'  | 1.94                     | 0.41              |
| 84:S2:576:A2M:H1'  | 84:S2:576:A2M:HM'3 | 1.81                     | 0.41              |
| 84:S2:747:U:O2     | 84:S2:796:G:C2     | 2.74                     | 0.41              |
| 84:S2:1374:C:H2'   | 84:S2:1375:G:O4'   | 2.21                     | 0.41              |
| 84:S2:1540:G:H2'   | 84:S2:1541:G:C8    | 2.56                     | 0.41              |
| 85:AT:59:A:O2'     | 85:AT:62:C:N4      | 2.53                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:Pt:3:C:H42       | 2:Pt:70:A:N6       | 2.19                     | 0.41              |
| 4:L5:99:A:H2'      | 4:L5:100:C:O2      | 2.20                     | 0.41              |
| 4:L5:267:G:H2'     | 4:L5:268:G:C8      | 2.54                     | 0.41              |
| 4:L5:286:U:H2'     | 4:L5:287:U:C6      | 2.56                     | 0.41              |
| 4:L5:293:G:OP1     | 88:L5:5263:SPM:N1  | 2.37                     | 0.41              |
| 4:L5:512:U:OP2     | 17:LL:165:LYS:NZ   | 2.40                     | 0.41              |
| 4:L5:1382:G:OP1    | 17:LL:66:TYR:OH    | 2.35                     | 0.41              |
| 4:L5:2404:A:H1'    | 41:Lj:12:ARG:HH21  | 1.84                     | 0.41              |
| 4:L5:2422:OMC:HM23 | 4:L5:2422:OMC:H1'  | 1.90                     | 0.41              |
| 4:L5:4174:U:H2'    | 4:L5:4175:G:H8     | 1.86                     | 0.41              |
| 4:L5:4291:G:H4'    | 4:L5:4292:A:H5''   | 2.03                     | 0.41              |
| 4:L5:5015:G:H2'    | 4:L5:5016:A:C2     | 2.56                     | 0.41              |
| 7:LA:130:SER:HB2   | 7:LA:171:GLY:HA3   | 2.03                     | 0.41              |
| 7:LA:171:GLY:O     | 47:Lp:68:ALA:HB2   | 2.21                     | 0.41              |
| 10:LD:289:ARG:O    | 10:LD:292:GLU:HG3  | 2.21                     | 0.41              |
| 11:LE:282:TYR:HE1  | 37:Lf:31:GLU:HG2   | 1.86                     | 0.41              |
| 22:LQ:32:TYR:HD1   | 22:LQ:32:TYR:HA    | 1.71                     | 0.41              |
| 22:LQ:59:PRO:HG3   | 22:LQ:143:ARG:HA   | 2.02                     | 0.41              |
| 36:Le:100:ALA:HB3  | 36:Le:103:VAL:HG23 | 2.04                     | 0.41              |
| 38:Lg:60:ARG:HD2   | 38:Lg:60:ARG:HA    | 1.83                     | 0.41              |
| 50:Lt:22:VAL:HA    | 50:Lt:48:LYS:HG2   | 2.02                     | 0.41              |
| 57:SR:7:LYS:HG3    | 84:S2:1373:C:OP1   | 2.20                     | 0.41              |
| 61:SZ:56:ASP:OD1   | 61:SZ:57:LYS:N     | 2.54                     | 0.41              |
| 65:Sg:37:ASP:OD1   | 65:Sg:39:THR:OG1   | 2.32                     | 0.41              |
| 65:Sg:101:PHE:CE2  | 65:Sg:136:GLY:HA2  | 2.55                     | 0.41              |
| 66:SA:57:LYS:HA    | 66:SA:57:LYS:HD2   | 1.79                     | 0.41              |
| 67:SB:67:PHE:CE2   | 76:SO:48:SER:HB3   | 2.56                     | 0.41              |
| 71:SH:76:GLN:O     | 71:SH:80:VAL:HG23  | 2.21                     | 0.41              |
| 84:S2:945:U:H2'    | 84:S2:946:U:C6     | 2.56                     | 0.41              |
| 84:S2:1088:U:H4'   | 84:S2:1089:G:OP2   | 2.21                     | 0.41              |
| 84:S2:1360:U:O2'   | 84:S2:1379:A:OP2   | 2.33                     | 0.41              |
| 2:Pt:72:C:H3'      | 2:Pt:73:A:H8       | 1.86                     | 0.40              |
| 4:L5:135:G:N3      | 4:L5:135:G:H2'     | 2.36                     | 0.40              |
| 4:L5:705:G:H2'     | 4:L5:706:C:C6      | 2.56                     | 0.40              |
| 4:L5:1081:C:O2'    | 4:L5:1082:C:H5'    | 2.20                     | 0.40              |
| 4:L5:1403:G:N2     | 4:L5:1415:G:C4     | 2.89                     | 0.40              |
| 4:L5:1431:C:H2'    | 4:L5:1432:G:O4'    | 2.21                     | 0.40              |
| 4:L5:1741:G:O6     | 5:L7:103:A:O2'     | 2.26                     | 0.40              |
| 4:L5:2409:U:H5     | 4:L5:2783:A:N1     | 2.19                     | 0.40              |
| 4:L5:2630:U:OP1    | 26:LU:48:LYS:NZ    | 2.40                     | 0.40              |
| 4:L5:2739:C:OP2    | 47:Lp:33:GLN:NE2   | 2.54                     | 0.40              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 4:L5:3896:C:H1'    | 8:LB:268:ARG:NH2   | 2.36                     | 0.40              |
| 4:L5:4236:G:H4'    | 4:L5:4328:G:O2'    | 2.21                     | 0.40              |
| 4:L5:4258:C:H2'    | 4:L5:4259:C:C6     | 2.56                     | 0.40              |
| 4:L5:4906:C:H2'    | 4:L5:4907:G:H8     | 1.86                     | 0.40              |
| 8:LB:161:ARG:HG2   | 8:LB:184:GLN:HA    | 2.03                     | 0.40              |
| 10:LD:209:ARG:O    | 10:LD:213:GLU:HG2  | 2.21                     | 0.40              |
| 16:LJ:119:TYR:CG   | 58:SS:12:ILE:HG12  | 2.56                     | 0.40              |
| 23:LR:185:ILE:H    | 23:LR:185:ILE:HD12 | 1.86                     | 0.40              |
| 54:SM:95:ASP:HB3   | 54:SM:99:LYS:HB3   | 2.03                     | 0.40              |
| 63:Sd:34:TYR:OH    | 84:S2:1549:U:OP1   | 2.34                     | 0.40              |
| 65:Sg:230:LEU:HD11 | 65:Sg:259:TRP:CG   | 2.56                     | 0.40              |
| 67:SB:103:MET:HG2  | 67:SB:188:LEU:HD13 | 2.03                     | 0.40              |
| 84:S2:165:G:H2'    | 84:S2:166:A2M:H8   | 2.03                     | 0.40              |
| 84:S2:693:A:H2     | 84:S2:739:C:H4'    | 1.85                     | 0.40              |
| 86:CF:408:LYS:HA   | 86:CF:409:PRO:HD3  | 1.91                     | 0.40              |
| 2:Pt:18:G:H4'      | 2:Pt:60:A:C2       | 2.56                     | 0.40              |
| 3:Et:28:C:H2'      | 3:Et:29:A:C8       | 2.55                     | 0.40              |
| 4:L5:262:G:H2'     | 4:L5:263:G:H8      | 1.85                     | 0.40              |
| 4:L5:919:C:H2'     | 4:L5:920:C:C6      | 2.56                     | 0.40              |
| 4:L5:1558:A:H2'    | 4:L5:1559:G:H8     | 1.87                     | 0.40              |
| 4:L5:2720:C:H2'    | 4:L5:2721:G:O4'    | 2.22                     | 0.40              |
| 4:L5:4169:G:H4'    | 4:L5:4171:C:C2     | 2.56                     | 0.40              |
| 4:L5:4318:C:H4'    | 46:Lo:17:LYS:HA    | 2.03                     | 0.40              |
| 4:L5:4344:U:H2'    | 4:L5:4345:C:C6     | 2.57                     | 0.40              |
| 4:L5:4770:U:H2'    | 4:L5:4771:C:C6     | 2.57                     | 0.40              |
| 4:L5:4927:G:H5''   | 4:L5:4928:C:C5     | 2.56                     | 0.40              |
| 5:L7:26:C:O2'      | 16:LJ:147:ARG:NH1  | 2.52                     | 0.40              |
| 6:L8:8:U:H2'       | 6:L8:9:A:C8        | 2.57                     | 0.40              |
| 7:LA:60:LYS:HB2    | 7:LA:60:LYS:HE3    | 1.87                     | 0.40              |
| 7:LA:132:ASN:O     | 7:LA:169:VAL:HG12  | 2.22                     | 0.40              |
| 8:LB:117:ARG:HA    | 8:LB:177:LYS:HD2   | 2.02                     | 0.40              |
| 30:LY:126:ARG:HG2  | 30:LY:130:LYS:HE2  | 2.03                     | 0.40              |
| 53:SK:80:ARG:HH22  | 53:SK:90:VAL:HG12  | 1.87                     | 0.40              |
| 70:SG:195:LYS:HD3  | 84:S2:126:G:H5'    | 2.04                     | 0.40              |
| 71:SH:58:LYS:HB2   | 71:SH:90:LYS:HG2   | 2.03                     | 0.40              |
| 72:SI:42:ARG:HH21  | 72:SI:59:ARG:NH1   | 2.19                     | 0.40              |
| 75:SN:20:ARG:HH21  | 78:SW:56:HIS:HB3   | 1.86                     | 0.40              |
| 78:SW:57:ARG:NH2   | 82:Sb:26:GLN:HB2   | 2.37                     | 0.40              |
| 81:Sa:36:ILE:HD11  | 81:Sa:75:VAL:HG12  | 2.02                     | 0.40              |
| 81:Sa:98:PRO:HA    | 81:Sa:99:PRO:HD3   | 1.92                     | 0.40              |
| 84:S2:527:C:H2'    | 84:S2:528:A:C8     | 2.55                     | 0.40              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 84:S2:874:G:H2'    | 84:S2:875:A:C8     | 2.52                     | 0.40              |
| 2:Pt:56:C:O4'      | 16:LJ:64:ARG:NE    | 2.47                     | 0.40              |
| 2:Pt:62:C:H2'      | 2:Pt:63:G:H8       | 1.86                     | 0.40              |
| 3:Et:75:C:O2'      | 46:Lo:54:PRO:O     | 2.30                     | 0.40              |
| 4:L5:19:G:P        | 39:Lh:93:ARG:HE    | 2.44                     | 0.40              |
| 4:L5:1174:G:H1     | 4:L5:1186:U:H3     | 1.69                     | 0.40              |
| 4:L5:1339:U:OP1    | 32:La:8:THR:OG1    | 2.35                     | 0.40              |
| 4:L5:1356:U:H2'    | 4:L5:1357:C:C6     | 2.57                     | 0.40              |
| 4:L5:1588:U:H2'    | 4:L5:1589:C:C6     | 2.57                     | 0.40              |
| 4:L5:2019:C:H2'    | 4:L5:2020:U:C6     | 2.56                     | 0.40              |
| 4:L5:2461:G:H2'    | 4:L5:2462:C:C6     | 2.56                     | 0.40              |
| 4:L5:3707:U:H2'    | 4:L5:3708:C:H6     | 1.86                     | 0.40              |
| 4:L5:3848:U:H2'    | 4:L5:3849:A:C8     | 2.57                     | 0.40              |
| 6:L8:47:C:H1'      | 6:L8:61:A:H2'      | 2.02                     | 0.40              |
| 9:LC:289:LEU:HD21  | 22:LQ:31:LEU:HB2   | 2.02                     | 0.40              |
| 10:LD:260:GLU:O    | 10:LD:260:GLU:CD   | 2.64                     | 0.40              |
| 12:LF:148:LYS:O    | 12:LF:152:GLU:HG2  | 2.22                     | 0.40              |
| 13:LG:160:ASP:OD1  | 13:LG:160:ASP:N    | 2.54                     | 0.40              |
| 28:LW:102:LYS:HA   | 28:LW:105:ARG:HG2  | 2.03                     | 0.40              |
| 30:LY:74:TYR:HE2   | 30:LY:77:LYS:HG3   | 1.86                     | 0.40              |
| 39:Lh:19:LYS:NZ    | 39:Lh:23:ASP:OD1   | 2.54                     | 0.40              |
| 46:Lo:11:PHE:O     | 46:Lo:81:ARG:NH2   | 2.54                     | 0.40              |
| 58:SS:62:ASP:O     | 58:SS:65:GLU:HG3   | 2.22                     | 0.40              |
| 65:Sg:205:SER:HA   | 65:Sg:221:LEU:HB2  | 2.02                     | 0.40              |
| 66:SA:219:GLU:HA   | 66:SA:222:VAL:HG12 | 2.03                     | 0.40              |
| 67:SB:40:ASN:OD1   | 67:SB:41:ILE:HD12  | 2.22                     | 0.40              |
| 73:SJ:142:VAL:HG12 | 73:SJ:144:ILE:H    | 1.85                     | 0.40              |
| 78:SW:125:ILE:HA   | 78:SW:125:ILE:HD12 | 1.84                     | 0.40              |
| 82:Sb:33:MET:HE3   | 82:Sb:48:SER:HA    | 2.04                     | 0.40              |
| 82:Sb:81:ARG:HA    | 82:Sb:81:ARG:HD2   | 1.96                     | 0.40              |
| 84:S2:1223:A:H2'   | 84:S2:1224:G:O4'   | 2.21                     | 0.40              |
| 85:AT:15:G:N2      | 85:AT:49:C:C2      | 2.89                     | 0.40              |
| 86:CF:8:ILE:O      | 86:CF:8:ILE:HG13   | 2.18                     | 0.40              |
| 4:L5:65:A:N6       | 4:L5:75:G:H1'      | 2.36                     | 0.40              |
| 4:L5:161:G:H2'     | 4:L5:162:A:H8      | 1.85                     | 0.40              |
| 4:L5:223:G:N7      | 9:LC:165:LYS:HE3   | 2.37                     | 0.40              |
| 4:L5:468:U:C5      | 4:L5:469:C:H5      | 2.40                     | 0.40              |
| 4:L5:495:C:H2'     | 4:L5:496:G:C8      | 2.56                     | 0.40              |
| 4:L5:654:C:O3'     | 9:LC:268:ARG:NH1   | 2.53                     | 0.40              |
| 4:L5:1172:C:H42    | 4:L5:1188:C:H42    | 1.70                     | 0.40              |
| 4:L5:1834:U:N3     | 25:LT:126:VAL:O    | 2.53                     | 0.40              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 4:L5:2683:C:H2'   | 4:L5:2684:C:C6     | 2.57                     | 0.40              |
| 4:L5:4069:U:H2'   | 4:L5:4070:U:H6     | 1.86                     | 0.40              |
| 18:LM:37:LEU:HD12 | 18:LM:37:LEU:HA    | 1.83                     | 0.40              |
| 31:LZ:47:ASP:N    | 31:LZ:69:LYS:O     | 2.52                     | 0.40              |
| 65:Sg:125:ARG:HD3 | 65:Sg:150:TRP:CE2  | 2.57                     | 0.40              |
| 68:SC:117:ARG:NE  | 84:S2:1204:A:OP1   | 2.45                     | 0.40              |
| 71:SH:36:LEU:HD12 | 71:SH:39:GLN:NE2   | 2.37                     | 0.40              |
| 72:SI:81:VAL:HG22 | 72:SI:102:VAL:HG12 | 2.03                     | 0.40              |
| 84:S2:15:U:H2'    | 84:S2:16:G:O4'     | 2.21                     | 0.40              |
| 84:S2:835:C:H4'   | 84:S2:836:G:H8     | 1.86                     | 0.40              |
| 86:CF:323:GLY:CA  | 86:CF:366:ALA:HB2  | 2.51                     | 0.40              |
| 3:Et:65:G:O2'     | 3:Et:66:U:H5'      | 2.21                     | 0.40              |
| 4:L5:288:G:H2'    | 4:L5:289:C:C6      | 2.57                     | 0.40              |
| 4:L5:1253:G:H2'   | 4:L5:1256:G:H5'    | 2.04                     | 0.40              |
| 4:L5:1281:G:C6    | 11:LE:128:HIS:HB2  | 2.56                     | 0.40              |
| 4:L5:1401:C:H2'   | 4:L5:1402:C:C6     | 2.57                     | 0.40              |
| 4:L5:1806:G:H2'   | 4:L5:1807:C:C6     | 2.56                     | 0.40              |
| 4:L5:1857:C:H2'   | 4:L5:1858:A:H8     | 1.86                     | 0.40              |
| 4:L5:1907:A:H2'   | 4:L5:1908:A:C8     | 2.57                     | 0.40              |
| 4:L5:2060:G:N2    | 24:LS:115:ALA:HB2  | 2.37                     | 0.40              |
| 4:L5:3693:U:O3'   | 47:Lp:21:SER:OG    | 2.37                     | 0.40              |
| 4:L5:3736:A:H2'   | 4:L5:3737:A:H8     | 1.84                     | 0.40              |
| 4:L5:4710:C:H2'   | 4:L5:4711:C:C6     | 2.57                     | 0.40              |
| 4:L5:4859:C:H2'   | 4:L5:4860:G:C8     | 2.57                     | 0.40              |
| 4:L5:4965:U:H4'   | 4:L5:4966:A:H5'    | 2.03                     | 0.40              |
| 10:LD:86:TYR:CE1  | 10:LD:247:ILE:HG13 | 2.56                     | 0.40              |
| 15:LI:66:GLU:OE2  | 15:LI:69:ARG:NH2   | 2.31                     | 0.40              |
| 15:LI:207:ASP:HA  | 15:LI:210:ARG:HG2  | 2.04                     | 0.40              |
| 18:LM:38:VAL:O    | 18:LM:47:ARG:HA    | 2.19                     | 0.40              |
| 25:LT:50:LYS:HB3  | 25:LT:50:LYS:HE2   | 1.80                     | 0.40              |
| 51:SD:222:PRO:HB3 | 65:Sg:190:GLY:HA3  | 2.04                     | 0.40              |
| 52:SF:73:THR:O    | 52:SF:89:THR:HG21  | 2.21                     | 0.40              |
| 56:SQ:34:VAL:HG22 | 56:SQ:70:VAL:HB    | 2.03                     | 0.40              |
| 63:Sd:3:HIS:CE1   | 63:Sd:5:GLN:HB2    | 2.57                     | 0.40              |
| 67:SB:89:GLU:OE2  | 67:SB:99:ASN:HB3   | 2.21                     | 0.40              |
| 70:SG:133:LEU:HB2 | 84:S2:65:C:N3      | 2.36                     | 0.40              |
| 73:SJ:124:HIS:HD2 | 83:Se:31:ARG:HE    | 1.69                     | 0.40              |
| 78:SW:77:PRO:HG2  | 78:SW:79:PHE:CE2   | 2.57                     | 0.40              |
| 80:SY:86:GLU:CD   | 80:SY:87:PRO:HD2   | 2.46                     | 0.40              |
| 80:SY:129:LYS:HA  | 80:SY:129:LYS:HD3  | 1.84                     | 0.40              |
| 81:Sa:11:ALA:HB3  | 81:Sa:33:ASP:HB2   | 2.04                     | 0.40              |

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| Atom-1          | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 84:S2:1227:G:C2 | 84:S2:1228:A:C8 | 3.09                     | 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 |     |
|-----|-------|----------------|-----------|---------|----------|-------------|-----|
| 1   | CI    | 29/31 (94%)    | 29 (100%) | 0       | 0        | 100         | 100 |
| 7   | LA    | 246/248 (99%)  | 227 (92%) | 19 (8%) | 0        | 100         | 100 |
| 8   | LB    | 400/402 (100%) | 385 (96%) | 15 (4%) | 0        | 100         | 100 |
| 9   | LC    | 366/368 (100%) | 352 (96%) | 14 (4%) | 0        | 100         | 100 |
| 10  | LD    | 291/293 (99%)  | 283 (97%) | 8 (3%)  | 0        | 100         | 100 |
| 11  | LE    | 236/250 (94%)  | 223 (94%) | 13 (6%) | 0        | 100         | 100 |
| 12  | LF    | 223/225 (99%)  | 215 (96%) | 8 (4%)  | 0        | 100         | 100 |
| 13  | LG    | 239/241 (99%)  | 224 (94%) | 15 (6%) | 0        | 100         | 100 |
| 14  | LH    | 188/190 (99%)  | 183 (97%) | 5 (3%)  | 0        | 100         | 100 |
| 15  | LI    | 211/213 (99%)  | 204 (97%) | 7 (3%)  | 0        | 100         | 100 |
| 16  | LJ    | 168/176 (96%)  | 164 (98%) | 4 (2%)  | 0        | 100         | 100 |
| 17  | LL    | 208/210 (99%)  | 201 (97%) | 7 (3%)  | 0        | 100         | 100 |
| 18  | LM    | 137/139 (99%)  | 132 (96%) | 5 (4%)  | 0        | 100         | 100 |
| 19  | LN    | 201/203 (99%)  | 198 (98%) | 3 (2%)  | 0        | 100         | 100 |
| 20  | LO    | 199/201 (99%)  | 195 (98%) | 4 (2%)  | 0        | 100         | 100 |
| 21  | LP    | 151/153 (99%)  | 146 (97%) | 5 (3%)  | 0        | 100         | 100 |
| 22  | LQ    | 185/187 (99%)  | 182 (98%) | 3 (2%)  | 0        | 100         | 100 |
| 23  | LR    | 185/187 (99%)  | 181 (98%) | 4 (2%)  | 0        | 100         | 100 |
| 24  | LS    | 173/175 (99%)  | 164 (95%) | 9 (5%)  | 0        | 100         | 100 |

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| Mol | Chain | Analysed      | Favoured  | Allowed  | Outliers | Percentiles |     |
|-----|-------|---------------|-----------|----------|----------|-------------|-----|
| 25  | LT    | 157/159 (99%) | 154 (98%) | 3 (2%)   | 0        | 100         | 100 |
| 26  | LU    | 99/101 (98%)  | 94 (95%)  | 5 (5%)   | 0        | 100         | 100 |
| 27  | LV    | 129/131 (98%) | 123 (95%) | 6 (5%)   | 0        | 100         | 100 |
| 28  | LW    | 112/124 (90%) | 108 (96%) | 4 (4%)   | 0        | 100         | 100 |
| 29  | LX    | 118/120 (98%) | 117 (99%) | 1 (1%)   | 0        | 100         | 100 |
| 30  | LY    | 132/134 (98%) | 128 (97%) | 4 (3%)   | 0        | 100         | 100 |
| 31  | LZ    | 133/135 (98%) | 125 (94%) | 8 (6%)   | 0        | 100         | 100 |
| 32  | La    | 145/147 (99%) | 139 (96%) | 6 (4%)   | 0        | 100         | 100 |
| 33  | Lb    | 105/121 (87%) | 99 (94%)  | 6 (6%)   | 0        | 100         | 100 |
| 34  | Lc    | 96/98 (98%)   | 92 (96%)  | 4 (4%)   | 0        | 100         | 100 |
| 35  | Ld    | 105/107 (98%) | 101 (96%) | 4 (4%)   | 0        | 100         | 100 |
| 36  | Le    | 126/128 (98%) | 125 (99%) | 1 (1%)   | 0        | 100         | 100 |
| 37  | Lf    | 107/109 (98%) | 106 (99%) | 1 (1%)   | 0        | 100         | 100 |
| 38  | Lg    | 112/114 (98%) | 110 (98%) | 2 (2%)   | 0        | 100         | 100 |
| 39  | Lh    | 120/122 (98%) | 117 (98%) | 3 (2%)   | 0        | 100         | 100 |
| 40  | Li    | 100/102 (98%) | 98 (98%)  | 2 (2%)   | 0        | 100         | 100 |
| 41  | Lj    | 84/86 (98%)   | 83 (99%)  | 1 (1%)   | 0        | 100         | 100 |
| 42  | Lk    | 67/69 (97%)   | 66 (98%)  | 1 (2%)   | 0        | 100         | 100 |
| 43  | Ll    | 48/50 (96%)   | 48 (100%) | 0        | 0        | 100         | 100 |
| 44  | Lm    | 50/52 (96%)   | 50 (100%) | 0        | 0        | 100         | 100 |
| 45  | Ln    | 22/24 (92%)   | 22 (100%) | 0        | 0        | 100         | 100 |
| 46  | Lo    | 103/105 (98%) | 99 (96%)  | 4 (4%)   | 0        | 100         | 100 |
| 47  | Lp    | 89/91 (98%)   | 85 (96%)  | 4 (4%)   | 0        | 100         | 100 |
| 48  | Lr    | 123/125 (98%) | 120 (98%) | 3 (2%)   | 0        | 100         | 100 |
| 49  | Ls    | 194/196 (99%) | 181 (93%) | 13 (7%)  | 0        | 100         | 100 |
| 50  | Lt    | 128/157 (82%) | 110 (86%) | 18 (14%) | 0        | 100         | 100 |
| 51  | SD    | 225/227 (99%) | 219 (97%) | 6 (3%)   | 0        | 100         | 100 |
| 52  | SF    | 187/189 (99%) | 174 (93%) | 13 (7%)  | 0        | 100         | 100 |
| 53  | SK    | 96/98 (98%)   | 87 (91%)  | 9 (9%)   | 0        | 100         | 100 |
| 54  | SM    | 120/122 (98%) | 112 (93%) | 8 (7%)   | 0        | 100         | 100 |
| 55  | SP    | 119/121 (98%) | 116 (98%) | 3 (2%)   | 0        | 100         | 100 |

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| Mol | Chain | Analysed          | Favoured    | Allowed  | Outliers | Percentiles |     |
|-----|-------|-------------------|-------------|----------|----------|-------------|-----|
| 56  | SQ    | 142/144 (99%)     | 130 (92%)   | 12 (8%)  | 0        | 100         | 100 |
| 57  | SR    | 133/135 (98%)     | 125 (94%)   | 7 (5%)   | 1 (1%)   | 16          | 44  |
| 58  | SS    | 143/145 (99%)     | 134 (94%)   | 9 (6%)   | 0        | 100         | 100 |
| 59  | ST    | 141/143 (99%)     | 137 (97%)   | 4 (3%)   | 0        | 100         | 100 |
| 60  | SU    | 102/104 (98%)     | 100 (98%)   | 2 (2%)   | 0        | 100         | 100 |
| 61  | SZ    | 73/75 (97%)       | 66 (90%)    | 7 (10%)  | 0        | 100         | 100 |
| 62  | Sc    | 62/64 (97%)       | 59 (95%)    | 3 (5%)   | 0        | 100         | 100 |
| 63  | Sd    | 53/55 (96%)       | 53 (100%)   | 0        | 0        | 100         | 100 |
| 64  | Sf    | 65/67 (97%)       | 56 (86%)    | 9 (14%)  | 0        | 100         | 100 |
| 65  | Sg    | 311/313 (99%)     | 292 (94%)   | 19 (6%)  | 0        | 100         | 100 |
| 66  | SA    | 219/221 (99%)     | 206 (94%)   | 13 (6%)  | 0        | 100         | 100 |
| 67  | SB    | 212/214 (99%)     | 203 (96%)   | 9 (4%)   | 0        | 100         | 100 |
| 68  | SC    | 218/222 (98%)     | 202 (93%)   | 16 (7%)  | 0        | 100         | 100 |
| 69  | SE    | 260/262 (99%)     | 247 (95%)   | 13 (5%)  | 0        | 100         | 100 |
| 70  | SG    | 235/237 (99%)     | 222 (94%)   | 13 (6%)  | 0        | 100         | 100 |
| 71  | SH    | 182/189 (96%)     | 171 (94%)   | 11 (6%)  | 0        | 100         | 100 |
| 72  | SI    | 204/206 (99%)     | 191 (94%)   | 13 (6%)  | 0        | 100         | 100 |
| 73  | SJ    | 183/185 (99%)     | 175 (96%)   | 8 (4%)   | 0        | 100         | 100 |
| 74  | SL    | 151/153 (99%)     | 147 (97%)   | 4 (3%)   | 0        | 100         | 100 |
| 75  | SN    | 148/150 (99%)     | 146 (99%)   | 2 (1%)   | 0        | 100         | 100 |
| 76  | SO    | 135/140 (96%)     | 127 (94%)   | 8 (6%)   | 0        | 100         | 100 |
| 77  | SV    | 81/83 (98%)       | 76 (94%)    | 5 (6%)   | 0        | 100         | 100 |
| 78  | SW    | 127/129 (98%)     | 122 (96%)   | 5 (4%)   | 0        | 100         | 100 |
| 79  | SX    | 139/141 (99%)     | 133 (96%)   | 6 (4%)   | 0        | 100         | 100 |
| 80  | SY    | 129/131 (98%)     | 123 (95%)   | 6 (5%)   | 0        | 100         | 100 |
| 81  | Sa    | 100/102 (98%)     | 98 (98%)    | 2 (2%)   | 0        | 100         | 100 |
| 82  | Sb    | 81/83 (98%)       | 77 (95%)    | 4 (5%)   | 0        | 100         | 100 |
| 83  | Se    | 56/58 (97%)       | 51 (91%)    | 5 (9%)   | 0        | 100         | 100 |
| 86  | CF    | 438/441 (99%)     | 429 (98%)   | 9 (2%)   | 0        | 100         | 100 |
| All | All   | 12110/12348 (98%) | 11594 (96%) | 515 (4%) | 1 (0%)   | 100         | 100 |

All (1) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 57  | SR    | 129 | LYS  |

### 5.3.2 Protein sidechains [i](#)

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 |     |
|-----|-------|----------------|------------|----------|-------------|-----|
| 1   | CI    | 25/25 (100%)   | 25 (100%)  | 0        | 100         | 100 |
| 7   | LA    | 190/190 (100%) | 190 (100%) | 0        | 100         | 100 |
| 8   | LB    | 348/348 (100%) | 348 (100%) | 0        | 100         | 100 |
| 9   | LC    | 306/306 (100%) | 306 (100%) | 0        | 100         | 100 |
| 10  | LD    | 246/247 (100%) | 246 (100%) | 0        | 100         | 100 |
| 11  | LE    | 212/222 (96%)  | 212 (100%) | 0        | 100         | 100 |
| 12  | LF    | 194/194 (100%) | 194 (100%) | 0        | 100         | 100 |
| 13  | LG    | 203/205 (99%)  | 203 (100%) | 0        | 100         | 100 |
| 14  | LH    | 169/169 (100%) | 169 (100%) | 0        | 100         | 100 |
| 15  | LI    | 180/180 (100%) | 180 (100%) | 0        | 100         | 100 |
| 16  | LJ    | 143/148 (97%)  | 143 (100%) | 0        | 100         | 100 |
| 17  | LL    | 176/176 (100%) | 176 (100%) | 0        | 100         | 100 |
| 18  | LM    | 118/118 (100%) | 118 (100%) | 0        | 100         | 100 |
| 19  | LN    | 171/171 (100%) | 171 (100%) | 0        | 100         | 100 |
| 20  | LO    | 173/173 (100%) | 173 (100%) | 0        | 100         | 100 |
| 21  | LP    | 134/134 (100%) | 134 (100%) | 0        | 100         | 100 |
| 22  | LQ    | 164/164 (100%) | 164 (100%) | 0        | 100         | 100 |
| 23  | LR    | 166/166 (100%) | 166 (100%) | 0        | 100         | 100 |
| 24  | LS    | 156/156 (100%) | 156 (100%) | 0        | 100         | 100 |
| 25  | LT    | 139/139 (100%) | 139 (100%) | 0        | 100         | 100 |
| 26  | LU    | 91/91 (100%)   | 91 (100%)  | 0        | 100         | 100 |
| 27  | LV    | 101/101 (100%) | 101 (100%) | 0        | 100         | 100 |
| 28  | LW    | 95/103 (92%)   | 95 (100%)  | 0        | 100         | 100 |

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| Mol | Chain | Analysed       | Rotameric  | Outliers | Percentiles |     |
|-----|-------|----------------|------------|----------|-------------|-----|
| 29  | LX    | 108/108 (100%) | 108 (100%) | 0        | 100         | 100 |
| 30  | LY    | 124/124 (100%) | 124 (100%) | 0        | 100         | 100 |
| 31  | LZ    | 117/117 (100%) | 117 (100%) | 0        | 100         | 100 |
| 32  | La    | 120/120 (100%) | 120 (100%) | 0        | 100         | 100 |
| 33  | Lb    | 88/101 (87%)   | 88 (100%)  | 0        | 100         | 100 |
| 34  | Lc    | 83/83 (100%)   | 83 (100%)  | 0        | 100         | 100 |
| 35  | Ld    | 98/98 (100%)   | 98 (100%)  | 0        | 100         | 100 |
| 36  | Le    | 114/114 (100%) | 114 (100%) | 0        | 100         | 100 |
| 37  | Lf    | 88/88 (100%)   | 88 (100%)  | 0        | 100         | 100 |
| 38  | Lg    | 98/98 (100%)   | 98 (100%)  | 0        | 100         | 100 |
| 39  | Lh    | 109/109 (100%) | 109 (100%) | 0        | 100         | 100 |
| 40  | Li    | 86/86 (100%)   | 86 (100%)  | 0        | 100         | 100 |
| 41  | Lj    | 73/73 (100%)   | 73 (100%)  | 0        | 100         | 100 |
| 42  | Lk    | 64/64 (100%)   | 64 (100%)  | 0        | 100         | 100 |
| 43  | Ll    | 47/47 (100%)   | 47 (100%)  | 0        | 100         | 100 |
| 44  | Lm    | 48/48 (100%)   | 48 (100%)  | 0        | 100         | 100 |
| 45  | Ln    | 23/23 (100%)   | 23 (100%)  | 0        | 100         | 100 |
| 46  | Lo    | 93/93 (100%)   | 93 (100%)  | 0        | 100         | 100 |
| 47  | Lp    | 74/74 (100%)   | 74 (100%)  | 0        | 100         | 100 |
| 48  | Lr    | 109/109 (100%) | 109 (100%) | 0        | 100         | 100 |
| 49  | Ls    | 162/164 (99%)  | 162 (100%) | 0        | 100         | 100 |
| 50  | Lt    | 107/130 (82%)  | 107 (100%) | 0        | 100         | 100 |
| 51  | SD    | 190/190 (100%) | 190 (100%) | 0        | 100         | 100 |
| 52  | SF    | 159/159 (100%) | 159 (100%) | 0        | 100         | 100 |
| 53  | SK    | 89/89 (100%)   | 89 (100%)  | 0        | 100         | 100 |
| 54  | SM    | 102/104 (98%)  | 102 (100%) | 0        | 100         | 100 |
| 55  | SP    | 107/107 (100%) | 107 (100%) | 0        | 100         | 100 |
| 56  | SQ    | 119/119 (100%) | 119 (100%) | 0        | 100         | 100 |
| 57  | SR    | 122/122 (100%) | 122 (100%) | 0        | 100         | 100 |
| 58  | SS    | 126/126 (100%) | 126 (100%) | 0        | 100         | 100 |
| 59  | ST    | 113/113 (100%) | 113 (100%) | 0        | 100         | 100 |

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| Mol | Chain | Analysed          | Rotameric    | Outliers | Percentiles |     |
|-----|-------|-------------------|--------------|----------|-------------|-----|
| 60  | SU    | 94/94 (100%)      | 94 (100%)    | 0        | 100         | 100 |
| 61  | SZ    | 66/66 (100%)      | 66 (100%)    | 0        | 100         | 100 |
| 62  | Sc    | 57/57 (100%)      | 57 (100%)    | 0        | 100         | 100 |
| 63  | Sd    | 48/48 (100%)      | 48 (100%)    | 0        | 100         | 100 |
| 64  | Sf    | 60/60 (100%)      | 60 (100%)    | 0        | 100         | 100 |
| 65  | Sg    | 272/272 (100%)    | 272 (100%)   | 0        | 100         | 100 |
| 66  | SA    | 183/183 (100%)    | 183 (100%)   | 0        | 100         | 100 |
| 67  | SB    | 195/195 (100%)    | 195 (100%)   | 0        | 100         | 100 |
| 68  | SC    | 186/188 (99%)     | 186 (100%)   | 0        | 100         | 100 |
| 69  | SE    | 224/224 (100%)    | 224 (100%)   | 0        | 100         | 100 |
| 70  | SG    | 207/207 (100%)    | 207 (100%)   | 0        | 100         | 100 |
| 71  | SH    | 166/169 (98%)     | 166 (100%)   | 0        | 100         | 100 |
| 72  | SI    | 178/178 (100%)    | 178 (100%)   | 0        | 100         | 100 |
| 73  | SJ    | 161/161 (100%)    | 161 (100%)   | 0        | 100         | 100 |
| 74  | SL    | 137/137 (100%)    | 137 (100%)   | 0        | 100         | 100 |
| 75  | SN    | 130/130 (100%)    | 130 (100%)   | 0        | 100         | 100 |
| 76  | SO    | 107/110 (97%)     | 107 (100%)   | 0        | 100         | 100 |
| 77  | SV    | 67/67 (100%)      | 67 (100%)    | 0        | 100         | 100 |
| 78  | SW    | 112/112 (100%)    | 112 (100%)   | 0        | 100         | 100 |
| 79  | SX    | 113/113 (100%)    | 113 (100%)   | 0        | 100         | 100 |
| 80  | SY    | 113/113 (100%)    | 113 (100%)   | 0        | 100         | 100 |
| 81  | Sa    | 89/89 (100%)      | 89 (100%)    | 0        | 100         | 100 |
| 82  | Sb    | 75/75 (100%)      | 75 (100%)    | 0        | 100         | 100 |
| 83  | Se    | 47/47 (100%)      | 47 (100%)    | 0        | 100         | 100 |
| 86  | CF    | 365/366 (100%)    | 365 (100%)   | 0        | 100         | 100 |
| All | All   | 10512/10587 (99%) | 10512 (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 (81) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 7   | LA    | 97  | ASN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 8   | LB    | 68  | ASN  |
| 8   | LB    | 145 | GLN  |
| 8   | LB    | 184 | GLN  |
| 8   | LB    | 203 | GLN  |
| 8   | LB    | 301 | ASN  |
| 9   | LC    | 329 | ASN  |
| 9   | LC    | 347 | HIS  |
| 12  | LF    | 239 | GLN  |
| 13  | LG    | 112 | GLN  |
| 14  | LH    | 98  | HIS  |
| 14  | LH    | 138 | GLN  |
| 15  | LI    | 59  | GLN  |
| 17  | LL    | 19  | GLN  |
| 17  | LL    | 149 | GLN  |
| 18  | LM    | 34  | ASN  |
| 19  | LN    | 117 | ASN  |
| 20  | LO    | 42  | ASN  |
| 20  | LO    | 50  | ASN  |
| 20  | LO    | 199 | HIS  |
| 21  | LP    | 97  | ASN  |
| 21  | LP    | 118 | GLN  |
| 21  | LP    | 137 | ASN  |
| 24  | LS    | 23  | HIS  |
| 24  | LS    | 37  | HIS  |
| 24  | LS    | 108 | GLN  |
| 25  | LT    | 144 | ASN  |
| 26  | LU    | 94  | ASN  |
| 27  | LV    | 77  | HIS  |
| 28  | LW    | 79  | GLN  |
| 28  | LW    | 104 | GLN  |
| 30  | LY    | 61  | HIS  |
| 32  | La    | 34  | ASN  |
| 32  | La    | 67  | GLN  |
| 32  | La    | 120 | GLN  |
| 33  | Lb    | 60  | ASN  |
| 36  | Le    | 52  | GLN  |
| 40  | Li    | 15  | HIS  |
| 41  | Lj    | 66  | HIS  |
| 43  | Ll    | 33  | ASN  |
| 44  | Lm    | 117 | HIS  |
| 47  | Lp    | 33  | GLN  |
| 48  | Lr    | 4   | HIS  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 48  | Lr    | 21  | ASN  |
| 50  | Lt    | 65  | GLN  |
| 50  | Lt    | 149 | HIS  |
| 52  | SF    | 29  | GLN  |
| 53  | SK    | 28  | HIS  |
| 53  | SK    | 32  | HIS  |
| 54  | SM    | 19  | GLN  |
| 56  | SQ    | 48  | GLN  |
| 60  | SU    | 81  | GLN  |
| 60  | SU    | 92  | HIS  |
| 61  | SZ    | 89  | GLN  |
| 63  | Sd    | 5   | GLN  |
| 64  | Sf    | 93  | HIS  |
| 65  | Sg    | 285 | GLN  |
| 66  | SA    | 9   | GLN  |
| 66  | SA    | 84  | GLN  |
| 66  | SA    | 132 | GLN  |
| 67  | SB    | 76  | ASN  |
| 67  | SB    | 95  | ASN  |
| 67  | SB    | 158 | HIS  |
| 68  | SC    | 267 | GLN  |
| 69  | SE    | 188 | ASN  |
| 70  | SG    | 227 | GLN  |
| 71  | SH    | 76  | GLN  |
| 71  | SH    | 114 | GLN  |
| 71  | SH    | 162 | GLN  |
| 72  | SI    | 35  | ASN  |
| 72  | SI    | 52  | ASN  |
| 74  | SL    | 19  | ASN  |
| 74  | SL    | 65  | ASN  |
| 75  | SN    | 105 | ASN  |
| 77  | SV    | 35  | ASN  |
| 79  | SX    | 16  | HIS  |
| 79  | SX    | 31  | HIS  |
| 81  | Sa    | 72  | HIS  |
| 86  | CF    | 15  | HIS  |
| 86  | CF    | 197 | ASN  |
| 86  | CF    | 348 | ASN  |

### 5.3.3 RNA ⓘ

| Mol | Chain | Analysed        | Backbone Outliers | Pucker Outliers |
|-----|-------|-----------------|-------------------|-----------------|
| 2   | Pt    | 72/74 (97%)     | 14 (19%)          | 0               |
| 3   | Et    | 73/75 (97%)     | 24 (32%)          | 0               |
| 4   | L5    | 3643/3655 (99%) | 710 (19%)         | 15 (0%)         |
| 5   | L7    | 119/120 (99%)   | 9 (7%)            | 0               |
| 6   | L8    | 155/156 (99%)   | 23 (14%)          | 0               |
| 84  | S2    | 1714/1740 (98%) | 360 (21%)         | 4 (0%)          |
| 85  | AT    | 74/76 (97%)     | 43 (58%)          | 1 (1%)          |
| All | All   | 5850/5896 (99%) | 1183 (20%)        | 20 (0%)         |

All (1183) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2   | Pt    | 9   | A    |
| 2   | Pt    | 13  | U    |
| 2   | Pt    | 19  | G    |
| 2   | Pt    | 21  | A    |
| 2   | Pt    | 46  | G    |
| 2   | Pt    | 47  | U    |
| 2   | Pt    | 48  | C    |
| 2   | Pt    | 49  | C    |
| 2   | Pt    | 58  | A    |
| 2   | Pt    | 66  | C    |
| 2   | Pt    | 67  | G    |
| 2   | Pt    | 70  | A    |
| 2   | Pt    | 74  | C    |
| 2   | Pt    | 76  | A    |
| 3   | Et    | 9   | A    |
| 3   | Et    | 10  | G    |
| 3   | Et    | 11  | C    |
| 3   | Et    | 19  | G    |
| 3   | Et    | 20  | U    |
| 3   | Et    | 21  | A    |
| 3   | Et    | 31  | A    |
| 3   | Et    | 33  | U    |
| 3   | Et    | 36  | U    |
| 3   | Et    | 40  | C    |
| 3   | Et    | 42  | G    |
| 3   | Et    | 46  | G    |
| 3   | Et    | 47  | U    |
| 3   | Et    | 48  | C    |
| 3   | Et    | 49  | C    |
| 3   | Et    | 55  | U    |
| 3   | Et    | 58  | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3   | Et    | 60  | U    |
| 3   | Et    | 63  | C    |
| 3   | Et    | 65  | G    |
| 3   | Et    | 66  | U    |
| 3   | Et    | 70  | G    |
| 3   | Et    | 73  | G    |
| 3   | Et    | 76  | A    |
| 4   | L5    | 2   | G    |
| 4   | L5    | 25  | A    |
| 4   | L5    | 30  | C    |
| 4   | L5    | 39  | A    |
| 4   | L5    | 42  | A    |
| 4   | L5    | 48  | G    |
| 4   | L5    | 56  | A    |
| 4   | L5    | 59  | A    |
| 4   | L5    | 64  | A    |
| 4   | L5    | 65  | A    |
| 4   | L5    | 73  | A    |
| 4   | L5    | 91  | G    |
| 4   | L5    | 104 | G    |
| 4   | L5    | 108 | A    |
| 4   | L5    | 109 | G    |
| 4   | L5    | 110 | C    |
| 4   | L5    | 119 | G    |
| 4   | L5    | 120 | A    |
| 4   | L5    | 127 | G    |
| 4   | L5    | 132 | G    |
| 4   | L5    | 133 | C    |
| 4   | L5    | 134 | G    |
| 4   | L5    | 135 | G    |
| 4   | L5    | 136 | C    |
| 4   | L5    | 159 | C    |
| 4   | L5    | 165 | A    |
| 4   | L5    | 172 | C    |
| 4   | L5    | 181 | C    |
| 4   | L5    | 182 | G    |
| 4   | L5    | 183 | C    |
| 4   | L5    | 184 | U    |
| 4   | L5    | 185 | C    |
| 4   | L5    | 187 | U    |
| 4   | L5    | 188 | G    |
| 4   | L5    | 189 | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 4   | L5    | 200 | U    |
| 4   | L5    | 209 | U    |
| 4   | L5    | 210 | C    |
| 4   | L5    | 216 | C    |
| 4   | L5    | 218 | A    |
| 4   | L5    | 220 | C    |
| 4   | L5    | 234 | G    |
| 4   | L5    | 237 | G    |
| 4   | L5    | 255 | C    |
| 4   | L5    | 256 | G    |
| 4   | L5    | 261 | G    |
| 4   | L5    | 263 | G    |
| 4   | L5    | 264 | C    |
| 4   | L5    | 265 | C    |
| 4   | L5    | 266 | C    |
| 4   | L5    | 267 | G    |
| 4   | L5    | 280 | G    |
| 4   | L5    | 297 | U    |
| 4   | L5    | 306 | A    |
| 4   | L5    | 315 | G    |
| 4   | L5    | 316 | U    |
| 4   | L5    | 340 | C    |
| 4   | L5    | 373 | G    |
| 4   | L5    | 385 | A    |
| 4   | L5    | 387 | G    |
| 4   | L5    | 388 | A    |
| 4   | L5    | 396 | A    |
| 4   | L5    | 407 | A    |
| 4   | L5    | 409 | G    |
| 4   | L5    | 410 | A    |
| 4   | L5    | 411 | G    |
| 4   | L5    | 412 | G    |
| 4   | L5    | 432 | U    |
| 4   | L5    | 449 | C    |
| 4   | L5    | 452 | A    |
| 4   | L5    | 453 | G    |
| 4   | L5    | 454 | U    |
| 4   | L5    | 456 | C    |
| 4   | L5    | 457 | G    |
| 4   | L5    | 467 | U    |
| 4   | L5    | 484 | U    |
| 4   | L5    | 485 | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 4   | L5    | 486 | C    |
| 4   | L5    | 489 | C    |
| 4   | L5    | 494 | U    |
| 4   | L5    | 497 | G    |
| 4   | L5    | 498 | C    |
| 4   | L5    | 499 | G    |
| 4   | L5    | 500 | G    |
| 4   | L5    | 502 | C    |
| 4   | L5    | 503 | C    |
| 4   | L5    | 504 | G    |
| 4   | L5    | 509 | A    |
| 4   | L5    | 510 | U    |
| 4   | L5    | 512 | U    |
| 4   | L5    | 513 | U    |
| 4   | L5    | 514 | U    |
| 4   | L5    | 518 | G    |
| 4   | L5    | 643 | C    |
| 4   | L5    | 646 | G    |
| 4   | L5    | 654 | C    |
| 4   | L5    | 655 | C    |
| 4   | L5    | 656 | C    |
| 4   | L5    | 657 | C    |
| 4   | L5    | 659 | G    |
| 4   | L5    | 666 | G    |
| 4   | L5    | 667 | A    |
| 4   | L5    | 668 | C    |
| 4   | L5    | 669 | C    |
| 4   | L5    | 672 | C    |
| 4   | L5    | 673 | C    |
| 4   | L5    | 685 | C    |
| 4   | L5    | 686 | A    |
| 4   | L5    | 687 | U    |
| 4   | L5    | 696 | C    |
| 4   | L5    | 704 | C    |
| 4   | L5    | 708 | G    |
| 4   | L5    | 730 | G    |
| 4   | L5    | 731 | G    |
| 4   | L5    | 738 | C    |
| 4   | L5    | 739 | G    |
| 4   | L5    | 742 | G    |
| 4   | L5    | 746 | A    |
| 4   | L5    | 759 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | L5    | 904  | C    |
| 4   | L5    | 905  | C    |
| 4   | L5    | 910  | G    |
| 4   | L5    | 913  | U    |
| 4   | L5    | 914  | U    |
| 4   | L5    | 915  | A    |
| 4   | L5    | 917  | A    |
| 4   | L5    | 923  | C    |
| 4   | L5    | 924  | C    |
| 4   | L5    | 932  | A    |
| 4   | L5    | 933  | G    |
| 4   | L5    | 936  | C    |
| 4   | L5    | 943  | A    |
| 4   | L5    | 944  | A    |
| 4   | L5    | 945  | U    |
| 4   | L5    | 946  | C    |
| 4   | L5    | 956  | A    |
| 4   | L5    | 959  | G    |
| 4   | L5    | 960  | A    |
| 4   | L5    | 961  | G    |
| 4   | L5    | 962  | C    |
| 4   | L5    | 965  | G    |
| 4   | L5    | 966  | A    |
| 4   | L5    | 967  | C    |
| 4   | L5    | 969  | C    |
| 4   | L5    | 970  | G    |
| 4   | L5    | 977  | C    |
| 4   | L5    | 982  | U    |
| 4   | L5    | 985  | C    |
| 4   | L5    | 1070 | G    |
| 4   | L5    | 1071 | C    |
| 4   | L5    | 1072 | C    |
| 4   | L5    | 1075 | G    |
| 4   | L5    | 1082 | C    |
| 4   | L5    | 1083 | U    |
| 4   | L5    | 1168 | G    |
| 4   | L5    | 1171 | G    |
| 4   | L5    | 1172 | C    |
| 4   | L5    | 1173 | G    |
| 4   | L5    | 1179 | U    |
| 4   | L5    | 1180 | C    |
| 4   | L5    | 1181 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | L5    | 1182 | C    |
| 4   | L5    | 1183 | C    |
| 4   | L5    | 1187 | G    |
| 4   | L5    | 1202 | C    |
| 4   | L5    | 1203 | G    |
| 4   | L5    | 1210 | C    |
| 4   | L5    | 1211 | G    |
| 4   | L5    | 1214 | C    |
| 4   | L5    | 1215 | C    |
| 4   | L5    | 1219 | G    |
| 4   | L5    | 1222 | A    |
| 4   | L5    | 1246 | G    |
| 4   | L5    | 1253 | G    |
| 4   | L5    | 1254 | A    |
| 4   | L5    | 1257 | A    |
| 4   | L5    | 1258 | G    |
| 4   | L5    | 1262 | G    |
| 4   | L5    | 1266 | G    |
| 4   | L5    | 1267 | C    |
| 4   | L5    | 1269 | G    |
| 4   | L5    | 1271 | G    |
| 4   | L5    | 1272 | C    |
| 4   | L5    | 1273 | G    |
| 4   | L5    | 1275 | G    |
| 4   | L5    | 1280 | C    |
| 4   | L5    | 1284 | G    |
| 4   | L5    | 1285 | U    |
| 4   | L5    | 1287 | G    |
| 4   | L5    | 1293 | G    |
| 4   | L5    | 1294 | A    |
| 4   | L5    | 1295 | C    |
| 4   | L5    | 1296 | G    |
| 4   | L5    | 1301 | C    |
| 4   | L5    | 1302 | U    |
| 4   | L5    | 1326 | A2M  |
| 4   | L5    | 1337 | A    |
| 4   | L5    | 1354 | A    |
| 4   | L5    | 1359 | G    |
| 4   | L5    | 1365 | C    |
| 4   | L5    | 1366 | G    |
| 4   | L5    | 1367 | C    |
| 4   | L5    | 1379 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | L5    | 1387 | A    |
| 4   | L5    | 1394 | G    |
| 4   | L5    | 1397 | A    |
| 4   | L5    | 1398 | A    |
| 4   | L5    | 1403 | G    |
| 4   | L5    | 1404 | G    |
| 4   | L5    | 1407 | C    |
| 4   | L5    | 1409 | C    |
| 4   | L5    | 1410 | U    |
| 4   | L5    | 1411 | C    |
| 4   | L5    | 1417 | C    |
| 4   | L5    | 1420 | A    |
| 4   | L5    | 1425 | G    |
| 4   | L5    | 1437 | C    |
| 4   | L5    | 1439 | C    |
| 4   | L5    | 1442 | C    |
| 4   | L5    | 1443 | A    |
| 4   | L5    | 1444 | G    |
| 4   | L5    | 1446 | C    |
| 4   | L5    | 1447 | C    |
| 4   | L5    | 1482 | G    |
| 4   | L5    | 1483 | C    |
| 4   | L5    | 1497 | A    |
| 4   | L5    | 1498 | G    |
| 4   | L5    | 1502 | G    |
| 4   | L5    | 1517 | G    |
| 4   | L5    | 1524 | A2M  |
| 4   | L5    | 1534 | A2M  |
| 4   | L5    | 1537 | A    |
| 4   | L5    | 1547 | A    |
| 4   | L5    | 1564 | A    |
| 4   | L5    | 1566 | C    |
| 4   | L5    | 1578 | U    |
| 4   | L5    | 1591 | U    |
| 4   | L5    | 1596 | U    |
| 4   | L5    | 1621 | A    |
| 4   | L5    | 1624 | G    |
| 4   | L5    | 1625 | OMG  |
| 4   | L5    | 1631 | A    |
| 4   | L5    | 1633 | G    |
| 4   | L5    | 1634 | A    |
| 4   | L5    | 1638 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | L5    | 1640 | C    |
| 4   | L5    | 1641 | G    |
| 4   | L5    | 1642 | A    |
| 4   | L5    | 1654 | G    |
| 4   | L5    | 1661 | C    |
| 4   | L5    | 1676 | C    |
| 4   | L5    | 1677 | PSU  |
| 4   | L5    | 1678 | C    |
| 4   | L5    | 1694 | C    |
| 4   | L5    | 1697 | G    |
| 4   | L5    | 1699 | A    |
| 4   | L5    | 1700 | G    |
| 4   | L5    | 1701 | A    |
| 4   | L5    | 1702 | C    |
| 4   | L5    | 1704 | C    |
| 4   | L5    | 1705 | G    |
| 4   | L5    | 1717 | C    |
| 4   | L5    | 1718 | C    |
| 4   | L5    | 1719 | A    |
| 4   | L5    | 1721 | G    |
| 4   | L5    | 1726 | U    |
| 4   | L5    | 1731 | C    |
| 4   | L5    | 1734 | G    |
| 4   | L5    | 1742 | A    |
| 4   | L5    | 1750 | G    |
| 4   | L5    | 1755 | C    |
| 4   | L5    | 1757 | U    |
| 4   | L5    | 1758 | G    |
| 4   | L5    | 1760 | G    |
| 4   | L5    | 1761 | G    |
| 4   | L5    | 1762 | C    |
| 4   | L5    | 1763 | C    |
| 4   | L5    | 1764 | G    |
| 4   | L5    | 1765 | A    |
| 4   | L5    | 1766 | A    |
| 4   | L5    | 1767 | A    |
| 4   | L5    | 1768 | C    |
| 4   | L5    | 1770 | A    |
| 4   | L5    | 1787 | A    |
| 4   | L5    | 1804 | A    |
| 4   | L5    | 1806 | G    |
| 4   | L5    | 1810 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | L5    | 1815 | G    |
| 4   | L5    | 1821 | G    |
| 4   | L5    | 1822 | U    |
| 4   | L5    | 1834 | U    |
| 4   | L5    | 1836 | G    |
| 4   | L5    | 1837 | A    |
| 4   | L5    | 1842 | G    |
| 4   | L5    | 1855 | G    |
| 4   | L5    | 1869 | G    |
| 4   | L5    | 1882 | U    |
| 4   | L5    | 1897 | A    |
| 4   | L5    | 1917 | A    |
| 4   | L5    | 1918 | U    |
| 4   | L5    | 1919 | G    |
| 4   | L5    | 1920 | C    |
| 4   | L5    | 1921 | C    |
| 4   | L5    | 1922 | G    |
| 4   | L5    | 1925 | G    |
| 4   | L5    | 1930 | U    |
| 4   | L5    | 1931 | C    |
| 4   | L5    | 1932 | A    |
| 4   | L5    | 1940 | G    |
| 4   | L5    | 1948 | G    |
| 4   | L5    | 1951 | G    |
| 4   | L5    | 1961 | G    |
| 4   | L5    | 1962 | A    |
| 4   | L5    | 1974 | U    |
| 4   | L5    | 1975 | G    |
| 4   | L5    | 1978 | C    |
| 4   | L5    | 1980 | U    |
| 4   | L5    | 1981 | G    |
| 4   | L5    | 1982 | G    |
| 4   | L5    | 1983 | A    |
| 4   | L5    | 1984 | A    |
| 4   | L5    | 1985 | G    |
| 4   | L5    | 1986 | U    |
| 4   | L5    | 1991 | A    |
| 4   | L5    | 1993 | C    |
| 4   | L5    | 1997 | U    |
| 4   | L5    | 1998 | A    |
| 4   | L5    | 1999 | A    |
| 4   | L5    | 2001 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | L5    | 2002 | A    |
| 4   | L5    | 2003 | G    |
| 4   | L5    | 2004 | U    |
| 4   | L5    | 2011 | C    |
| 4   | L5    | 2017 | A    |
| 4   | L5    | 2018 | C    |
| 4   | L5    | 2024 | G    |
| 4   | L5    | 2026 | A    |
| 4   | L5    | 2046 | G    |
| 4   | L5    | 2048 | U    |
| 4   | L5    | 2055 | G    |
| 4   | L5    | 2056 | G    |
| 4   | L5    | 2069 | A    |
| 4   | L5    | 2084 | C    |
| 4   | L5    | 2085 | G    |
| 4   | L5    | 2092 | G    |
| 4   | L5    | 2093 | A    |
| 4   | L5    | 2095 | A    |
| 4   | L5    | 2097 | U    |
| 4   | L5    | 2098 | G    |
| 4   | L5    | 2101 | C    |
| 4   | L5    | 2102 | G    |
| 4   | L5    | 2107 | C    |
| 4   | L5    | 2110 | C    |
| 4   | L5    | 2111 | G    |
| 4   | L5    | 2112 | G    |
| 4   | L5    | 2250 | C    |
| 4   | L5    | 2252 | G    |
| 4   | L5    | 2256 | C    |
| 4   | L5    | 2261 | G    |
| 4   | L5    | 2289 | C    |
| 4   | L5    | 2300 | A    |
| 4   | L5    | 2301 | G    |
| 4   | L5    | 2313 | A    |
| 4   | L5    | 2333 | G    |
| 4   | L5    | 2348 | G    |
| 4   | L5    | 2351 | OMC  |
| 4   | L5    | 2360 | A    |
| 4   | L5    | 2364 | OMG  |
| 4   | L5    | 2383 | C    |
| 4   | L5    | 2395 | A    |
| 4   | L5    | 2397 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | L5    | 2417 | A    |
| 4   | L5    | 2425 | U    |
| 4   | L5    | 2450 | G    |
| 4   | L5    | 2453 | A    |
| 4   | L5    | 2464 | C    |
| 4   | L5    | 2465 | C    |
| 4   | L5    | 2469 | C    |
| 4   | L5    | 2471 | G    |
| 4   | L5    | 2474 | G    |
| 4   | L5    | 2475 | G    |
| 4   | L5    | 2478 | C    |
| 4   | L5    | 2479 | G    |
| 4   | L5    | 2483 | G    |
| 4   | L5    | 2484 | A    |
| 4   | L5    | 2485 | U    |
| 4   | L5    | 2487 | G    |
| 4   | L5    | 2488 | C    |
| 4   | L5    | 2489 | C    |
| 4   | L5    | 2490 | U    |
| 4   | L5    | 2494 | U    |
| 4   | L5    | 2504 | C    |
| 4   | L5    | 2505 | C    |
| 4   | L5    | 2506 | G    |
| 4   | L5    | 2507 | A    |
| 4   | L5    | 2513 | A    |
| 4   | L5    | 2519 | U    |
| 4   | L5    | 2520 | C    |
| 4   | L5    | 2529 | A    |
| 4   | L5    | 2537 | A    |
| 4   | L5    | 2544 | G    |
| 4   | L5    | 2546 | G    |
| 4   | L5    | 2547 | G    |
| 4   | L5    | 2554 | U    |
| 4   | L5    | 2555 | G    |
| 4   | L5    | 2556 | G    |
| 4   | L5    | 2560 | C    |
| 4   | L5    | 2565 | A    |
| 4   | L5    | 2567 | G    |
| 4   | L5    | 2573 | A    |
| 4   | L5    | 2583 | C    |
| 4   | L5    | 2587 | A    |
| 4   | L5    | 2589 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | L5    | 2602 | G    |
| 4   | L5    | 2627 | C    |
| 4   | L5    | 2653 | C    |
| 4   | L5    | 2662 | G    |
| 4   | L5    | 2669 | C    |
| 4   | L5    | 2675 | G    |
| 4   | L5    | 2676 | A    |
| 4   | L5    | 2687 | U    |
| 4   | L5    | 2694 | G    |
| 4   | L5    | 2695 | A    |
| 4   | L5    | 2696 | A    |
| 4   | L5    | 2706 | G    |
| 4   | L5    | 2707 | U    |
| 4   | L5    | 2708 | U    |
| 4   | L5    | 2710 | C    |
| 4   | L5    | 2711 | G    |
| 4   | L5    | 2712 | G    |
| 4   | L5    | 2721 | G    |
| 4   | L5    | 2724 | G    |
| 4   | L5    | 2726 | G    |
| 4   | L5    | 2739 | C    |
| 4   | L5    | 2742 | G    |
| 4   | L5    | 2743 | A    |
| 4   | L5    | 2746 | A    |
| 4   | L5    | 2761 | U    |
| 4   | L5    | 2763 | U    |
| 4   | L5    | 2769 | U    |
| 4   | L5    | 2770 | C    |
| 4   | L5    | 2788 | U    |
| 4   | L5    | 2790 | U    |
| 4   | L5    | 2806 | A    |
| 4   | L5    | 2814 | C    |
| 4   | L5    | 2826 | U    |
| 4   | L5    | 2827 | G    |
| 4   | L5    | 2829 | U    |
| 4   | L5    | 2838 | G    |
| 4   | L5    | 2855 | G    |
| 4   | L5    | 2867 | C    |
| 4   | L5    | 2877 | G    |
| 4   | L5    | 2892 | C    |
| 4   | L5    | 2894 | A    |
| 4   | L5    | 2899 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | L5    | 2900 | U    |
| 4   | L5    | 2902 | G    |
| 4   | L5    | 2903 | G    |
| 4   | L5    | 2904 | U    |
| 4   | L5    | 2905 | C    |
| 4   | L5    | 2907 | G    |
| 4   | L5    | 2908 | U    |
| 4   | L5    | 3590 | G    |
| 4   | L5    | 3591 | C    |
| 4   | L5    | 3592 | G    |
| 4   | L5    | 3594 | C    |
| 4   | L5    | 3595 | U    |
| 4   | L5    | 3596 | A    |
| 4   | L5    | 3597 | G    |
| 4   | L5    | 3604 | A    |
| 4   | L5    | 3605 | C    |
| 4   | L5    | 3616 | U    |
| 4   | L5    | 3617 | G    |
| 4   | L5    | 3626 | G    |
| 4   | L5    | 3630 | A    |
| 4   | L5    | 3635 | A    |
| 4   | L5    | 3644 | U    |
| 4   | L5    | 3646 | A    |
| 4   | L5    | 3648 | A    |
| 4   | L5    | 3662 | A    |
| 4   | L5    | 3664 | G    |
| 4   | L5    | 3670 | C    |
| 4   | L5    | 3673 | C    |
| 4   | L5    | 3674 | G    |
| 4   | L5    | 3691 | G    |
| 4   | L5    | 3701 | OMC  |
| 4   | L5    | 3710 | G    |
| 4   | L5    | 3711 | A    |
| 4   | L5    | 3713 | U    |
| 4   | L5    | 3726 | A    |
| 4   | L5    | 3727 | A    |
| 4   | L5    | 3748 | A    |
| 4   | L5    | 3753 | G    |
| 4   | L5    | 3760 | A    |
| 4   | L5    | 3770 | U    |
| 4   | L5    | 3774 | A    |
| 4   | L5    | 3775 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | L5    | 3776 | G    |
| 4   | L5    | 3777 | G    |
| 4   | L5    | 3785 | A2M  |
| 4   | L5    | 3786 | U    |
| 4   | L5    | 3792 | OMG  |
| 4   | L5    | 3811 | G    |
| 4   | L5    | 3812 | C    |
| 4   | L5    | 3814 | U    |
| 4   | L5    | 3817 | A    |
| 4   | L5    | 3819 | G    |
| 4   | L5    | 3824 | A    |
| 4   | L5    | 3838 | U    |
| 4   | L5    | 3839 | G    |
| 4   | L5    | 3840 | U    |
| 4   | L5    | 3867 | A2M  |
| 4   | L5    | 3877 | A    |
| 4   | L5    | 3878 | C    |
| 4   | L5    | 3879 | G    |
| 4   | L5    | 3885 | G    |
| 4   | L5    | 3892 | U    |
| 4   | L5    | 3897 | G    |
| 4   | L5    | 3901 | A    |
| 4   | L5    | 3906 | A    |
| 4   | L5    | 3907 | G    |
| 4   | L5    | 3908 | A    |
| 4   | L5    | 3915 | U    |
| 4   | L5    | 3923 | A    |
| 4   | L5    | 3938 | G    |
| 4   | L5    | 3939 | G    |
| 4   | L5    | 3942 | A    |
| 4   | L5    | 3947 | A    |
| 4   | L5    | 3949 | A    |
| 4   | L5    | 3950 | U    |
| 4   | L5    | 3953 | G    |
| 4   | L5    | 4057 | C    |
| 4   | L5    | 4058 | U    |
| 4   | L5    | 4059 | C    |
| 4   | L5    | 4061 | G    |
| 4   | L5    | 4062 | A    |
| 4   | L5    | 4064 | C    |
| 4   | L5    | 4065 | G    |
| 4   | L5    | 4068 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | L5    | 4076 | G    |
| 4   | L5    | 4084 | G    |
| 4   | L5    | 4095 | G    |
| 4   | L5    | 4097 | G    |
| 4   | L5    | 4098 | A    |
| 4   | L5    | 4099 | G    |
| 4   | L5    | 4101 | C    |
| 4   | L5    | 4104 | G    |
| 4   | L5    | 4108 | G    |
| 4   | L5    | 4111 | U    |
| 4   | L5    | 4112 | C    |
| 4   | L5    | 4114 | C    |
| 4   | L5    | 4115 | G    |
| 4   | L5    | 4116 | C    |
| 4   | L5    | 4122 | G    |
| 4   | L5    | 4127 | A    |
| 4   | L5    | 4133 | C    |
| 4   | L5    | 4140 | C    |
| 4   | L5    | 4141 | G    |
| 4   | L5    | 4142 | C    |
| 4   | L5    | 4143 | G    |
| 4   | L5    | 4144 | C    |
| 4   | L5    | 4146 | G    |
| 4   | L5    | 4149 | C    |
| 4   | L5    | 4162 | C    |
| 4   | L5    | 4163 | U    |
| 4   | L5    | 4170 | A    |
| 4   | L5    | 4183 | G    |
| 4   | L5    | 4184 | G    |
| 4   | L5    | 4191 | G    |
| 4   | L5    | 4203 | A    |
| 4   | L5    | 4219 | A    |
| 4   | L5    | 4220 | 6MZ  |
| 4   | L5    | 4222 | G    |
| 4   | L5    | 4225 | G    |
| 4   | L5    | 4229 | U    |
| 4   | L5    | 4233 | A    |
| 4   | L5    | 4251 | A    |
| 4   | L5    | 4254 | G    |
| 4   | L5    | 4257 | A    |
| 4   | L5    | 4258 | C    |
| 4   | L5    | 4265 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | L5    | 4268 | A    |
| 4   | L5    | 4273 | A    |
| 4   | L5    | 4281 | A    |
| 4   | L5    | 4291 | G    |
| 4   | L5    | 4295 | U    |
| 4   | L5    | 4304 | A    |
| 4   | L5    | 4305 | G    |
| 4   | L5    | 4306 | OMU  |
| 4   | L5    | 4314 | C    |
| 4   | L5    | 4319 | C    |
| 4   | L5    | 4329 | G    |
| 4   | L5    | 4330 | G    |
| 4   | L5    | 4332 | C    |
| 4   | L5    | 4349 | C    |
| 4   | L5    | 4350 | C    |
| 4   | L5    | 4354 | U    |
| 4   | L5    | 4373 | G    |
| 4   | L5    | 4376 | A    |
| 4   | L5    | 4377 | G    |
| 4   | L5    | 4378 | A    |
| 4   | L5    | 4379 | A    |
| 4   | L5    | 4387 | C    |
| 4   | L5    | 4391 | G    |
| 4   | L5    | 4394 | A    |
| 4   | L5    | 4421 | C    |
| 4   | L5    | 4422 | A    |
| 4   | L5    | 4438 | U    |
| 4   | L5    | 4448 | G    |
| 4   | L5    | 4449 | A    |
| 4   | L5    | 4464 | A    |
| 4   | L5    | 4466 | C    |
| 4   | L5    | 4475 | G    |
| 4   | L5    | 4488 | A    |
| 4   | L5    | 4500 | PSU  |
| 4   | L5    | 4512 | U    |
| 4   | L5    | 4513 | A    |
| 4   | L5    | 4515 | G    |
| 4   | L5    | 4519 | C    |
| 4   | L5    | 4524 | G    |
| 4   | L5    | 4525 | C    |
| 4   | L5    | 4545 | G    |
| 4   | L5    | 4548 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | L5    | 4557 | U    |
| 4   | L5    | 4560 | C    |
| 4   | L5    | 4567 | G    |
| 4   | L5    | 4575 | G    |
| 4   | L5    | 4584 | A    |
| 4   | L5    | 4589 | A    |
| 4   | L5    | 4590 | A2M  |
| 4   | L5    | 4600 | G    |
| 4   | L5    | 4601 | U    |
| 4   | L5    | 4617 | G    |
| 4   | L5    | 4636 | PSU  |
| 4   | L5    | 4637 | OMG  |
| 4   | L5    | 4652 | G    |
| 4   | L5    | 4656 | A    |
| 4   | L5    | 4670 | C    |
| 4   | L5    | 4672 | A    |
| 4   | L5    | 4679 | G    |
| 4   | L5    | 4687 | A    |
| 4   | L5    | 4694 | G    |
| 4   | L5    | 4695 | C    |
| 4   | L5    | 4700 | A    |
| 4   | L5    | 4708 | A    |
| 4   | L5    | 4709 | U    |
| 4   | L5    | 4719 | G    |
| 4   | L5    | 4733 | C    |
| 4   | L5    | 4734 | A    |
| 4   | L5    | 4740 | G    |
| 4   | L5    | 4741 | C    |
| 4   | L5    | 4742 | G    |
| 4   | L5    | 4745 | G    |
| 4   | L5    | 4754 | G    |
| 4   | L5    | 4757 | C    |
| 4   | L5    | 4759 | C    |
| 4   | L5    | 4761 | G    |
| 4   | L5    | 4765 | G    |
| 4   | L5    | 4771 | C    |
| 4   | L5    | 4772 | C    |
| 4   | L5    | 4775 | C    |
| 4   | L5    | 4859 | C    |
| 4   | L5    | 4870 | G    |
| 4   | L5    | 4871 | C    |
| 4   | L5    | 4875 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | L5    | 4882 | U    |
| 4   | L5    | 4883 | C    |
| 4   | L5    | 4889 | G    |
| 4   | L5    | 4895 | C    |
| 4   | L5    | 4896 | G    |
| 4   | L5    | 4897 | G    |
| 4   | L5    | 4899 | G    |
| 4   | L5    | 4900 | C    |
| 4   | L5    | 4901 | G    |
| 4   | L5    | 4910 | G    |
| 4   | L5    | 4912 | G    |
| 4   | L5    | 4914 | C    |
| 4   | L5    | 4922 | C    |
| 4   | L5    | 4925 | U    |
| 4   | L5    | 4926 | C    |
| 4   | L5    | 4927 | G    |
| 4   | L5    | 4928 | C    |
| 4   | L5    | 4934 | A    |
| 4   | L5    | 4940 | C    |
| 4   | L5    | 4941 | G    |
| 4   | L5    | 4943 | A    |
| 4   | L5    | 4951 | G    |
| 4   | L5    | 4955 | A    |
| 4   | L5    | 4960 | G    |
| 4   | L5    | 4976 | U    |
| 4   | L5    | 4985 | U    |
| 4   | L5    | 4988 | U    |
| 4   | L5    | 4989 | U    |
| 4   | L5    | 4991 | U    |
| 4   | L5    | 4995 | U    |
| 4   | L5    | 5013 | C    |
| 4   | L5    | 5014 | A    |
| 4   | L5    | 5017 | G    |
| 4   | L5    | 5022 | U    |
| 4   | L5    | 5023 | C    |
| 4   | L5    | 5024 | C    |
| 4   | L5    | 5028 | G    |
| 4   | L5    | 5030 | U    |
| 4   | L5    | 5034 | A    |
| 4   | L5    | 5041 | G    |
| 4   | L5    | 5050 | C    |
| 4   | L5    | 5054 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | L5    | 5055 | G    |
| 4   | L5    | 5061 | A    |
| 4   | L5    | 5069 | U    |
| 5   | L7    | 33   | U    |
| 5   | L7    | 38   | U    |
| 5   | L7    | 53   | U    |
| 5   | L7    | 54   | A    |
| 5   | L7    | 64   | G    |
| 5   | L7    | 97   | G    |
| 5   | L7    | 100  | A    |
| 5   | L7    | 110  | G    |
| 5   | L7    | 120  | U    |
| 6   | L8    | 23   | C    |
| 6   | L8    | 25   | G    |
| 6   | L8    | 34   | U    |
| 6   | L8    | 35   | C    |
| 6   | L8    | 59   | A    |
| 6   | L8    | 62   | A    |
| 6   | L8    | 63   | U    |
| 6   | L8    | 80   | A    |
| 6   | L8    | 82   | A    |
| 6   | L8    | 84   | A    |
| 6   | L8    | 85   | U    |
| 6   | L8    | 87   | G    |
| 6   | L8    | 94   | G    |
| 6   | L8    | 103  | A    |
| 6   | L8    | 105  | C    |
| 6   | L8    | 111  | U    |
| 6   | L8    | 114  | G    |
| 6   | L8    | 123  | U    |
| 6   | L8    | 124  | U    |
| 6   | L8    | 125  | C    |
| 6   | L8    | 126  | C    |
| 6   | L8    | 127  | U    |
| 6   | L8    | 153  | C    |
| 84  | S2    | 13   | C    |
| 84  | S2    | 14   | C    |
| 84  | S2    | 17   | C    |
| 84  | S2    | 25   | A    |
| 84  | S2    | 33   | G    |
| 84  | S2    | 41   | G    |
| 84  | S2    | 44   | U    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 84  | S2    | 45  | A    |
| 84  | S2    | 46  | A    |
| 84  | S2    | 56  | G    |
| 84  | S2    | 58  | C    |
| 84  | S2    | 59  | U    |
| 84  | S2    | 65  | C    |
| 84  | S2    | 67  | C    |
| 84  | S2    | 68  | A    |
| 84  | S2    | 72  | C    |
| 84  | S2    | 73  | C    |
| 84  | S2    | 74  | G    |
| 84  | S2    | 76  | U    |
| 84  | S2    | 99  | A2M  |
| 84  | S2    | 103 | A    |
| 84  | S2    | 113 | G    |
| 84  | S2    | 114 | G    |
| 84  | S2    | 115 | U    |
| 84  | S2    | 126 | G    |
| 84  | S2    | 130 | G    |
| 84  | S2    | 142 | C    |
| 84  | S2    | 143 | U    |
| 84  | S2    | 149 | A    |
| 84  | S2    | 158 | A    |
| 84  | S2    | 160 | U    |
| 84  | S2    | 162 | C    |
| 84  | S2    | 170 | A    |
| 84  | S2    | 175 | A    |
| 84  | S2    | 179 | C    |
| 84  | S2    | 190 | G    |
| 84  | S2    | 191 | A    |
| 84  | S2    | 196 | C    |
| 84  | S2    | 197 | U    |
| 84  | S2    | 198 | U    |
| 84  | S2    | 200 | G    |
| 84  | S2    | 203 | G    |
| 84  | S2    | 204 | G    |
| 84  | S2    | 207 | G    |
| 84  | S2    | 208 | G    |
| 84  | S2    | 214 | U    |
| 84  | S2    | 291 | G    |
| 84  | S2    | 292 | A    |
| 84  | S2    | 295 | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 84  | S2    | 302 | A    |
| 84  | S2    | 306 | C    |
| 84  | S2    | 307 | G    |
| 84  | S2    | 308 | G    |
| 84  | S2    | 309 | G    |
| 84  | S2    | 311 | C    |
| 84  | S2    | 312 | G    |
| 84  | S2    | 313 | A    |
| 84  | S2    | 318 | A    |
| 84  | S2    | 319 | C    |
| 84  | S2    | 323 | C    |
| 84  | S2    | 324 | C    |
| 84  | S2    | 325 | C    |
| 84  | S2    | 326 | C    |
| 84  | S2    | 328 | U    |
| 84  | S2    | 329 | G    |
| 84  | S2    | 332 | G    |
| 84  | S2    | 339 | A    |
| 84  | S2    | 340 | C    |
| 84  | S2    | 347 | G    |
| 84  | S2    | 360 | A    |
| 84  | S2    | 362 | C    |
| 84  | S2    | 364 | A    |
| 84  | S2    | 368 | U    |
| 84  | S2    | 370 | G    |
| 84  | S2    | 385 | G    |
| 84  | S2    | 386 | C    |
| 84  | S2    | 398 | A    |
| 84  | S2    | 407 | G    |
| 84  | S2    | 408 | A    |
| 84  | S2    | 409 | C    |
| 84  | S2    | 436 | OMG  |
| 84  | S2    | 438 | G    |
| 84  | S2    | 448 | A    |
| 84  | S2    | 449 | A    |
| 84  | S2    | 450 | C    |
| 84  | S2    | 452 | G    |
| 84  | S2    | 464 | A    |
| 84  | S2    | 465 | A    |
| 84  | S2    | 471 | G    |
| 84  | S2    | 472 | C    |
| 84  | S2    | 473 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 84  | S2    | 474 | G    |
| 84  | S2    | 476 | A    |
| 84  | S2    | 482 | G    |
| 84  | S2    | 487 | U    |
| 84  | S2    | 488 | U    |
| 84  | S2    | 492 | C    |
| 84  | S2    | 493 | A    |
| 84  | S2    | 502 | C    |
| 84  | S2    | 516 | A    |
| 84  | S2    | 517 | OMC  |
| 84  | S2    | 531 | A    |
| 84  | S2    | 532 | C    |
| 84  | S2    | 536 | A    |
| 84  | S2    | 537 | C    |
| 84  | S2    | 540 | U    |
| 84  | S2    | 542 | U    |
| 84  | S2    | 544 | G    |
| 84  | S2    | 546 | G    |
| 84  | S2    | 547 | G    |
| 84  | S2    | 557 | U    |
| 84  | S2    | 558 | G    |
| 84  | S2    | 559 | G    |
| 84  | S2    | 563 | G    |
| 84  | S2    | 564 | A    |
| 84  | S2    | 576 | A2M  |
| 84  | S2    | 583 | A    |
| 84  | S2    | 587 | A    |
| 84  | S2    | 589 | G    |
| 84  | S2    | 590 | A    |
| 84  | S2    | 591 | U    |
| 84  | S2    | 593 | C    |
| 84  | S2    | 604 | A    |
| 84  | S2    | 614 | C    |
| 84  | S2    | 617 | G    |
| 84  | S2    | 623 | G    |
| 84  | S2    | 628 | A    |
| 84  | S2    | 631 | U    |
| 84  | S2    | 643 | A    |
| 84  | S2    | 644 | OMG  |
| 84  | S2    | 655 | A    |
| 84  | S2    | 660 | C    |
| 84  | S2    | 664 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 84  | S2    | 668 | A2M  |
| 84  | S2    | 669 | A    |
| 84  | S2    | 671 | A    |
| 84  | S2    | 672 | A    |
| 84  | S2    | 673 | G    |
| 84  | S2    | 683 | OMG  |
| 84  | S2    | 688 | U    |
| 84  | S2    | 689 | U    |
| 84  | S2    | 692 | G    |
| 84  | S2    | 696 | G    |
| 84  | S2    | 697 | G    |
| 84  | S2    | 698 | G    |
| 84  | S2    | 731 | G    |
| 84  | S2    | 732 | U    |
| 84  | S2    | 733 | C    |
| 84  | S2    | 736 | C    |
| 84  | S2    | 737 | G    |
| 84  | S2    | 738 | C    |
| 84  | S2    | 749 | U    |
| 84  | S2    | 751 | G    |
| 84  | S2    | 752 | G    |
| 84  | S2    | 753 | C    |
| 84  | S2    | 788 | G    |
| 84  | S2    | 791 | C    |
| 84  | S2    | 792 | C    |
| 84  | S2    | 798 | G    |
| 84  | S2    | 799 | OMU  |
| 84  | S2    | 801 | PSU  |
| 84  | S2    | 821 | G    |
| 84  | S2    | 822 | U    |
| 84  | S2    | 823 | U    |
| 84  | S2    | 824 | C    |
| 84  | S2    | 830 | A    |
| 84  | S2    | 834 | C    |
| 84  | S2    | 835 | C    |
| 84  | S2    | 836 | G    |
| 84  | S2    | 837 | A    |
| 84  | S2    | 838 | G    |
| 84  | S2    | 839 | C    |
| 84  | S2    | 842 | C    |
| 84  | S2    | 844 | U    |
| 84  | S2    | 847 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 84  | S2    | 867  | OMG  |
| 84  | S2    | 870  | A    |
| 84  | S2    | 874  | G    |
| 84  | S2    | 877  | C    |
| 84  | S2    | 878  | G    |
| 84  | S2    | 880  | G    |
| 84  | S2    | 888  | U    |
| 84  | S2    | 889  | U    |
| 84  | S2    | 891  | G    |
| 84  | S2    | 893  | U    |
| 84  | S2    | 894  | G    |
| 84  | S2    | 896  | U    |
| 84  | S2    | 897  | U    |
| 84  | S2    | 898  | U    |
| 84  | S2    | 899  | U    |
| 84  | S2    | 900  | C    |
| 84  | S2    | 901  | G    |
| 84  | S2    | 903  | A    |
| 84  | S2    | 913  | A    |
| 84  | S2    | 920  | A    |
| 84  | S2    | 930  | C    |
| 84  | S2    | 933  | G    |
| 84  | S2    | 934  | G    |
| 84  | S2    | 943  | U    |
| 84  | S2    | 963  | A    |
| 84  | S2    | 970  | G    |
| 84  | S2    | 971  | G    |
| 84  | S2    | 972  | A    |
| 84  | S2    | 985  | G    |
| 84  | S2    | 990  | A    |
| 84  | S2    | 992  | A    |
| 84  | S2    | 999  | G    |
| 84  | S2    | 1001 | A    |
| 84  | S2    | 1008 | A    |
| 84  | S2    | 1017 | U    |
| 84  | S2    | 1023 | A    |
| 84  | S2    | 1027 | A    |
| 84  | S2    | 1060 | A    |
| 84  | S2    | 1061 | U    |
| 84  | S2    | 1062 | A    |
| 84  | S2    | 1080 | A    |
| 84  | S2    | 1083 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 84  | S2    | 1085 | C    |
| 84  | S2    | 1109 | C    |
| 84  | S2    | 1113 | A    |
| 84  | S2    | 1114 | U    |
| 84  | S2    | 1116 | C    |
| 84  | S2    | 1121 | G    |
| 84  | S2    | 1123 | C    |
| 84  | S2    | 1133 | A    |
| 84  | S2    | 1138 | C    |
| 84  | S2    | 1148 | A    |
| 84  | S2    | 1150 | A    |
| 84  | S2    | 1153 | C    |
| 84  | S2    | 1154 | U    |
| 84  | S2    | 1195 | A    |
| 84  | S2    | 1207 | G    |
| 84  | S2    | 1208 | A    |
| 84  | S2    | 1215 | C    |
| 84  | S2    | 1216 | C    |
| 84  | S2    | 1217 | A    |
| 84  | S2    | 1224 | G    |
| 84  | S2    | 1227 | G    |
| 84  | S2    | 1242 | U    |
| 84  | S2    | 1243 | U    |
| 84  | S2    | 1248 | B8N  |
| 84  | S2    | 1251 | A    |
| 84  | S2    | 1253 | A    |
| 84  | S2    | 1256 | G    |
| 84  | S2    | 1257 | G    |
| 84  | S2    | 1259 | A    |
| 84  | S2    | 1271 | C    |
| 84  | S2    | 1272 | OMC  |
| 84  | S2    | 1274 | G    |
| 84  | S2    | 1275 | G    |
| 84  | S2    | 1283 | C    |
| 84  | S2    | 1286 | G    |
| 84  | S2    | 1288 | OMU  |
| 84  | S2    | 1294 | G    |
| 84  | S2    | 1295 | A    |
| 84  | S2    | 1301 | A    |
| 84  | S2    | 1302 | G    |
| 84  | S2    | 1303 | C    |
| 84  | S2    | 1304 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 84  | S2    | 1308 | U    |
| 84  | S2    | 1342 | U    |
| 84  | S2    | 1357 | A    |
| 84  | S2    | 1358 | U    |
| 84  | S2    | 1371 | U    |
| 84  | S2    | 1372 | U    |
| 84  | S2    | 1376 | A    |
| 84  | S2    | 1378 | A    |
| 84  | S2    | 1382 | A    |
| 84  | S2    | 1402 | A    |
| 84  | S2    | 1413 | G    |
| 84  | S2    | 1418 | C    |
| 84  | S2    | 1419 | C    |
| 84  | S2    | 1420 | G    |
| 84  | S2    | 1421 | A    |
| 84  | S2    | 1422 | G    |
| 84  | S2    | 1423 | C    |
| 84  | S2    | 1433 | C    |
| 84  | S2    | 1435 | C    |
| 84  | S2    | 1437 | C    |
| 84  | S2    | 1438 | A    |
| 84  | S2    | 1439 | A    |
| 84  | S2    | 1442 | OMU  |
| 84  | S2    | 1449 | G    |
| 84  | S2    | 1454 | A    |
| 84  | S2    | 1463 | U    |
| 84  | S2    | 1478 | U    |
| 84  | S2    | 1487 | A    |
| 84  | S2    | 1489 | A    |
| 84  | S2    | 1490 | OMG  |
| 84  | S2    | 1492 | U    |
| 84  | S2    | 1494 | U    |
| 84  | S2    | 1495 | G    |
| 84  | S2    | 1497 | G    |
| 84  | S2    | 1498 | A    |
| 84  | S2    | 1521 | C    |
| 84  | S2    | 1531 | A    |
| 84  | S2    | 1533 | A    |
| 84  | S2    | 1544 | C    |
| 84  | S2    | 1546 | G    |
| 84  | S2    | 1552 | G    |
| 84  | S2    | 1556 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 84  | S2    | 1558 | C    |
| 84  | S2    | 1574 | C    |
| 84  | S2    | 1575 | G    |
| 84  | S2    | 1578 | U    |
| 84  | S2    | 1580 | A    |
| 84  | S2    | 1581 | C    |
| 84  | S2    | 1587 | G    |
| 84  | S2    | 1588 | A    |
| 84  | S2    | 1600 | G    |
| 84  | S2    | 1604 | G    |
| 84  | S2    | 1606 | G    |
| 84  | S2    | 1621 | U    |
| 84  | S2    | 1623 | A    |
| 84  | S2    | 1631 | U    |
| 84  | S2    | 1633 | A    |
| 84  | S2    | 1634 | A    |
| 84  | S2    | 1637 | A    |
| 84  | S2    | 1648 | G    |
| 84  | S2    | 1654 | G    |
| 84  | S2    | 1663 | A    |
| 84  | S2    | 1665 | G    |
| 84  | S2    | 1683 | C    |
| 84  | S2    | 1686 | G    |
| 84  | S2    | 1695 | A    |
| 84  | S2    | 1698 | C    |
| 84  | S2    | 1699 | A    |
| 84  | S2    | 1715 | A    |
| 84  | S2    | 1721 | U    |
| 84  | S2    | 1722 | G    |
| 84  | S2    | 1744 | G    |
| 84  | S2    | 1745 | A    |
| 84  | S2    | 1752 | C    |
| 84  | S2    | 1753 | C    |
| 84  | S2    | 1754 | G    |
| 84  | S2    | 1755 | C    |
| 84  | S2    | 1757 | G    |
| 84  | S2    | 1759 | G    |
| 84  | S2    | 1761 | U    |
| 84  | S2    | 1772 | C    |
| 84  | S2    | 1773 | C    |
| 84  | S2    | 1774 | C    |
| 84  | S2    | 1777 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 84  | S2    | 1782 | G    |
| 84  | S2    | 1783 | C    |
| 84  | S2    | 1784 | G    |
| 84  | S2    | 1786 | U    |
| 84  | S2    | 1798 | C    |
| 84  | S2    | 1810 | U    |
| 84  | S2    | 1825 | A    |
| 84  | S2    | 1826 | G    |
| 84  | S2    | 1831 | A    |
| 84  | S2    | 1835 | A    |
| 84  | S2    | 1838 | U    |
| 84  | S2    | 1849 | G    |
| 84  | S2    | 1851 | MA6  |
| 84  | S2    | 1861 | G    |
| 84  | S2    | 1862 | G    |
| 84  | S2    | 1863 | A    |
| 84  | S2    | 1865 | C    |
| 85  | AT    | 3    | C    |
| 85  | AT    | 4    | U    |
| 85  | AT    | 8    | U    |
| 85  | AT    | 9    | A    |
| 85  | AT    | 10   | G    |
| 85  | AT    | 12   | G    |
| 85  | AT    | 13   | U    |
| 85  | AT    | 14   | A    |
| 85  | AT    | 16   | C    |
| 85  | AT    | 19   | G    |
| 85  | AT    | 20   | U    |
| 85  | AT    | 21   | U    |
| 85  | AT    | 22   | A    |
| 85  | AT    | 26   | C    |
| 85  | AT    | 27   | G    |
| 85  | AT    | 31   | G    |
| 85  | AT    | 32   | C    |
| 85  | AT    | 33   | C    |
| 85  | AT    | 34   | U    |
| 85  | AT    | 37   | C    |
| 85  | AT    | 40   | G    |
| 85  | AT    | 41   | C    |
| 85  | AT    | 43   | A    |
| 85  | AT    | 45   | A    |
| 85  | AT    | 46   | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 85  | AT    | 47  | G    |
| 85  | AT    | 49  | C    |
| 85  | AT    | 50  | C    |
| 85  | AT    | 51  | U    |
| 85  | AT    | 53  | G    |
| 85  | AT    | 58  | G    |
| 85  | AT    | 59  | A    |
| 85  | AT    | 60  | A    |
| 85  | AT    | 62  | C    |
| 85  | AT    | 64  | G    |
| 85  | AT    | 65  | G    |
| 85  | AT    | 68  | G    |
| 85  | AT    | 69  | G    |
| 85  | AT    | 70  | A    |
| 85  | AT    | 72  | A    |
| 85  | AT    | 73  | C    |
| 85  | AT    | 76  | C    |
| 85  | AT    | 77  | A    |

All (20) RNA pucker outliers are listed below:

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | L5    | 406  | C    |
| 4   | L5    | 493  | G    |
| 4   | L5    | 914  | U    |
| 4   | L5    | 1082 | C    |
| 4   | L5    | 1590 | C    |
| 4   | L5    | 1633 | G    |
| 4   | L5    | 1703 | C    |
| 4   | L5    | 1977 | C    |
| 4   | L5    | 2416 | G    |
| 4   | L5    | 2675 | G    |
| 4   | L5    | 2760 | G    |
| 4   | L5    | 3673 | C    |
| 4   | L5    | 4600 | G    |
| 4   | L5    | 4699 | U    |
| 4   | L5    | 4913 | G    |
| 84  | S2    | 291  | G    |
| 84  | S2    | 563  | G    |
| 84  | S2    | 688  | U    |
| 84  | S2    | 1477 | U    |
| 85  | AT    | 7    | G    |

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

179 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$ |
| 4   | A2M  | L5    | 1326 | 4    | 18,25,26     | 1.38 | 3 (16%)     | 20,36,39    | 1.91 | 7 (35%)     |
| 4   | PSU  | L5    | 4673 | 4,87 | 18,21,22     | 1.07 | 1 (5%)      | 21,30,33    | 1.88 | 4 (19%)     |
| 4   | A2M  | L5    | 1534 | 4,87 | 18,25,26     | 1.43 | 3 (16%)     | 20,36,39    | 1.88 | 6 (30%)     |
| 84  | PSU  | S2    | 863  | 84   | 18,21,22     | 1.12 | 1 (5%)      | 21,30,33    | 1.87 | 4 (19%)     |
| 4   | PSU  | L5    | 1792 | 4    | 18,21,22     | 1.06 | 1 (5%)      | 21,30,33    | 1.85 | 4 (19%)     |
| 4   | 5MC  | L5    | 3782 | 4,87 | 19,22,23     | 0.62 | 0           | 26,32,35    | 0.78 | 1 (3%)      |
| 4   | OMC  | L5    | 3887 | 4    | 19,22,23     | 0.56 | 0           | 25,31,34    | 0.67 | 0           |
| 84  | MA6  | S2    | 1851 | 84   | 19,26,27     | 1.47 | 3 (15%)     | 18,38,41    | 3.54 | 3 (16%)     |
| 4   | PSU  | L5    | 4493 | 4    | 18,21,22     | 1.10 | 1 (5%)      | 21,30,33    | 1.88 | 5 (23%)     |
| 84  | OMU  | S2    | 354  | 84   | 19,22,23     | 3.33 | 7 (36%)     | 25,31,34    | 1.83 | 5 (20%)     |
| 4   | OMG  | L5    | 4623 | 4    | 19,26,27     | 1.22 | 3 (15%)     | 21,38,41    | 0.90 | 1 (4%)      |
| 84  | OMC  | S2    | 1272 | 84   | 19,22,23     | 0.51 | 0           | 25,31,34    | 0.85 | 1 (4%)      |
| 4   | A2M  | L5    | 3825 | 4    | 18,25,26     | 1.35 | 2 (11%)     | 20,36,39    | 2.04 | 6 (30%)     |
| 84  | OMU  | S2    | 172  | 84   | 19,22,23     | 3.36 | 7 (36%)     | 25,31,34    | 1.84 | 5 (20%)     |
| 84  | A2M  | S2    | 159  | 84   | 18,25,26     | 1.23 | 2 (11%)     | 20,36,39    | 1.88 | 6 (30%)     |
| 4   | OMG  | L5    | 3744 | 4    | 19,26,27     | 1.17 | 3 (15%)     | 21,38,41    | 0.84 | 1 (4%)      |
| 4   | OMU  | L5    | 4498 | 4    | 19,22,23     | 3.27 | 7 (36%)     | 25,31,34    | 1.84 | 5 (20%)     |
| 4   | A2M  | L5    | 1524 | 4    | 18,25,26     | 1.42 | 3 (16%)     | 20,36,39    | 2.32 | 5 (25%)     |
| 4   | UR3  | L5    | 4530 | 4    | 19,22,23     | 2.74 | 7 (36%)     | 26,32,35    | 1.56 | 2 (7%)      |
| 4   | PSU  | L5    | 4552 | 4    | 18,21,22     | 1.10 | 1 (5%)      | 21,30,33    | 2.00 | 5 (23%)     |
| 84  | PSU  | S2    | 1081 | 84   | 18,21,22     | 1.07 | 1 (5%)      | 21,30,33    | 1.91 | 5 (23%)     |
| 84  | MA6  | S2    | 1850 | 84   | 19,26,27     | 1.47 | 3 (15%)     | 18,38,41    | 3.42 | 3 (16%)     |
| 4   | PSU  | L5    | 4973 | 4    | 18,21,22     | 1.07 | 1 (5%)      | 21,30,33    | 1.91 | 5 (23%)     |
| 4   | OMG  | L5    | 4499 | 4    | 19,26,27     | 1.18 | 2 (10%)     | 21,38,41    | 0.83 | 1 (4%)      |
| 4   | OMC  | L5    | 4536 | 4    | 19,22,23     | 0.61 | 0           | 25,31,34    | 0.75 | 0           |
| 84  | OMG  | S2    | 601  | 84   | 19,26,27     | 1.14 | 2 (10%)     | 21,38,41    | 0.83 | 1 (4%)      |

| Mol | Type | Chain | Res  | Link | Bond lengths |      |          | Bond angles |      |          |
|-----|------|-------|------|------|--------------|------|----------|-------------|------|----------|
|     |      |       |      |      | Counts       | RMSZ | # Z  > 2 | Counts      | RMSZ | # Z  > 2 |
| 4   | OMU  | L5    | 4620 | 4    | 19,22,23     | 3.25 | 7 (36%)  | 25,31,34    | 1.70 | 4 (16%)  |
| 4   | OMC  | L5    | 3701 | 4    | 19,22,23     | 0.65 | 0        | 25,31,34    | 1.74 | 4 (16%)  |
| 4   | A2M  | L5    | 1323 | 4    | 18,25,26     | 1.40 | 3 (16%)  | 20,36,39    | 2.00 | 7 (35%)  |
| 4   | PSU  | L5    | 4636 | 4    | 18,21,22     | 1.13 | 1 (5%)   | 21,30,33    | 2.02 | 6 (28%)  |
| 4   | OMC  | L5    | 2422 | 4,87 | 19,22,23     | 0.60 | 0        | 25,31,34    | 0.71 | 0        |
| 84  | PSU  | S2    | 1232 | 84   | 18,21,22     | 1.12 | 1 (5%)   | 21,30,33    | 1.91 | 4 (19%)  |
| 84  | PSU  | S2    | 1045 | 84   | 18,21,22     | 1.08 | 1 (5%)   | 21,30,33    | 1.94 | 5 (23%)  |
| 84  | OMG  | S2    | 436  | 84   | 19,26,27     | 1.16 | 2 (10%)  | 21,38,41    | 0.87 | 1 (4%)   |
| 84  | A2M  | S2    | 166  | 84   | 18,25,26     | 1.33 | 2 (11%)  | 20,36,39    | 2.14 | 6 (30%)  |
| 4   | A2M  | L5    | 3718 | 4    | 18,25,26     | 1.28 | 2 (11%)  | 20,36,39    | 2.02 | 5 (25%)  |
| 4   | PSU  | L5    | 1582 | 4    | 18,21,22     | 1.08 | 1 (5%)   | 21,30,33    | 1.76 | 4 (19%)  |
| 4   | A2M  | L5    | 4571 | 4    | 18,25,26     | 1.43 | 3 (16%)  | 20,36,39    | 2.01 | 8 (40%)  |
| 86  | SEP  | CF    | 163  | 86   | 8,9,10       | 1.60 | 1 (12%)  | 7,12,14     | 1.41 | 1 (14%)  |
| 4   | PSU  | L5    | 4689 | 4    | 18,21,22     | 1.11 | 1 (5%)   | 21,30,33    | 2.04 | 4 (19%)  |
| 4   | OMG  | L5    | 2424 | 4    | 19,26,27     | 1.21 | 2 (10%)  | 21,38,41    | 0.79 | 1 (4%)   |
| 4   | PSU  | L5    | 4579 | 4    | 18,21,22     | 1.06 | 1 (5%)   | 21,30,33    | 1.89 | 4 (19%)  |
| 84  | PSU  | S2    | 681  | 84   | 18,21,22     | 1.07 | 1 (5%)   | 21,30,33    | 1.83 | 4 (19%)  |
| 84  | B8N  | S2    | 1248 | 84   | 25,29,30     | 3.26 | 6 (24%)  | 28,42,45    | 1.95 | 7 (25%)  |
| 4   | OMC  | L5    | 2861 | 4    | 19,22,23     | 0.57 | 0        | 25,31,34    | 0.79 | 1 (4%)   |
| 4   | OMG  | L5    | 3792 | 4    | 19,26,27     | 1.18 | 2 (10%)  | 21,38,41    | 0.82 | 1 (4%)   |
| 84  | OMU  | S2    | 428  | 84   | 19,22,23     | 3.35 | 7 (36%)  | 25,31,34    | 1.80 | 5 (20%)  |
| 84  | OMU  | S2    | 1326 | 84   | 19,22,23     | 3.34 | 7 (36%)  | 25,31,34    | 1.85 | 5 (20%)  |
| 4   | PSU  | L5    | 3637 | 4    | 18,21,22     | 1.07 | 1 (5%)   | 21,30,33    | 1.89 | 4 (19%)  |
| 4   | PSU  | L5    | 4457 | 4    | 18,21,22     | 1.10 | 1 (5%)   | 21,30,33    | 1.94 | 5 (23%)  |
| 4   | OMG  | L5    | 2876 | 4    | 19,26,27     | 1.22 | 2 (10%)  | 21,38,41    | 0.88 | 1 (4%)   |
| 4   | PSU  | L5    | 4972 | 4    | 18,21,22     | 1.05 | 1 (5%)   | 21,30,33    | 1.92 | 5 (23%)  |
| 84  | OMG  | S2    | 683  | 84   | 19,26,27     | 1.18 | 2 (10%)  | 21,38,41    | 0.80 | 1 (4%)   |
| 84  | PSU  | S2    | 1244 | 84   | 18,21,22     | 1.10 | 1 (5%)   | 21,30,33    | 1.91 | 5 (23%)  |
| 4   | PSU  | L5    | 3695 | 4    | 18,21,22     | 1.09 | 1 (5%)   | 21,30,33    | 1.87 | 4 (19%)  |
| 84  | A2M  | S2    | 1031 | 84   | 18,25,26     | 1.30 | 2 (11%)  | 20,36,39    | 2.12 | 6 (30%)  |
| 4   | A2M  | L5    | 2815 | 4    | 18,25,26     | 1.34 | 3 (16%)  | 20,36,39    | 1.94 | 7 (35%)  |
| 4   | PSU  | L5    | 4296 | 4    | 18,21,22     | 1.09 | 1 (5%)   | 21,30,33    | 1.92 | 4 (19%)  |
| 4   | PSU  | L5    | 3884 | 4    | 18,21,22     | 1.10 | 2 (11%)  | 21,30,33    | 1.89 | 4 (19%)  |
| 4   | PSU  | L5    | 4576 | 4    | 18,21,22     | 1.09 | 1 (5%)   | 21,30,33    | 1.90 | 4 (19%)  |
| 4   | PSU  | L5    | 1683 | 4    | 18,21,22     | 1.09 | 1 (5%)   | 21,30,33    | 1.95 | 5 (23%)  |



| Mol | Type | Chain | Res  | Link  | Bond lengths |      |          | Bond angles |      |          |
|-----|------|-------|------|-------|--------------|------|----------|-------------|------|----------|
|     |      |       |      |       | Counts       | RMSZ | # Z  > 2 | Counts      | RMSZ | # Z  > 2 |
| 4   | PSU  | L5    | 5010 | 4     | 18,21,22     | 1.10 | 1 (5%)   | 21,30,33    | 1.90 | 4 (19%)  |
| 84  | PSU  | S2    | 866  | 84    | 18,21,22     | 1.09 | 1 (5%)   | 21,30,33    | 2.06 | 6 (28%)  |
| 4   | PSU  | L5    | 4312 | 4     | 18,21,22     | 1.09 | 1 (5%)   | 21,30,33    | 1.91 | 4 (19%)  |
| 4   | OMG  | L5    | 4228 | 4     | 19,26,27     | 1.23 | 3 (15%)  | 21,38,41    | 0.98 | 1 (4%)   |
| 4   | OMG  | L5    | 4370 | 4     | 19,26,27     | 1.20 | 3 (15%)  | 21,38,41    | 0.83 | 1 (4%)   |
| 4   | OMG  | L5    | 1316 | 4     | 19,26,27     | 1.25 | 3 (15%)  | 21,38,41    | 0.88 | 1 (4%)   |
| 4   | A2M  | L5    | 2787 | 4     | 18,25,26     | 1.32 | 2 (11%)  | 20,36,39    | 1.85 | 6 (30%)  |
| 4   | PSU  | L5    | 4628 | 4     | 18,21,22     | 1.03 | 1 (5%)   | 21,30,33    | 1.89 | 5 (23%)  |
| 4   | PSU  | L5    | 4442 | 4     | 18,21,22     | 1.08 | 1 (5%)   | 21,30,33    | 2.00 | 6 (28%)  |
| 84  | PSU  | S2    | 966  | 84,87 | 18,21,22     | 1.07 | 1 (5%)   | 21,30,33    | 1.85 | 4 (19%)  |
| 4   | PSU  | L5    | 4500 | 4     | 18,21,22     | 1.13 | 1 (5%)   | 21,30,33    | 1.99 | 5 (23%)  |
| 84  | PSU  | S2    | 93   | 84    | 18,21,22     | 1.06 | 1 (5%)   | 21,30,33    | 1.80 | 4 (19%)  |
| 4   | PSU  | L5    | 1860 | 4     | 18,21,22     | 1.10 | 1 (5%)   | 21,30,33    | 2.01 | 5 (23%)  |
| 84  | PSU  | S2    | 406  | 84    | 18,21,22     | 1.10 | 1 (5%)   | 21,30,33    | 1.92 | 5 (23%)  |
| 4   | OMC  | L5    | 3808 | 4,87  | 19,22,23     | 0.63 | 0        | 25,31,34    | 0.76 | 1 (4%)   |
| 4   | PSU  | L5    | 4293 | 4     | 18,21,22     | 1.10 | 2 (11%)  | 21,30,33    | 1.92 | 4 (19%)  |
| 4   | OMG  | L5    | 4392 | 4     | 19,26,27     | 1.17 | 3 (15%)  | 21,38,41    | 0.87 | 1 (4%)   |
| 6   | OMG  | L8    | 75   | 6     | 19,26,27     | 1.19 | 3 (15%)  | 21,38,41    | 0.83 | 1 (4%)   |
| 4   | PSU  | L5    | 3920 | 4,87  | 18,21,22     | 1.07 | 1 (5%)   | 21,30,33    | 1.96 | 5 (23%)  |
| 4   | OMC  | L5    | 4456 | 4     | 19,22,23     | 0.63 | 0        | 25,31,34    | 0.79 | 1 (4%)   |
| 4   | OMG  | L5    | 4637 | 4     | 19,26,27     | 1.18 | 2 (10%)  | 21,38,41    | 0.90 | 1 (4%)   |
| 4   | OMC  | L5    | 3869 | 4     | 19,22,23     | 0.58 | 0        | 25,31,34    | 0.72 | 0        |
| 84  | PSU  | S2    | 1056 | 84    | 18,21,22     | 1.10 | 1 (5%)   | 21,30,33    | 1.99 | 5 (23%)  |
| 4   | PSU  | L5    | 3844 | 4     | 18,21,22     | 1.13 | 1 (5%)   | 21,30,33    | 1.79 | 4 (19%)  |
| 4   | A2M  | L5    | 2363 | 4,87  | 18,25,26     | 1.37 | 3 (16%)  | 20,36,39    | 2.00 | 7 (35%)  |
| 4   | PSU  | L5    | 3822 | 4     | 18,21,22     | 1.10 | 1 (5%)   | 21,30,33    | 1.96 | 6 (28%)  |
| 4   | OMG  | L5    | 2364 | 4,87  | 19,26,27     | 1.22 | 3 (15%)  | 21,38,41    | 0.80 | 1 (4%)   |
| 4   | OMG  | L5    | 4494 | 4     | 19,26,27     | 1.22 | 3 (15%)  | 21,38,41    | 0.85 | 1 (4%)   |
| 4   | OMU  | L5    | 3925 | 4     | 19,22,23     | 3.26 | 7 (36%)  | 25,31,34    | 1.87 | 5 (20%)  |
| 4   | PSU  | L5    | 4521 | 4,87  | 18,21,22     | 1.13 | 2 (11%)  | 21,30,33    | 2.01 | 6 (28%)  |
| 84  | PSU  | S2    | 1004 | 84    | 18,21,22     | 1.12 | 1 (5%)   | 21,30,33    | 1.98 | 5 (23%)  |
| 4   | PSU  | L5    | 1862 | 4     | 18,21,22     | 1.08 | 1 (5%)   | 21,30,33    | 1.89 | 4 (19%)  |
| 4   | OMC  | L5    | 2804 | 4     | 19,22,23     | 0.56 | 0        | 25,31,34    | 0.71 | 0        |
| 4   | OMG  | L5    | 3899 | 4     | 19,26,27     | 1.25 | 3 (15%)  | 21,38,41    | 0.88 | 1 (4%)   |
| 4   | PSU  | L5    | 4431 | 4     | 18,21,22     | 1.07 | 1 (5%)   | 21,30,33    | 1.92 | 4 (19%)  |

| Mol | Type | Chain | Res  | Link  | Bond lengths |      |          | Bond angles |      |          |
|-----|------|-------|------|-------|--------------|------|----------|-------------|------|----------|
|     |      |       |      |       | Counts       | RMSZ | # Z  > 2 | Counts      | RMSZ | # Z  > 2 |
| 84  | OMU  | S2    | 627  | 84    | 19,22,23     | 3.37 | 7 (36%)  | 25,31,34    | 1.81 | 5 (20%)  |
| 4   | 5MC  | L5    | 4447 | 4     | 19,22,23     | 0.79 | 0        | 26,32,35    | 0.67 | 0        |
| 84  | OMG  | S2    | 1490 | 84    | 19,26,27     | 1.24 | 2 (10%)  | 21,38,41    | 0.71 | 0        |
| 84  | A2M  | S2    | 1383 | 84    | 18,25,26     | 1.31 | 2 (11%)  | 20,36,39    | 2.27 | 5 (25%)  |
| 84  | PSU  | S2    | 814  | 84    | 18,21,22     | 1.09 | 1 (5%)   | 21,30,33    | 1.84 | 4 (19%)  |
| 4   | A2M  | L5    | 2401 | 4     | 18,25,26     | 1.35 | 2 (11%)  | 20,36,39    | 2.15 | 7 (35%)  |
| 4   | OMC  | L5    | 2351 | 4,87  | 19,22,23     | 0.60 | 0        | 25,31,34    | 0.94 | 2 (8%)   |
| 84  | A2M  | S2    | 484  | 84    | 18,25,26     | 1.24 | 1 (5%)   | 20,36,39    | 1.82 | 6 (30%)  |
| 4   | A2M  | L5    | 1871 | 4,87  | 18,25,26     | 1.87 | 5 (27%)  | 20,36,39    | 2.72 | 7 (35%)  |
| 84  | OMC  | S2    | 462  | 84    | 19,22,23     | 0.51 | 0        | 25,31,34    | 0.70 | 0        |
| 84  | PSU  | S2    | 1046 | 84    | 18,21,22     | 1.13 | 1 (5%)   | 21,30,33    | 1.87 | 4 (19%)  |
| 4   | PSU  | L5    | 1744 | 4,87  | 18,21,22     | 1.09 | 1 (5%)   | 21,30,33    | 1.89 | 4 (19%)  |
| 4   | A2M  | L5    | 3867 | 4     | 18,25,26     | 1.38 | 3 (16%)  | 20,36,39    | 1.89 | 7 (35%)  |
| 84  | PSU  | S2    | 105  | 84    | 18,21,22     | 1.09 | 1 (5%)   | 21,30,33    | 1.84 | 4 (19%)  |
| 84  | OMC  | S2    | 1391 | 84    | 19,22,23     | 0.50 | 0        | 25,31,34    | 0.68 | 0        |
| 84  | OMG  | S2    | 1328 | 84    | 19,26,27     | 1.13 | 2 (10%)  | 21,38,41    | 0.83 | 1 (4%)   |
| 4   | PSU  | L5    | 4353 | 4     | 18,21,22     | 1.06 | 1 (5%)   | 21,30,33    | 2.05 | 6 (28%)  |
| 4   | OMG  | L5    | 4196 | 4,2   | 19,26,27     | 1.20 | 2 (10%)  | 21,38,41    | 0.80 | 1 (4%)   |
| 84  | OMU  | S2    | 121  | 84    | 19,22,23     | 3.37 | 7 (36%)  | 25,31,34    | 1.81 | 5 (20%)  |
| 84  | 6MZ  | S2    | 1832 | 84,87 | 21,26,26     | 1.28 | 1 (4%)   | 22,39,39    | 1.92 | 2 (9%)   |
| 4   | PSU  | L5    | 4361 | 4     | 18,21,22     | 1.09 | 1 (5%)   | 21,30,33    | 1.85 | 4 (19%)  |
| 84  | A2M  | S2    | 99   | 84,87 | 18,25,26     | 1.35 | 2 (11%)  | 20,36,39    | 2.06 | 5 (25%)  |
| 4   | OMG  | L5    | 4618 | 4     | 19,26,27     | 1.20 | 2 (10%)  | 21,38,41    | 0.83 | 1 (4%)   |
| 6   | PSU  | L8    | 55   | 6     | 18,21,22     | 1.06 | 1 (5%)   | 21,30,33    | 1.93 | 5 (23%)  |
| 4   | A2M  | L5    | 400  | 4     | 18,25,26     | 1.38 | 2 (11%)  | 20,36,39    | 2.03 | 7 (35%)  |
| 84  | A2M  | S2    | 668  | 84,87 | 18,25,26     | 1.45 | 3 (16%)  | 20,36,39    | 2.13 | 7 (35%)  |
| 84  | 4AC  | S2    | 1842 | 84    | 21,24,25     | 0.39 | 0        | 28,34,37    | 0.48 | 0        |
| 4   | PSU  | L5    | 1536 | 4     | 18,21,22     | 1.05 | 1 (5%)   | 21,30,33    | 1.94 | 4 (19%)  |
| 84  | PSU  | S2    | 686  | 84    | 18,21,22     | 1.07 | 1 (5%)   | 21,30,33    | 1.95 | 5 (23%)  |
| 4   | PSU  | L5    | 1781 | 4     | 18,21,22     | 1.06 | 1 (5%)   | 21,30,33    | 1.80 | 4 (19%)  |
| 4   | A2M  | L5    | 3830 | 4     | 18,25,26     | 1.34 | 2 (11%)  | 20,36,39    | 2.14 | 5 (25%)  |
| 4   | OMG  | L5    | 1522 | 4     | 19,26,27     | 1.24 | 3 (15%)  | 21,38,41    | 0.93 | 1 (4%)   |
| 84  | A2M  | S2    | 576  | 84    | 18,25,26     | 1.29 | 2 (11%)  | 20,36,39    | 1.94 | 5 (25%)  |
| 4   | PSU  | L5    | 4532 | 4     | 18,21,22     | 1.12 | 1 (5%)   | 21,30,33    | 1.87 | 4 (19%)  |
| 4   | PSU  | L5    | 3853 | 4,87  | 18,21,22     | 1.12 | 1 (5%)   | 21,30,33    | 1.85 | 4 (19%)  |

| Mol | Type | Chain | Res  | Link | Bond lengths |      |          | Bond angles |      |          |
|-----|------|-------|------|------|--------------|------|----------|-------------|------|----------|
|     |      |       |      |      | Counts       | RMSZ | # Z  > 2 | Counts      | RMSZ | # Z  > 2 |
| 4   | PSU  | L5    | 2839 | 4    | 18,21,22     | 1.12 | 1 (5%)   | 21,30,33    | 1.96 | 5 (23%)  |
| 4   | PSU  | L5    | 3851 | 4    | 18,21,22     | 1.08 | 1 (5%)   | 21,30,33    | 1.89 | 5 (23%)  |
| 4   | PSU  | L5    | 4299 | 4    | 18,21,22     | 1.07 | 1 (5%)   | 21,30,33    | 1.88 | 4 (19%)  |
| 4   | OMC  | L5    | 1340 | 4    | 19,22,23     | 0.59 | 0        | 25,31,34    | 0.81 | 0        |
| 84  | OMU  | S2    | 1288 | 84   | 19,22,23     | 3.43 | 7 (36%)  | 25,31,34    | 1.76 | 5 (20%)  |
| 4   | PSU  | L5    | 4403 | 4    | 18,21,22     | 1.06 | 1 (5%)   | 21,30,33    | 2.00 | 6 (28%)  |
| 4   | 6MZ  | L5    | 4220 | 4    | 17,25,26     | 3.89 | 9 (52%)  | 15,36,39    | 3.36 | 5 (33%)  |
| 4   | OMC  | L5    | 3841 | 4    | 19,22,23     | 0.57 | 0        | 25,31,34    | 0.68 | 0        |
| 4   | OMU  | L5    | 2837 | 4    | 19,22,23     | 3.34 | 7 (36%)  | 25,31,34    | 1.89 | 5 (20%)  |
| 84  | PSU  | S2    | 109  | 84   | 18,21,22     | 1.13 | 1 (5%)   | 21,30,33    | 1.92 | 5 (23%)  |
| 4   | A2M  | L5    | 398  | 4    | 18,25,26     | 1.32 | 2 (11%)  | 20,36,39    | 2.14 | 5 (25%)  |
| 84  | OMC  | S2    | 517  | 84   | 19,22,23     | 0.49 | 0        | 25,31,34    | 0.65 | 0        |
| 84  | PSU  | S2    | 1177 | 84   | 18,21,22     | 1.11 | 1 (5%)   | 21,30,33    | 1.94 | 5 (23%)  |
| 4   | PSU  | L5    | 1677 | 4    | 18,21,22     | 1.07 | 2 (11%)  | 21,30,33    | 1.84 | 3 (14%)  |
| 4   | OMC  | L5    | 2365 | 4,87 | 19,22,23     | 0.55 | 0        | 25,31,34    | 0.60 | 0        |
| 4   | UY1  | L5    | 3818 | 4    | 19,22,23     | 4.89 | 10 (52%) | 21,31,34    | 1.95 | 5 (23%)  |
| 4   | PSU  | L5    | 5001 | 4    | 18,21,22     | 1.10 | 1 (5%)   | 21,30,33    | 1.86 | 4 (19%)  |
| 4   | OMC  | L5    | 2824 | 4    | 19,22,23     | 0.56 | 0        | 25,31,34    | 0.62 | 0        |
| 84  | OMU  | S2    | 116  | 84   | 19,22,23     | 3.33 | 7 (36%)  | 25,31,34    | 1.73 | 4 (16%)  |
| 84  | PSU  | S2    | 651  | 84   | 18,21,22     | 1.12 | 1 (5%)   | 21,30,33    | 1.95 | 5 (23%)  |
| 84  | OMU  | S2    | 1442 | 84   | 19,22,23     | 3.37 | 7 (36%)  | 25,31,34    | 1.78 | 5 (20%)  |
| 84  | OMC  | S2    | 1703 | 84   | 19,22,23     | 0.55 | 0        | 25,31,34    | 0.61 | 0        |
| 84  | OMG  | S2    | 644  | 84   | 19,26,27     | 1.14 | 2 (10%)  | 21,38,41    | 0.87 | 1 (4%)   |
| 84  | PSU  | S2    | 649  | 84   | 18,21,22     | 1.11 | 1 (5%)   | 21,30,33    | 1.96 | 4 (19%)  |
| 4   | 1MA  | L5    | 1322 | 4,87 | 17,25,26     | 1.03 | 2 (11%)  | 17,37,40    | 1.14 | 2 (11%)  |
| 4   | OMG  | L5    | 3627 | 4    | 19,26,27     | 1.21 | 3 (15%)  | 21,38,41    | 0.91 | 1 (4%)   |
| 84  | OMC  | S2    | 174  | 84   | 19,22,23     | 0.50 | 0        | 25,31,34    | 0.65 | 0        |
| 4   | A2M  | L5    | 4523 | 4,87 | 18,25,26     | 1.45 | 2 (11%)  | 20,36,39    | 2.20 | 5 (25%)  |
| 4   | PSU  | L5    | 3639 | 4    | 18,21,22     | 1.12 | 1 (5%)   | 21,30,33    | 1.96 | 5 (23%)  |
| 4   | OMG  | L5    | 1625 | 4    | 19,26,27     | 1.25 | 2 (10%)  | 21,38,41    | 0.87 | 1 (4%)   |
| 4   | PSU  | L5    | 2632 | 4    | 18,21,22     | 1.13 | 1 (5%)   | 21,30,33    | 1.96 | 5 (23%)  |
| 84  | G7M  | S2    | 1639 | 84,2 | 20,26,27     | 2.44 | 6 (30%)  | 16,39,42    | 1.09 | 1 (6%)   |
| 4   | OMU  | L5    | 4306 | 4    | 19,22,23     | 3.28 | 7 (36%)  | 25,31,34    | 1.85 | 4 (16%)  |
| 4   | PSU  | L5    | 4471 | 4    | 18,21,22     | 1.07 | 1 (5%)   | 21,30,33    | 1.82 | 4 (19%)  |
| 84  | OMG  | S2    | 867  | 84   | 19,26,27     | 1.16 | 2 (10%)  | 21,38,41    | 0.86 | 1 (4%)   |
| 84  | A2M  | S2    | 468  | 84   | 18,25,26     | 1.34 | 2 (11%)  | 20,36,39    | 2.07 | 6 (30%)  |

| Mol | Type | Chain | Res  | Link | Bond lengths |      |          | Bond angles |      |          |
|-----|------|-------|------|------|--------------|------|----------|-------------|------|----------|
|     |      |       |      |      | Counts       | RMSZ | # Z  > 2 | Counts      | RMSZ | # Z  > 2 |
| 84  | PSU  | S2    | 1367 | 84   | 18,21,22     | 1.13 | 1 (5%)   | 21,30,33    | 1.91 | 4 (19%)  |
| 4   | A2M  | L5    | 4590 | 4    | 18,25,26     | 1.32 | 2 (11%)  | 20,36,39    | 2.14 | 6 (30%)  |
| 4   | OMU  | L5    | 4227 | 4    | 19,22,23     | 3.36 | 7 (36%)  | 25,31,34    | 1.87 | 5 (20%)  |
| 84  | A2M  | S2    | 27   | 84   | 18,25,26     | 1.34 | 2 (11%)  | 20,36,39    | 2.12 | 6 (30%)  |
| 84  | PSU  | S2    | 801  | 84   | 18,21,22     | 1.09 | 1 (5%)   | 21,30,33    | 1.85 | 4 (19%)  |
| 4   | PSU  | L5    | 1782 | 4    | 18,21,22     | 1.06 | 1 (5%)   | 21,30,33    | 1.89 | 4 (19%)  |
| 4   | A2M  | L5    | 3785 | 4,87 | 18,25,26     | 1.38 | 2 (11%)  | 20,36,39    | 2.52 | 7 (35%)  |
| 84  | OMU  | S2    | 799  | 84   | 19,22,23     | 3.39 | 7 (36%)  | 25,31,34    | 1.80 | 5 (20%)  |
| 84  | 4AC  | S2    | 1337 | 84   | 21,24,25     | 0.39 | 0        | 28,34,37    | 0.80 | 2 (7%)   |
| 84  | OMG  | S2    | 509  | 84   | 19,26,27     | 1.17 | 2 (10%)  | 21,38,41    | 0.83 | 1 (4%)   |
| 6   | PSU  | L8    | 69   | 6    | 18,21,22     | 1.12 | 1 (5%)   | 21,30,33    | 1.95 | 6 (28%)  |
| 84  | PSU  | S2    | 1174 | 84   | 18,21,22     | 1.10 | 1 (5%)   | 21,30,33    | 1.86 | 4 (19%)  |

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   |
|-----|------|-------|------|------|---------|-----------|---------|
| 4   | A2M  | L5    | 1326 | 4    | -       | 4/5/27/28 | 0/3/3/3 |
| 4   | PSU  | L5    | 4673 | 4,87 | -       | 0/7/25/26 | 0/2/2/2 |
| 4   | A2M  | L5    | 1534 | 4,87 | -       | 1/5/27/28 | 0/3/3/3 |
| 84  | PSU  | S2    | 863  | 84   | -       | 0/7/25/26 | 0/2/2/2 |
| 4   | PSU  | L5    | 1792 | 4    | -       | 0/7/25/26 | 0/2/2/2 |
| 4   | 5MC  | L5    | 3782 | 4,87 | -       | 1/7/25/26 | 0/2/2/2 |
| 4   | OMC  | L5    | 3887 | 4    | -       | 1/9/27/28 | 0/2/2/2 |
| 84  | MA6  | S2    | 1851 | 84   | -       | 1/7/29/30 | 0/3/3/3 |
| 4   | PSU  | L5    | 4493 | 4    | -       | 0/7/25/26 | 0/2/2/2 |
| 84  | OMU  | S2    | 354  | 84   | -       | 0/9/27/28 | 0/2/2/2 |
| 4   | OMG  | L5    | 4623 | 4    | -       | 0/5/27/28 | 0/3/3/3 |
| 84  | OMC  | S2    | 1272 | 84   | -       | 2/9/27/28 | 0/2/2/2 |
| 4   | A2M  | L5    | 3825 | 4    | -       | 0/5/27/28 | 0/3/3/3 |
| 84  | OMU  | S2    | 172  | 84   | -       | 0/9/27/28 | 0/2/2/2 |
| 84  | A2M  | S2    | 159  | 84   | -       | 1/5/27/28 | 0/3/3/3 |
| 4   | OMG  | L5    | 3744 | 4    | -       | 0/5/27/28 | 0/3/3/3 |
| 4   | OMU  | L5    | 4498 | 4    | -       | 0/9/27/28 | 0/2/2/2 |
| 4   | A2M  | L5    | 1524 | 4    | -       | 2/5/27/28 | 0/3/3/3 |
| 4   | UR3  | L5    | 4530 | 4    | -       | 0/7/25/26 | 0/2/2/2 |
| 4   | PSU  | L5    | 4552 | 4    | -       | 0/7/25/26 | 0/2/2/2 |

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| Mol | Type | Chain | Res  | Link | Chirals | Torsions   | Rings   |
|-----|------|-------|------|------|---------|------------|---------|
| 84  | PSU  | S2    | 1081 | 84   | -       | 0/7/25/26  | 0/2/2/2 |
| 84  | MA6  | S2    | 1850 | 84   | -       | 0/7/29/30  | 0/3/3/3 |
| 4   | PSU  | L5    | 4973 | 4    | -       | 0/7/25/26  | 0/2/2/2 |
| 4   | OMG  | L5    | 4499 | 4    | -       | 0/5/27/28  | 0/3/3/3 |
| 4   | OMC  | L5    | 4536 | 4    | -       | 0/9/27/28  | 0/2/2/2 |
| 84  | OMG  | S2    | 601  | 84   | -       | 1/5/27/28  | 0/3/3/3 |
| 4   | OMU  | L5    | 4620 | 4    | -       | 0/9/27/28  | 0/2/2/2 |
| 4   | OMC  | L5    | 3701 | 4    | -       | 6/9/27/28  | 0/2/2/2 |
| 4   | A2M  | L5    | 1323 | 4    | -       | 2/5/27/28  | 0/3/3/3 |
| 4   | PSU  | L5    | 4636 | 4    | -       | 0/7/25/26  | 0/2/2/2 |
| 4   | OMC  | L5    | 2422 | 4,87 | -       | 2/9/27/28  | 0/2/2/2 |
| 84  | PSU  | S2    | 1232 | 84   | -       | 0/7/25/26  | 0/2/2/2 |
| 84  | PSU  | S2    | 1045 | 84   | -       | 2/7/25/26  | 0/2/2/2 |
| 84  | OMG  | S2    | 436  | 84   | -       | 2/5/27/28  | 0/3/3/3 |
| 84  | A2M  | S2    | 166  | 84   | -       | 1/5/27/28  | 0/3/3/3 |
| 4   | A2M  | L5    | 3718 | 4    | -       | 0/5/27/28  | 0/3/3/3 |
| 4   | PSU  | L5    | 1582 | 4    | -       | 0/7/25/26  | 0/2/2/2 |
| 4   | A2M  | L5    | 4571 | 4    | -       | 0/5/27/28  | 0/3/3/3 |
| 86  | SEP  | CF    | 163  | 86   | -       | 6/6/8/10   | -       |
| 4   | PSU  | L5    | 4689 | 4    | -       | 0/7/25/26  | 0/2/2/2 |
| 4   | OMG  | L5    | 2424 | 4    | -       | 0/5/27/28  | 0/3/3/3 |
| 4   | PSU  | L5    | 4579 | 4    | -       | 0/7/25/26  | 0/2/2/2 |
| 84  | PSU  | S2    | 681  | 84   | -       | 0/7/25/26  | 0/2/2/2 |
| 84  | B8N  | S2    | 1248 | 84   | -       | 4/16/34/35 | 0/2/2/2 |
| 4   | OMC  | L5    | 2861 | 4    | -       | 0/9/27/28  | 0/2/2/2 |
| 4   | OMG  | L5    | 3792 | 4    | -       | 2/5/27/28  | 0/3/3/3 |
| 84  | OMU  | S2    | 428  | 84   | -       | 6/9/27/28  | 0/2/2/2 |
| 84  | OMU  | S2    | 1326 | 84   | -       | 0/9/27/28  | 0/2/2/2 |
| 4   | PSU  | L5    | 3637 | 4    | -       | 0/7/25/26  | 0/2/2/2 |
| 4   | PSU  | L5    | 4457 | 4    | -       | 0/7/25/26  | 0/2/2/2 |
| 4   | OMG  | L5    | 2876 | 4    | -       | 2/5/27/28  | 0/3/3/3 |
| 4   | PSU  | L5    | 4972 | 4    | -       | 0/7/25/26  | 0/2/2/2 |
| 84  | OMG  | S2    | 683  | 84   | -       | 2/5/27/28  | 0/3/3/3 |
| 84  | PSU  | S2    | 1244 | 84   | -       | 0/7/25/26  | 0/2/2/2 |
| 4   | PSU  | L5    | 3695 | 4    | -       | 0/7/25/26  | 0/2/2/2 |
| 84  | A2M  | S2    | 1031 | 84   | -       | 0/5/27/28  | 0/3/3/3 |
| 4   | A2M  | L5    | 2815 | 4    | -       | 2/5/27/28  | 0/3/3/3 |
| 4   | PSU  | L5    | 4296 | 4    | -       | 0/7/25/26  | 0/2/2/2 |
| 4   | PSU  | L5    | 3884 | 4    | -       | 0/7/25/26  | 0/2/2/2 |

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| Mol | Type | Chain | Res  | Link  | Chirals | Torsions  | Rings   |
|-----|------|-------|------|-------|---------|-----------|---------|
| 4   | PSU  | L5    | 4576 | 4     | -       | 0/7/25/26 | 0/2/2/2 |
| 4   | PSU  | L5    | 1683 | 4     | -       | 0/7/25/26 | 0/2/2/2 |
| 4   | PSU  | L5    | 5010 | 4     | -       | 0/7/25/26 | 0/2/2/2 |
| 84  | PSU  | S2    | 866  | 84    | -       | 0/7/25/26 | 0/2/2/2 |
| 4   | PSU  | L5    | 4312 | 4     | -       | 0/7/25/26 | 0/2/2/2 |
| 4   | OMG  | L5    | 4228 | 4     | -       | 0/5/27/28 | 0/3/3/3 |
| 4   | OMG  | L5    | 4370 | 4     | -       | 0/5/27/28 | 0/3/3/3 |
| 4   | OMG  | L5    | 1316 | 4     | -       | 0/5/27/28 | 0/3/3/3 |
| 4   | A2M  | L5    | 2787 | 4     | -       | 2/5/27/28 | 0/3/3/3 |
| 4   | PSU  | L5    | 4628 | 4     | -       | 0/7/25/26 | 0/2/2/2 |
| 4   | PSU  | L5    | 4442 | 4     | -       | 0/7/25/26 | 0/2/2/2 |
| 84  | PSU  | S2    | 966  | 84,87 | -       | 0/7/25/26 | 0/2/2/2 |
| 4   | PSU  | L5    | 4500 | 4     | -       | 3/7/25/26 | 0/2/2/2 |
| 84  | PSU  | S2    | 93   | 84    | -       | 0/7/25/26 | 0/2/2/2 |
| 4   | PSU  | L5    | 1860 | 4     | -       | 0/7/25/26 | 0/2/2/2 |
| 84  | PSU  | S2    | 406  | 84    | -       | 0/7/25/26 | 0/2/2/2 |
| 4   | OMC  | L5    | 3808 | 4,87  | -       | 0/9/27/28 | 0/2/2/2 |
| 4   | PSU  | L5    | 4293 | 4     | -       | 0/7/25/26 | 0/2/2/2 |
| 4   | OMG  | L5    | 4392 | 4     | -       | 0/5/27/28 | 0/3/3/3 |
| 6   | OMG  | L8    | 75   | 6     | -       | 1/5/27/28 | 0/3/3/3 |
| 4   | PSU  | L5    | 3920 | 4,87  | -       | 0/7/25/26 | 0/2/2/2 |
| 4   | OMC  | L5    | 4456 | 4     | -       | 0/9/27/28 | 0/2/2/2 |
| 4   | OMG  | L5    | 4637 | 4     | -       | 3/5/27/28 | 0/3/3/3 |
| 4   | OMC  | L5    | 3869 | 4     | -       | 2/9/27/28 | 0/2/2/2 |
| 84  | PSU  | S2    | 1056 | 84    | -       | 0/7/25/26 | 0/2/2/2 |
| 4   | PSU  | L5    | 3844 | 4     | -       | 1/7/25/26 | 0/2/2/2 |
| 4   | A2M  | L5    | 2363 | 4,87  | -       | 0/5/27/28 | 0/3/3/3 |
| 4   | PSU  | L5    | 3822 | 4     | -       | 0/7/25/26 | 0/2/2/2 |
| 4   | OMG  | L5    | 2364 | 4,87  | -       | 2/5/27/28 | 0/3/3/3 |
| 4   | OMG  | L5    | 4494 | 4     | -       | 0/5/27/28 | 0/3/3/3 |
| 4   | OMU  | L5    | 3925 | 4     | -       | 0/9/27/28 | 0/2/2/2 |
| 4   | PSU  | L5    | 4521 | 4,87  | -       | 0/7/25/26 | 0/2/2/2 |
| 84  | PSU  | S2    | 1004 | 84    | -       | 0/7/25/26 | 0/2/2/2 |
| 4   | PSU  | L5    | 1862 | 4     | -       | 0/7/25/26 | 0/2/2/2 |
| 4   | OMC  | L5    | 2804 | 4     | -       | 0/9/27/28 | 0/2/2/2 |
| 4   | OMG  | L5    | 3899 | 4     | -       | 2/5/27/28 | 0/3/3/3 |
| 4   | PSU  | L5    | 4431 | 4     | -       | 0/7/25/26 | 0/2/2/2 |
| 84  | OMU  | S2    | 627  | 84    | -       | 1/9/27/28 | 0/2/2/2 |
| 4   | 5MC  | L5    | 4447 | 4     | -       | 4/7/25/26 | 0/2/2/2 |
| 84  | OMG  | S2    | 1490 | 84    | -       | 1/5/27/28 | 0/3/3/3 |

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| Mol | Type | Chain | Res  | Link  | Chirals | Torsions   | Rings   |
|-----|------|-------|------|-------|---------|------------|---------|
| 84  | A2M  | S2    | 1383 | 84    | -       | 3/5/27/28  | 0/3/3/3 |
| 84  | PSU  | S2    | 814  | 84    | -       | 0/7/25/26  | 0/2/2/2 |
| 4   | A2M  | L5    | 2401 | 4     | -       | 0/5/27/28  | 0/3/3/3 |
| 4   | OMC  | L5    | 2351 | 4,87  | -       | 3/9/27/28  | 0/2/2/2 |
| 84  | A2M  | S2    | 484  | 84    | -       | 0/5/27/28  | 0/3/3/3 |
| 4   | A2M  | L5    | 1871 | 4,87  | -       | 0/5/27/28  | 0/3/3/3 |
| 84  | OMC  | S2    | 462  | 84    | -       | 0/9/27/28  | 0/2/2/2 |
| 84  | PSU  | S2    | 1046 | 84    | -       | 0/7/25/26  | 0/2/2/2 |
| 4   | PSU  | L5    | 1744 | 4,87  | -       | 0/7/25/26  | 0/2/2/2 |
| 4   | A2M  | L5    | 3867 | 4     | -       | 2/5/27/28  | 0/3/3/3 |
| 84  | PSU  | S2    | 105  | 84    | -       | 0/7/25/26  | 0/2/2/2 |
| 84  | OMC  | S2    | 1391 | 84    | -       | 0/9/27/28  | 0/2/2/2 |
| 84  | OMG  | S2    | 1328 | 84    | -       | 0/5/27/28  | 0/3/3/3 |
| 4   | PSU  | L5    | 4353 | 4     | -       | 0/7/25/26  | 0/2/2/2 |
| 4   | OMG  | L5    | 4196 | 4,2   | -       | 1/5/27/28  | 0/3/3/3 |
| 84  | OMU  | S2    | 121  | 84    | -       | 0/9/27/28  | 0/2/2/2 |
| 84  | 6MZ  | S2    | 1832 | 84,87 | -       | 3/8/28/28  | 0/3/3/3 |
| 4   | PSU  | L5    | 4361 | 4     | -       | 0/7/25/26  | 0/2/2/2 |
| 84  | A2M  | S2    | 99   | 84,87 | -       | 2/5/27/28  | 0/3/3/3 |
| 4   | OMG  | L5    | 4618 | 4     | -       | 2/5/27/28  | 0/3/3/3 |
| 6   | PSU  | L8    | 55   | 6     | -       | 0/7/25/26  | 0/2/2/2 |
| 4   | A2M  | L5    | 400  | 4     | -       | 1/5/27/28  | 0/3/3/3 |
| 84  | A2M  | S2    | 668  | 84,87 | -       | 2/5/27/28  | 0/3/3/3 |
| 84  | 4AC  | S2    | 1842 | 84    | -       | 0/11/29/30 | 0/2/2/2 |
| 4   | PSU  | L5    | 1536 | 4     | -       | 2/7/25/26  | 0/2/2/2 |
| 84  | PSU  | S2    | 686  | 84    | -       | 0/7/25/26  | 0/2/2/2 |
| 4   | PSU  | L5    | 1781 | 4     | -       | 1/7/25/26  | 0/2/2/2 |
| 4   | A2M  | L5    | 3830 | 4     | -       | 0/5/27/28  | 0/3/3/3 |
| 4   | OMG  | L5    | 1522 | 4     | -       | 0/5/27/28  | 0/3/3/3 |
| 84  | A2M  | S2    | 576  | 84    | -       | 3/5/27/28  | 0/3/3/3 |
| 4   | PSU  | L5    | 4532 | 4     | -       | 0/7/25/26  | 0/2/2/2 |
| 4   | PSU  | L5    | 3853 | 4,87  | -       | 0/7/25/26  | 0/2/2/2 |
| 4   | PSU  | L5    | 2839 | 4     | -       | 0/7/25/26  | 0/2/2/2 |
| 4   | PSU  | L5    | 3851 | 4     | -       | 1/7/25/26  | 0/2/2/2 |
| 4   | PSU  | L5    | 4299 | 4     | -       | 0/7/25/26  | 0/2/2/2 |
| 4   | OMC  | L5    | 1340 | 4     | -       | 1/9/27/28  | 0/2/2/2 |
| 84  | OMU  | S2    | 1288 | 84    | -       | 2/9/27/28  | 0/2/2/2 |
| 4   | PSU  | L5    | 4403 | 4     | -       | 0/7/25/26  | 0/2/2/2 |
| 4   | 6MZ  | L5    | 4220 | 4     | -       | 2/5/27/28  | 0/3/3/3 |
| 4   | OMC  | L5    | 3841 | 4     | -       | 1/9/27/28  | 0/2/2/2 |

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| Mol | Type | Chain | Res  | Link | Chirals | Torsions   | Rings   |
|-----|------|-------|------|------|---------|------------|---------|
| 4   | OMU  | L5    | 2837 | 4    | -       | 0/9/27/28  | 0/2/2/2 |
| 84  | PSU  | S2    | 109  | 84   | -       | 0/7/25/26  | 0/2/2/2 |
| 4   | A2M  | L5    | 398  | 4    | -       | 1/5/27/28  | 0/3/3/3 |
| 84  | OMC  | S2    | 517  | 84   | -       | 2/9/27/28  | 0/2/2/2 |
| 84  | PSU  | S2    | 1177 | 84   | -       | 0/7/25/26  | 0/2/2/2 |
| 4   | PSU  | L5    | 1677 | 4    | -       | 3/7/25/26  | 0/2/2/2 |
| 4   | OMC  | L5    | 2365 | 4,87 | -       | 0/9/27/28  | 0/2/2/2 |
| 4   | UY1  | L5    | 3818 | 4    | -       | 2/9/27/28  | 0/2/2/2 |
| 4   | PSU  | L5    | 5001 | 4    | -       | 0/7/25/26  | 0/2/2/2 |
| 4   | OMC  | L5    | 2824 | 4    | -       | 0/9/27/28  | 0/2/2/2 |
| 84  | OMU  | S2    | 116  | 84   | -       | 0/9/27/28  | 0/2/2/2 |
| 84  | PSU  | S2    | 651  | 84   | -       | 0/7/25/26  | 0/2/2/2 |
| 84  | OMU  | S2    | 1442 | 84   | -       | 2/9/27/28  | 0/2/2/2 |
| 84  | OMC  | S2    | 1703 | 84   | -       | 1/9/27/28  | 0/2/2/2 |
| 84  | OMG  | S2    | 644  | 84   | -       | 3/5/27/28  | 0/3/3/3 |
| 84  | PSU  | S2    | 649  | 84   | -       | 0/7/25/26  | 0/2/2/2 |
| 4   | 1MA  | L5    | 1322 | 4,87 | -       | 0/3/25/26  | 0/3/3/3 |
| 4   | OMG  | L5    | 3627 | 4    | -       | 0/5/27/28  | 0/3/3/3 |
| 84  | OMC  | S2    | 174  | 84   | -       | 0/9/27/28  | 0/2/2/2 |
| 4   | A2M  | L5    | 4523 | 4,87 | -       | 0/5/27/28  | 0/3/3/3 |
| 4   | PSU  | L5    | 3639 | 4    | -       | 0/7/25/26  | 0/2/2/2 |
| 4   | OMG  | L5    | 1625 | 4    | -       | 2/5/27/28  | 0/3/3/3 |
| 4   | PSU  | L5    | 2632 | 4    | -       | 0/7/25/26  | 0/2/2/2 |
| 84  | G7M  | S2    | 1639 | 84,2 | -       | 2/3/25/26  | 0/3/3/3 |
| 4   | OMU  | L5    | 4306 | 4    | -       | 0/9/27/28  | 0/2/2/2 |
| 4   | PSU  | L5    | 4471 | 4    | -       | 0/7/25/26  | 0/2/2/2 |
| 84  | OMG  | S2    | 867  | 84   | -       | 3/5/27/28  | 0/3/3/3 |
| 84  | A2M  | S2    | 468  | 84   | -       | 1/5/27/28  | 0/3/3/3 |
| 84  | PSU  | S2    | 1367 | 84   | -       | 0/7/25/26  | 0/2/2/2 |
| 4   | A2M  | L5    | 4590 | 4    | -       | 3/5/27/28  | 0/3/3/3 |
| 4   | OMU  | L5    | 4227 | 4    | -       | 0/9/27/28  | 0/2/2/2 |
| 84  | A2M  | S2    | 27   | 84   | -       | 1/5/27/28  | 0/3/3/3 |
| 84  | PSU  | S2    | 801  | 84   | -       | 2/7/25/26  | 0/2/2/2 |
| 4   | PSU  | L5    | 1782 | 4    | -       | 0/7/25/26  | 0/2/2/2 |
| 4   | A2M  | L5    | 3785 | 4,87 | -       | 1/5/27/28  | 0/3/3/3 |
| 84  | OMU  | S2    | 799  | 84   | -       | 2/9/27/28  | 0/2/2/2 |
| 84  | 4AC  | S2    | 1337 | 84   | -       | 1/11/29/30 | 0/2/2/2 |
| 84  | OMG  | S2    | 509  | 84   | -       | 0/5/27/28  | 0/3/3/3 |
| 6   | PSU  | L8    | 69   | 6    | -       | 0/7/25/26  | 0/2/2/2 |
| 84  | PSU  | S2    | 1174 | 84   | -       | 0/7/25/26  | 0/2/2/2 |



All (373) bond length outliers are listed below:

| Mol | Chain | Res  | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 4   | L5    | 3818 | UY1  | C6-C5   | 12.72 | 1.49        | 1.35     |
| 4   | L5    | 3818 | UY1  | C2-N1   | 11.82 | 1.52        | 1.36     |
| 4   | L5    | 4220 | 6MZ  | C3'-C2' | -8.80 | 1.29        | 1.53     |
| 84  | S2    | 1288 | OMU  | C2-N1   | 8.67  | 1.52        | 1.38     |
| 84  | S2    | 799  | OMU  | C2-N1   | 8.55  | 1.51        | 1.38     |
| 4   | L5    | 4227 | OMU  | C2-N1   | 8.33  | 1.51        | 1.38     |
| 84  | S2    | 121  | OMU  | C2-N1   | 8.30  | 1.51        | 1.38     |
| 84  | S2    | 172  | OMU  | C2-N1   | 8.26  | 1.51        | 1.38     |
| 84  | S2    | 1442 | OMU  | C2-N1   | 8.25  | 1.51        | 1.38     |
| 84  | S2    | 1326 | OMU  | C2-N1   | 8.19  | 1.51        | 1.38     |
| 84  | S2    | 627  | OMU  | C2-N1   | 8.19  | 1.51        | 1.38     |
| 4   | L5    | 2837 | OMU  | C2-N1   | 8.17  | 1.51        | 1.38     |
| 4   | L5    | 4306 | OMU  | C2-N1   | 8.15  | 1.51        | 1.38     |
| 84  | S2    | 116  | OMU  | C2-N1   | 8.14  | 1.51        | 1.38     |
| 84  | S2    | 428  | OMU  | C2-N1   | 8.11  | 1.51        | 1.38     |
| 84  | S2    | 354  | OMU  | C2-N1   | 8.08  | 1.51        | 1.38     |
| 84  | S2    | 1248 | B8N  | C4-N3   | -7.97 | 1.26        | 1.40     |
| 4   | L5    | 3925 | OMU  | C2-N1   | 7.95  | 1.50        | 1.38     |
| 4   | L5    | 4620 | OMU  | C2-N1   | 7.87  | 1.50        | 1.38     |
| 84  | S2    | 1248 | B8N  | C6-N1   | 7.83  | 1.55        | 1.36     |
| 4   | L5    | 4498 | OMU  | C2-N1   | 7.79  | 1.50        | 1.38     |
| 4   | L5    | 3818 | UY1  | C2-N3   | 7.61  | 1.50        | 1.37     |
| 4   | L5    | 4220 | 6MZ  | O4'-C1' | -7.45 | 1.31        | 1.40     |
| 84  | S2    | 116  | OMU  | C2-N3   | 6.97  | 1.50        | 1.38     |
| 84  | S2    | 172  | OMU  | C2-N3   | 6.95  | 1.50        | 1.38     |
| 84  | S2    | 1288 | OMU  | C2-N3   | 6.94  | 1.50        | 1.38     |
| 84  | S2    | 121  | OMU  | C2-N3   | 6.94  | 1.50        | 1.38     |
| 84  | S2    | 627  | OMU  | C2-N3   | 6.92  | 1.50        | 1.38     |
| 84  | S2    | 1442 | OMU  | C2-N3   | 6.91  | 1.50        | 1.38     |
| 84  | S2    | 428  | OMU  | C2-N3   | 6.90  | 1.50        | 1.38     |
| 84  | S2    | 1248 | B8N  | C4-C5   | 6.86  | 1.63        | 1.47     |
| 4   | L5    | 4227 | OMU  | C2-N3   | 6.84  | 1.49        | 1.38     |
| 4   | L5    | 2837 | OMU  | C2-N3   | 6.82  | 1.49        | 1.38     |
| 84  | S2    | 799  | OMU  | C2-N3   | 6.82  | 1.49        | 1.38     |
| 84  | S2    | 354  | OMU  | C2-N3   | 6.78  | 1.49        | 1.38     |
| 84  | S2    | 1326 | OMU  | C2-N3   | 6.74  | 1.49        | 1.38     |
| 4   | L5    | 4498 | OMU  | C2-N3   | 6.70  | 1.49        | 1.38     |
| 4   | L5    | 3925 | OMU  | C2-N3   | 6.65  | 1.49        | 1.38     |
| 4   | L5    | 4620 | OMU  | C2-N3   | 6.62  | 1.49        | 1.38     |
| 4   | L5    | 4306 | OMU  | C2-N3   | 6.58  | 1.49        | 1.38     |
| 4   | L5    | 4530 | UR3  | C2-N1   | 6.45  | 1.47        | 1.38     |
| 4   | L5    | 4530 | UR3  | C6-C5   | 6.29  | 1.49        | 1.35     |

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| Mol | Chain | Res  | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 84  | S2    | 1288 | OMU  | C6-C5   | 5.92  | 1.48        | 1.35     |
| 84  | S2    | 121  | OMU  | C6-C5   | 5.89  | 1.48        | 1.35     |
| 84  | S2    | 1248 | B8N  | C2-N1   | 5.88  | 1.56        | 1.39     |
| 84  | S2    | 428  | OMU  | C6-C5   | 5.86  | 1.48        | 1.35     |
| 84  | S2    | 172  | OMU  | C6-C5   | 5.85  | 1.48        | 1.35     |
| 84  | S2    | 627  | OMU  | C6-C5   | 5.84  | 1.48        | 1.35     |
| 84  | S2    | 1326 | OMU  | C6-C5   | 5.84  | 1.48        | 1.35     |
| 4   | L5    | 2837 | OMU  | C6-C5   | 5.84  | 1.48        | 1.35     |
| 84  | S2    | 799  | OMU  | C6-C5   | 5.83  | 1.48        | 1.35     |
| 84  | S2    | 1442 | OMU  | C6-C5   | 5.83  | 1.48        | 1.35     |
| 84  | S2    | 354  | OMU  | C6-C5   | 5.83  | 1.48        | 1.35     |
| 4   | L5    | 4498 | OMU  | C6-C5   | 5.80  | 1.48        | 1.35     |
| 4   | L5    | 4530 | UR3  | C2-N3   | 5.78  | 1.50        | 1.39     |
| 4   | L5    | 4227 | OMU  | C6-C5   | 5.77  | 1.48        | 1.35     |
| 84  | S2    | 116  | OMU  | C6-C5   | 5.72  | 1.48        | 1.35     |
| 4   | L5    | 4620 | OMU  | C6-C5   | 5.70  | 1.48        | 1.35     |
| 4   | L5    | 4306 | OMU  | C6-C5   | 5.68  | 1.48        | 1.35     |
| 4   | L5    | 3925 | OMU  | C6-C5   | 5.66  | 1.48        | 1.35     |
| 4   | L5    | 4620 | OMU  | O4-C4   | -5.58 | 1.13        | 1.24     |
| 4   | L5    | 4220 | 6MZ  | O4'-C4' | 5.56  | 1.57        | 1.45     |
| 4   | L5    | 3925 | OMU  | O4-C4   | -5.53 | 1.13        | 1.24     |
| 4   | L5    | 4227 | OMU  | O4-C4   | -5.53 | 1.13        | 1.24     |
| 4   | L5    | 2837 | OMU  | O4-C4   | -5.51 | 1.13        | 1.24     |
| 4   | L5    | 4306 | OMU  | O4-C4   | -5.50 | 1.13        | 1.24     |
| 84  | S2    | 799  | OMU  | O4-C4   | -5.50 | 1.13        | 1.24     |
| 84  | S2    | 354  | OMU  | O4-C4   | -5.49 | 1.13        | 1.24     |
| 4   | L5    | 4498 | OMU  | O4-C4   | -5.48 | 1.13        | 1.24     |
| 84  | S2    | 1326 | OMU  | O4-C4   | -5.48 | 1.13        | 1.24     |
| 84  | S2    | 116  | OMU  | O4-C4   | -5.47 | 1.13        | 1.24     |
| 84  | S2    | 1442 | OMU  | O4-C4   | -5.45 | 1.13        | 1.24     |
| 4   | L5    | 3818 | UY1  | C6-N1   | 5.45  | 1.45        | 1.36     |
| 84  | S2    | 428  | OMU  | O4-C4   | -5.44 | 1.13        | 1.24     |
| 84  | S2    | 121  | OMU  | O4-C4   | -5.42 | 1.13        | 1.24     |
| 84  | S2    | 627  | OMU  | O4-C4   | -5.41 | 1.14        | 1.24     |
| 4   | L5    | 4220 | 6MZ  | C5'-C4' | -5.41 | 1.35        | 1.51     |
| 84  | S2    | 172  | OMU  | O4-C4   | -5.40 | 1.14        | 1.24     |
| 84  | S2    | 1288 | OMU  | O4-C4   | -5.37 | 1.14        | 1.24     |
| 84  | S2    | 1248 | B8N  | C6-C5   | 5.36  | 1.42        | 1.35     |
| 84  | S2    | 1639 | G7M  | C2-N3   | 5.36  | 1.46        | 1.33     |
| 84  | S2    | 1639 | G7M  | C4-N3   | 5.00  | 1.49        | 1.37     |
| 84  | S2    | 1639 | G7M  | C2-N2   | 4.91  | 1.45        | 1.34     |
| 4   | L5    | 4220 | 6MZ  | C6-C5   | -4.80 | 1.37        | 1.44     |

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| Mol | Chain | Res  | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 84  | S2    | 627  | OMU  | C4-N3   | 4.51  | 1.46        | 1.38     |
| 84  | S2    | 1442 | OMU  | C4-N3   | 4.44  | 1.46        | 1.38     |
| 4   | L5    | 3818 | UY1  | C4-N3   | 4.43  | 1.47        | 1.38     |
| 84  | S2    | 428  | OMU  | C4-N3   | 4.41  | 1.46        | 1.38     |
| 84  | S2    | 1288 | OMU  | C4-N3   | 4.36  | 1.46        | 1.38     |
| 84  | S2    | 172  | OMU  | C4-N3   | 4.35  | 1.46        | 1.38     |
| 84  | S2    | 116  | OMU  | C4-N3   | 4.34  | 1.46        | 1.38     |
| 84  | S2    | 121  | OMU  | C4-N3   | 4.33  | 1.46        | 1.38     |
| 84  | S2    | 1326 | OMU  | C4-N3   | 4.33  | 1.46        | 1.38     |
| 84  | S2    | 354  | OMU  | C4-N3   | 4.26  | 1.45        | 1.38     |
| 4   | L5    | 2837 | OMU  | C4-N3   | 4.25  | 1.45        | 1.38     |
| 84  | S2    | 799  | OMU  | C4-N3   | 4.24  | 1.45        | 1.38     |
| 4   | L5    | 4227 | OMU  | C4-N3   | 4.23  | 1.45        | 1.38     |
| 4   | L5    | 4498 | OMU  | C4-N3   | 4.20  | 1.45        | 1.38     |
| 4   | L5    | 4306 | OMU  | C4-N3   | 4.03  | 1.45        | 1.38     |
| 4   | L5    | 4620 | OMU  | C4-N3   | 4.01  | 1.45        | 1.38     |
| 4   | L5    | 4220 | 6MZ  | C6-N1   | -3.98 | 1.28        | 1.34     |
| 4   | L5    | 3925 | OMU  | C4-N3   | 3.98  | 1.45        | 1.38     |
| 84  | S2    | 1832 | 6MZ  | C6-C5   | -3.91 | 1.38        | 1.44     |
| 84  | S2    | 1851 | MA6  | C6-C5   | -3.73 | 1.39        | 1.44     |
| 84  | S2    | 1367 | PSU  | C6-C5   | 3.71  | 1.39        | 1.35     |
| 84  | S2    | 1850 | MA6  | C6-C5   | -3.70 | 1.39        | 1.44     |
| 84  | S2    | 1004 | PSU  | C6-C5   | 3.69  | 1.39        | 1.35     |
| 84  | S2    | 863  | PSU  | C6-C5   | 3.69  | 1.39        | 1.35     |
| 84  | S2    | 1232 | PSU  | C6-C5   | 3.68  | 1.39        | 1.35     |
| 84  | S2    | 1244 | PSU  | C6-C5   | 3.66  | 1.39        | 1.35     |
| 4   | L5    | 2632 | PSU  | C6-C5   | 3.66  | 1.39        | 1.35     |
| 84  | S2    | 1639 | G7M  | C6-N1   | 3.65  | 1.43        | 1.37     |
| 84  | S2    | 651  | PSU  | C6-C5   | 3.65  | 1.39        | 1.35     |
| 84  | S2    | 1248 | B8N  | C1'-C5  | 3.64  | 1.58        | 1.50     |
| 4   | L5    | 4532 | PSU  | C6-C5   | 3.63  | 1.39        | 1.35     |
| 4   | L5    | 2401 | A2M  | O5'-C5' | -3.62 | 1.33        | 1.44     |
| 4   | L5    | 3844 | PSU  | C6-C5   | 3.62  | 1.39        | 1.35     |
| 84  | S2    | 1046 | PSU  | C6-C5   | 3.62  | 1.39        | 1.35     |
| 4   | L5    | 3818 | UY1  | O4-C4   | -3.61 | 1.16        | 1.23     |
| 84  | S2    | 801  | PSU  | C6-C5   | 3.61  | 1.39        | 1.35     |
| 4   | L5    | 4636 | PSU  | C6-C5   | 3.60  | 1.39        | 1.35     |
| 84  | S2    | 814  | PSU  | C6-C5   | 3.59  | 1.39        | 1.35     |
| 4   | L5    | 1862 | PSU  | C6-C5   | 3.57  | 1.39        | 1.35     |
| 84  | S2    | 649  | PSU  | C6-C5   | 3.57  | 1.39        | 1.35     |
| 84  | S2    | 109  | PSU  | C6-C5   | 3.57  | 1.39        | 1.35     |
| 4   | L5    | 3853 | PSU  | C6-C5   | 3.56  | 1.39        | 1.35     |

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| Mol | Chain | Res  | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 4   | L5    | 1860 | PSU  | C6-C5   | 3.56  | 1.39        | 1.35     |
| 84  | S2    | 406  | PSU  | C6-C5   | 3.56  | 1.39        | 1.35     |
| 84  | S2    | 1177 | PSU  | C6-C5   | 3.55  | 1.39        | 1.35     |
| 4   | L5    | 3639 | PSU  | C6-C5   | 3.54  | 1.39        | 1.35     |
| 84  | S2    | 1045 | PSU  | C6-C5   | 3.53  | 1.39        | 1.35     |
| 84  | S2    | 1174 | PSU  | C6-C5   | 3.52  | 1.39        | 1.35     |
| 4   | L5    | 5001 | PSU  | C6-C5   | 3.52  | 1.39        | 1.35     |
| 4   | L5    | 5010 | PSU  | C6-C5   | 3.52  | 1.39        | 1.35     |
| 4   | L5    | 4552 | PSU  | C6-C5   | 3.51  | 1.39        | 1.35     |
| 84  | S2    | 105  | PSU  | C6-C5   | 3.51  | 1.39        | 1.35     |
| 4   | L5    | 4500 | PSU  | C6-C5   | 3.50  | 1.39        | 1.35     |
| 4   | L5    | 4296 | PSU  | C6-C5   | 3.50  | 1.39        | 1.35     |
| 4   | L5    | 4361 | PSU  | C6-C5   | 3.49  | 1.39        | 1.35     |
| 4   | L5    | 4493 | PSU  | C6-C5   | 3.49  | 1.39        | 1.35     |
| 4   | L5    | 3785 | A2M  | O5'-C5' | -3.49 | 1.34        | 1.44     |
| 84  | S2    | 1081 | PSU  | C6-C5   | 3.48  | 1.39        | 1.35     |
| 84  | S2    | 966  | PSU  | C6-C5   | 3.48  | 1.39        | 1.35     |
| 84  | S2    | 1851 | MA6  | C6-N6   | 3.48  | 1.45        | 1.37     |
| 4   | L5    | 1744 | PSU  | C6-C5   | 3.48  | 1.39        | 1.35     |
| 4   | L5    | 4312 | PSU  | C6-C5   | 3.48  | 1.39        | 1.35     |
| 84  | S2    | 668  | A2M  | O5'-C5' | -3.48 | 1.34        | 1.44     |
| 4   | L5    | 2839 | PSU  | C6-C5   | 3.47  | 1.39        | 1.35     |
| 84  | S2    | 1850 | MA6  | C6-N6   | 3.47  | 1.45        | 1.37     |
| 4   | L5    | 2787 | A2M  | O5'-C5' | -3.47 | 1.34        | 1.44     |
| 84  | S2    | 1056 | PSU  | C6-C5   | 3.47  | 1.39        | 1.35     |
| 4   | L5    | 3830 | A2M  | O5'-C5' | -3.46 | 1.34        | 1.44     |
| 84  | S2    | 99   | A2M  | O5'-C5' | -3.46 | 1.34        | 1.44     |
| 86  | CF    | 163  | SEP  | P-O1P   | 3.46  | 1.61        | 1.50     |
| 4   | L5    | 1582 | PSU  | C6-C5   | 3.46  | 1.39        | 1.35     |
| 4   | L5    | 4521 | PSU  | C6-C5   | 3.46  | 1.39        | 1.35     |
| 4   | L5    | 3825 | A2M  | O5'-C5' | -3.45 | 1.34        | 1.44     |
| 84  | S2    | 866  | PSU  | C6-C5   | 3.44  | 1.39        | 1.35     |
| 4   | L5    | 3695 | PSU  | C6-C5   | 3.44  | 1.39        | 1.35     |
| 84  | S2    | 686  | PSU  | C6-C5   | 3.44  | 1.39        | 1.35     |
| 4   | L5    | 1323 | A2M  | O5'-C5' | -3.44 | 1.34        | 1.44     |
| 4   | L5    | 4431 | PSU  | C6-C5   | 3.44  | 1.39        | 1.35     |
| 4   | L5    | 400  | A2M  | O5'-C5' | -3.43 | 1.34        | 1.44     |
| 84  | S2    | 1031 | A2M  | O5'-C5' | -3.43 | 1.34        | 1.44     |
| 4   | L5    | 1683 | PSU  | C6-C5   | 3.43  | 1.39        | 1.35     |
| 4   | L5    | 4293 | PSU  | C6-C5   | 3.43  | 1.39        | 1.35     |
| 84  | S2    | 93   | PSU  | C6-C5   | 3.42  | 1.39        | 1.35     |
| 4   | L5    | 4576 | PSU  | C6-C5   | 3.42  | 1.39        | 1.35     |

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| Mol | Chain | Res  | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 4   | L5    | 4689 | PSU  | C6-C5   | 3.42  | 1.39        | 1.35     |
| 4   | L5    | 4299 | PSU  | C6-C5   | 3.42  | 1.39        | 1.35     |
| 4   | L5    | 3718 | A2M  | O5'-C5' | -3.41 | 1.34        | 1.44     |
| 4   | L5    | 3884 | PSU  | C6-C5   | 3.41  | 1.39        | 1.35     |
| 4   | L5    | 1781 | PSU  | C6-C5   | 3.41  | 1.39        | 1.35     |
| 4   | L5    | 1326 | A2M  | O5'-C5' | -3.41 | 1.34        | 1.44     |
| 4   | L5    | 3851 | PSU  | C6-C5   | 3.41  | 1.39        | 1.35     |
| 4   | L5    | 1792 | PSU  | C6-C5   | 3.41  | 1.39        | 1.35     |
| 4   | L5    | 2815 | A2M  | O5'-C5' | -3.40 | 1.34        | 1.44     |
| 4   | L5    | 1524 | A2M  | O5'-C5' | -3.40 | 1.34        | 1.44     |
| 6   | L8    | 69   | PSU  | C6-C5   | 3.40  | 1.39        | 1.35     |
| 84  | S2    | 27   | A2M  | O5'-C5' | -3.40 | 1.34        | 1.44     |
| 4   | L5    | 3822 | PSU  | C6-C5   | 3.39  | 1.39        | 1.35     |
| 84  | S2    | 576  | A2M  | O5'-C5' | -3.39 | 1.34        | 1.44     |
| 84  | S2    | 1383 | A2M  | O5'-C5' | -3.39 | 1.34        | 1.44     |
| 4   | L5    | 2876 | OMG  | C8-N7   | -3.39 | 1.29        | 1.34     |
| 4   | L5    | 1782 | PSU  | C6-C5   | 3.38  | 1.39        | 1.35     |
| 6   | L8    | 55   | PSU  | C6-C5   | 3.36  | 1.39        | 1.35     |
| 4   | L5    | 4471 | PSU  | C6-C5   | 3.36  | 1.39        | 1.35     |
| 4   | L5    | 4457 | PSU  | C6-C5   | 3.36  | 1.39        | 1.35     |
| 84  | S2    | 468  | A2M  | O5'-C5' | -3.35 | 1.34        | 1.44     |
| 4   | L5    | 4673 | PSU  | C6-C5   | 3.35  | 1.39        | 1.35     |
| 4   | L5    | 3637 | PSU  | C6-C5   | 3.35  | 1.39        | 1.35     |
| 4   | L5    | 4571 | A2M  | O5'-C5' | -3.34 | 1.34        | 1.44     |
| 84  | S2    | 681  | PSU  | C6-C5   | 3.34  | 1.39        | 1.35     |
| 4   | L5    | 4523 | A2M  | O5'-C5' | -3.33 | 1.34        | 1.44     |
| 4   | L5    | 4972 | PSU  | C6-C5   | 3.32  | 1.39        | 1.35     |
| 4   | L5    | 3867 | A2M  | O5'-C5' | -3.32 | 1.34        | 1.44     |
| 84  | S2    | 1639 | G7M  | C5-C6   | 3.32  | 1.54        | 1.45     |
| 4   | L5    | 4973 | PSU  | C6-C5   | 3.30  | 1.38        | 1.35     |
| 4   | L5    | 3920 | PSU  | C6-C5   | 3.30  | 1.38        | 1.35     |
| 4   | L5    | 4590 | A2M  | O5'-C5' | -3.30 | 1.34        | 1.44     |
| 4   | L5    | 2363 | A2M  | O5'-C5' | -3.30 | 1.34        | 1.44     |
| 4   | L5    | 4579 | PSU  | C6-C5   | 3.29  | 1.38        | 1.35     |
| 84  | S2    | 166  | A2M  | O5'-C5' | -3.29 | 1.34        | 1.44     |
| 84  | S2    | 484  | A2M  | O5'-C5' | -3.28 | 1.34        | 1.44     |
| 4   | L5    | 3818 | UY1  | C1'-C5  | 3.28  | 1.57        | 1.50     |
| 4   | L5    | 1871 | A2M  | O4'-C4' | -3.27 | 1.37        | 1.45     |
| 4   | L5    | 1625 | OMG  | C8-N7   | -3.27 | 1.29        | 1.34     |
| 4   | L5    | 4442 | PSU  | C6-C5   | 3.27  | 1.38        | 1.35     |
| 4   | L5    | 4220 | 6MZ  | O3'-C3' | 3.26  | 1.51        | 1.43     |
| 4   | L5    | 398  | A2M  | O5'-C5' | -3.23 | 1.34        | 1.44     |

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| Mol | Chain | Res  | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 4   | L5    | 1536 | PSU  | C6-C5   | 3.19  | 1.38        | 1.35     |
| 4   | L5    | 4403 | PSU  | C6-C5   | 3.18  | 1.38        | 1.35     |
| 4   | L5    | 3818 | UY1  | O2-C2   | -3.18 | 1.16        | 1.23     |
| 4   | L5    | 4353 | PSU  | C6-C5   | 3.17  | 1.38        | 1.35     |
| 4   | L5    | 1871 | A2M  | C1'-N9  | -3.15 | 1.42        | 1.49     |
| 4   | L5    | 3792 | OMG  | C8-N7   | -3.15 | 1.29        | 1.34     |
| 4   | L5    | 4628 | PSU  | C6-C5   | 3.13  | 1.38        | 1.35     |
| 84  | S2    | 159  | A2M  | O5'-C5' | -3.13 | 1.35        | 1.44     |
| 4   | L5    | 1534 | A2M  | O5'-C5' | -3.12 | 1.35        | 1.44     |
| 4   | L5    | 1316 | OMG  | C8-N7   | -3.11 | 1.30        | 1.34     |
| 4   | L5    | 4618 | OMG  | C8-N7   | -3.09 | 1.30        | 1.34     |
| 4   | L5    | 2364 | OMG  | C8-N7   | -3.09 | 1.30        | 1.34     |
| 4   | L5    | 4494 | OMG  | C8-N7   | -3.08 | 1.30        | 1.34     |
| 84  | S2    | 1490 | OMG  | C8-N7   | -3.08 | 1.30        | 1.34     |
| 4   | L5    | 1522 | OMG  | C8-N7   | -3.06 | 1.30        | 1.34     |
| 6   | L8    | 75   | OMG  | C8-N7   | -3.05 | 1.30        | 1.34     |
| 4   | L5    | 1871 | A2M  | O5'-C5' | -3.04 | 1.35        | 1.44     |
| 4   | L5    | 4196 | OMG  | C8-N7   | -3.03 | 1.30        | 1.34     |
| 4   | L5    | 1677 | PSU  | C6-C5   | 3.00  | 1.38        | 1.35     |
| 4   | L5    | 4623 | OMG  | C8-N7   | -3.00 | 1.30        | 1.34     |
| 4   | L5    | 4637 | OMG  | C8-N7   | -2.99 | 1.30        | 1.34     |
| 84  | S2    | 509  | OMG  | C8-N7   | -2.99 | 1.30        | 1.34     |
| 84  | S2    | 1490 | OMG  | C5-C6   | -2.98 | 1.41        | 1.47     |
| 4   | L5    | 4499 | OMG  | C8-N7   | -2.98 | 1.30        | 1.34     |
| 4   | L5    | 3899 | OMG  | C8-N7   | -2.97 | 1.30        | 1.34     |
| 4   | L5    | 4370 | OMG  | C8-N7   | -2.97 | 1.30        | 1.34     |
| 4   | L5    | 1871 | A2M  | O4'-C1' | 2.97  | 1.44        | 1.40     |
| 84  | S2    | 644  | OMG  | C8-N7   | -2.95 | 1.30        | 1.34     |
| 84  | S2    | 683  | OMG  | C8-N7   | -2.95 | 1.30        | 1.34     |
| 84  | S2    | 867  | OMG  | C8-N7   | -2.94 | 1.30        | 1.34     |
| 4   | L5    | 3744 | OMG  | C8-N7   | -2.94 | 1.30        | 1.34     |
| 84  | S2    | 601  | OMG  | C8-N7   | -2.94 | 1.30        | 1.34     |
| 4   | L5    | 2424 | OMG  | C8-N7   | -2.94 | 1.30        | 1.34     |
| 4   | L5    | 4392 | OMG  | C8-N7   | -2.91 | 1.30        | 1.34     |
| 84  | S2    | 436  | OMG  | C8-N7   | -2.90 | 1.30        | 1.34     |
| 84  | S2    | 1288 | OMU  | C5-C4   | 2.88  | 1.50        | 1.43     |
| 4   | L5    | 3785 | A2M  | C1'-N9  | -2.87 | 1.42        | 1.49     |
| 84  | S2    | 1326 | OMU  | C5-C4   | 2.87  | 1.49        | 1.43     |
| 84  | S2    | 627  | OMU  | C5-C4   | 2.87  | 1.49        | 1.43     |
| 4   | L5    | 4228 | OMG  | C8-N7   | -2.87 | 1.30        | 1.34     |
| 84  | S2    | 172  | OMU  | C5-C4   | 2.87  | 1.49        | 1.43     |
| 4   | L5    | 3627 | OMG  | C8-N7   | -2.86 | 1.30        | 1.34     |

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| Mol | Chain | Res  | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 84  | S2    | 668  | A2M  | O4'-C4' | -2.86 | 1.38        | 1.45     |
| 84  | S2    | 428  | OMU  | C5-C4   | 2.85  | 1.49        | 1.43     |
| 4   | L5    | 4227 | OMU  | C5-C4   | 2.84  | 1.49        | 1.43     |
| 84  | S2    | 354  | OMU  | C5-C4   | 2.83  | 1.49        | 1.43     |
| 4   | L5    | 4523 | A2M  | C1'-N9  | -2.83 | 1.42        | 1.49     |
| 84  | S2    | 1442 | OMU  | C5-C4   | 2.82  | 1.49        | 1.43     |
| 84  | S2    | 799  | OMU  | C5-C4   | 2.82  | 1.49        | 1.43     |
| 84  | S2    | 1639 | G7M  | C2-N1   | 2.80  | 1.44        | 1.37     |
| 84  | S2    | 121  | OMU  | C5-C4   | 2.77  | 1.49        | 1.43     |
| 84  | S2    | 1328 | OMG  | C8-N7   | -2.77 | 1.30        | 1.34     |
| 4   | L5    | 3825 | A2M  | C1'-N9  | -2.73 | 1.43        | 1.49     |
| 4   | L5    | 2364 | OMG  | C5-C6   | -2.73 | 1.42        | 1.47     |
| 4   | L5    | 2424 | OMG  | C5-C6   | -2.72 | 1.42        | 1.47     |
| 84  | S2    | 1288 | OMU  | C6-N1   | 2.72  | 1.44        | 1.38     |
| 4   | L5    | 3925 | OMU  | C5-C4   | 2.71  | 1.49        | 1.43     |
| 4   | L5    | 4498 | OMU  | C5-C4   | 2.71  | 1.49        | 1.43     |
| 84  | S2    | 668  | A2M  | C1'-N9  | -2.71 | 1.43        | 1.49     |
| 4   | L5    | 3627 | OMG  | C5-C6   | -2.71 | 1.42        | 1.47     |
| 84  | S2    | 799  | OMU  | C6-N1   | 2.69  | 1.44        | 1.38     |
| 84  | S2    | 354  | OMU  | C6-N1   | 2.69  | 1.44        | 1.38     |
| 4   | L5    | 3899 | OMG  | C5-C6   | -2.69 | 1.42        | 1.47     |
| 4   | L5    | 2837 | OMU  | C5-C4   | 2.69  | 1.49        | 1.43     |
| 4   | L5    | 1522 | OMG  | C5-C6   | -2.67 | 1.42        | 1.47     |
| 4   | L5    | 1316 | OMG  | C5-C6   | -2.67 | 1.42        | 1.47     |
| 84  | S2    | 627  | OMU  | C6-N1   | 2.66  | 1.44        | 1.38     |
| 84  | S2    | 1442 | OMU  | C6-N1   | 2.66  | 1.44        | 1.38     |
| 4   | L5    | 4494 | OMG  | C5-C6   | -2.66 | 1.42        | 1.47     |
| 4   | L5    | 4306 | OMU  | C5-C4   | 2.65  | 1.49        | 1.43     |
| 4   | L5    | 1322 | 1MA  | C8-N7   | -2.65 | 1.30        | 1.34     |
| 4   | L5    | 4370 | OMG  | C5-C6   | -2.65 | 1.42        | 1.47     |
| 4   | L5    | 1625 | OMG  | C5-C6   | -2.65 | 1.42        | 1.47     |
| 4   | L5    | 2837 | OMU  | C6-N1   | 2.64  | 1.44        | 1.38     |
| 84  | S2    | 116  | OMU  | C5-C4   | 2.64  | 1.49        | 1.43     |
| 84  | S2    | 121  | OMU  | C6-N1   | 2.63  | 1.44        | 1.38     |
| 84  | S2    | 428  | OMU  | C6-N1   | 2.63  | 1.44        | 1.38     |
| 4   | L5    | 4196 | OMG  | C5-C6   | -2.63 | 1.42        | 1.47     |
| 84  | S2    | 867  | OMG  | C5-C6   | -2.63 | 1.42        | 1.47     |
| 4   | L5    | 1534 | A2M  | C1'-N9  | -2.62 | 1.43        | 1.49     |
| 4   | L5    | 4498 | OMU  | C6-N1   | 2.62  | 1.44        | 1.38     |
| 4   | L5    | 2401 | A2M  | C1'-N9  | -2.61 | 1.43        | 1.49     |
| 4   | L5    | 4228 | OMG  | C5-C6   | -2.61 | 1.42        | 1.47     |
| 4   | L5    | 4623 | OMG  | C5-C6   | -2.61 | 1.42        | 1.47     |

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| Mol | Chain | Res  | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 84  | S2    | 1326 | OMU  | C6-N1   | 2.60  | 1.44        | 1.38     |
| 4   | L5    | 4227 | OMU  | C6-N1   | 2.59  | 1.44        | 1.38     |
| 4   | L5    | 4571 | A2M  | C1'-N9  | -2.59 | 1.43        | 1.49     |
| 4   | L5    | 2876 | OMG  | C5-C6   | -2.58 | 1.42        | 1.47     |
| 84  | S2    | 172  | OMU  | C6-N1   | 2.58  | 1.44        | 1.38     |
| 4   | L5    | 2787 | A2M  | C1'-N9  | -2.58 | 1.43        | 1.49     |
| 4   | L5    | 4306 | OMU  | C6-N1   | 2.58  | 1.44        | 1.38     |
| 4   | L5    | 4637 | OMG  | C5-C6   | -2.58 | 1.42        | 1.47     |
| 4   | L5    | 3830 | A2M  | C1'-N9  | -2.58 | 1.43        | 1.49     |
| 4   | L5    | 3792 | OMG  | C5-C6   | -2.58 | 1.42        | 1.47     |
| 4   | L5    | 4220 | 6MZ  | C2-N3   | 2.57  | 1.36        | 1.32     |
| 4   | L5    | 4530 | UR3  | C6-N1   | 2.56  | 1.44        | 1.38     |
| 84  | S2    | 683  | OMG  | C5-C6   | -2.56 | 1.42        | 1.47     |
| 4   | L5    | 4620 | OMU  | C5-C4   | 2.56  | 1.49        | 1.43     |
| 6   | L8    | 75   | OMG  | C5-C6   | -2.55 | 1.42        | 1.47     |
| 4   | L5    | 4392 | OMG  | C5-C6   | -2.55 | 1.42        | 1.47     |
| 4   | L5    | 4620 | OMU  | C6-N1   | 2.55  | 1.44        | 1.38     |
| 4   | L5    | 1322 | 1MA  | C5-C4   | -2.55 | 1.36        | 1.43     |
| 4   | L5    | 4530 | UR3  | O2-C2   | -2.53 | 1.17        | 1.22     |
| 84  | S2    | 601  | OMG  | C5-C6   | -2.52 | 1.42        | 1.47     |
| 84  | S2    | 468  | A2M  | C1'-N9  | -2.52 | 1.43        | 1.49     |
| 4   | L5    | 1323 | A2M  | O4'-C4' | -2.52 | 1.39        | 1.45     |
| 4   | L5    | 3744 | OMG  | C5-C6   | -2.52 | 1.42        | 1.47     |
| 84  | S2    | 116  | OMU  | C6-N1   | 2.51  | 1.44        | 1.38     |
| 4   | L5    | 1326 | A2M  | C1'-N9  | -2.50 | 1.43        | 1.49     |
| 84  | S2    | 1328 | OMG  | C5-C6   | -2.50 | 1.42        | 1.47     |
| 4   | L5    | 4499 | OMG  | C5-C6   | -2.50 | 1.42        | 1.47     |
| 4   | L5    | 3925 | OMU  | C6-N1   | 2.49  | 1.44        | 1.38     |
| 4   | L5    | 4618 | OMG  | C5-C6   | -2.49 | 1.42        | 1.47     |
| 4   | L5    | 1534 | A2M  | O4'-C4' | -2.49 | 1.39        | 1.45     |
| 84  | S2    | 436  | OMG  | C5-C6   | -2.49 | 1.42        | 1.47     |
| 4   | L5    | 2363 | A2M  | C1'-N9  | -2.49 | 1.43        | 1.49     |
| 84  | S2    | 509  | OMG  | C5-C6   | -2.48 | 1.42        | 1.47     |
| 84  | S2    | 644  | OMG  | C5-C6   | -2.48 | 1.42        | 1.47     |
| 4   | L5    | 1524 | A2M  | O4'-C4' | -2.47 | 1.39        | 1.45     |
| 4   | L5    | 1524 | A2M  | C1'-N9  | -2.46 | 1.43        | 1.49     |
| 4   | L5    | 4590 | A2M  | C1'-N9  | -2.45 | 1.43        | 1.49     |
| 84  | S2    | 1383 | A2M  | C1'-N9  | -2.44 | 1.43        | 1.49     |
| 84  | S2    | 99   | A2M  | C1'-N9  | -2.42 | 1.43        | 1.49     |
| 84  | S2    | 576  | A2M  | C1'-N9  | -2.38 | 1.44        | 1.49     |
| 84  | S2    | 166  | A2M  | C1'-N9  | -2.37 | 1.44        | 1.49     |
| 84  | S2    | 1031 | A2M  | C1'-N9  | -2.37 | 1.44        | 1.49     |

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| Mol | Chain | Res  | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 4   | L5    | 4571 | A2M  | O4'-C4' | -2.36 | 1.39        | 1.45     |
| 4   | L5    | 1326 | A2M  | O4'-C4' | -2.35 | 1.39        | 1.45     |
| 4   | L5    | 3867 | A2M  | O4'-C4' | -2.33 | 1.39        | 1.45     |
| 84  | S2    | 1850 | MA6  | C2-N3   | 2.32  | 1.35        | 1.32     |
| 4   | L5    | 400  | A2M  | C1'-N9  | -2.31 | 1.44        | 1.49     |
| 4   | L5    | 398  | A2M  | C1'-N9  | -2.31 | 1.44        | 1.49     |
| 4   | L5    | 1323 | A2M  | C1'-N9  | -2.30 | 1.44        | 1.49     |
| 4   | L5    | 3718 | A2M  | C1'-N9  | -2.28 | 1.44        | 1.49     |
| 4   | L5    | 4530 | UR3  | C5-C4   | 2.26  | 1.49        | 1.43     |
| 4   | L5    | 2363 | A2M  | O4'-C4' | -2.26 | 1.40        | 1.45     |
| 4   | L5    | 3818 | UY1  | O4'-C1' | -2.26 | 1.40        | 1.43     |
| 4   | L5    | 1871 | A2M  | C4-N3   | 2.25  | 1.38        | 1.35     |
| 84  | S2    | 1851 | MA6  | C2-N3   | 2.25  | 1.35        | 1.32     |
| 4   | L5    | 3867 | A2M  | C1'-N9  | -2.21 | 1.44        | 1.49     |
| 84  | S2    | 27   | A2M  | C1'-N9  | -2.19 | 1.44        | 1.49     |
| 4   | L5    | 4530 | UR3  | C3U-N3  | 2.19  | 1.50        | 1.47     |
| 4   | L5    | 4220 | 6MZ  | C5-N7   | -2.18 | 1.32        | 1.39     |
| 4   | L5    | 1522 | OMG  | C5-C4   | -2.17 | 1.37        | 1.43     |
| 4   | L5    | 4228 | OMG  | C5-C4   | -2.15 | 1.37        | 1.43     |
| 4   | L5    | 2815 | A2M  | C1'-N9  | -2.13 | 1.44        | 1.49     |
| 4   | L5    | 2815 | A2M  | O4'-C4' | -2.12 | 1.40        | 1.45     |
| 4   | L5    | 1316 | OMG  | C5-C4   | -2.12 | 1.37        | 1.43     |
| 4   | L5    | 3884 | PSU  | C4-C5   | -2.08 | 1.38        | 1.44     |
| 4   | L5    | 2364 | OMG  | C5-C4   | -2.08 | 1.38        | 1.43     |
| 4   | L5    | 3627 | OMG  | C5-C4   | -2.08 | 1.38        | 1.43     |
| 4   | L5    | 3818 | UY1  | C4-C5   | 2.06  | 1.50        | 1.44     |
| 4   | L5    | 4370 | OMG  | C5-C4   | -2.05 | 1.38        | 1.43     |
| 4   | L5    | 4293 | PSU  | C4-C5   | -2.05 | 1.38        | 1.44     |
| 4   | L5    | 4623 | OMG  | C5-C4   | -2.04 | 1.38        | 1.43     |
| 4   | L5    | 4521 | PSU  | C4-C5   | -2.03 | 1.38        | 1.44     |
| 4   | L5    | 1677 | PSU  | C4-C5   | -2.02 | 1.38        | 1.44     |
| 4   | L5    | 3899 | OMG  | C5-C4   | -2.02 | 1.38        | 1.43     |
| 4   | L5    | 4494 | OMG  | C5-C4   | -2.01 | 1.38        | 1.43     |
| 84  | S2    | 159  | A2M  | C1'-N9  | -2.01 | 1.45        | 1.49     |
| 4   | L5    | 3744 | OMG  | C5-C4   | -2.01 | 1.38        | 1.43     |
| 4   | L5    | 4392 | OMG  | C5-C4   | -2.01 | 1.38        | 1.43     |
| 6   | L8    | 75   | OMG  | C5-C4   | -2.00 | 1.38        | 1.43     |

All (654) bond angle outliers are listed below:

| Mol | Chain | Res  | Type | Atoms    | Z      | Observed(°) | Ideal(°) |
|-----|-------|------|------|----------|--------|-------------|----------|
| 84  | S2    | 1851 | MA6  | N1-C6-N6 | -12.68 | 102.18      | 116.83   |

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| Mol | Chain | Res  | Type | Atoms       | Z      | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|--------|-------------|----------|
| 84  | S2    | 1850 | MA6  | N1-C6-N6    | -12.44 | 102.46      | 116.83   |
| 4   | L5    | 3785 | A2M  | C4'-O4'-C1' | -8.05  | 102.56      | 109.92   |
| 4   | L5    | 4220 | 6MZ  | C4'-O4'-C1' | -7.82  | 102.77      | 109.92   |
| 4   | L5    | 1524 | A2M  | C4'-O4'-C1' | -7.13  | 103.39      | 109.92   |
| 4   | L5    | 1871 | A2M  | C4'-O4'-C1' | -7.09  | 103.43      | 109.92   |
| 84  | S2    | 1851 | MA6  | N3-C2-N1    | -6.65  | 119.65      | 128.67   |
| 84  | S2    | 1832 | 6MZ  | N3-C2-N1    | -6.62  | 119.68      | 128.67   |
| 84  | S2    | 1850 | MA6  | N3-C2-N1    | -6.21  | 120.25      | 128.67   |
| 4   | L5    | 4220 | 6MZ  | C9-N6-C6    | -6.08  | 117.22      | 122.85   |
| 84  | S2    | 1383 | A2M  | C4'-O4'-C1' | -5.90  | 104.52      | 109.92   |
| 4   | L5    | 4227 | OMU  | C4-N3-C2    | -5.88  | 119.32      | 126.61   |
| 4   | L5    | 4523 | A2M  | C4'-O4'-C1' | -5.87  | 104.55      | 109.92   |
| 4   | L5    | 3925 | OMU  | C4-N3-C2    | -5.86  | 119.34      | 126.61   |
| 84  | S2    | 1326 | OMU  | C4-N3-C2    | -5.78  | 119.43      | 126.61   |
| 4   | L5    | 2837 | OMU  | C4-N3-C2    | -5.72  | 119.51      | 126.61   |
| 4   | L5    | 4498 | OMU  | C4-N3-C2    | -5.69  | 119.55      | 126.61   |
| 4   | L5    | 4306 | OMU  | C4-N3-C2    | -5.69  | 119.55      | 126.61   |
| 84  | S2    | 627  | OMU  | C4-N3-C2    | -5.67  | 119.57      | 126.61   |
| 84  | S2    | 172  | OMU  | C4-N3-C2    | -5.67  | 119.58      | 126.61   |
| 84  | S2    | 428  | OMU  | C4-N3-C2    | -5.62  | 119.64      | 126.61   |
| 84  | S2    | 354  | OMU  | C4-N3-C2    | -5.56  | 119.71      | 126.61   |
| 4   | L5    | 4220 | 6MZ  | N3-C2-N1    | -5.56  | 121.13      | 128.67   |
| 84  | S2    | 799  | OMU  | C4-N3-C2    | -5.53  | 119.74      | 126.61   |
| 4   | L5    | 4530 | UR3  | C4-N3-C2    | -5.51  | 120.14      | 124.58   |
| 84  | S2    | 121  | OMU  | C4-N3-C2    | -5.50  | 119.79      | 126.61   |
| 84  | S2    | 1442 | OMU  | C4-N3-C2    | -5.47  | 119.82      | 126.61   |
| 4   | L5    | 3701 | OMC  | C1'-N1-C2   | 5.36   | 130.28      | 118.44   |
| 4   | L5    | 3830 | A2M  | C4'-O4'-C1' | -5.36  | 105.02      | 109.92   |
| 4   | L5    | 4590 | A2M  | C4'-O4'-C1' | -5.33  | 105.05      | 109.92   |
| 84  | S2    | 1288 | OMU  | C4-N3-C2    | -5.31  | 120.02      | 126.61   |
| 4   | L5    | 4689 | PSU  | N1-C2-N3    | 5.29   | 120.75      | 115.17   |
| 84  | S2    | 1832 | 6MZ  | C2-N1-C6    | 5.25   | 120.67      | 116.60   |
| 84  | S2    | 1248 | B8N  | C5-C4-N3    | 5.20   | 125.60      | 116.15   |
| 84  | S2    | 116  | OMU  | C4-N3-C2    | -5.18  | 120.18      | 126.61   |
| 4   | L5    | 4353 | PSU  | N1-C2-N3    | 5.14   | 120.58      | 115.17   |
| 4   | L5    | 4353 | PSU  | C4-N3-C2    | -5.13  | 119.31      | 126.37   |
| 4   | L5    | 4552 | PSU  | N1-C2-N3    | 5.09   | 120.53      | 115.17   |
| 4   | L5    | 1860 | PSU  | N1-C2-N3    | 5.08   | 120.53      | 115.17   |
| 84  | S2    | 866  | PSU  | N1-C2-N3    | 5.08   | 120.53      | 115.17   |
| 4   | L5    | 1677 | PSU  | C4-N3-C2    | -5.06  | 119.40      | 126.37   |
| 84  | S2    | 1004 | PSU  | N1-C2-N3    | 5.05   | 120.49      | 115.17   |
| 4   | L5    | 4636 | PSU  | N1-C2-N3    | 5.03   | 120.47      | 115.17   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 84  | S2    | 1056 | PSU  | N1-C2-N3    | 5.02  | 120.47      | 115.17   |
| 84  | S2    | 27   | A2M  | C4'-O4'-C1' | -5.02 | 105.33      | 109.92   |
| 84  | S2    | 651  | PSU  | N1-C2-N3    | 5.01  | 120.45      | 115.17   |
| 4   | L5    | 4403 | PSU  | N1-C2-N3    | 4.98  | 120.42      | 115.17   |
| 4   | L5    | 3920 | PSU  | N1-C2-N3    | 4.98  | 120.42      | 115.17   |
| 4   | L5    | 4442 | PSU  | C4-N3-C2    | -4.97 | 119.52      | 126.37   |
| 4   | L5    | 2632 | PSU  | N1-C2-N3    | 4.97  | 120.41      | 115.17   |
| 4   | L5    | 4442 | PSU  | N1-C2-N3    | 4.97  | 120.41      | 115.17   |
| 4   | L5    | 4620 | OMU  | C4-N3-C2    | -4.97 | 120.45      | 126.61   |
| 4   | L5    | 3637 | PSU  | N1-C2-N3    | 4.97  | 120.41      | 115.17   |
| 84  | S2    | 166  | A2M  | C4'-O4'-C1' | -4.96 | 105.38      | 109.92   |
| 84  | S2    | 1031 | A2M  | C4'-O4'-C1' | -4.96 | 105.38      | 109.92   |
| 4   | L5    | 4457 | PSU  | N1-C2-N3    | 4.95  | 120.39      | 115.17   |
| 4   | L5    | 1536 | PSU  | N1-C2-N3    | 4.94  | 120.38      | 115.17   |
| 4   | L5    | 4636 | PSU  | C4-N3-C2    | -4.94 | 119.56      | 126.37   |
| 4   | L5    | 4500 | PSU  | N1-C2-N3    | 4.94  | 120.38      | 115.17   |
| 4   | L5    | 4521 | PSU  | C4-N3-C2    | -4.94 | 119.57      | 126.37   |
| 84  | S2    | 649  | PSU  | C4-N3-C2    | -4.93 | 119.58      | 126.37   |
| 4   | L5    | 3639 | PSU  | N1-C2-N3    | 4.93  | 120.37      | 115.17   |
| 4   | L5    | 4296 | PSU  | C4-N3-C2    | -4.92 | 119.59      | 126.37   |
| 84  | S2    | 649  | PSU  | N1-C2-N3    | 4.91  | 120.35      | 115.17   |
| 4   | L5    | 4521 | PSU  | N1-C2-N3    | 4.91  | 120.35      | 115.17   |
| 4   | L5    | 4689 | PSU  | C4-N3-C2    | -4.91 | 119.61      | 126.37   |
| 4   | L5    | 4403 | PSU  | C4-N3-C2    | -4.91 | 119.61      | 126.37   |
| 84  | S2    | 1045 | PSU  | N1-C2-N3    | 4.91  | 120.34      | 115.17   |
| 84  | S2    | 686  | PSU  | C4-N3-C2    | -4.90 | 119.62      | 126.37   |
| 4   | L5    | 1860 | PSU  | C4-N3-C2    | -4.90 | 119.62      | 126.37   |
| 4   | L5    | 1683 | PSU  | N1-C2-N3    | 4.90  | 120.33      | 115.17   |
| 84  | S2    | 866  | PSU  | C4-N3-C2    | -4.90 | 119.63      | 126.37   |
| 4   | L5    | 3822 | PSU  | N1-C2-N3    | 4.90  | 120.33      | 115.17   |
| 4   | L5    | 4552 | PSU  | C4-N3-C2    | -4.89 | 119.64      | 126.37   |
| 84  | S2    | 468  | A2M  | C4'-O4'-C1' | -4.88 | 105.46      | 109.92   |
| 4   | L5    | 4972 | PSU  | N1-C2-N3    | 4.88  | 120.31      | 115.17   |
| 4   | L5    | 4431 | PSU  | N1-C2-N3    | 4.87  | 120.31      | 115.17   |
| 84  | S2    | 1081 | PSU  | N1-C2-N3    | 4.87  | 120.30      | 115.17   |
| 4   | L5    | 4973 | PSU  | C4-N3-C2    | -4.87 | 119.67      | 126.37   |
| 4   | L5    | 2839 | PSU  | N1-C2-N3    | 4.86  | 120.30      | 115.17   |
| 84  | S2    | 1177 | PSU  | N1-C2-N3    | 4.86  | 120.29      | 115.17   |
| 4   | L5    | 4293 | PSU  | N1-C2-N3    | 4.85  | 120.29      | 115.17   |
| 84  | S2    | 1232 | PSU  | C4-N3-C2    | -4.85 | 119.69      | 126.37   |
| 84  | S2    | 686  | PSU  | N1-C2-N3    | 4.84  | 120.27      | 115.17   |
| 84  | S2    | 1045 | PSU  | C4-N3-C2    | -4.84 | 119.70      | 126.37   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 4   | L5    | 4312 | PSU  | N1-C2-N3    | 4.83  | 120.27      | 115.17   |
| 84  | S2    | 1081 | PSU  | C4-N3-C2    | -4.83 | 119.72      | 126.37   |
| 4   | L5    | 1862 | PSU  | N1-C2-N3    | 4.83  | 120.26      | 115.17   |
| 6   | L8    | 55   | PSU  | N1-C2-N3    | 4.82  | 120.26      | 115.17   |
| 84  | S2    | 1367 | PSU  | C4-N3-C2    | -4.82 | 119.73      | 126.37   |
| 84  | S2    | 1056 | PSU  | C4-N3-C2    | -4.81 | 119.74      | 126.37   |
| 4   | L5    | 3851 | PSU  | N1-C2-N3    | 4.81  | 120.24      | 115.17   |
| 84  | S2    | 1244 | PSU  | N1-C2-N3    | 4.81  | 120.24      | 115.17   |
| 4   | L5    | 5010 | PSU  | C4-N3-C2    | -4.81 | 119.75      | 126.37   |
| 84  | S2    | 1177 | PSU  | C4-N3-C2    | -4.81 | 119.75      | 126.37   |
| 4   | L5    | 4628 | PSU  | N1-C2-N3    | 4.80  | 120.23      | 115.17   |
| 4   | L5    | 4431 | PSU  | C4-N3-C2    | -4.80 | 119.76      | 126.37   |
| 84  | S2    | 1367 | PSU  | N1-C2-N3    | 4.79  | 120.22      | 115.17   |
| 4   | L5    | 4296 | PSU  | N1-C2-N3    | 4.79  | 120.22      | 115.17   |
| 84  | S2    | 406  | PSU  | N1-C2-N3    | 4.79  | 120.22      | 115.17   |
| 84  | S2    | 406  | PSU  | C4-N3-C2    | -4.77 | 119.80      | 126.37   |
| 4   | L5    | 5010 | PSU  | N1-C2-N3    | 4.77  | 120.20      | 115.17   |
| 4   | L5    | 4361 | PSU  | N1-C2-N3    | 4.77  | 120.20      | 115.17   |
| 4   | L5    | 4299 | PSU  | N1-C2-N3    | 4.77  | 120.20      | 115.17   |
| 4   | L5    | 4532 | PSU  | N1-C2-N3    | 4.77  | 120.20      | 115.17   |
| 6   | L8    | 69   | PSU  | C4-N3-C2    | -4.76 | 119.81      | 126.37   |
| 84  | S2    | 1046 | PSU  | N1-C2-N3    | 4.76  | 120.19      | 115.17   |
| 84  | S2    | 1232 | PSU  | N1-C2-N3    | 4.76  | 120.19      | 115.17   |
| 84  | S2    | 1004 | PSU  | C4-N3-C2    | -4.76 | 119.81      | 126.37   |
| 84  | S2    | 863  | PSU  | N1-C2-N3    | 4.76  | 120.19      | 115.17   |
| 84  | S2    | 651  | PSU  | C4-N3-C2    | -4.76 | 119.81      | 126.37   |
| 6   | L8    | 69   | PSU  | N1-C2-N3    | 4.76  | 120.19      | 115.17   |
| 4   | L5    | 3920 | PSU  | C4-N3-C2    | -4.76 | 119.82      | 126.37   |
| 84  | S2    | 109  | PSU  | C4-N3-C2    | -4.76 | 119.82      | 126.37   |
| 4   | L5    | 4299 | PSU  | C4-N3-C2    | -4.76 | 119.82      | 126.37   |
| 4   | L5    | 4312 | PSU  | C4-N3-C2    | -4.75 | 119.83      | 126.37   |
| 4   | L5    | 1871 | A2M  | C4-C5-N7    | 4.75  | 114.36      | 109.34   |
| 4   | L5    | 1782 | PSU  | N1-C2-N3    | 4.75  | 120.17      | 115.17   |
| 4   | L5    | 4579 | PSU  | C4-N3-C2    | -4.75 | 119.83      | 126.37   |
| 84  | S2    | 1244 | PSU  | C4-N3-C2    | -4.74 | 119.83      | 126.37   |
| 4   | L5    | 398  | A2M  | C4'-O4'-C1' | -4.74 | 105.58      | 109.92   |
| 84  | S2    | 801  | PSU  | N1-C2-N3    | 4.74  | 120.17      | 115.17   |
| 4   | L5    | 4576 | PSU  | N1-C2-N3    | 4.74  | 120.17      | 115.17   |
| 4   | L5    | 4579 | PSU  | N1-C2-N3    | 4.74  | 120.17      | 115.17   |
| 4   | L5    | 1862 | PSU  | C4-N3-C2    | -4.74 | 119.84      | 126.37   |
| 6   | L8    | 55   | PSU  | C4-N3-C2    | -4.73 | 119.85      | 126.37   |
| 4   | L5    | 4500 | PSU  | C4-N3-C2    | -4.73 | 119.85      | 126.37   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 4   | L5    | 1782 | PSU  | C4-N3-C2    | -4.73 | 119.85      | 126.37   |
| 4   | L5    | 1683 | PSU  | C4-N3-C2    | -4.73 | 119.86      | 126.37   |
| 4   | L5    | 5001 | PSU  | N1-C2-N3    | 4.73  | 120.16      | 115.17   |
| 4   | L5    | 4972 | PSU  | C4-N3-C2    | -4.73 | 119.86      | 126.37   |
| 4   | L5    | 4576 | PSU  | C4-N3-C2    | -4.72 | 119.86      | 126.37   |
| 4   | L5    | 4457 | PSU  | C4-N3-C2    | -4.72 | 119.86      | 126.37   |
| 4   | L5    | 3853 | PSU  | N1-C2-N3    | 4.72  | 120.15      | 115.17   |
| 4   | L5    | 3884 | PSU  | C4-N3-C2    | -4.72 | 119.87      | 126.37   |
| 4   | L5    | 4673 | PSU  | N1-C2-N3    | 4.72  | 120.15      | 115.17   |
| 4   | L5    | 3818 | UY1  | C4-N3-C2    | -4.72 | 119.88      | 126.37   |
| 84  | S2    | 966  | PSU  | N1-C2-N3    | 4.71  | 120.14      | 115.17   |
| 4   | L5    | 4973 | PSU  | N1-C2-N3    | 4.71  | 120.14      | 115.17   |
| 84  | S2    | 105  | PSU  | N1-C2-N3    | 4.71  | 120.13      | 115.17   |
| 4   | L5    | 1792 | PSU  | N1-C2-N3    | 4.71  | 120.13      | 115.17   |
| 4   | L5    | 4493 | PSU  | N1-C2-N3    | 4.70  | 120.13      | 115.17   |
| 84  | S2    | 109  | PSU  | N1-C2-N3    | 4.70  | 120.13      | 115.17   |
| 4   | L5    | 4293 | PSU  | C4-N3-C2    | -4.70 | 119.90      | 126.37   |
| 84  | S2    | 1174 | PSU  | C4-N3-C2    | -4.70 | 119.90      | 126.37   |
| 4   | L5    | 1744 | PSU  | C4-N3-C2    | -4.69 | 119.91      | 126.37   |
| 4   | L5    | 4532 | PSU  | C4-N3-C2    | -4.69 | 119.91      | 126.37   |
| 4   | L5    | 5001 | PSU  | C4-N3-C2    | -4.69 | 119.91      | 126.37   |
| 4   | L5    | 1792 | PSU  | C4-N3-C2    | -4.69 | 119.91      | 126.37   |
| 4   | L5    | 2632 | PSU  | C4-N3-C2    | -4.69 | 119.92      | 126.37   |
| 4   | L5    | 2839 | PSU  | C4-N3-C2    | -4.69 | 119.92      | 126.37   |
| 4   | L5    | 3884 | PSU  | N1-C2-N3    | 4.68  | 120.11      | 115.17   |
| 4   | L5    | 3695 | PSU  | N1-C2-N3    | 4.68  | 120.10      | 115.17   |
| 4   | L5    | 1744 | PSU  | N1-C2-N3    | 4.67  | 120.10      | 115.17   |
| 4   | L5    | 4471 | PSU  | N1-C2-N3    | 4.67  | 120.10      | 115.17   |
| 84  | S2    | 99   | A2M  | C4'-O4'-C1' | -4.67 | 105.65      | 109.92   |
| 4   | L5    | 3637 | PSU  | C4-N3-C2    | -4.66 | 119.95      | 126.37   |
| 84  | S2    | 668  | A2M  | C4'-O4'-C1' | -4.66 | 105.66      | 109.92   |
| 4   | L5    | 4493 | PSU  | C4-N3-C2    | -4.66 | 119.95      | 126.37   |
| 84  | S2    | 681  | PSU  | C4-N3-C2    | -4.66 | 119.95      | 126.37   |
| 4   | L5    | 3639 | PSU  | C4-N3-C2    | -4.66 | 119.96      | 126.37   |
| 4   | L5    | 3851 | PSU  | C4-N3-C2    | -4.65 | 119.97      | 126.37   |
| 4   | L5    | 4361 | PSU  | C4-N3-C2    | -4.65 | 119.97      | 126.37   |
| 4   | L5    | 4628 | PSU  | C4-N3-C2    | -4.64 | 119.97      | 126.37   |
| 4   | L5    | 1536 | PSU  | C4-N3-C2    | -4.64 | 119.97      | 126.37   |
| 84  | S2    | 814  | PSU  | C4-N3-C2    | -4.64 | 119.98      | 126.37   |
| 4   | L5    | 3822 | PSU  | C4-N3-C2    | -4.64 | 119.98      | 126.37   |
| 84  | S2    | 863  | PSU  | C4-N3-C2    | -4.64 | 119.98      | 126.37   |
| 4   | L5    | 1781 | PSU  | N1-C2-N3    | 4.63  | 120.05      | 115.17   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 84  | S2    | 1174 | PSU  | N1-C2-N3    | 4.63  | 120.05      | 115.17   |
| 84  | S2    | 966  | PSU  | C4-N3-C2    | -4.61 | 120.02      | 126.37   |
| 84  | S2    | 93   | PSU  | C4-N3-C2    | -4.61 | 120.02      | 126.37   |
| 4   | L5    | 2401 | A2M  | C4'-O4'-C1' | -4.59 | 105.72      | 109.92   |
| 84  | S2    | 814  | PSU  | N1-C2-N3    | 4.59  | 120.00      | 115.17   |
| 84  | S2    | 681  | PSU  | N1-C2-N3    | 4.58  | 120.00      | 115.17   |
| 84  | S2    | 1046 | PSU  | C4-N3-C2    | -4.58 | 120.06      | 126.37   |
| 4   | L5    | 1582 | PSU  | N1-C2-N3    | 4.58  | 120.00      | 115.17   |
| 4   | L5    | 3695 | PSU  | C4-N3-C2    | -4.57 | 120.07      | 126.37   |
| 4   | L5    | 1677 | PSU  | N1-C2-N3    | 4.56  | 119.98      | 115.17   |
| 84  | S2    | 105  | PSU  | C4-N3-C2    | -4.55 | 120.10      | 126.37   |
| 4   | L5    | 3844 | PSU  | N1-C2-N3    | 4.54  | 119.95      | 115.17   |
| 4   | L5    | 3718 | A2M  | C4'-O4'-C1' | -4.53 | 105.77      | 109.92   |
| 84  | S2    | 93   | PSU  | N1-C2-N3    | 4.53  | 119.95      | 115.17   |
| 84  | S2    | 801  | PSU  | C4-N3-C2    | -4.52 | 120.15      | 126.37   |
| 4   | L5    | 4471 | PSU  | C4-N3-C2    | -4.49 | 120.18      | 126.37   |
| 4   | L5    | 4673 | PSU  | C4-N3-C2    | -4.49 | 120.19      | 126.37   |
| 4   | L5    | 3853 | PSU  | C4-N3-C2    | -4.48 | 120.19      | 126.37   |
| 84  | S2    | 1248 | B8N  | C4-N3-C2    | -4.45 | 120.14      | 125.62   |
| 4   | L5    | 1781 | PSU  | C4-N3-C2    | -4.44 | 120.26      | 126.37   |
| 84  | S2    | 1383 | A2M  | C3'-C2'-C1' | -4.40 | 94.39       | 102.81   |
| 4   | L5    | 1871 | A2M  | C3'-C2'-C1' | -4.38 | 94.41       | 102.81   |
| 4   | L5    | 3825 | A2M  | C4'-O4'-C1' | -4.38 | 105.91      | 109.92   |
| 4   | L5    | 3844 | PSU  | C4-N3-C2    | -4.37 | 120.35      | 126.37   |
| 4   | L5    | 4220 | 6MZ  | C2-N1-C6    | 4.37  | 119.99      | 116.60   |
| 4   | L5    | 1582 | PSU  | C4-N3-C2    | -4.32 | 120.42      | 126.37   |
| 84  | S2    | 668  | A2M  | C1'-N9-C4   | -4.31 | 119.07      | 126.64   |
| 4   | L5    | 2401 | A2M  | C1'-N9-C4   | -4.29 | 119.10      | 126.64   |
| 4   | L5    | 3818 | UY1  | N1-C2-N3    | 4.24  | 119.64      | 115.17   |
| 4   | L5    | 3701 | OMC  | C1'-N1-C6   | -4.21 | 111.78      | 120.78   |
| 4   | L5    | 2363 | A2M  | C4'-O4'-C1' | -4.18 | 106.10      | 109.92   |
| 4   | L5    | 400  | A2M  | C4'-O4'-C1' | -4.13 | 106.15      | 109.92   |
| 4   | L5    | 4523 | A2M  | C3'-C2'-C1' | -4.11 | 94.94       | 102.81   |
| 4   | L5    | 3830 | A2M  | C3'-C2'-C1' | -4.07 | 95.02       | 102.81   |
| 4   | L5    | 4498 | OMU  | N3-C2-N1    | 4.05  | 120.17      | 114.89   |
| 4   | L5    | 3925 | OMU  | N3-C2-N1    | 4.01  | 120.11      | 114.89   |
| 4   | L5    | 3825 | A2M  | C1'-N9-C4   | -4.00 | 119.62      | 126.64   |
| 84  | S2    | 354  | OMU  | N3-C2-N1    | 3.99  | 120.08      | 114.89   |
| 84  | S2    | 121  | OMU  | N3-C2-N1    | 3.98  | 120.07      | 114.89   |
| 84  | S2    | 1851 | MA6  | C2-N1-C6    | 3.98  | 120.74      | 116.84   |
| 84  | S2    | 1031 | A2M  | C1'-N9-C4   | -3.98 | 119.65      | 126.64   |
| 84  | S2    | 468  | A2M  | C1'-N9-C4   | -3.98 | 119.66      | 126.64   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 84  | S2    | 166  | A2M  | C1'-N9-C4   | -3.97 | 119.66      | 126.64   |
| 4   | L5    | 4306 | OMU  | N3-C2-N1    | 3.94  | 120.02      | 114.89   |
| 84  | S2    | 27   | A2M  | C1'-N9-C4   | -3.93 | 119.73      | 126.64   |
| 4   | L5    | 398  | A2M  | C3'-C2'-C1' | -3.92 | 95.31       | 102.81   |
| 84  | S2    | 99   | A2M  | C1'-N9-C4   | -3.89 | 119.80      | 126.64   |
| 4   | L5    | 2837 | OMU  | N3-C2-N1    | 3.88  | 119.94      | 114.89   |
| 4   | L5    | 398  | A2M  | C1'-N9-C4   | -3.88 | 119.83      | 126.64   |
| 84  | S2    | 1326 | OMU  | N3-C2-N1    | 3.88  | 119.94      | 114.89   |
| 4   | L5    | 4590 | A2M  | C1'-N9-C4   | -3.87 | 119.84      | 126.64   |
| 4   | L5    | 4227 | OMU  | N3-C2-N1    | 3.86  | 119.92      | 114.89   |
| 4   | L5    | 4227 | OMU  | C5-C4-N3    | 3.86  | 120.21      | 114.80   |
| 4   | L5    | 1534 | A2M  | C4'-O4'-C1' | -3.86 | 106.39      | 109.92   |
| 4   | L5    | 4523 | A2M  | C1'-N9-C4   | -3.85 | 119.88      | 126.64   |
| 84  | S2    | 172  | OMU  | N3-C2-N1    | 3.84  | 119.89      | 114.89   |
| 4   | L5    | 2815 | A2M  | C4'-O4'-C1' | -3.81 | 106.44      | 109.92   |
| 84  | S2    | 1383 | A2M  | C1'-N9-C4   | -3.81 | 119.95      | 126.64   |
| 4   | L5    | 4220 | 6MZ  | C5'-C4'-C3' | -3.79 | 101.55      | 115.21   |
| 84  | S2    | 799  | OMU  | N3-C2-N1    | 3.76  | 119.79      | 114.89   |
| 84  | S2    | 576  | A2M  | C4'-O4'-C1' | -3.76 | 106.48      | 109.92   |
| 4   | L5    | 4571 | A2M  | C4'-O4'-C1' | -3.75 | 106.49      | 109.92   |
| 4   | L5    | 4571 | A2M  | C1'-N9-C4   | -3.75 | 120.06      | 126.64   |
| 4   | L5    | 4530 | UR3  | C5-C4-N3    | 3.75  | 119.97      | 115.04   |
| 84  | S2    | 159  | A2M  | C1'-N9-C4   | -3.74 | 120.07      | 126.64   |
| 84  | S2    | 484  | A2M  | C1'-N9-C4   | -3.74 | 120.07      | 126.64   |
| 84  | S2    | 627  | OMU  | C5-C4-N3    | 3.74  | 120.03      | 114.80   |
| 4   | L5    | 4306 | OMU  | C5-C4-N3    | 3.73  | 120.03      | 114.80   |
| 84  | S2    | 1288 | OMU  | N3-C2-N1    | 3.73  | 119.75      | 114.89   |
| 4   | L5    | 3925 | OMU  | C5-C4-N3    | 3.73  | 120.02      | 114.80   |
| 84  | S2    | 799  | OMU  | C5-C4-N3    | 3.72  | 120.02      | 114.80   |
| 84  | S2    | 428  | OMU  | N3-C2-N1    | 3.72  | 119.74      | 114.89   |
| 4   | L5    | 2837 | OMU  | C5-C4-N3    | 3.70  | 119.99      | 114.80   |
| 84  | S2    | 1442 | OMU  | N3-C2-N1    | 3.69  | 119.70      | 114.89   |
| 4   | L5    | 2401 | A2M  | O3'-C3'-C2' | 3.69  | 121.51      | 111.19   |
| 4   | L5    | 3830 | A2M  | C1'-N9-C4   | -3.68 | 120.17      | 126.64   |
| 84  | S2    | 1326 | OMU  | C5-C4-N3    | 3.68  | 119.95      | 114.80   |
| 4   | L5    | 1323 | A2M  | C4'-O4'-C1' | -3.67 | 106.56      | 109.92   |
| 4   | L5    | 4620 | OMU  | N3-C2-N1    | 3.67  | 119.67      | 114.89   |
| 4   | L5    | 398  | A2M  | O3'-C3'-C2' | 3.67  | 121.45      | 111.19   |
| 84  | S2    | 1850 | MA6  | C2-N1-C6    | 3.66  | 120.43      | 116.84   |
| 4   | L5    | 3867 | A2M  | C1'-N9-C4   | -3.66 | 120.21      | 126.64   |
| 84  | S2    | 627  | OMU  | N3-C2-N1    | 3.65  | 119.65      | 114.89   |
| 4   | L5    | 4590 | A2M  | C3'-C2'-C1' | -3.64 | 95.83       | 102.81   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 84  | S2    | 116  | OMU  | N3-C2-N1    | 3.63  | 119.62      | 114.89   |
| 84  | S2    | 1248 | B8N  | C1'-C5-C4   | 3.63  | 123.12      | 117.61   |
| 4   | L5    | 1326 | A2M  | C4'-O4'-C1' | -3.63 | 106.60      | 109.92   |
| 4   | L5    | 1326 | A2M  | C1'-N9-C4   | -3.62 | 120.28      | 126.64   |
| 84  | S2    | 428  | OMU  | C5-C4-N3    | 3.61  | 119.86      | 114.80   |
| 4   | L5    | 3867 | A2M  | C4'-O4'-C1' | -3.61 | 106.62      | 109.92   |
| 84  | S2    | 576  | A2M  | C1'-N9-C4   | -3.60 | 120.31      | 126.64   |
| 84  | S2    | 1031 | A2M  | C3'-C2'-C1' | -3.60 | 95.92       | 102.81   |
| 4   | L5    | 4498 | OMU  | C5-C4-N3    | 3.60  | 119.84      | 114.80   |
| 84  | S2    | 99   | A2M  | C3'-C2'-C1' | -3.57 | 95.97       | 102.81   |
| 84  | S2    | 1442 | OMU  | C5-C4-N3    | 3.57  | 119.80      | 114.80   |
| 84  | S2    | 172  | OMU  | C5-C4-N3    | 3.56  | 119.78      | 114.80   |
| 4   | L5    | 3785 | A2M  | C1'-N9-C4   | -3.54 | 120.42      | 126.64   |
| 84  | S2    | 27   | A2M  | C3'-C2'-C1' | -3.54 | 96.03       | 102.81   |
| 4   | L5    | 2363 | A2M  | C1'-N9-C4   | -3.54 | 120.43      | 126.64   |
| 84  | S2    | 354  | OMU  | C5-C4-N3    | 3.53  | 119.74      | 114.80   |
| 4   | L5    | 2787 | A2M  | O3'-C3'-C2' | 3.49  | 120.95      | 111.19   |
| 4   | L5    | 3718 | A2M  | C1'-N9-C4   | -3.48 | 120.53      | 126.64   |
| 84  | S2    | 121  | OMU  | C5-C4-N3    | 3.48  | 119.67      | 114.80   |
| 84  | S2    | 1288 | OMU  | C5-C4-N3    | 3.47  | 119.66      | 114.80   |
| 84  | S2    | 468  | A2M  | C3'-C2'-C1' | -3.45 | 96.20       | 102.81   |
| 4   | L5    | 3718 | A2M  | C3'-C2'-C1' | -3.45 | 96.21       | 102.81   |
| 4   | L5    | 400  | A2M  | C1'-N9-C4   | -3.45 | 120.59      | 126.64   |
| 4   | L5    | 1871 | A2M  | C1'-N9-C4   | -3.41 | 120.64      | 126.64   |
| 4   | L5    | 2787 | A2M  | C1'-N9-C4   | -3.41 | 120.65      | 126.64   |
| 84  | S2    | 576  | A2M  | O3'-C3'-C2' | 3.41  | 120.72      | 111.19   |
| 84  | S2    | 1248 | B8N  | N3-C2-N1    | 3.38  | 120.84      | 116.72   |
| 84  | S2    | 116  | OMU  | C5-C4-N3    | 3.37  | 119.52      | 114.80   |
| 4   | L5    | 3825 | A2M  | C3'-C2'-C1' | -3.37 | 96.35       | 102.81   |
| 84  | S2    | 1383 | A2M  | O3'-C3'-C2' | 3.36  | 120.59      | 111.19   |
| 4   | L5    | 2401 | A2M  | C3'-C2'-C1' | -3.35 | 96.38       | 102.81   |
| 4   | L5    | 2815 | A2M  | C1'-N9-C4   | -3.35 | 120.75      | 126.64   |
| 84  | S2    | 166  | A2M  | C3'-C2'-C1' | -3.34 | 96.41       | 102.81   |
| 84  | S2    | 159  | A2M  | C4'-O4'-C1' | -3.33 | 106.87      | 109.92   |
| 4   | L5    | 4620 | OMU  | C5-C4-N3    | 3.33  | 119.46      | 114.80   |
| 84  | S2    | 166  | A2M  | O3'-C3'-C2' | 3.28  | 120.37      | 111.19   |
| 4   | L5    | 3818 | UY1  | C6-C5-C4    | 3.26  | 120.37      | 118.17   |
| 4   | L5    | 1534 | A2M  | C3'-C2'-C1' | -3.26 | 96.57       | 102.81   |
| 4   | L5    | 1524 | A2M  | C1'-N9-C4   | -3.25 | 120.92      | 126.64   |
| 84  | S2    | 576  | A2M  | C3'-C2'-C1' | -3.24 | 96.60       | 102.81   |
| 4   | L5    | 1536 | PSU  | O2-C2-N1    | -3.22 | 119.47      | 122.79   |
| 4   | L5    | 1871 | A2M  | CM'-O2'-C2' | -3.21 | 106.23      | 114.47   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 4   | L5    | 1323 | A2M  | C1'-N9-C4   | -3.20 | 121.02      | 126.64   |
| 4   | L5    | 1524 | A2M  | O3'-C3'-C2' | 3.19  | 120.12      | 111.19   |
| 4   | L5    | 3718 | A2M  | O3'-C3'-C2' | 3.19  | 120.12      | 111.19   |
| 84  | S2    | 99   | A2M  | O3'-C3'-C2' | 3.18  | 120.09      | 111.19   |
| 84  | S2    | 159  | A2M  | O3'-C3'-C2' | 3.18  | 120.08      | 111.19   |
| 4   | L5    | 400  | A2M  | O3'-C3'-C2' | 3.16  | 120.02      | 111.19   |
| 4   | L5    | 3825 | A2M  | O3'-C3'-C2' | 3.15  | 119.99      | 111.19   |
| 4   | L5    | 3830 | A2M  | O3'-C3'-C2' | 3.15  | 119.99      | 111.19   |
| 4   | L5    | 1323 | A2M  | O3'-C3'-C2' | 3.14  | 119.98      | 111.19   |
| 4   | L5    | 400  | A2M  | C3'-C2'-C1' | -3.14 | 96.80       | 102.81   |
| 84  | S2    | 866  | PSU  | C6-C5-C4    | 3.14  | 120.29      | 118.17   |
| 84  | S2    | 468  | A2M  | O3'-C3'-C2' | 3.12  | 119.92      | 111.19   |
| 84  | S2    | 1031 | A2M  | O3'-C3'-C2' | 3.12  | 119.92      | 111.19   |
| 4   | L5    | 1683 | PSU  | O2-C2-N1    | -3.10 | 119.59      | 122.79   |
| 4   | L5    | 2837 | OMU  | O4-C4-C5    | -3.10 | 119.82      | 125.16   |
| 84  | S2    | 1442 | OMU  | O4-C4-C5    | -3.10 | 119.82      | 125.16   |
| 6   | L8    | 55   | PSU  | O2-C2-N1    | -3.09 | 119.60      | 122.79   |
| 4   | L5    | 4689 | PSU  | C6-N1-C2    | -3.09 | 119.83      | 122.69   |
| 4   | L5    | 4571 | A2M  | O3'-C3'-C2' | 3.05  | 119.73      | 111.19   |
| 4   | L5    | 1323 | A2M  | C2'-C1'-N9  | 3.05  | 119.33      | 112.56   |
| 84  | S2    | 116  | OMU  | O4-C4-C5    | -3.04 | 119.92      | 125.16   |
| 84  | S2    | 1004 | PSU  | O2-C2-N1    | -3.03 | 119.67      | 122.79   |
| 84  | S2    | 627  | OMU  | O4-C4-C5    | -3.03 | 119.94      | 125.16   |
| 4   | L5    | 4227 | OMU  | O4-C4-C5    | -3.02 | 119.95      | 125.16   |
| 4   | L5    | 1860 | PSU  | O2-C2-N1    | -3.02 | 119.67      | 122.79   |
| 4   | L5    | 1534 | A2M  | C1'-N9-C4   | -3.01 | 121.34      | 126.64   |
| 84  | S2    | 668  | A2M  | O3'-C3'-C2' | 3.01  | 119.61      | 111.19   |
| 4   | L5    | 2363 | A2M  | C3'-C2'-C1' | -3.00 | 97.06       | 102.81   |
| 4   | L5    | 4306 | OMU  | O4-C4-C5    | -3.00 | 119.99      | 125.16   |
| 84  | S2    | 1056 | PSU  | O2-C2-N1    | -3.00 | 119.70      | 122.79   |
| 4   | L5    | 1871 | A2M  | O3'-C3'-C2' | 2.96  | 119.46      | 111.19   |
| 4   | L5    | 4628 | PSU  | O2-C2-N1    | -2.96 | 119.74      | 122.79   |
| 4   | L5    | 3818 | UY1  | C6-N1-C2    | -2.95 | 119.95      | 122.69   |
| 4   | L5    | 3822 | PSU  | O2-C2-N1    | -2.94 | 119.75      | 122.79   |
| 4   | L5    | 4673 | PSU  | O2-C2-N1    | -2.94 | 119.76      | 122.79   |
| 4   | L5    | 4403 | PSU  | O2-C2-N1    | -2.94 | 119.76      | 122.79   |
| 4   | L5    | 4571 | A2M  | C3'-C2'-C1' | -2.93 | 97.19       | 102.81   |
| 84  | S2    | 686  | PSU  | O2-C2-N1    | -2.92 | 119.77      | 122.79   |
| 84  | S2    | 1326 | OMU  | O4-C4-C5    | -2.92 | 120.12      | 125.16   |
| 84  | S2    | 1337 | 4AC  | N4-C4-N3    | 2.92  | 118.60      | 113.87   |
| 84  | S2    | 1639 | G7M  | C2-N1-C6    | -2.92 | 119.77      | 125.11   |
| 4   | L5    | 2839 | PSU  | O2-C2-N1    | -2.92 | 119.78      | 122.79   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 86  | CF    | 163  | SEP  | OG-CB-CA    | 2.92  | 110.98      | 108.14   |
| 84  | S2    | 801  | PSU  | O2-C2-N1    | -2.92 | 119.78      | 122.79   |
| 4   | L5    | 4636 | PSU  | O2-C2-N1    | -2.91 | 119.78      | 122.79   |
| 4   | L5    | 3925 | OMU  | O4-C4-C5    | -2.91 | 120.15      | 125.16   |
| 84  | S2    | 172  | OMU  | O4-C4-C5    | -2.91 | 120.15      | 125.16   |
| 4   | L5    | 4523 | A2M  | O3'-C3'-C2' | 2.91  | 119.33      | 111.19   |
| 4   | L5    | 4500 | PSU  | O2-C2-N1    | -2.91 | 119.79      | 122.79   |
| 4   | L5    | 4689 | PSU  | O2-C2-N1    | -2.90 | 119.80      | 122.79   |
| 4   | L5    | 3639 | PSU  | O2-C2-N1    | -2.89 | 119.81      | 122.79   |
| 4   | L5    | 3785 | A2M  | O3'-C3'-C2' | 2.89  | 119.28      | 111.19   |
| 4   | L5    | 2363 | A2M  | O3'-C3'-C2' | 2.89  | 119.28      | 111.19   |
| 4   | L5    | 4293 | PSU  | C6-N1-C2    | -2.89 | 120.01      | 122.69   |
| 4   | L5    | 4431 | PSU  | O2-C2-N1    | -2.89 | 119.81      | 122.79   |
| 84  | S2    | 799  | OMU  | O4-C4-C5    | -2.88 | 120.19      | 125.16   |
| 4   | L5    | 4552 | PSU  | O2-C2-N1    | -2.88 | 119.82      | 122.79   |
| 4   | L5    | 1326 | A2M  | O3'-C3'-C2' | 2.87  | 119.23      | 111.19   |
| 84  | S2    | 27   | A2M  | O3'-C3'-C2' | 2.87  | 119.23      | 111.19   |
| 4   | L5    | 4576 | PSU  | O2-C2-N1    | -2.87 | 119.83      | 122.79   |
| 84  | S2    | 428  | OMU  | O4-C4-C5    | -2.87 | 120.21      | 125.16   |
| 4   | L5    | 4498 | OMU  | O4-C4-C5    | -2.87 | 120.21      | 125.16   |
| 84  | S2    | 1244 | PSU  | O2-C2-N1    | -2.87 | 119.83      | 122.79   |
| 4   | L5    | 2632 | PSU  | O2-C2-N1    | -2.86 | 119.83      | 122.79   |
| 84  | S2    | 866  | PSU  | O2-C2-N1    | -2.85 | 119.84      | 122.79   |
| 84  | S2    | 1232 | PSU  | O2-C2-N1    | -2.85 | 119.85      | 122.79   |
| 4   | L5    | 4353 | PSU  | O2-C2-N1    | -2.85 | 119.85      | 122.79   |
| 4   | L5    | 2815 | A2M  | C2'-C1'-N9  | 2.85  | 118.88      | 112.56   |
| 84  | S2    | 121  | OMU  | O4-C4-C5    | -2.85 | 120.25      | 125.16   |
| 84  | S2    | 484  | A2M  | O3'-C3'-C2' | 2.84  | 119.14      | 111.19   |
| 84  | S2    | 668  | A2M  | O4'-C1'-C2' | 2.84  | 111.45      | 106.61   |
| 4   | L5    | 4500 | PSU  | C6-N1-C2    | -2.84 | 120.06      | 122.69   |
| 84  | S2    | 484  | A2M  | C4'-O4'-C1' | -2.84 | 107.33      | 109.92   |
| 6   | L8    | 69   | PSU  | O2-C2-N1    | -2.83 | 119.86      | 122.79   |
| 84  | S2    | 814  | PSU  | O2-C2-N1    | -2.83 | 119.87      | 122.79   |
| 4   | L5    | 4442 | PSU  | O2-C2-N1    | -2.83 | 119.87      | 122.79   |
| 84  | S2    | 1004 | PSU  | C6-N1-C2    | -2.82 | 120.07      | 122.69   |
| 84  | S2    | 1045 | PSU  | O2-C2-N1    | -2.82 | 119.88      | 122.79   |
| 4   | L5    | 2787 | A2M  | O4'-C1'-C2' | 2.82  | 111.41      | 106.61   |
| 4   | L5    | 3851 | PSU  | O2-C2-N1    | -2.81 | 119.89      | 122.79   |
| 84  | S2    | 354  | OMU  | O4-C4-C5    | -2.81 | 120.31      | 125.16   |
| 4   | L5    | 2839 | PSU  | C6-N1-C2    | -2.81 | 120.08      | 122.69   |
| 4   | L5    | 1744 | PSU  | O2-C2-N1    | -2.80 | 119.90      | 122.79   |
| 4   | L5    | 3639 | PSU  | C6-N1-C2    | -2.80 | 120.09      | 122.69   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 84  | S2    | 109  | PSU  | O2-C2-N1    | -2.80 | 119.90      | 122.79   |
| 84  | S2    | 1177 | PSU  | O2-C2-N1    | -2.80 | 119.90      | 122.79   |
| 4   | L5    | 3844 | PSU  | O2-C2-N1    | -2.80 | 119.91      | 122.79   |
| 84  | S2    | 1288 | OMU  | O4-C4-C5    | -2.79 | 120.36      | 125.16   |
| 4   | L5    | 1536 | PSU  | C6-N1-C2    | -2.78 | 120.11      | 122.69   |
| 4   | L5    | 4457 | PSU  | C6-N1-C2    | -2.77 | 120.12      | 122.69   |
| 84  | S2    | 649  | PSU  | O2-C2-N1    | -2.77 | 119.94      | 122.79   |
| 4   | L5    | 4521 | PSU  | O2-C2-N1    | -2.76 | 119.94      | 122.79   |
| 4   | L5    | 3822 | PSU  | C6-N1-C2    | -2.76 | 120.13      | 122.69   |
| 4   | L5    | 4590 | A2M  | O3'-C3'-C2' | 2.76  | 118.92      | 111.19   |
| 4   | L5    | 4972 | PSU  | O2-C2-N1    | -2.76 | 119.94      | 122.79   |
| 4   | L5    | 4620 | OMU  | O4-C4-C5    | -2.76 | 120.41      | 125.16   |
| 4   | L5    | 4673 | PSU  | C6-N1-C2    | -2.76 | 120.13      | 122.69   |
| 4   | L5    | 1323 | A2M  | C3'-C2'-C1' | -2.76 | 97.53       | 102.81   |
| 84  | S2    | 651  | PSU  | O2-C2-N1    | -2.75 | 119.95      | 122.79   |
| 4   | L5    | 3920 | PSU  | O2-C2-N1    | -2.74 | 119.96      | 122.79   |
| 4   | L5    | 3867 | A2M  | C2'-C1'-N9  | 2.74  | 118.64      | 112.56   |
| 4   | L5    | 4579 | PSU  | O2-C2-N1    | -2.73 | 119.97      | 122.79   |
| 4   | L5    | 4521 | PSU  | C6-C5-C4    | 2.73  | 120.02      | 118.17   |
| 84  | S2    | 93   | PSU  | O2-C2-N1    | -2.73 | 119.97      | 122.79   |
| 4   | L5    | 1323 | A2M  | O4'-C1'-C2' | 2.73  | 111.26      | 106.61   |
| 4   | L5    | 1862 | PSU  | O2-C2-N1    | -2.73 | 119.98      | 122.79   |
| 4   | L5    | 5010 | PSU  | O2-C2-N1    | -2.72 | 119.98      | 122.79   |
| 84  | S2    | 1367 | PSU  | O2-C2-N1    | -2.72 | 119.98      | 122.79   |
| 4   | L5    | 3853 | PSU  | C6-N1-C2    | -2.72 | 120.17      | 122.69   |
| 4   | L5    | 2632 | PSU  | C6-N1-C2    | -2.71 | 120.17      | 122.69   |
| 4   | L5    | 4299 | PSU  | O2-C2-N1    | -2.71 | 120.00      | 122.79   |
| 84  | S2    | 1248 | B8N  | O4-C4-N3    | -2.71 | 115.60      | 119.99   |
| 84  | S2    | 801  | PSU  | C6-N1-C2    | -2.70 | 120.18      | 122.69   |
| 4   | L5    | 3884 | PSU  | O2-C2-N1    | -2.70 | 120.00      | 122.79   |
| 4   | L5    | 2815 | A2M  | O3'-C3'-C2' | 2.70  | 118.74      | 111.19   |
| 4   | L5    | 4296 | PSU  | O2-C2-N1    | -2.70 | 120.00      | 122.79   |
| 4   | L5    | 2351 | OMC  | C1'-N1-C2   | 2.70  | 124.40      | 118.44   |
| 4   | L5    | 1326 | A2M  | C3'-C2'-C1' | -2.70 | 97.64       | 102.81   |
| 4   | L5    | 1683 | PSU  | C6-N1-C2    | -2.69 | 120.19      | 122.69   |
| 84  | S2    | 406  | PSU  | O2-C2-N1    | -2.69 | 120.01      | 122.79   |
| 4   | L5    | 4293 | PSU  | O2-C2-N1    | -2.69 | 120.02      | 122.79   |
| 4   | L5    | 3853 | PSU  | O2-C2-N1    | -2.69 | 120.02      | 122.79   |
| 4   | L5    | 3844 | PSU  | C6-N1-C2    | -2.69 | 120.20      | 122.69   |
| 84  | S2    | 1056 | PSU  | C6-N1-C2    | -2.69 | 120.20      | 122.69   |
| 84  | S2    | 651  | PSU  | C6-N1-C2    | -2.68 | 120.20      | 122.69   |
| 4   | L5    | 3701 | OMC  | O2-C2-N1    | 2.68  | 124.15      | 118.90   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 4   | L5    | 3785 | A2M  | C3'-C2'-C1' | -2.68 | 97.68       | 102.81   |
| 4   | L5    | 1860 | PSU  | C6-N1-C2    | -2.67 | 120.21      | 122.69   |
| 84  | S2    | 1174 | PSU  | O2-C2-N1    | -2.67 | 120.03      | 122.79   |
| 4   | L5    | 1782 | PSU  | O2-C2-N1    | -2.67 | 120.04      | 122.79   |
| 84  | S2    | 1081 | PSU  | O2-C2-N1    | -2.67 | 120.04      | 122.79   |
| 4   | L5    | 3695 | PSU  | C6-N1-C2    | -2.66 | 120.22      | 122.69   |
| 4   | L5    | 4312 | PSU  | O2-C2-N1    | -2.66 | 120.05      | 122.79   |
| 4   | L5    | 3701 | OMC  | O2-C2-N3    | -2.65 | 118.15      | 122.33   |
| 4   | L5    | 1781 | PSU  | C6-N1-C2    | -2.65 | 120.23      | 122.69   |
| 4   | L5    | 4552 | PSU  | C6-N1-C2    | -2.65 | 120.23      | 122.69   |
| 84  | S2    | 1046 | PSU  | C6-N1-C2    | -2.65 | 120.23      | 122.69   |
| 4   | L5    | 4493 | PSU  | O2-C2-N1    | -2.65 | 120.06      | 122.79   |
| 4   | L5    | 4457 | PSU  | O2-C2-N1    | -2.65 | 120.06      | 122.79   |
| 4   | L5    | 1792 | PSU  | O2-C2-N1    | -2.64 | 120.06      | 122.79   |
| 4   | L5    | 1781 | PSU  | O2-C2-N1    | -2.64 | 120.06      | 122.79   |
| 4   | L5    | 3920 | PSU  | C6-N1-C2    | -2.64 | 120.24      | 122.69   |
| 4   | L5    | 4636 | PSU  | C6-N1-C2    | -2.63 | 120.25      | 122.69   |
| 4   | L5    | 5001 | PSU  | O2-C2-N1    | -2.63 | 120.08      | 122.79   |
| 4   | L5    | 4312 | PSU  | C6-N1-C2    | -2.63 | 120.25      | 122.69   |
| 4   | L5    | 1582 | PSU  | C6-N1-C2    | -2.62 | 120.26      | 122.69   |
| 84  | S2    | 863  | PSU  | C6-N1-C2    | -2.62 | 120.26      | 122.69   |
| 4   | L5    | 4471 | PSU  | O2-C2-N1    | -2.62 | 120.09      | 122.79   |
| 4   | L5    | 4471 | PSU  | C6-N1-C2    | -2.62 | 120.26      | 122.69   |
| 4   | L5    | 1534 | A2M  | C4-C5-N7    | 2.61  | 112.10      | 109.34   |
| 4   | L5    | 2815 | A2M  | C3'-C2'-C1' | -2.61 | 97.81       | 102.81   |
| 4   | L5    | 3785 | A2M  | C4-C5-N7    | 2.61  | 112.09      | 109.34   |
| 84  | S2    | 681  | PSU  | O2-C2-N1    | -2.60 | 120.10      | 122.79   |
| 4   | L5    | 4500 | PSU  | C6-C5-C4    | 2.60  | 119.93      | 118.17   |
| 84  | S2    | 966  | PSU  | O2-C2-N1    | -2.60 | 120.11      | 122.79   |
| 84  | S2    | 159  | A2M  | C3'-C2'-C1' | -2.59 | 97.84       | 102.81   |
| 4   | L5    | 2363 | A2M  | C2'-C1'-N9  | 2.59  | 118.31      | 112.56   |
| 84  | S2    | 1046 | PSU  | O2-C2-N1    | -2.59 | 120.12      | 122.79   |
| 4   | L5    | 1871 | A2M  | O4'-C1'-C2' | 2.59  | 111.02      | 106.61   |
| 4   | L5    | 1582 | PSU  | O2-C2-N1    | -2.59 | 120.12      | 122.79   |
| 4   | L5    | 3637 | PSU  | C6-N1-C2    | -2.58 | 120.30      | 122.69   |
| 84  | S2    | 105  | PSU  | C6-N1-C2    | -2.58 | 120.30      | 122.69   |
| 4   | L5    | 3785 | A2M  | O4'-C1'-N9  | 2.57  | 112.16      | 108.75   |
| 4   | L5    | 3695 | PSU  | O2-C2-N1    | -2.57 | 120.14      | 122.79   |
| 4   | L5    | 1524 | A2M  | O4'-C1'-C2' | 2.57  | 110.99      | 106.61   |
| 4   | L5    | 4973 | PSU  | O2-C2-N1    | -2.56 | 120.15      | 122.79   |
| 4   | L5    | 4628 | PSU  | C6-N1-C2    | -2.56 | 120.32      | 122.69   |
| 84  | S2    | 863  | PSU  | O2-C2-N1    | -2.56 | 120.15      | 122.79   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 4   | L5    | 2787 | A2M  | C4'-O4'-C1' | -2.53 | 107.61      | 109.92   |
| 4   | L5    | 4361 | PSU  | C6-N1-C2    | -2.52 | 120.35      | 122.69   |
| 6   | L8    | 69   | PSU  | C6-N1-C2    | -2.52 | 120.35      | 122.69   |
| 4   | L5    | 4576 | PSU  | C6-N1-C2    | -2.52 | 120.35      | 122.69   |
| 84  | S2    | 1177 | PSU  | C6-N1-C2    | -2.52 | 120.35      | 122.69   |
| 4   | L5    | 4579 | PSU  | C6-N1-C2    | -2.51 | 120.36      | 122.69   |
| 4   | L5    | 1862 | PSU  | C6-N1-C2    | -2.51 | 120.36      | 122.69   |
| 4   | L5    | 3884 | PSU  | C6-N1-C2    | -2.51 | 120.36      | 122.69   |
| 4   | L5    | 4532 | PSU  | O2-C2-N1    | -2.50 | 120.21      | 122.79   |
| 4   | L5    | 4403 | PSU  | C6-N1-C2    | -2.50 | 120.37      | 122.69   |
| 4   | L5    | 4972 | PSU  | C6-N1-C2    | -2.50 | 120.37      | 122.69   |
| 84  | S2    | 866  | PSU  | C6-N1-C2    | -2.50 | 120.37      | 122.69   |
| 4   | L5    | 4353 | PSU  | C6-C5-C4    | 2.50  | 119.86      | 118.17   |
| 6   | L8    | 55   | PSU  | C6-N1-C2    | -2.50 | 120.37      | 122.69   |
| 84  | S2    | 681  | PSU  | C6-N1-C2    | -2.50 | 120.37      | 122.69   |
| 4   | L5    | 4392 | OMG  | O6-C6-C5    | 2.49  | 129.26      | 124.32   |
| 4   | L5    | 2363 | A2M  | O4'-C1'-C2' | 2.49  | 110.85      | 106.61   |
| 4   | L5    | 2632 | PSU  | C6-C5-C4    | 2.49  | 119.85      | 118.17   |
| 4   | L5    | 1744 | PSU  | C6-N1-C2    | -2.48 | 120.39      | 122.69   |
| 84  | S2    | 27   | A2M  | C4-C5-N7    | 2.48  | 111.96      | 109.34   |
| 4   | L5    | 5001 | PSU  | C6-N1-C2    | -2.47 | 120.39      | 122.69   |
| 84  | S2    | 966  | PSU  | C6-N1-C2    | -2.47 | 120.40      | 122.69   |
| 4   | L5    | 4431 | PSU  | C6-N1-C2    | -2.46 | 120.41      | 122.69   |
| 4   | L5    | 5010 | PSU  | C6-N1-C2    | -2.46 | 120.41      | 122.69   |
| 84  | S2    | 649  | PSU  | C6-N1-C2    | -2.46 | 120.41      | 122.69   |
| 4   | L5    | 3830 | A2M  | C4-C5-N7    | 2.45  | 111.93      | 109.34   |
| 4   | L5    | 4590 | A2M  | C4-C5-N7    | 2.45  | 111.93      | 109.34   |
| 4   | L5    | 400  | A2M  | C4-C5-N7    | 2.45  | 111.93      | 109.34   |
| 4   | L5    | 3718 | A2M  | C4-C5-N7    | 2.45  | 111.93      | 109.34   |
| 4   | L5    | 4637 | OMG  | O6-C6-C5    | 2.45  | 129.17      | 124.32   |
| 4   | L5    | 2401 | A2M  | C4-C5-N7    | 2.45  | 111.92      | 109.34   |
| 84  | S2    | 484  | A2M  | O4'-C1'-C2' | 2.44  | 110.77      | 106.61   |
| 84  | S2    | 99   | A2M  | C4-C5-N7    | 2.44  | 111.91      | 109.34   |
| 84  | S2    | 109  | PSU  | C6-N1-C2    | -2.44 | 120.43      | 122.69   |
| 4   | L5    | 4532 | PSU  | C6-N1-C2    | -2.44 | 120.43      | 122.69   |
| 4   | L5    | 3851 | PSU  | C6-N1-C2    | -2.43 | 120.43      | 122.69   |
| 84  | S2    | 1328 | OMG  | O6-C6-C5    | 2.43  | 129.14      | 124.32   |
| 4   | L5    | 4498 | OMU  | O2-C2-N1    | -2.43 | 119.64      | 122.80   |
| 4   | L5    | 1782 | PSU  | C6-N1-C2    | -2.42 | 120.45      | 122.69   |
| 4   | L5    | 3818 | UY1  | O2-C2-N1    | -2.42 | 120.30      | 122.79   |
| 84  | S2    | 166  | A2M  | C4-C5-N7    | 2.42  | 111.89      | 109.34   |
| 4   | L5    | 1522 | OMG  | O6-C6-C5    | 2.41  | 129.11      | 124.32   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 4   | L5    | 2876 | OMG  | O6-C6-C5    | 2.41  | 129.11      | 124.32   |
| 4   | L5    | 4571 | A2M  | C4-C5-N7    | 2.41  | 111.89      | 109.34   |
| 4   | L5    | 4442 | PSU  | C6-C5-C4    | 2.41  | 119.80      | 118.17   |
| 4   | L5    | 4353 | PSU  | C6-N1-C2    | -2.41 | 120.46      | 122.69   |
| 84  | S2    | 1244 | PSU  | C6-N1-C2    | -2.41 | 120.46      | 122.69   |
| 84  | S2    | 576  | A2M  | C4-C5-N7    | 2.41  | 111.88      | 109.34   |
| 84  | S2    | 644  | OMG  | O6-C6-C5    | 2.40  | 129.08      | 124.32   |
| 4   | L5    | 1534 | A2M  | O3'-C3'-C4' | -2.40 | 104.18      | 111.08   |
| 84  | S2    | 1367 | PSU  | C6-N1-C2    | -2.40 | 120.46      | 122.69   |
| 84  | S2    | 814  | PSU  | C6-N1-C2    | -2.40 | 120.46      | 122.69   |
| 4   | L5    | 4494 | OMG  | O6-C6-C5    | 2.40  | 129.07      | 124.32   |
| 4   | L5    | 4499 | OMG  | O6-C6-C5    | 2.39  | 129.07      | 124.32   |
| 4   | L5    | 4493 | PSU  | C6-N1-C2    | -2.39 | 120.47      | 122.69   |
| 4   | L5    | 1323 | A2M  | C4-C5-N7    | 2.39  | 111.86      | 109.34   |
| 84  | S2    | 406  | PSU  | C6-N1-C2    | -2.39 | 120.48      | 122.69   |
| 84  | S2    | 1174 | PSU  | C6-N1-C2    | -2.39 | 120.48      | 122.69   |
| 4   | L5    | 3744 | OMG  | O6-C6-C5    | 2.39  | 129.05      | 124.32   |
| 4   | L5    | 4523 | A2M  | C4-C5-N7    | 2.38  | 111.86      | 109.34   |
| 84  | S2    | 1045 | PSU  | C6-N1-C2    | -2.38 | 120.48      | 122.69   |
| 4   | L5    | 3867 | A2M  | C4-C5-N7    | 2.38  | 111.85      | 109.34   |
| 84  | S2    | 166  | A2M  | O4'-C1'-C2' | 2.38  | 110.66      | 106.61   |
| 4   | L5    | 4299 | PSU  | C6-N1-C2    | -2.38 | 120.48      | 122.69   |
| 84  | S2    | 1383 | A2M  | C4-C5-N7    | 2.37  | 111.85      | 109.34   |
| 4   | L5    | 400  | A2M  | C2'-C1'-N9  | 2.37  | 117.83      | 112.56   |
| 84  | S2    | 1232 | PSU  | C6-N1-C2    | -2.37 | 120.49      | 122.69   |
| 4   | L5    | 1524 | A2M  | C4-C5-N7    | 2.37  | 111.84      | 109.34   |
| 4   | L5    | 3899 | OMG  | O6-C6-C5    | 2.37  | 129.02      | 124.32   |
| 84  | S2    | 668  | A2M  | C2'-C1'-N9  | 2.37  | 117.81      | 112.56   |
| 84  | S2    | 601  | OMG  | O6-C6-C5    | 2.37  | 129.01      | 124.32   |
| 4   | L5    | 2787 | A2M  | C4-C5-N7    | 2.37  | 111.84      | 109.34   |
| 4   | L5    | 4623 | OMG  | O6-C6-C5    | 2.37  | 129.01      | 124.32   |
| 84  | S2    | 159  | A2M  | C4-C5-N7    | 2.36  | 111.83      | 109.34   |
| 84  | S2    | 105  | PSU  | O2-C2-N1    | -2.36 | 120.36      | 122.79   |
| 4   | L5    | 2861 | OMC  | C1'-N1-C2   | 2.36  | 123.65      | 118.44   |
| 4   | L5    | 1326 | A2M  | C4-C5-N7    | 2.36  | 111.83      | 109.34   |
| 84  | S2    | 436  | OMG  | O6-C6-C5    | 2.35  | 128.99      | 124.32   |
| 4   | L5    | 2815 | A2M  | O4'-C1'-C2' | 2.35  | 110.61      | 106.61   |
| 4   | L5    | 1677 | PSU  | O2-C2-N1    | -2.35 | 120.37      | 122.79   |
| 4   | L5    | 4370 | OMG  | O6-C6-C5    | 2.35  | 128.97      | 124.32   |
| 84  | S2    | 1248 | B8N  | O4'-C1'-C2' | 2.35  | 108.40      | 105.15   |
| 84  | S2    | 93   | PSU  | C6-N1-C2    | -2.35 | 120.51      | 122.69   |
| 4   | L5    | 1625 | OMG  | O6-C6-C5    | 2.34  | 128.97      | 124.32   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 4   | L5    | 3822 | PSU  | O4'-C1'-C2' | 2.34  | 108.39      | 105.15   |
| 6   | L8    | 75   | OMG  | O6-C6-C5    | 2.34  | 128.96      | 124.32   |
| 4   | L5    | 3792 | OMG  | O6-C6-C5    | 2.34  | 128.96      | 124.32   |
| 84  | S2    | 1081 | PSU  | C6-N1-C2    | -2.33 | 120.53      | 122.69   |
| 4   | L5    | 2363 | A2M  | C4-C5-N7    | 2.33  | 111.80      | 109.34   |
| 4   | L5    | 1792 | PSU  | C6-N1-C2    | -2.33 | 120.53      | 122.69   |
| 84  | S2    | 1272 | OMC  | C1'-N1-C2   | 2.33  | 123.58      | 118.44   |
| 4   | L5    | 4618 | OMG  | O6-C6-C5    | 2.33  | 128.93      | 124.32   |
| 4   | L5    | 4521 | PSU  | C6-N1-C2    | -2.32 | 120.53      | 122.69   |
| 4   | L5    | 1326 | A2M  | O4'-C1'-C2' | 2.32  | 110.57      | 106.61   |
| 4   | L5    | 2839 | PSU  | C6-C5-C4    | 2.32  | 119.74      | 118.17   |
| 4   | L5    | 2815 | A2M  | C4-C5-N7    | 2.32  | 111.78      | 109.34   |
| 4   | L5    | 4442 | PSU  | C6-N1-C2    | -2.31 | 120.55      | 122.69   |
| 4   | L5    | 4571 | A2M  | O4'-C1'-C2' | 2.31  | 110.54      | 106.61   |
| 84  | S2    | 1031 | A2M  | C4-C5-N7    | 2.31  | 111.78      | 109.34   |
| 4   | L5    | 3627 | OMG  | O6-C6-C5    | 2.31  | 128.89      | 124.32   |
| 4   | L5    | 4228 | OMG  | O6-C6-C5    | 2.30  | 128.89      | 124.32   |
| 4   | L5    | 1322 | 1MA  | N1-C6-N6    | 2.30  | 125.50      | 119.71   |
| 84  | S2    | 406  | PSU  | C6-C5-C4    | 2.30  | 119.72      | 118.17   |
| 4   | L5    | 3825 | A2M  | C4-C5-N7    | 2.29  | 111.76      | 109.34   |
| 84  | S2    | 686  | PSU  | C6-N1-C2    | -2.29 | 120.56      | 122.69   |
| 4   | L5    | 4973 | PSU  | C6-N1-C2    | -2.29 | 120.57      | 122.69   |
| 4   | L5    | 1316 | OMG  | O6-C6-C5    | 2.28  | 128.85      | 124.32   |
| 4   | L5    | 3867 | A2M  | O3'-C3'-C2' | 2.28  | 117.57      | 111.19   |
| 4   | L5    | 4361 | PSU  | O2-C2-N1    | -2.27 | 120.44      | 122.79   |
| 84  | S2    | 109  | PSU  | C6-C5-C4    | 2.26  | 119.70      | 118.17   |
| 84  | S2    | 509  | OMG  | O6-C6-C5    | 2.26  | 128.80      | 124.32   |
| 4   | L5    | 3925 | OMU  | O2-C2-N1    | -2.26 | 119.86      | 122.80   |
| 6   | L8    | 69   | PSU  | O4'-C1'-C2' | 2.26  | 108.27      | 105.15   |
| 4   | L5    | 1534 | A2M  | O4'-C1'-C2' | 2.26  | 110.45      | 106.61   |
| 4   | L5    | 398  | A2M  | C4-C5-N7    | 2.26  | 111.72      | 109.34   |
| 4   | L5    | 3920 | PSU  | C6-C5-C4    | 2.26  | 119.70      | 118.17   |
| 84  | S2    | 484  | A2M  | C4-C5-N7    | 2.25  | 111.72      | 109.34   |
| 84  | S2    | 1288 | OMU  | C1'-N1-C2   | 2.25  | 121.64      | 117.59   |
| 4   | L5    | 4403 | PSU  | C6-C5-C4    | 2.25  | 119.69      | 118.17   |
| 4   | L5    | 1322 | 1MA  | C5-C6-N1    | -2.24 | 110.73      | 113.95   |
| 4   | L5    | 3808 | OMC  | C1'-N1-C2   | 2.24  | 123.40      | 118.44   |
| 84  | S2    | 1056 | PSU  | C6-C5-C4    | 2.24  | 119.69      | 118.17   |
| 84  | S2    | 27   | A2M  | O4'-C1'-C2' | 2.24  | 110.43      | 106.61   |
| 84  | S2    | 354  | OMU  | O2-C2-N1    | -2.24 | 119.88      | 122.80   |
| 84  | S2    | 867  | OMG  | O6-C6-C5    | 2.24  | 128.76      | 124.32   |
| 84  | S2    | 484  | A2M  | O4'-C4'-C3' | 2.24  | 109.59      | 105.15   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 84  | S2    | 1337 | 4AC  | C5-C4-N4    | -2.23 | 119.18      | 122.94   |
| 4   | L5    | 3639 | PSU  | C6-C5-C4    | 2.23  | 119.68      | 118.17   |
| 4   | L5    | 3867 | A2M  | O4'-C1'-C2' | 2.22  | 110.39      | 106.61   |
| 4   | L5    | 2364 | OMG  | O6-C6-C5    | 2.21  | 128.70      | 124.32   |
| 4   | L5    | 3867 | A2M  | C3'-C2'-C1' | -2.21 | 98.58       | 102.81   |
| 4   | L5    | 4571 | A2M  | C2'-C1'-N9  | 2.21  | 117.46      | 112.56   |
| 4   | L5    | 4442 | PSU  | O4'-C1'-C2' | 2.20  | 108.20      | 105.15   |
| 4   | L5    | 1326 | A2M  | C2'-C1'-N9  | 2.20  | 117.44      | 112.56   |
| 84  | S2    | 468  | A2M  | C4-C5-N7    | 2.20  | 111.66      | 109.34   |
| 84  | S2    | 172  | OMU  | O2-C2-N1    | -2.20 | 119.93      | 122.80   |
| 84  | S2    | 428  | OMU  | O2-C2-N1    | -2.20 | 119.94      | 122.80   |
| 4   | L5    | 2424 | OMG  | O6-C6-C5    | 2.20  | 128.68      | 124.32   |
| 4   | L5    | 4552 | PSU  | C6-C5-C4    | 2.19  | 119.66      | 118.17   |
| 84  | S2    | 686  | PSU  | C6-C5-C4    | 2.19  | 119.66      | 118.17   |
| 4   | L5    | 4403 | PSU  | O4'-C1'-C2' | 2.19  | 108.18      | 105.15   |
| 84  | S2    | 1248 | B8N  | O4-C4-C5    | -2.18 | 118.80      | 122.58   |
| 84  | S2    | 683  | OMG  | O6-C6-C5    | 2.18  | 128.65      | 124.32   |
| 4   | L5    | 4296 | PSU  | C6-N1-C2    | -2.18 | 120.67      | 122.69   |
| 4   | L5    | 400  | A2M  | O4'-C1'-C2' | 2.18  | 110.32      | 106.61   |
| 4   | L5    | 4636 | PSU  | O4'-C1'-C2' | 2.18  | 108.16      | 105.15   |
| 4   | L5    | 1860 | PSU  | C6-C5-C4    | 2.18  | 119.64      | 118.17   |
| 4   | L5    | 4196 | OMG  | O6-C6-C5    | 2.17  | 128.62      | 124.32   |
| 4   | L5    | 4972 | PSU  | C6-C5-C4    | 2.17  | 119.64      | 118.17   |
| 84  | S2    | 1081 | PSU  | O4'-C1'-C2' | 2.15  | 108.13      | 105.15   |
| 6   | L8    | 69   | PSU  | C6-C5-C4    | 2.14  | 119.62      | 118.17   |
| 84  | S2    | 468  | A2M  | O4'-C1'-C2' | 2.14  | 110.26      | 106.61   |
| 84  | S2    | 1004 | PSU  | C6-C5-C4    | 2.13  | 119.61      | 118.17   |
| 4   | L5    | 2837 | OMU  | O2-C2-N1    | -2.13 | 120.03      | 122.80   |
| 84  | S2    | 799  | OMU  | C1'-N1-C2   | 2.12  | 121.41      | 117.59   |
| 4   | L5    | 2787 | A2M  | O4'-C4'-C3' | 2.12  | 109.36      | 105.15   |
| 84  | S2    | 651  | PSU  | C6-C5-C4    | 2.12  | 119.61      | 118.17   |
| 4   | L5    | 3822 | PSU  | C6-C5-C4    | 2.11  | 119.60      | 118.17   |
| 4   | L5    | 4571 | A2M  | O3'-C3'-C4' | -2.11 | 105.03      | 111.08   |
| 84  | S2    | 159  | A2M  | O4'-C1'-C2' | 2.10  | 110.19      | 106.61   |
| 4   | L5    | 3785 | A2M  | O4'-C4'-C3' | 2.10  | 109.32      | 105.15   |
| 4   | L5    | 2401 | A2M  | O4'-C1'-C2' | 2.10  | 110.18      | 106.61   |
| 4   | L5    | 4636 | PSU  | C6-C5-C4    | 2.10  | 119.59      | 118.17   |
| 84  | S2    | 121  | OMU  | O2-C2-N1    | -2.09 | 120.08      | 122.80   |
| 84  | S2    | 627  | OMU  | O2-C2-N1    | -2.09 | 120.08      | 122.80   |
| 84  | S2    | 1442 | OMU  | O2-C2-N1    | -2.09 | 120.08      | 122.80   |
| 84  | S2    | 668  | A2M  | C4-C5-N7    | 2.09  | 111.54      | 109.34   |
| 6   | L8    | 55   | PSU  | C6-C5-C4    | 2.09  | 119.58      | 118.17   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 84  | S2    | 866  | PSU  | O4'-C1'-C2' | 2.08  | 108.03      | 105.15   |
| 4   | L5    | 3782 | 5MC  | C1'-N1-C6   | -2.08 | 117.73      | 121.15   |
| 84  | S2    | 1244 | PSU  | C6-C5-C4    | 2.07  | 119.57      | 118.17   |
| 84  | S2    | 1326 | OMU  | O2-C2-N1    | -2.07 | 120.10      | 122.80   |
| 84  | S2    | 1177 | PSU  | C6-C5-C4    | 2.07  | 119.57      | 118.17   |
| 84  | S2    | 1045 | PSU  | C6-C5-C4    | 2.07  | 119.57      | 118.17   |
| 4   | L5    | 2351 | OMC  | C1'-N1-C6   | -2.07 | 116.36      | 120.78   |
| 4   | L5    | 3825 | A2M  | O4'-C1'-C2' | 2.06  | 110.12      | 106.61   |
| 4   | L5    | 4457 | PSU  | O4'-C1'-C2' | 2.06  | 108.00      | 105.15   |
| 4   | L5    | 4227 | OMU  | O2-C2-N1    | -2.05 | 120.13      | 122.80   |
| 84  | S2    | 668  | A2M  | O3'-C3'-C4' | -2.05 | 105.20      | 111.08   |
| 4   | L5    | 4973 | PSU  | C6-C5-C4    | 2.05  | 119.56      | 118.17   |
| 4   | L5    | 1683 | PSU  | C6-C5-C4    | 2.04  | 119.55      | 118.17   |
| 4   | L5    | 4590 | A2M  | O4'-C1'-C2' | 2.04  | 110.08      | 106.61   |
| 4   | L5    | 3637 | PSU  | C6-C5-C4    | 2.04  | 119.55      | 118.17   |
| 4   | L5    | 3851 | PSU  | C6-C5-C4    | 2.03  | 119.54      | 118.17   |
| 4   | L5    | 4493 | PSU  | C6-C5-C4    | 2.03  | 119.54      | 118.17   |
| 4   | L5    | 4521 | PSU  | O4'-C1'-C2' | 2.03  | 107.96      | 105.15   |
| 4   | L5    | 4353 | PSU  | O4'-C1'-C2' | 2.03  | 107.95      | 105.15   |
| 84  | S2    | 1031 | A2M  | O4'-C1'-C2' | 2.02  | 110.04      | 106.61   |
| 4   | L5    | 4456 | OMC  | C1'-N1-C2   | 2.01  | 122.88      | 118.44   |
| 4   | L5    | 4628 | PSU  | O4'-C1'-C2' | 2.00  | 107.92      | 105.15   |
| 4   | L5    | 2401 | A2M  | C6-C5-C4    | -2.00 | 114.01      | 117.90   |

There are no chirality outliers.

All (139) torsion outliers are listed below:

| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 6   | L8    | 75   | OMG  | C1'-C2'-O2'-CM2 |
| 86  | CF    | 163  | SEP  | C-CA-CB-OG      |
| 86  | CF    | 163  | SEP  | CA-CB-OG-P      |
| 86  | CF    | 163  | SEP  | CB-OG-P-O1P     |
| 86  | CF    | 163  | SEP  | CB-OG-P-O2P     |
| 86  | CF    | 163  | SEP  | CB-OG-P-O3P     |
| 4   | L5    | 1326 | A2M  | O4'-C4'-C5'-O5' |
| 4   | L5    | 1326 | A2M  | C1'-C2'-O2'-CM' |
| 4   | L5    | 1340 | OMC  | C1'-C2'-O2'-CM2 |
| 4   | L5    | 1625 | OMG  | O4'-C4'-C5'-O5' |
| 4   | L5    | 2351 | OMC  | C1'-C2'-O2'-CM2 |
| 4   | L5    | 2787 | A2M  | C1'-C2'-O2'-CM' |
| 4   | L5    | 3701 | OMC  | O4'-C4'-C5'-O5' |
| 4   | L5    | 3792 | OMG  | O4'-C4'-C5'-O5' |

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| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 4   | L5    | 3841 | OMC  | C1'-C2'-O2'-CM2 |
| 4   | L5    | 4196 | OMG  | C1'-C2'-O2'-CM2 |
| 4   | L5    | 4220 | 6MZ  | O4'-C4'-C5'-O5' |
| 4   | L5    | 4590 | A2M  | O4'-C4'-C5'-O5' |
| 4   | L5    | 4637 | OMG  | O4'-C4'-C5'-O5' |
| 84  | S2    | 27   | A2M  | C1'-C2'-O2'-CM' |
| 84  | S2    | 159  | A2M  | C1'-C2'-O2'-CM' |
| 84  | S2    | 601  | OMG  | C1'-C2'-O2'-CM2 |
| 84  | S2    | 644  | OMG  | O4'-C4'-C5'-O5' |
| 84  | S2    | 1248 | B8N  | O4'-C4'-C5'-O5' |
| 84  | S2    | 1272 | OMC  | O4'-C4'-C5'-O5' |
| 84  | S2    | 1288 | OMU  | O4'-C4'-C5'-O5' |
| 84  | S2    | 1337 | 4AC  | N3-C4-N4-C7     |
| 84  | S2    | 1383 | A2M  | C1'-C2'-O2'-CM' |
| 84  | S2    | 1442 | OMU  | O4'-C4'-C5'-O5' |
| 84  | S2    | 1832 | 6MZ  | C5-C6-N6-C9     |
| 84  | S2    | 1832 | 6MZ  | N1-C6-N6-C9     |
| 4   | L5    | 3701 | OMC  | C2'-C1'-N1-C2   |
| 4   | L5    | 2364 | OMG  | O4'-C4'-C5'-O5' |
| 4   | L5    | 3701 | OMC  | C3'-C4'-C5'-O5' |
| 4   | L5    | 4500 | PSU  | C3'-C4'-C5'-O5' |
| 4   | L5    | 4500 | PSU  | O4'-C4'-C5'-O5' |
| 4   | L5    | 4590 | A2M  | C3'-C4'-C5'-O5' |
| 84  | S2    | 436  | OMG  | O4'-C4'-C5'-O5' |
| 84  | S2    | 576  | A2M  | O4'-C4'-C5'-O5' |
| 84  | S2    | 576  | A2M  | C3'-C4'-C5'-O5' |
| 84  | S2    | 683  | OMG  | C3'-C4'-C5'-O5' |
| 84  | S2    | 799  | OMU  | C3'-C4'-C5'-O5' |
| 84  | S2    | 799  | OMU  | O4'-C4'-C5'-O5' |
| 84  | S2    | 801  | PSU  | C3'-C4'-C5'-O5' |
| 84  | S2    | 867  | OMG  | C3'-C4'-C5'-O5' |
| 84  | S2    | 1272 | OMC  | C3'-C4'-C5'-O5' |
| 84  | S2    | 1288 | OMU  | C3'-C4'-C5'-O5' |
| 4   | L5    | 1323 | A2M  | O4'-C4'-C5'-O5' |
| 4   | L5    | 1536 | PSU  | C3'-C4'-C5'-O5' |
| 4   | L5    | 1536 | PSU  | O4'-C4'-C5'-O5' |
| 4   | L5    | 1625 | OMG  | C3'-C4'-C5'-O5' |
| 4   | L5    | 2815 | A2M  | O4'-C4'-C5'-O5' |
| 4   | L5    | 3792 | OMG  | C3'-C4'-C5'-O5' |
| 4   | L5    | 3867 | A2M  | C3'-C4'-C5'-O5' |
| 84  | S2    | 99   | A2M  | O4'-C4'-C5'-O5' |
| 84  | S2    | 683  | OMG  | O4'-C4'-C5'-O5' |

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| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 84  | S2    | 1442 | OMU  | C3'-C4'-C5'-O5' |
| 4   | L5    | 3701 | OMC  | C2'-C1'-N1-C6   |
| 4   | L5    | 1326 | A2M  | C3'-C4'-C5'-O5' |
| 4   | L5    | 4220 | 6MZ  | C3'-C4'-C5'-O5' |
| 84  | S2    | 644  | OMG  | C3'-C4'-C5'-O5' |
| 4   | L5    | 4447 | 5MC  | C2'-C1'-N1-C6   |
| 4   | L5    | 1677 | PSU  | C3'-C4'-C5'-O5' |
| 4   | L5    | 1677 | PSU  | O4'-C4'-C5'-O5' |
| 4   | L5    | 2364 | OMG  | C3'-C4'-C5'-O5' |
| 4   | L5    | 2876 | OMG  | C3'-C4'-C5'-O5' |
| 4   | L5    | 3899 | OMG  | C3'-C4'-C5'-O5' |
| 4   | L5    | 4637 | OMG  | C3'-C4'-C5'-O5' |
| 84  | S2    | 517  | OMC  | C3'-C4'-C5'-O5' |
| 84  | S2    | 668  | A2M  | O4'-C4'-C5'-O5' |
| 84  | S2    | 668  | A2M  | C3'-C4'-C5'-O5' |
| 84  | S2    | 1248 | B8N  | C3'-C4'-C5'-O5' |
| 84  | S2    | 428  | OMU  | C2'-C1'-N1-C6   |
| 4   | L5    | 2787 | A2M  | C3'-C4'-C5'-O5' |
| 4   | L5    | 2815 | A2M  | C3'-C4'-C5'-O5' |
| 84  | S2    | 436  | OMG  | C3'-C4'-C5'-O5' |
| 84  | S2    | 517  | OMC  | O4'-C4'-C5'-O5' |
| 84  | S2    | 801  | PSU  | O4'-C4'-C5'-O5' |
| 84  | S2    | 867  | OMG  | O4'-C4'-C5'-O5' |
| 4   | L5    | 1524 | A2M  | O4'-C4'-C5'-O5' |
| 4   | L5    | 3899 | OMG  | O4'-C4'-C5'-O5' |
| 4   | L5    | 1524 | A2M  | C3'-C4'-C5'-O5' |
| 4   | L5    | 2876 | OMG  | O4'-C4'-C5'-O5' |
| 4   | L5    | 4618 | OMG  | C3'-C4'-C5'-O5' |
| 4   | L5    | 1323 | A2M  | C3'-C4'-C5'-O5' |
| 4   | L5    | 3867 | A2M  | O4'-C4'-C5'-O5' |
| 84  | S2    | 99   | A2M  | C3'-C4'-C5'-O5' |
| 4   | L5    | 4590 | A2M  | C4'-C5'-O5'-P   |
| 4   | L5    | 2422 | OMC  | O4'-C4'-C5'-O5' |
| 84  | S2    | 428  | OMU  | O4'-C4'-C5'-O5' |
| 84  | S2    | 1045 | PSU  | O4'-C4'-C5'-O5' |
| 84  | S2    | 1248 | B8N  | N34-C33-C34-O36 |
| 4   | L5    | 400  | A2M  | C1'-C2'-O2'-CM' |
| 84  | S2    | 166  | A2M  | C1'-C2'-O2'-CM' |
| 84  | S2    | 468  | A2M  | C1'-C2'-O2'-CM' |
| 4   | L5    | 2422 | OMC  | C3'-C4'-C5'-O5' |
| 84  | S2    | 1248 | B8N  | C31-C32-C33-C34 |
| 4   | L5    | 3851 | PSU  | C3'-C4'-C5'-O5' |

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| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 84  | S2    | 1045 | PSU  | C3'-C4'-C5'-O5' |
| 84  | S2    | 1639 | G7M  | C3'-C4'-C5'-O5' |
| 4   | L5    | 4447 | 5MC  | C2'-C1'-N1-C2   |
| 4   | L5    | 4447 | 5MC  | O4'-C1'-N1-C6   |
| 84  | S2    | 428  | OMU  | O4'-C1'-N1-C6   |
| 84  | S2    | 1383 | A2M  | O4'-C4'-C5'-O5' |
| 4   | L5    | 4447 | 5MC  | O4'-C1'-N1-C2   |
| 4   | L5    | 3701 | OMC  | O4'-C1'-N1-C6   |
| 86  | CF    | 163  | SEP  | N-CA-CB-OG      |
| 4   | L5    | 1534 | A2M  | C4'-C5'-O5'-P   |
| 4   | L5    | 3818 | UY1  | C4'-C5'-O5'-P   |
| 4   | L5    | 4500 | PSU  | C4'-C5'-O5'-P   |
| 4   | L5    | 3818 | UY1  | O4'-C1'-C5-C4   |
| 4   | L5    | 1781 | PSU  | C3'-C4'-C5'-O5' |
| 84  | S2    | 428  | OMU  | C3'-C4'-C5'-O5' |
| 84  | S2    | 1383 | A2M  | C3'-C4'-C5'-O5' |
| 84  | S2    | 428  | OMU  | C2'-C1'-N1-C2   |
| 4   | L5    | 3887 | OMC  | C4'-C5'-O5'-P   |
| 84  | S2    | 576  | A2M  | C4'-C5'-O5'-P   |
| 84  | S2    | 627  | OMU  | O4'-C4'-C5'-O5' |
| 4   | L5    | 3869 | OMC  | C3'-C2'-O2'-CM2 |
| 84  | S2    | 1490 | OMG  | C4'-C5'-O5'-P   |
| 4   | L5    | 3782 | 5MC  | O4'-C4'-C5'-O5' |
| 4   | L5    | 4618 | OMG  | O4'-C4'-C5'-O5' |
| 84  | S2    | 1703 | OMC  | O4'-C4'-C5'-O5' |
| 84  | S2    | 644  | OMG  | C4'-C5'-O5'-P   |
| 84  | S2    | 1851 | MA6  | C4'-C5'-O5'-P   |
| 84  | S2    | 428  | OMU  | O4'-C1'-N1-C2   |
| 4   | L5    | 3869 | OMC  | C1'-C2'-O2'-CM2 |
| 4   | L5    | 4637 | OMG  | C1'-C2'-O2'-CM2 |
| 84  | S2    | 867  | OMG  | C1'-C2'-O2'-CM2 |
| 4   | L5    | 3844 | PSU  | C4'-C5'-O5'-P   |
| 4   | L5    | 398  | A2M  | O4'-C4'-C5'-O5' |
| 4   | L5    | 1677 | PSU  | O4'-C1'-C5-C6   |
| 4   | L5    | 3785 | A2M  | C3'-C2'-O2'-CM' |
| 4   | L5    | 3701 | OMC  | O4'-C1'-N1-C2   |
| 84  | S2    | 1832 | 6MZ  | O4'-C4'-C5'-O5' |
| 4   | L5    | 2351 | OMC  | O4'-C4'-C5'-O5' |
| 84  | S2    | 1639 | G7M  | O4'-C4'-C5'-O5' |
| 4   | L5    | 1326 | A2M  | C4'-C5'-O5'-P   |
| 4   | L5    | 2351 | OMC  | C2'-C1'-N1-C2   |

There are no ring outliers.

68 monomers are involved in 96 short contacts:

| Mol | Chain | Res  | Type | Clashes | Symm-Clashes |
|-----|-------|------|------|---------|--------------|
| 4   | L5    | 1326 | A2M  | 3       | 0            |
| 4   | L5    | 3782 | 5MC  | 1       | 0            |
| 84  | S2    | 159  | A2M  | 2       | 0            |
| 84  | S2    | 1850 | MA6  | 2       | 0            |
| 4   | L5    | 4536 | OMC  | 1       | 0            |
| 84  | S2    | 601  | OMG  | 1       | 0            |
| 4   | L5    | 4620 | OMU  | 2       | 0            |
| 4   | L5    | 3701 | OMC  | 1       | 0            |
| 4   | L5    | 4636 | PSU  | 1       | 0            |
| 4   | L5    | 2422 | OMC  | 1       | 0            |
| 84  | S2    | 1232 | PSU  | 2       | 0            |
| 84  | S2    | 436  | OMG  | 2       | 0            |
| 84  | S2    | 166  | A2M  | 3       | 0            |
| 4   | L5    | 3718 | A2M  | 3       | 0            |
| 4   | L5    | 4571 | A2M  | 2       | 0            |
| 4   | L5    | 4689 | PSU  | 1       | 0            |
| 4   | L5    | 2424 | OMG  | 1       | 0            |
| 4   | L5    | 4579 | PSU  | 2       | 0            |
| 84  | S2    | 681  | PSU  | 1       | 0            |
| 4   | L5    | 4457 | PSU  | 1       | 0            |
| 4   | L5    | 2876 | OMG  | 1       | 0            |
| 4   | L5    | 3884 | PSU  | 1       | 0            |
| 4   | L5    | 1683 | PSU  | 2       | 0            |
| 4   | L5    | 4293 | PSU  | 1       | 0            |
| 4   | L5    | 4392 | OMG  | 1       | 0            |
| 6   | L8    | 75   | OMG  | 2       | 0            |
| 4   | L5    | 4456 | OMC  | 1       | 0            |
| 4   | L5    | 4637 | OMG  | 1       | 0            |
| 4   | L5    | 2363 | A2M  | 1       | 0            |
| 4   | L5    | 3822 | PSU  | 1       | 0            |
| 4   | L5    | 2364 | OMG  | 1       | 0            |
| 4   | L5    | 2804 | OMC  | 1       | 0            |
| 4   | L5    | 4431 | PSU  | 1       | 0            |
| 4   | L5    | 4447 | 5MC  | 1       | 0            |
| 84  | S2    | 1383 | A2M  | 1       | 0            |
| 4   | L5    | 2351 | OMC  | 1       | 0            |
| 84  | S2    | 484  | A2M  | 1       | 0            |
| 4   | L5    | 1871 | A2M  | 1       | 0            |
| 84  | S2    | 1046 | PSU  | 1       | 0            |
| 4   | L5    | 3867 | A2M  | 3       | 0            |
| 84  | S2    | 1328 | OMG  | 1       | 0            |
| 4   | L5    | 4196 | OMG  | 1       | 0            |

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| Mol | Chain | Res  | Type | Clashes | Symm-Clashes |
|-----|-------|------|------|---------|--------------|
| 84  | S2    | 121  | OMU  | 2       | 0            |
| 84  | S2    | 99   | A2M  | 1       | 0            |
| 4   | L5    | 4618 | OMG  | 1       | 0            |
| 4   | L5    | 400  | A2M  | 1       | 0            |
| 84  | S2    | 1842 | 4AC  | 1       | 0            |
| 84  | S2    | 576  | A2M  | 2       | 0            |
| 4   | L5    | 1340 | OMC  | 2       | 0            |
| 84  | S2    | 1288 | OMU  | 1       | 0            |
| 4   | L5    | 4220 | 6MZ  | 5       | 0            |
| 4   | L5    | 3841 | OMC  | 1       | 0            |
| 4   | L5    | 398  | A2M  | 1       | 0            |
| 84  | S2    | 517  | OMC  | 1       | 0            |
| 4   | L5    | 1677 | PSU  | 1       | 0            |
| 4   | L5    | 3818 | UY1  | 1       | 0            |
| 84  | S2    | 116  | OMU  | 3       | 0            |
| 4   | L5    | 1625 | OMG  | 1       | 0            |
| 4   | L5    | 2632 | PSU  | 1       | 0            |
| 84  | S2    | 1639 | G7M  | 1       | 0            |
| 84  | S2    | 867  | OMG  | 1       | 0            |
| 84  | S2    | 468  | A2M  | 1       | 0            |
| 4   | L5    | 4590 | A2M  | 1       | 0            |
| 4   | L5    | 4227 | OMU  | 1       | 0            |
| 84  | S2    | 27   | A2M  | 1       | 0            |
| 4   | L5    | 3785 | A2M  | 1       | 0            |
| 84  | S2    | 1337 | 4AC  | 3       | 0            |
| 84  | S2    | 509  | OMG  | 2       | 0            |

## 5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

Of 242 ligands modelled in this entry, 225 are monoatomic - leaving 17 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 |
| 89  | SPD  | L5    | 5284 | -    | 9,9,9        | 0.33 | 0        | 8,8,8       | 0.81 | 0        |
| 88  | SPM  | L5    | 5286 | 87   | 13,13,13     | 0.37 | 0        | 12,12,12    | 1.01 | 0        |
| 89  | SPD  | L5    | 5281 | -    | 9,9,9        | 0.34 | 0        | 8,8,8       | 0.85 | 0        |
| 89  | SPD  | L5    | 5283 | -    | 9,9,9        | 0.31 | 0        | 8,8,8       | 0.92 | 0        |
| 88  | SPM  | L5    | 5258 | -    | 13,13,13     | 0.35 | 0        | 12,12,12    | 1.00 | 0        |
| 88  | SPM  | L5    | 5262 | -    | 13,13,13     | 0.43 | 0        | 12,12,12    | 0.91 | 0        |
| 88  | SPM  | L5    | 5289 | -    | 13,13,13     | 0.36 | 0        | 12,12,12    | 0.89 | 0        |
| 88  | SPM  | L5    | 5263 | -    | 13,13,13     | 0.35 | 0        | 12,12,12    | 1.01 | 0        |
| 88  | SPM  | L5    | 5266 | -    | 13,13,13     | 0.37 | 0        | 12,12,12    | 1.11 | 0        |
| 89  | SPD  | L8    | 202  | -    | 9,9,9        | 0.32 | 0        | 8,8,8       | 0.89 | 0        |
| 89  | SPD  | L5    | 5260 | -    | 9,9,9        | 0.32 | 0        | 8,8,8       | 0.95 | 0        |
| 89  | SPD  | L5    | 5282 | -    | 9,9,9        | 0.32 | 0        | 8,8,8       | 0.79 | 0        |
| 89  | SPD  | LN    | 301  | -    | 9,9,9        | 0.34 | 0        | 8,8,8       | 0.86 | 0        |
| 89  | SPD  | L5    | 5288 | -    | 9,9,9        | 0.32 | 0        | 8,8,8       | 0.80 | 0        |
| 89  | SPD  | L5    | 5287 | -    | 9,9,9        | 0.32 | 0        | 8,8,8       | 0.85 | 0        |
| 88  | SPM  | L5    | 5290 | -    | 13,13,13     | 0.36 | 0        | 12,12,12    | 0.89 | 0        |
| 89  | SPD  | L5    | 5285 | -    | 9,9,9        | 0.31 | 0        | 8,8,8       | 0.84 | 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 |
|-----|------|-------|------|------|---------|-------------|-------|
| 89  | SPD  | L5    | 5284 | -    | -       | 0/7/7/7     | -     |
| 88  | SPM  | L5    | 5286 | 87   | -       | 4/11/11/11  | -     |
| 89  | SPD  | L5    | 5281 | -    | -       | 1/7/7/7     | -     |
| 89  | SPD  | L5    | 5283 | -    | -       | 4/7/7/7     | -     |
| 88  | SPM  | L5    | 5258 | -    | -       | 2/11/11/11  | -     |
| 88  | SPM  | L5    | 5262 | -    | -       | 10/11/11/11 | -     |
| 88  | SPM  | L5    | 5289 | -    | -       | 3/11/11/11  | -     |
| 88  | SPM  | L5    | 5263 | -    | -       | 4/11/11/11  | -     |
| 88  | SPM  | L5    | 5266 | -    | -       | 5/11/11/11  | -     |
| 89  | SPD  | L8    | 202  | -    | -       | 3/7/7/7     | -     |
| 89  | SPD  | L5    | 5260 | -    | -       | 0/7/7/7     | -     |
| 89  | SPD  | L5    | 5282 | -    | -       | 1/7/7/7     | -     |
| 89  | SPD  | LN    | 301  | -    | -       | 1/7/7/7     | -     |
| 89  | SPD  | L5    | 5288 | -    | -       | 3/7/7/7     | -     |
| 89  | SPD  | L5    | 5287 | -    | -       | 1/7/7/7     | -     |
| 88  | SPM  | L5    | 5290 | -    | -       | 3/11/11/11  | -     |

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| Mol | Type | Chain | Res  | Link | Chirals | Torsions | Rings |
|-----|------|-------|------|------|---------|----------|-------|
| 89  | SPD  | L5    | 5285 | -    | -       | 1/7/7/7  | -     |

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (46) torsion outliers are listed below:

| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 89  | L5    | 5283 | SPD  | C3-C4-C5-N6     |
| 88  | L5    | 5262 | SPM  | C7-C8-C9-N10    |
| 88  | L5    | 5289 | SPM  | C7-C8-C9-N10    |
| 89  | L8    | 202  | SPD  | C3-C4-C5-N6     |
| 88  | L5    | 5262 | SPM  | N5-C6-C7-C8     |
| 89  | L5    | 5283 | SPD  | N6-C7-C8-C9     |
| 89  | L5    | 5282 | SPD  | C3-C4-C5-N6     |
| 88  | L5    | 5262 | SPM  | C2-C3-C4-N5     |
| 88  | L5    | 5266 | SPM  | N10-C11-C12-C13 |
| 88  | L5    | 5258 | SPM  | C3-C4-N5-C6     |
| 88  | L5    | 5262 | SPM  | C3-C4-N5-C6     |
| 88  | L5    | 5286 | SPM  | C12-C11-N10-C9  |
| 88  | L5    | 5262 | SPM  | N10-C11-C12-C13 |
| 88  | L5    | 5289 | SPM  | N10-C11-C12-C13 |
| 88  | L5    | 5290 | SPM  | C8-C9-N10-C11   |
| 89  | L5    | 5283 | SPD  | C4-C5-N6-C7     |
| 89  | L5    | 5283 | SPD  | C2-C3-C4-C5     |
| 88  | L5    | 5266 | SPM  | C7-C8-C9-N10    |
| 88  | L5    | 5286 | SPM  | C7-C6-N5-C4     |
| 88  | L5    | 5266 | SPM  | C2-C3-C4-N5     |
| 88  | L5    | 5263 | SPM  | C7-C6-N5-C4     |
| 88  | L5    | 5258 | SPM  | C6-C7-C8-C9     |
| 88  | L5    | 5262 | SPM  | C6-C7-C8-C9     |
| 88  | L5    | 5266 | SPM  | C6-C7-C8-C9     |
| 88  | L5    | 5263 | SPM  | N5-C6-C7-C8     |
| 88  | L5    | 5290 | SPM  | C6-C7-C8-C9     |
| 88  | L5    | 5286 | SPM  | C8-C9-N10-C11   |
| 88  | L5    | 5290 | SPM  | C7-C6-N5-C4     |
| 89  | L5    | 5288 | SPD  | C4-C5-N6-C7     |
| 88  | L5    | 5262 | SPM  | N1-C2-C3-C4     |
| 88  | L5    | 5262 | SPM  | C11-C12-C13-N14 |
| 88  | L5    | 5286 | SPM  | N1-C2-C3-C4     |
| 89  | L5    | 5287 | SPD  | C2-C3-C4-C5     |

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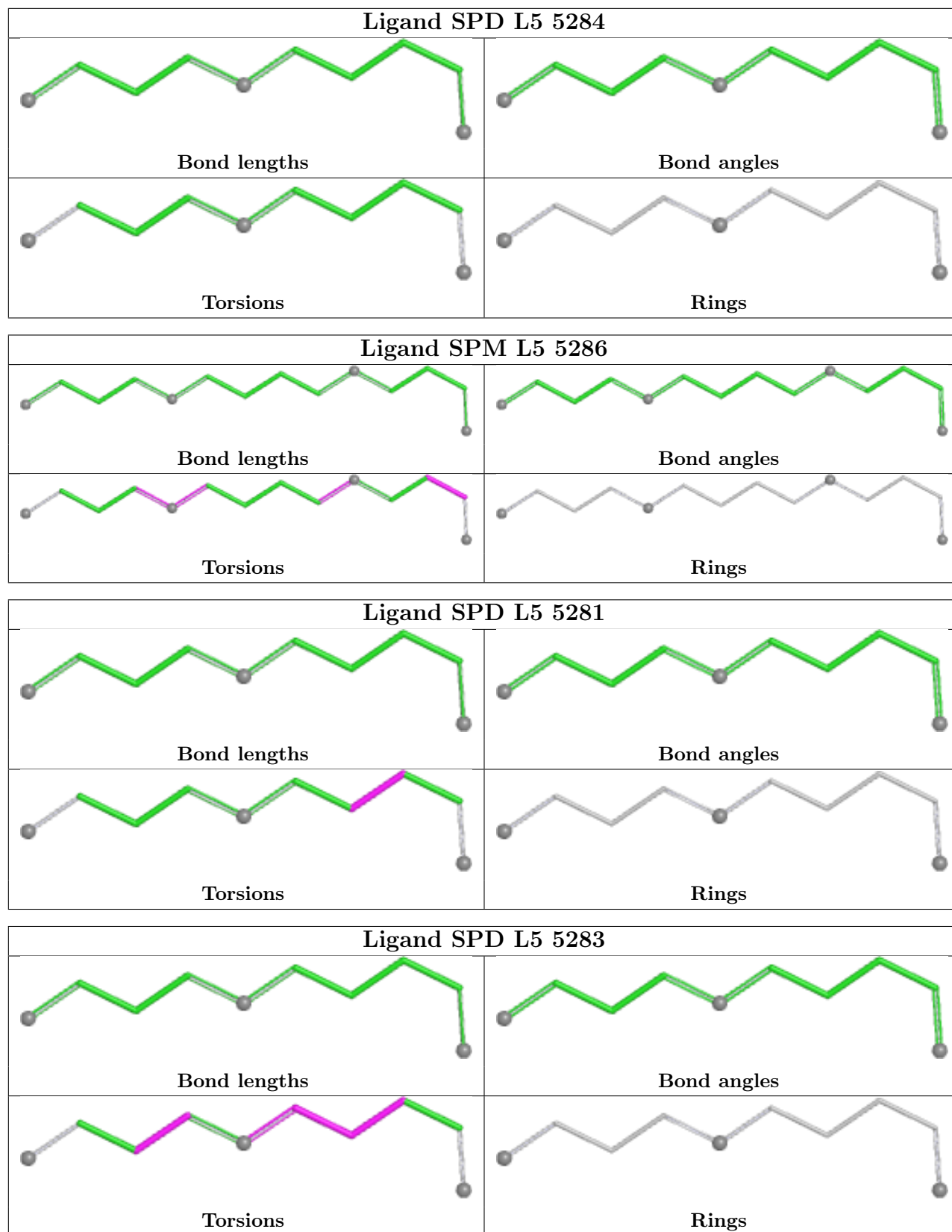
| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 88  | L5    | 5262 | SPM  | C7-C6-N5-C4     |
| 89  | LN    | 301  | SPD  | C4-C5-N6-C7     |
| 89  | L5    | 5281 | SPD  | C2-C3-C4-C5     |
| 89  | L5    | 5288 | SPD  | C8-C7-N6-C5     |
| 89  | L5    | 5288 | SPD  | N1-C2-C3-C4     |
| 88  | L5    | 5263 | SPM  | N10-C11-C12-C13 |
| 89  | L8    | 202  | SPD  | N6-C7-C8-C9     |
| 88  | L5    | 5263 | SPM  | C2-C3-C4-N5     |
| 88  | L5    | 5266 | SPM  | N5-C6-C7-C8     |
| 88  | L5    | 5289 | SPM  | N5-C6-C7-C8     |
| 89  | L8    | 202  | SPD  | C8-C7-N6-C5     |
| 89  | L5    | 5285 | SPD  | C8-C7-N6-C5     |
| 88  | L5    | 5262 | SPM  | C8-C9-N10-C11   |

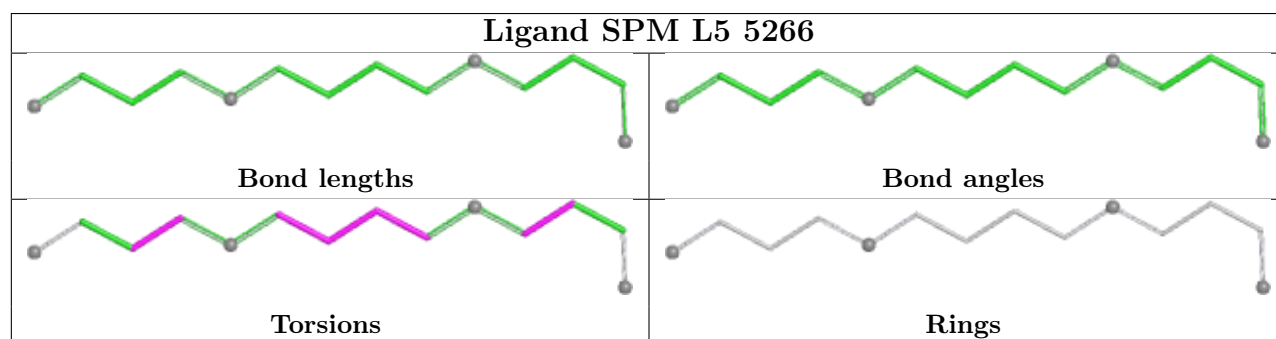
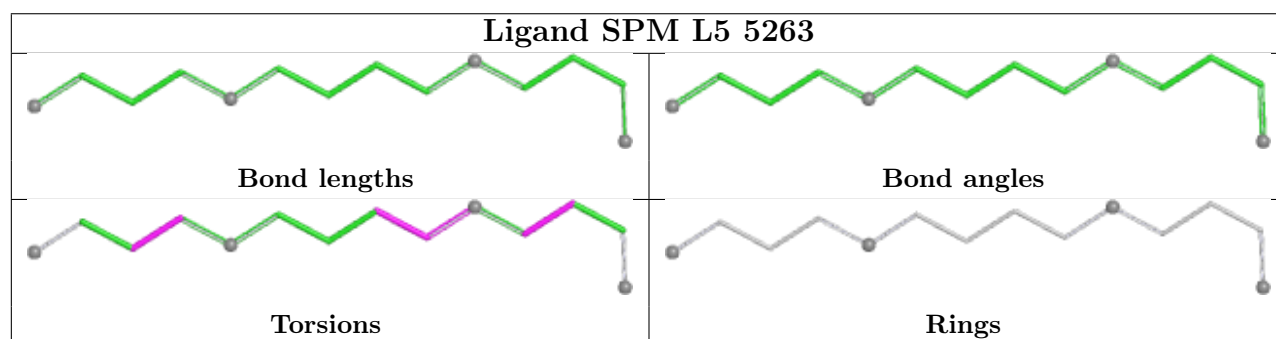
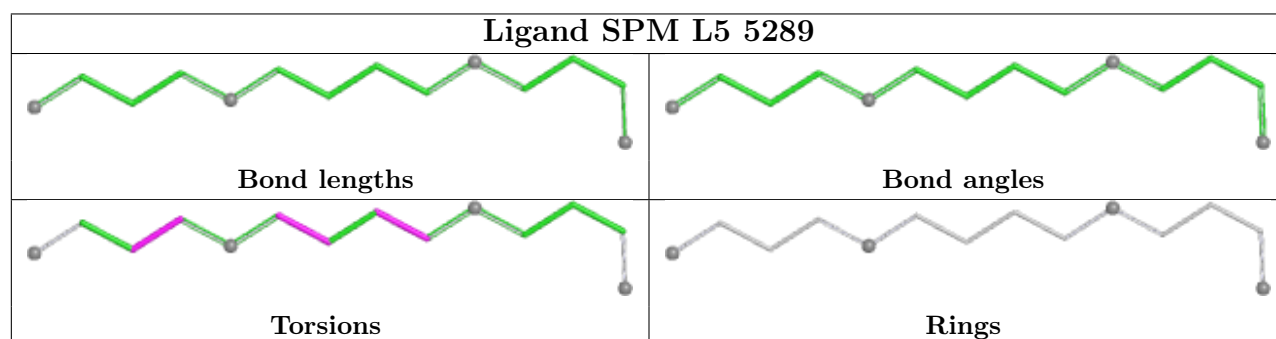
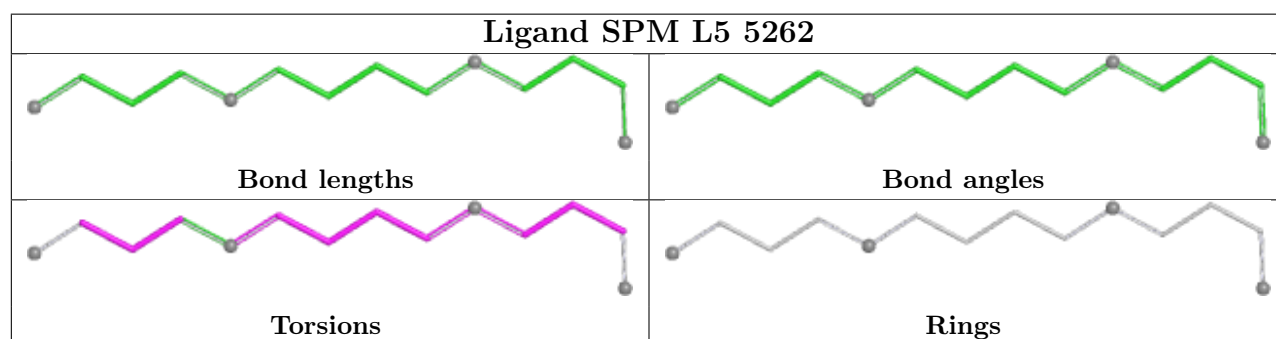
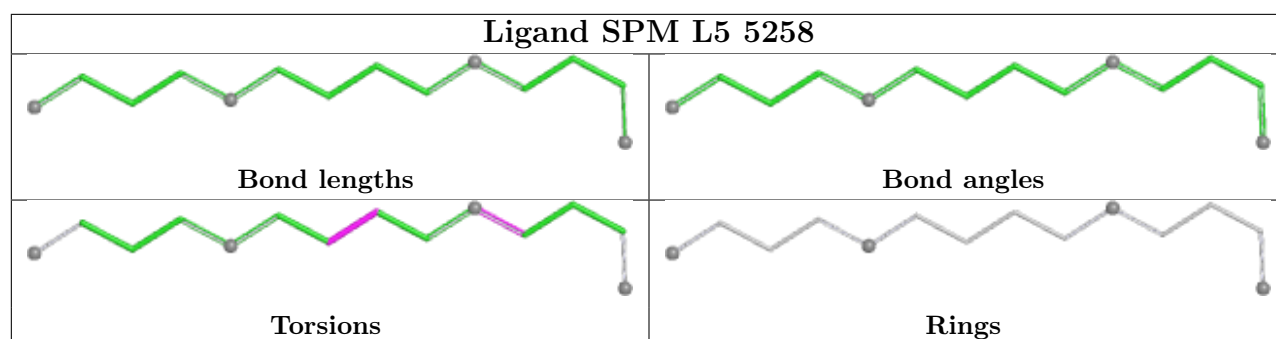
There are no ring outliers.

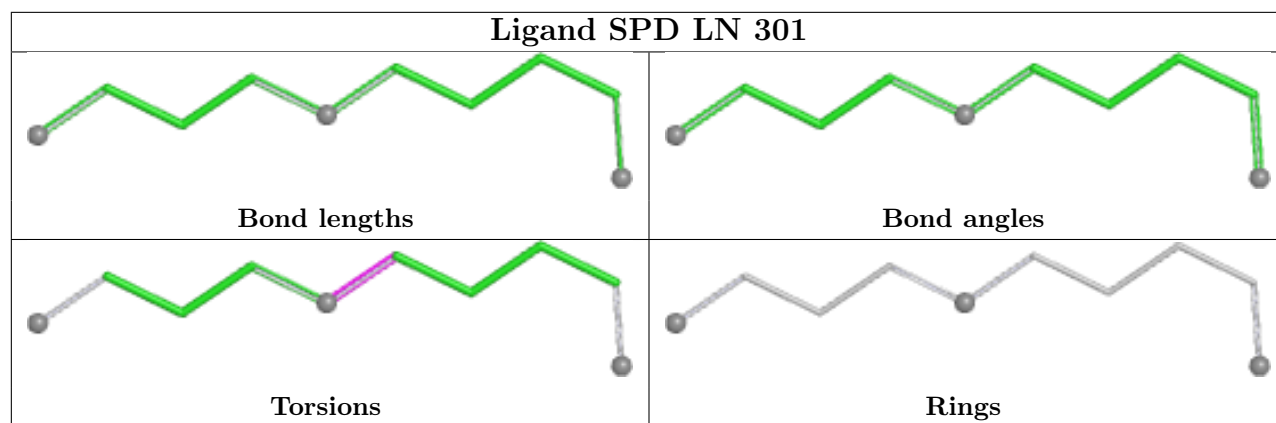
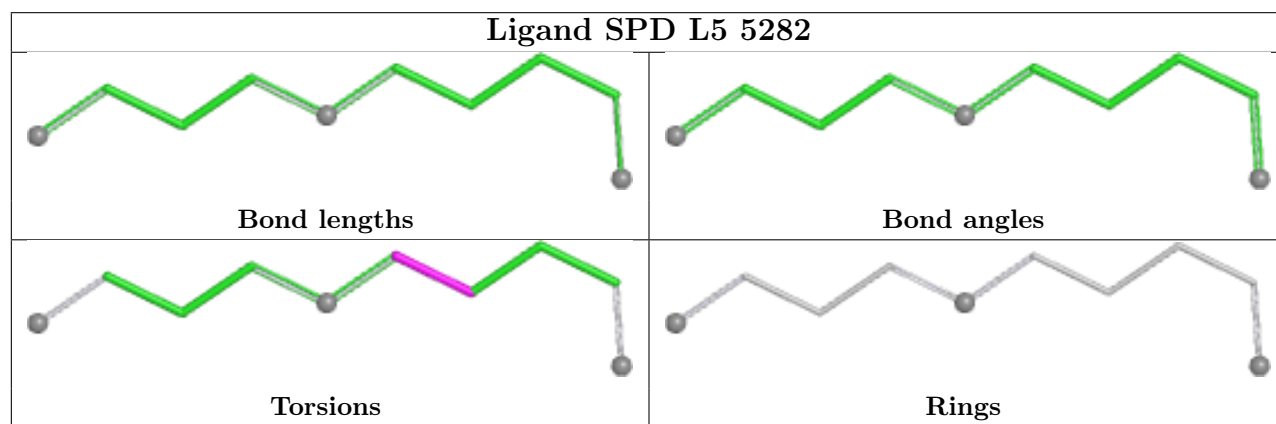
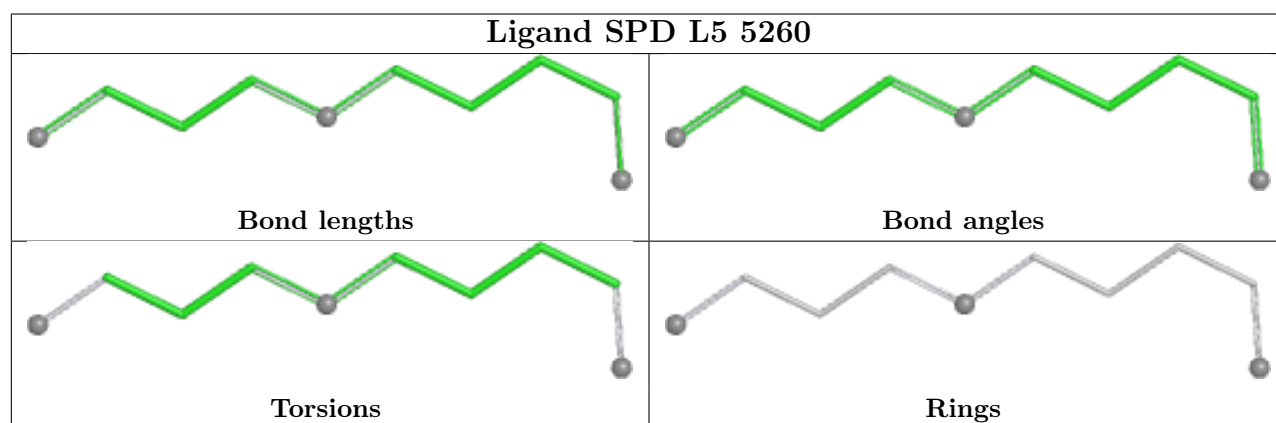
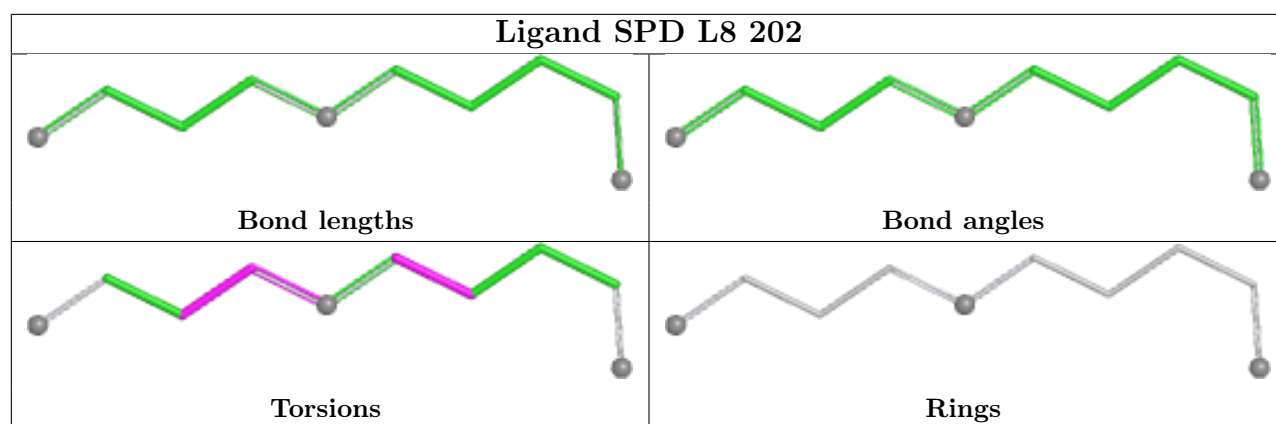
9 monomers are involved in 11 short contacts:

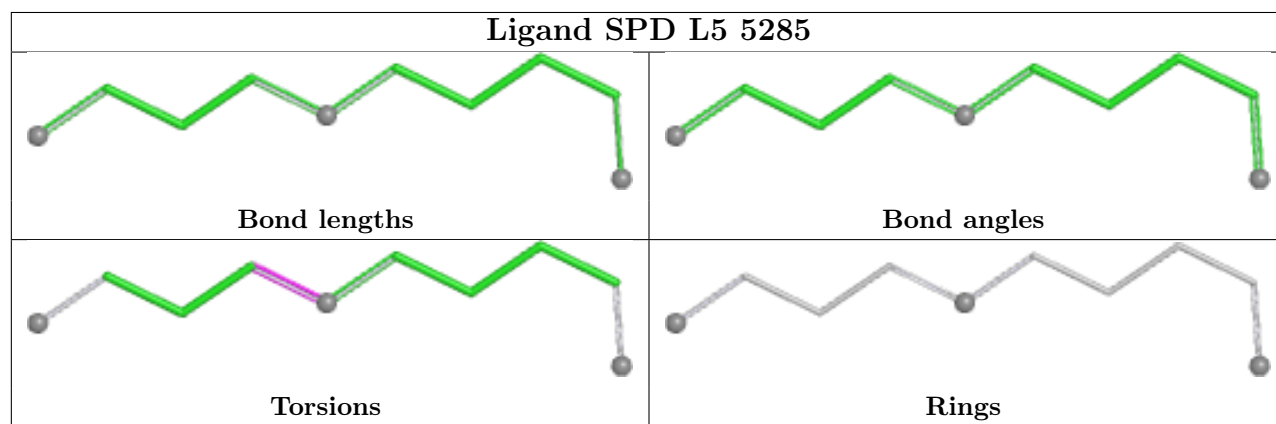
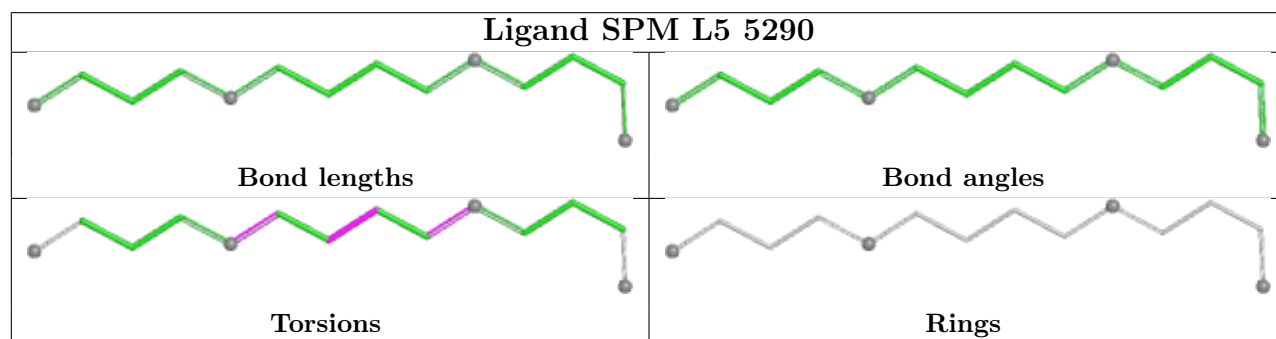
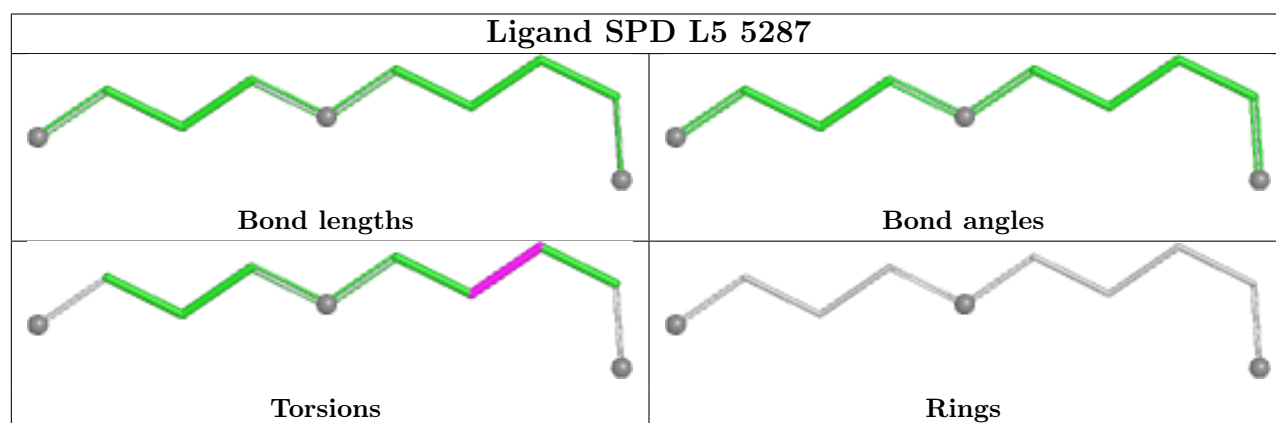
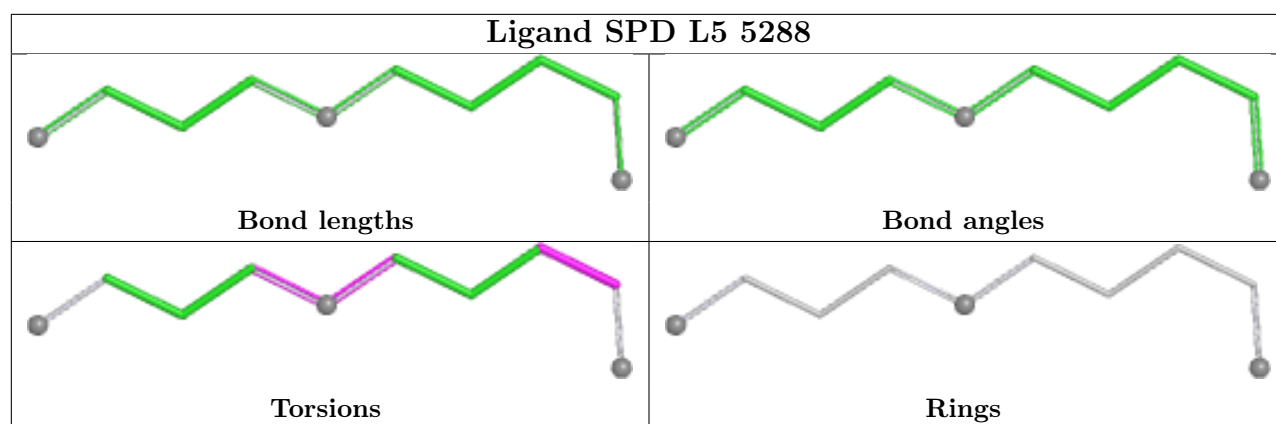
| Mol | Chain | Res  | Type | Clashes | Symm-Clashes |
|-----|-------|------|------|---------|--------------|
| 88  | L5    | 5262 | SPM  | 1       | 0            |
| 88  | L5    | 5289 | SPM  | 1       | 0            |
| 88  | L5    | 5263 | SPM  | 1       | 0            |
| 88  | L5    | 5266 | SPM  | 1       | 0            |
| 89  | L5    | 5260 | SPD  | 1       | 0            |
| 89  | L5    | 5282 | SPD  | 2       | 0            |
| 89  | LN    | 301  | SPD  | 1       | 0            |
| 89  | L5    | 5288 | SPD  | 1       | 0            |
| 88  | L5    | 5290 | SPM  | 2       | 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 |
|-----|-------|------------------|
| 4   | L5    | 10               |
| 84  | S2    | 5                |
| 2   | Pt    | 1                |
| 3   | Et    | 1                |
| 85  | AT    | 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      | 29.37        |
| 1     | L5    | 1706:A    | O3'    | 1716:G    | P      | 21.25        |
| 1     | L5    | 2910:G    | O3'    | 3584:C    | P      | 21.20        |
| 1     | L5    | 760:G     | O3'    | 903:C     | P      | 16.82        |
| 1     | L5    | 519:C     | O3'    | 642:G     | P      | 15.80        |
| 1     | L5    | 2112:G    | O3'    | 2249:C    | P      | 15.22        |
| 1     | L5    | 4776:G    | O3'    | 4858:C    | P      | 15.05        |
| 1     | S2    | 698:G     | O3'    | 730:C     | P      | 14.63        |
| 1     | L5    | 3954:A    | O3'    | 4056:A    | P      | 13.42        |
| 1     | S2    | 739:C     | O3'    | 746:C     | P      | 12.44        |
| 1     | L5    | 990:C     | O3'    | 1064:G    | P      | 12.34        |
| 1     | L5    | 1222:A    | O3'    | 1234:G    | P      | 10.82        |
| 1     | Pt    | 15:G      | O3'    | 18:G      | P      | 9.99         |
| 1     | S2    | 225:G     | O3'    | 287:U     | P      | 7.52         |
| 1     | L5    | 1100:U    | O3'    | 1167:C    | P      | 7.02         |
| 1     | Et    | 16:C      | O3'    | 18:U      | P      | 6.26         |
| 1     | AT    | 16:C      | O3'    | 18:G      | P      | 5.32         |
| 1     | S2    | 1831:A    | O3'    | 1832:6MZ  | P      | 4.27         |

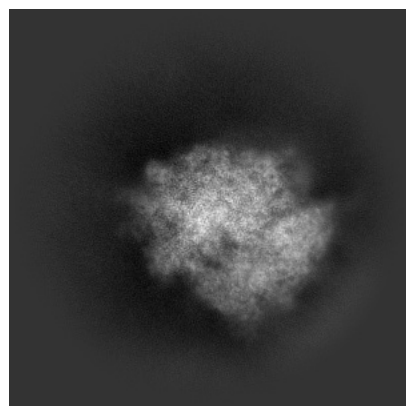
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-71345. These allow visual inspection of the internal detail of the map and identification of artifacts.

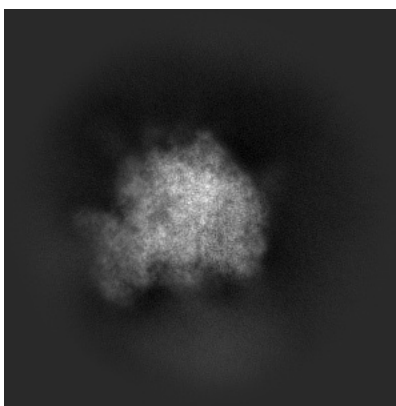
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

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

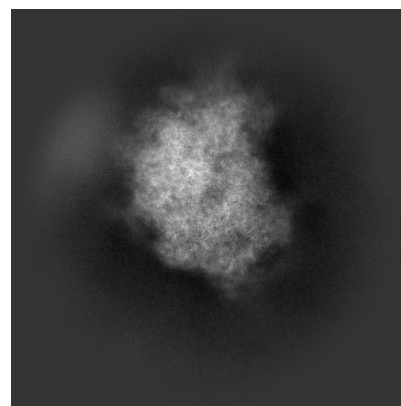
#### 6.1.1 Primary map



X

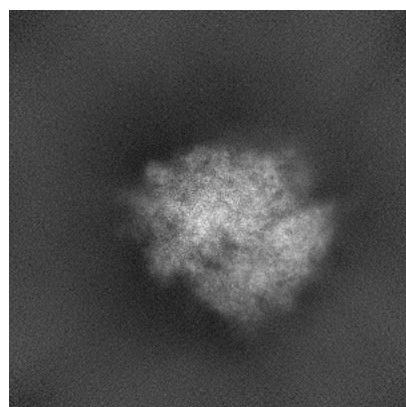


Y

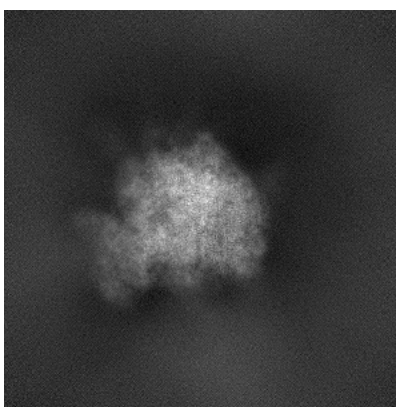


Z

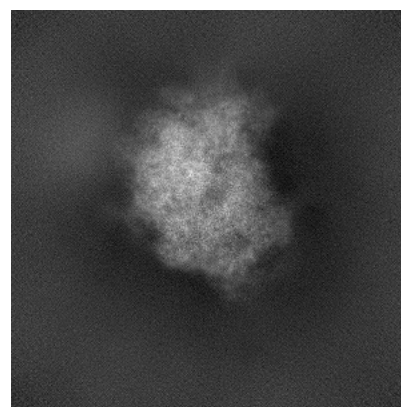
#### 6.1.2 Raw map



X



Y



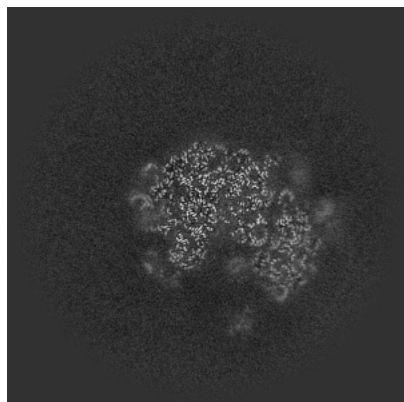
Z

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

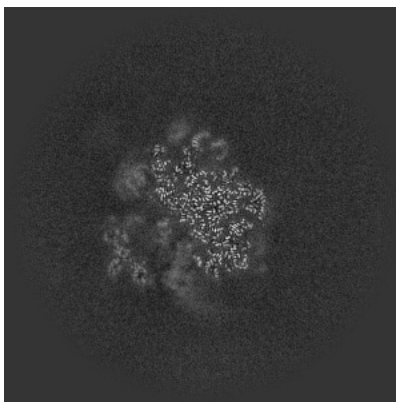


## 6.2 Central slices [i](#)

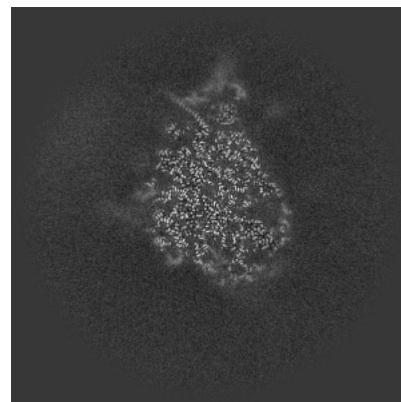
### 6.2.1 Primary map



X Index: 256

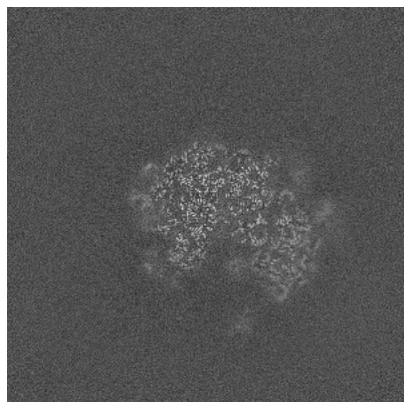


Y Index: 256

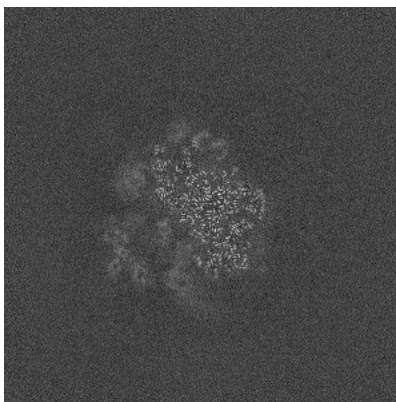


Z Index: 256

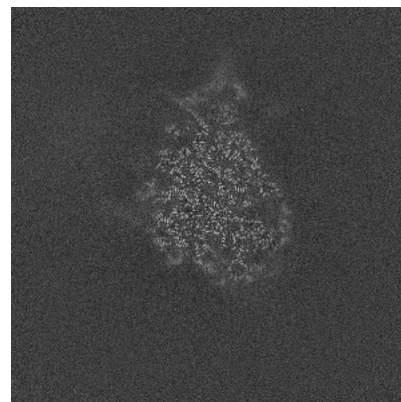
### 6.2.2 Raw map



X Index: 256



Y Index: 256



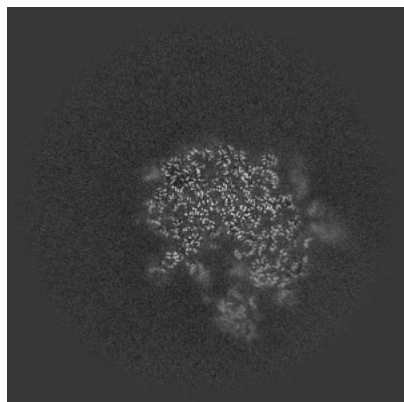
Z Index: 256

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

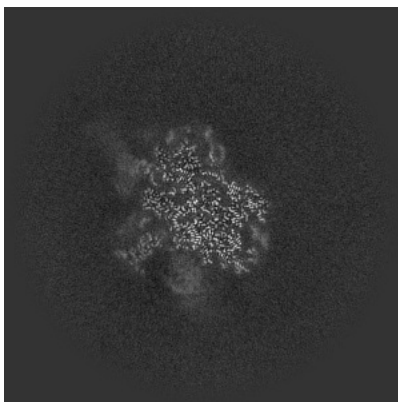


## 6.3 Largest variance slices [i](#)

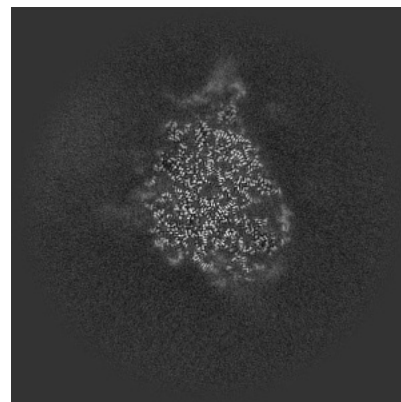
### 6.3.1 Primary map



X Index: 242

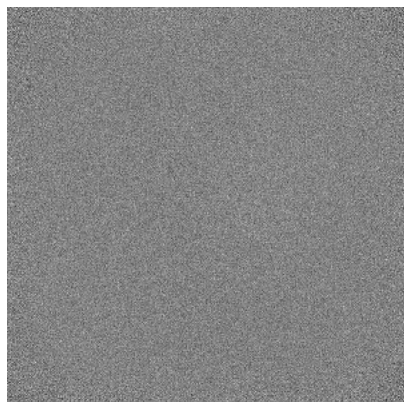


Y Index: 243

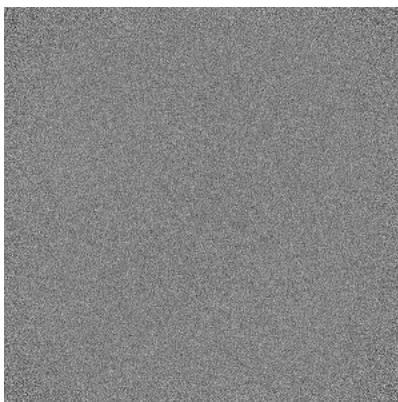


Z Index: 258

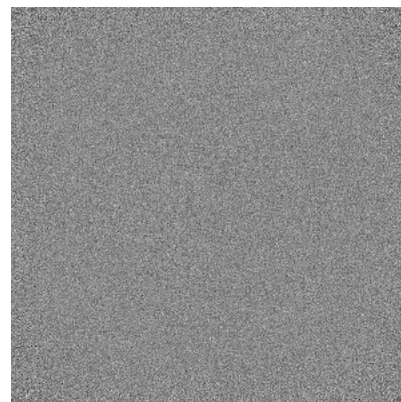
### 6.3.2 Raw map



X Index: 0



Y Index: 0

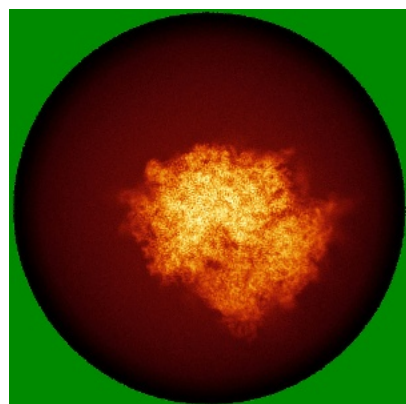


Z Index: 0

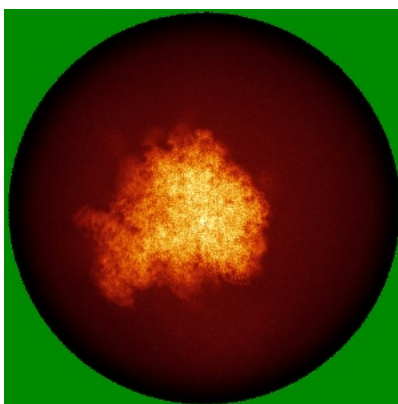
The images above show the largest variance slices of the map in three orthogonal directions.

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

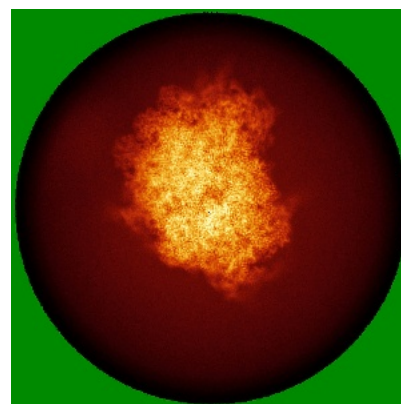
### 6.4.1 Primary map



X

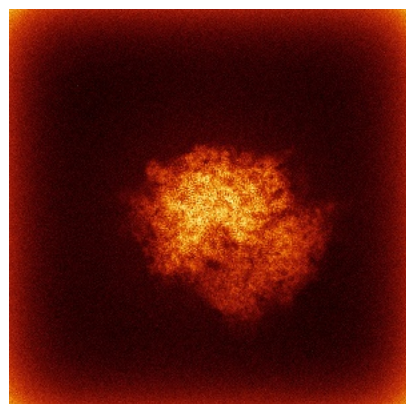


Y

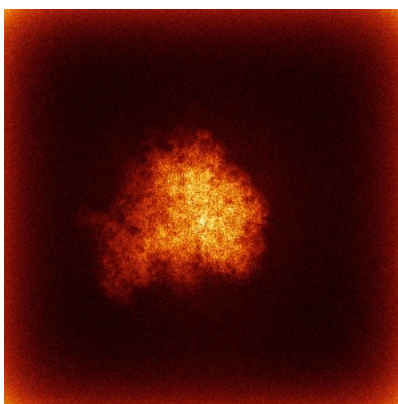


Z

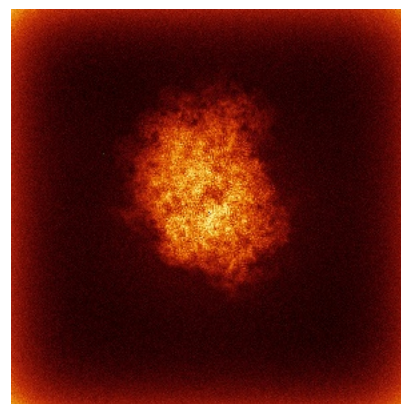
### 6.4.2 Raw map



X



Y

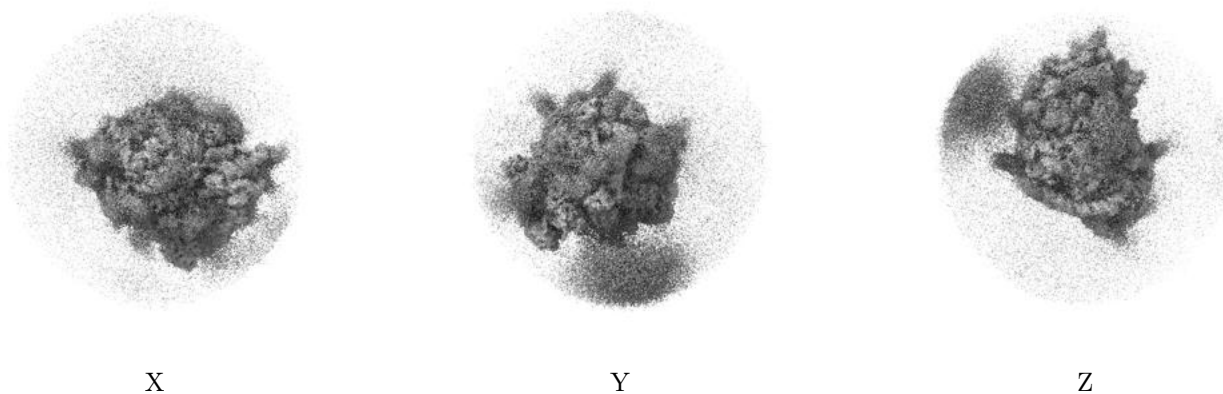


Z

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.

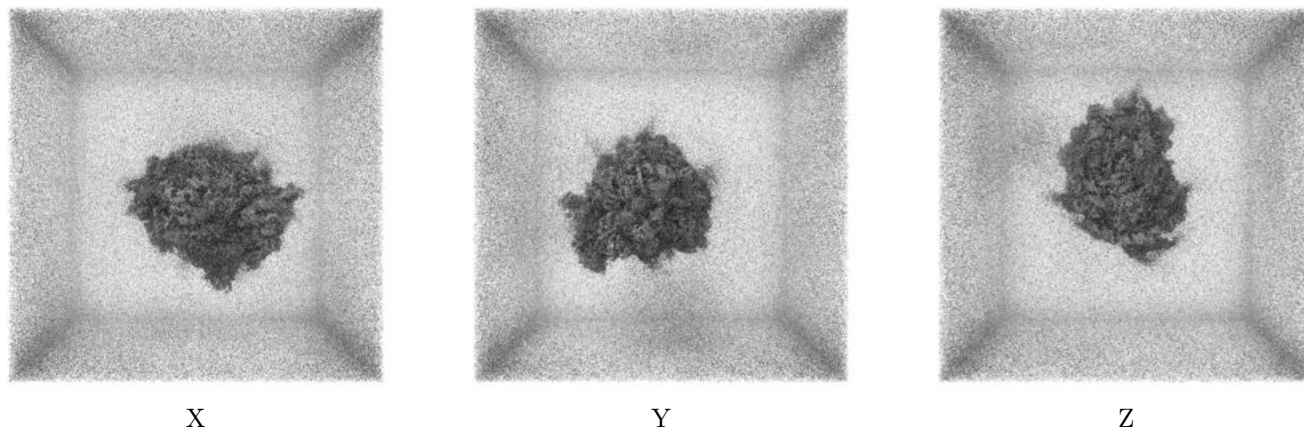
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.0226. 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.

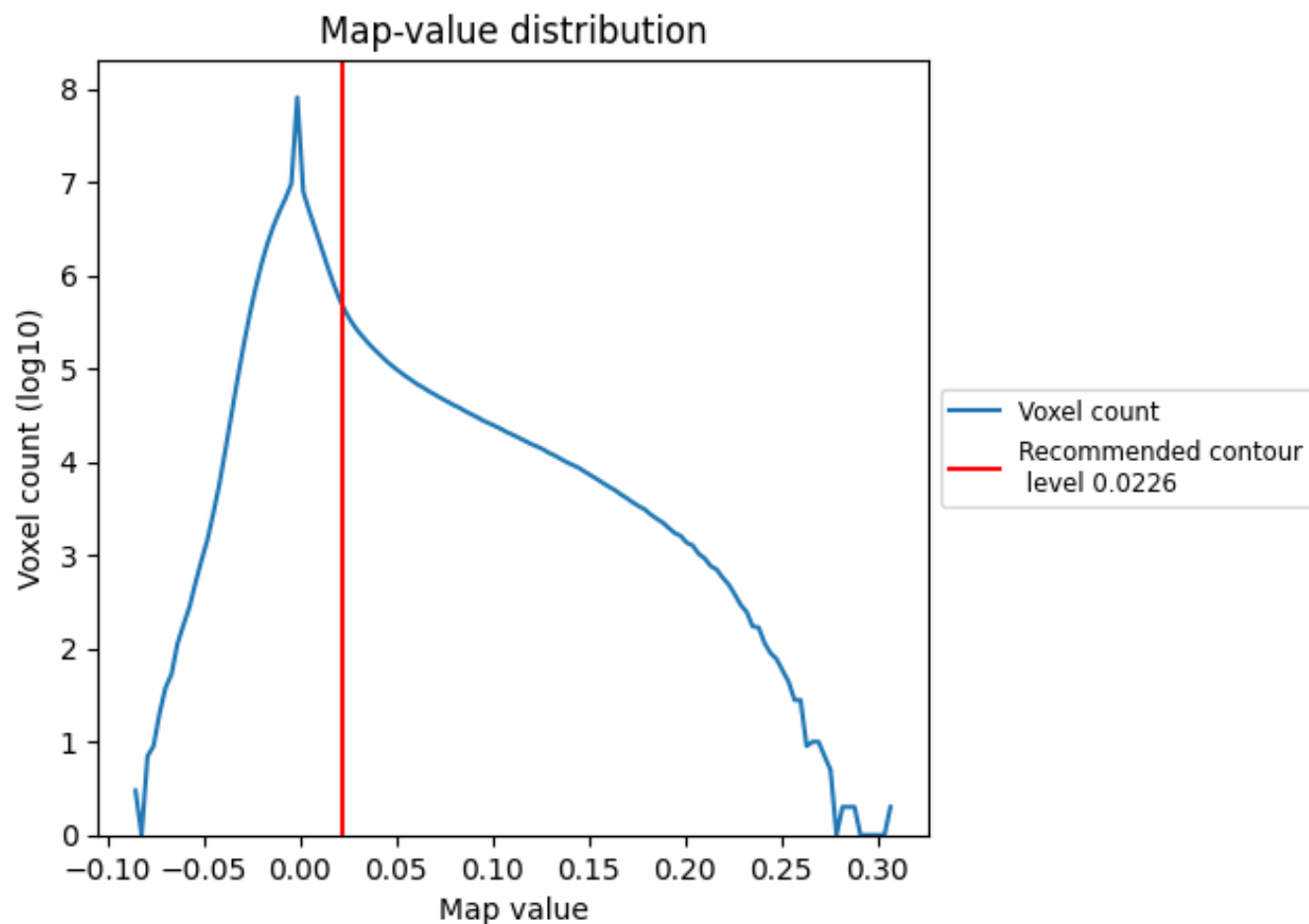
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

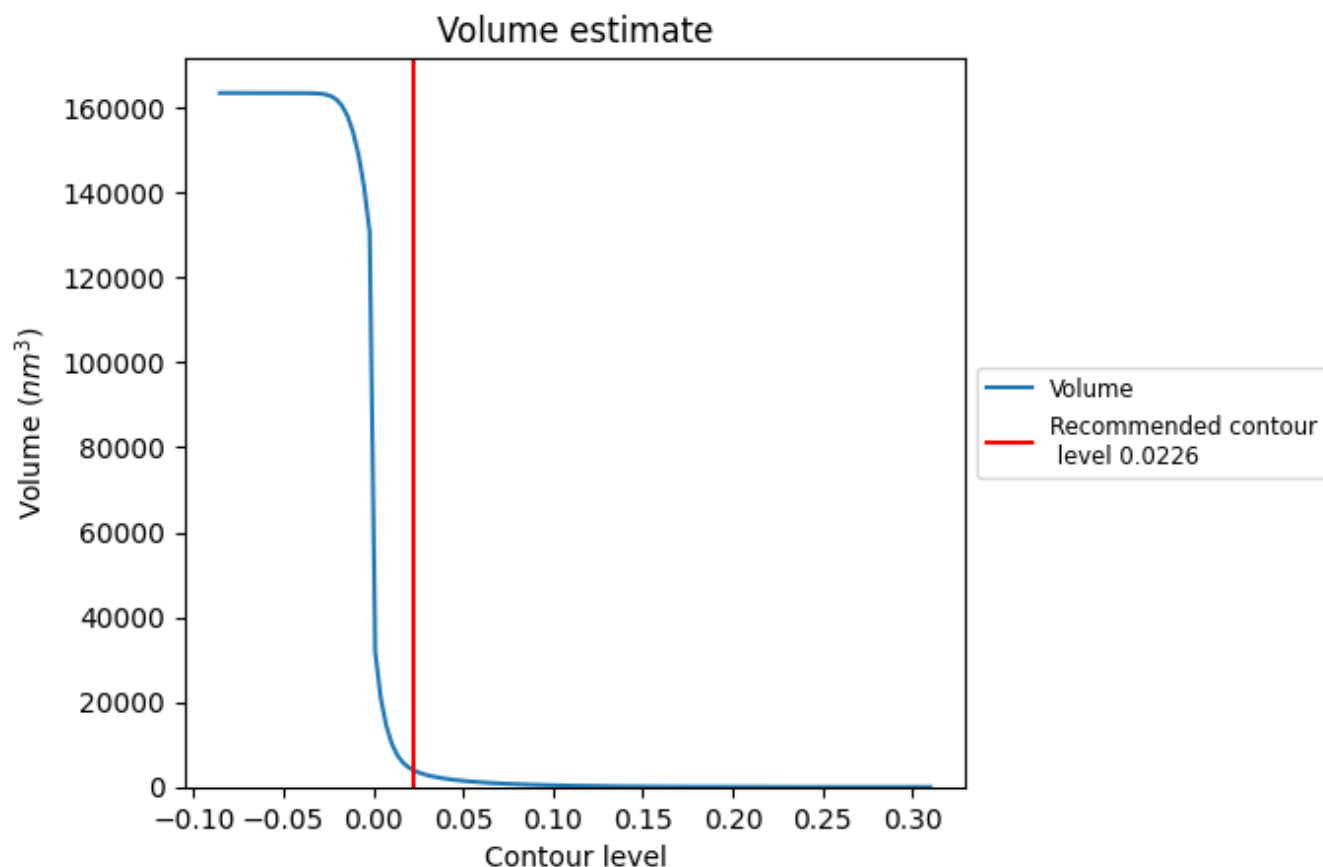
This section contains the results of statistical analysis of the map.

### 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](#)

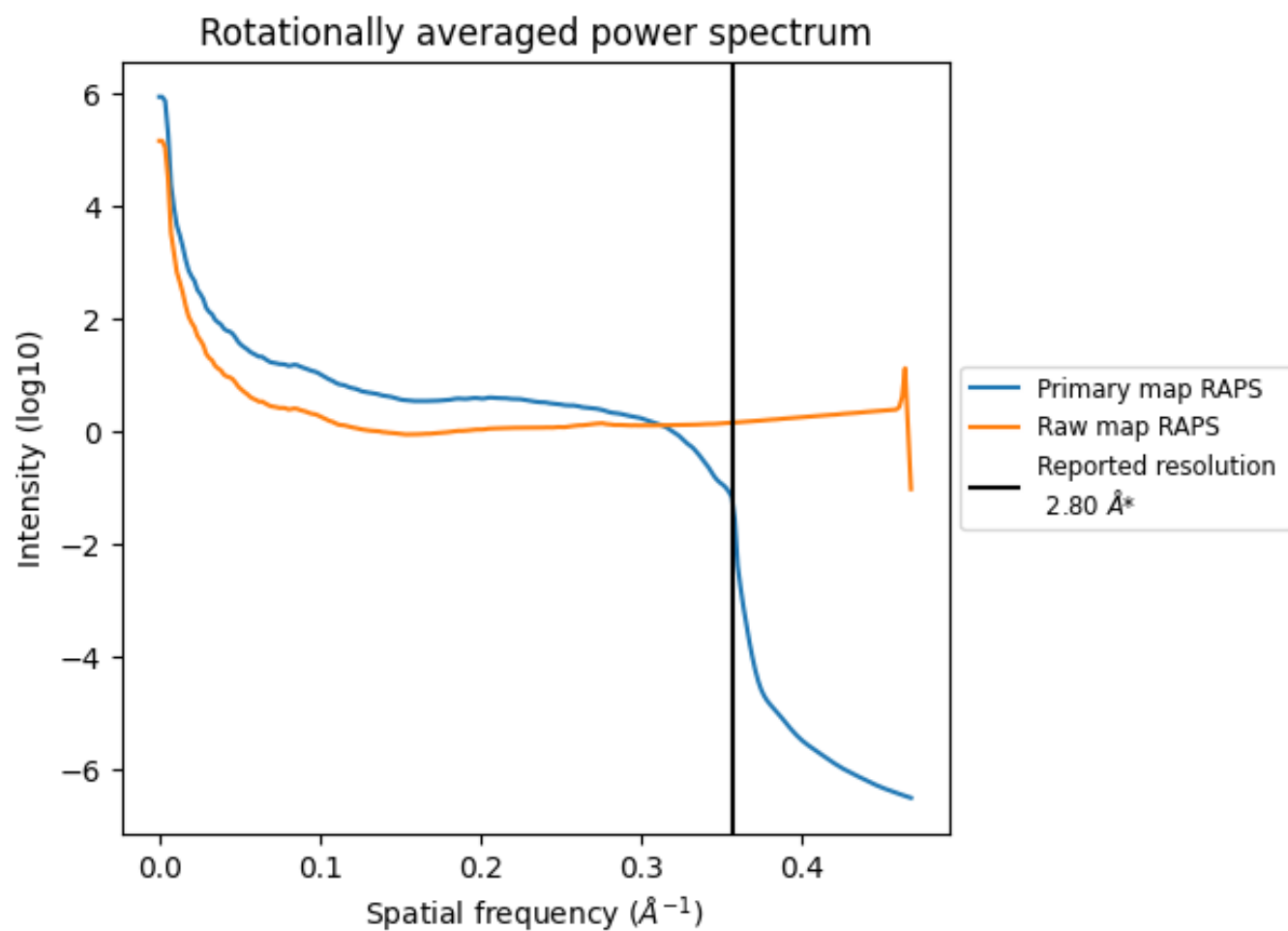


The volume at the recommended contour level is 3897  $\text{nm}^3$ ; this corresponds to an approximate mass of 3520 kDa.

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 [i](#)

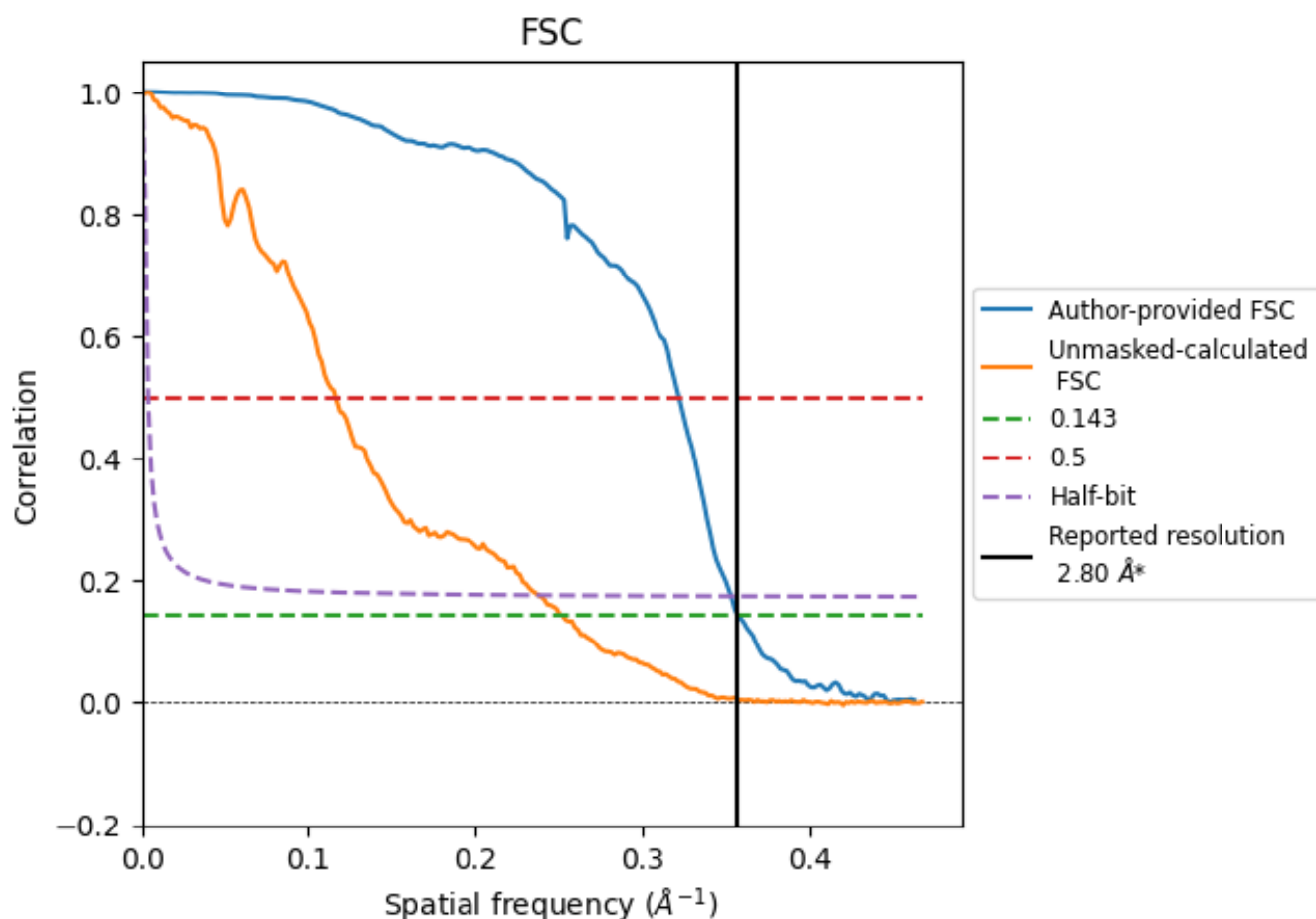


\*Reported resolution corresponds to spatial frequency of 0.357  $\text{\AA}^{-1}$

## 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 0.357  $\text{\AA}^{-1}$

## 8.2 Resolution estimates [i](#)

| Resolution estimate (Å)   | Estimation criterion (FSC cut-off) |      |          |
|---------------------------|------------------------------------|------|----------|
|                           | 0.143                              | 0.5  | Half-bit |
| Reported by author        | 2.80                               | -    | -        |
| Author-provided FSC curve | 2.80                               | 3.10 | 2.83     |
| Unmasked-calculated*      | 3.97                               | 8.60 | 4.20     |

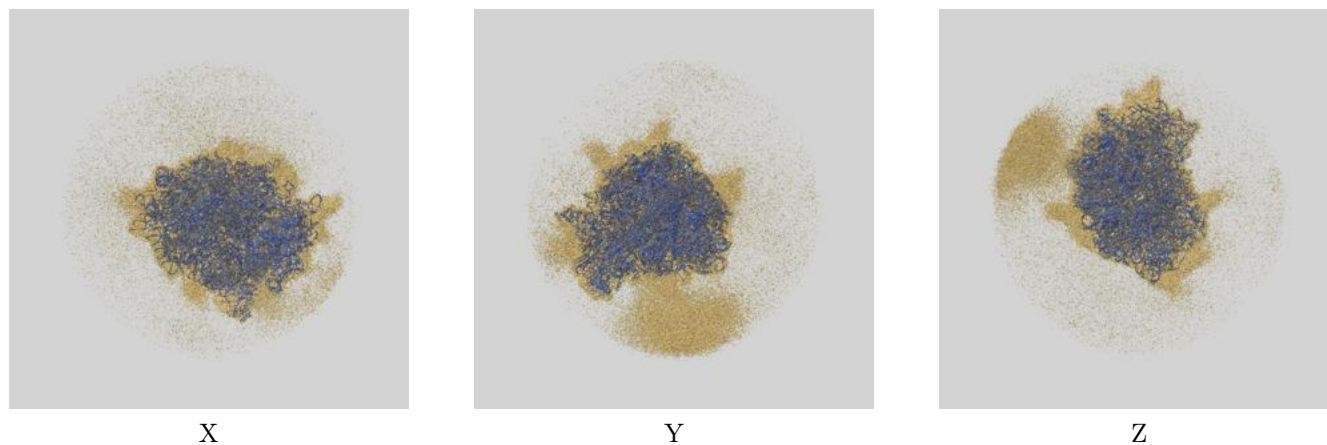
\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.97 differs from the reported value 2.8 by more than 10 %



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

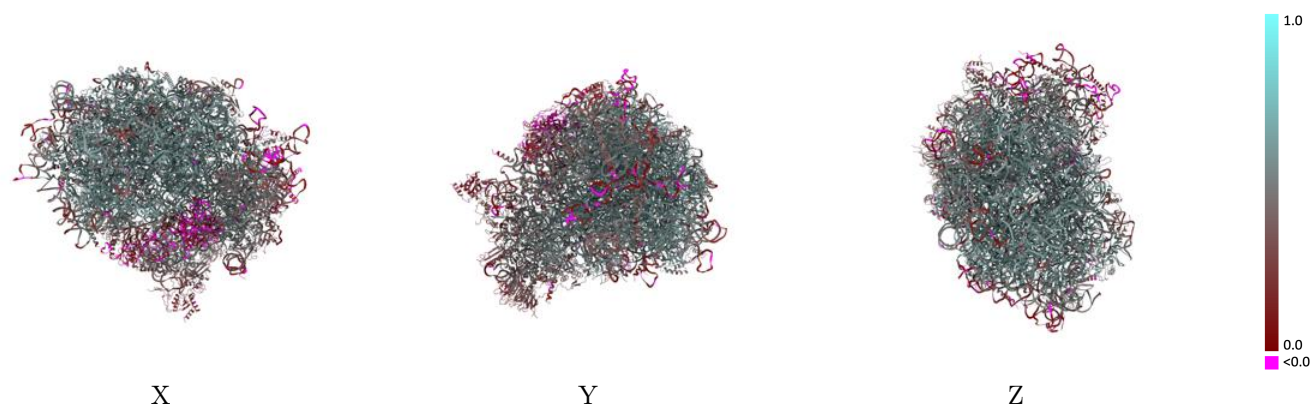
This section contains information regarding the fit between EMDB map EMD-71345 and PDB model 9P7K. Per-residue inclusion information can be found in [section 3](#) on [page 23](#).

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



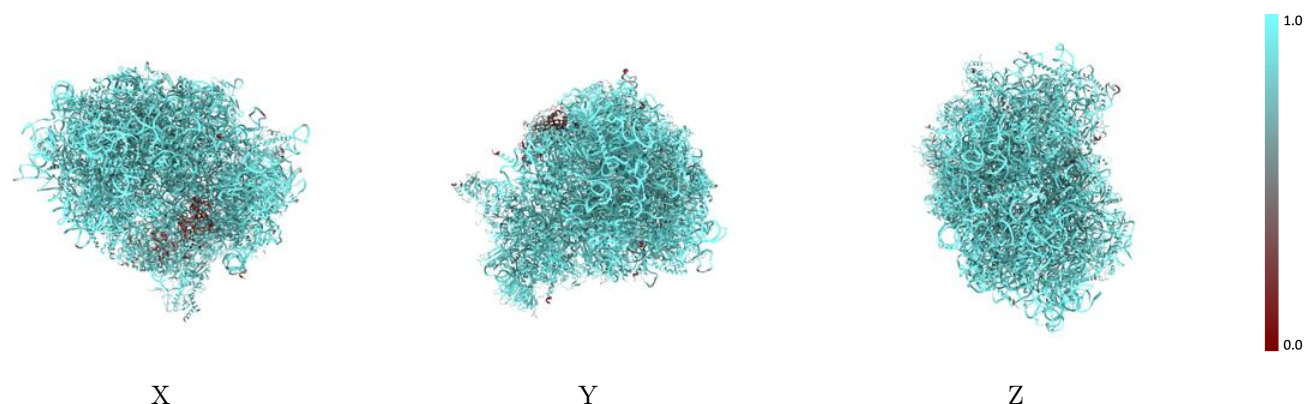
The images above show the 3D surface view of the map at the recommended contour level 0.0226 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



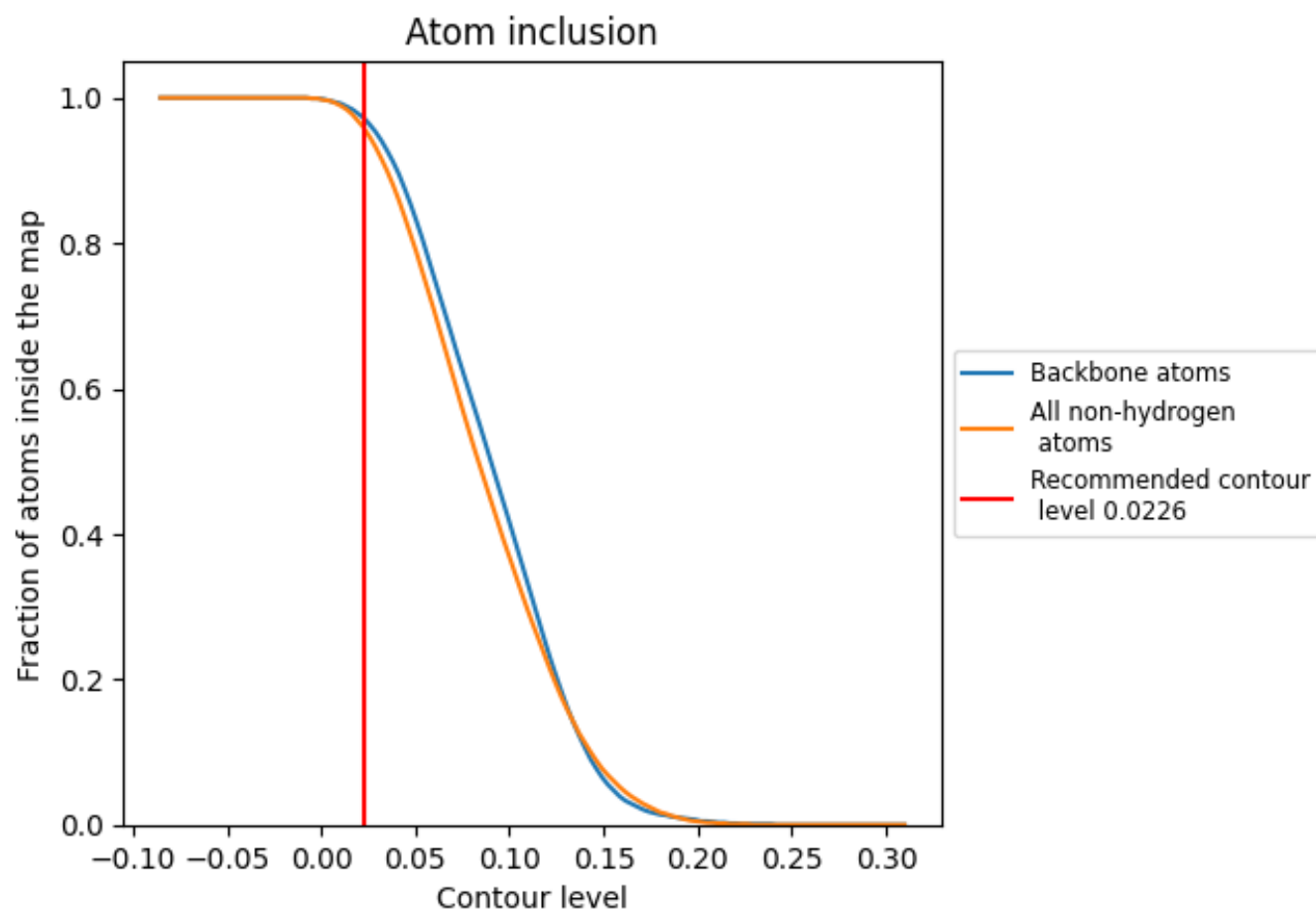
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.0226).

## 9.4 Atom inclusion [i](#)



At the recommended contour level, 97% of all backbone atoms, 96% 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 (0.0226) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion                                                                             | Q-score                                                                                    |
|-------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| All   |  0.9590   |  0.4840   |
| AT    |  0.9050   |  0.1160   |
| CF    |  0.4740   |  0.0290   |
| CI    |  0.8410   |  0.4160   |
| Et    |  0.8260   |  0.1710   |
| L5    |  0.9870   |  0.5240   |
| L7    |  0.9980   |  0.5760   |
| L8    |  0.9900   |  0.5520   |
| LA    |  0.9900   |  0.5910   |
| LB    |  0.9650   |  0.5630   |
| LC    |  0.9680   |  0.5630   |
| LD    |  0.9580   |  0.5180   |
| LE    |  0.9410   |  0.4910   |
| LF    |  0.9860   |  0.5640   |
| LG    |  0.9270  |  0.4940  |
| LH    |  0.9740 |  0.5500 |
| LI    |  0.9750 |  0.5560 |
| LJ    |  0.9460 |  0.4940 |
| LL    |  0.9390 |  0.5330 |
| LM    |  0.9680 |  0.5400 |
| LN    |  0.9960 |  0.6030 |
| LO    |  0.9760 |  0.5650 |
| LP    |  0.9740 |  0.5750 |
| LQ    |  0.9870 |  0.5880 |
| LR    |  0.9410 |  0.5150 |
| LS    |  0.9840 |  0.5870 |
| LT    |  0.9640 |  0.5490 |
| LU    |  0.9440 |  0.4710 |
| LV    |  0.9840 |  0.5740 |
| LW    |  0.9030 |  0.3760 |
| LX    |  0.9600 |  0.5400 |
| LY    |  0.9660 |  0.5510 |
| LZ    |  0.9790 |  0.5420 |
| La    |  0.9850 |  0.5920 |
| Lb    |  0.9290 |  0.4810 |



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| Chain | Atom inclusion                                                                             | Q-score                                                                                    |
|-------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Lc    |  0.9630   |  0.5310   |
| Ld    |  0.9670   |  0.5510   |
| Le    |  0.9840   |  0.5840   |
| Lf    |  0.9860   |  0.5960   |
| Lg    |  0.9710   |  0.5600   |
| Lh    |  0.9560   |  0.5410   |
| Li    |  0.9740   |  0.5430   |
| Lj    |  0.9910   |  0.5940   |
| Lk    |  0.9350   |  0.4850   |
| Ll    |  0.9840   |  0.5780   |
| Lm    |  0.9660   |  0.5620   |
| Ln    |  0.9860   |  0.5650   |
| Lo    |  0.9800   |  0.5570   |
| Lp    |  0.9740   |  0.5650   |
| Lr    |  0.9810   |  0.5710   |
| Ls    |  0.6300   |  0.0970   |
| Lt    |  0.6060   |  0.0910   |
| Pt    |  0.9890   |  0.4560   |
| S2    |  0.9890   |  0.4660   |
| SA    |  0.9320  |  0.4530  |
| SB    |  0.9430 |  0.4860 |
| SC    |  0.9660 |  0.4950 |
| SD    |  0.9330 |  0.3800 |
| SE    |  0.9640 |  0.4460 |
| SF    |  0.9280 |  0.4120 |
| SG    |  0.9180 |  0.3450 |
| SH    |  0.8970 |  0.3830 |
| SI    |  0.9400 |  0.4680 |
| SJ    |  0.9340 |  0.4340 |
| SK    |  0.9240 |  0.3370 |
| SL    |  0.9380 |  0.4940 |
| SM    |  0.7570 |  0.1730 |
| SN    |  0.9690 |  0.5230 |
| SO    |  0.9550 |  0.5040 |
| SP    |  0.8970 |  0.3650 |
| SQ    |  0.9250 |  0.4080 |
| SR    |  0.8990 |  0.3950 |
| SS    |  0.8980 |  0.3940 |
| ST    |  0.9320 |  0.3910 |
| SU    |  0.9060 |  0.3500 |
| SV    |  0.9550 |  0.4620 |
| SW    |  0.9760 |  0.5180 |

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| Chain | Atom inclusion                                                                           | Q-score                                                                                  |
|-------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| SX    |  0.9660 |  0.5000 |
| SY    |  0.9080 |  0.3660 |
| SZ    |  0.8680 |  0.3750 |
| Sa    |  0.9580 |  0.5070 |
| Sb    |  0.9370 |  0.4610 |
| Sc    |  0.8890 |  0.3780 |
| Sd    |  0.9730 |  0.4520 |
| Se    |  0.9080 |  0.3570 |
| Sf    |  0.8220 |  0.1880 |
| Sg    |  0.8990 |  0.3100 |