



## Full wwPDB EM Validation Report ⓘ

Sep 16, 2026 – 05:50 pm BST

PDB ID : 9SL6 / pdb\_00009sl6  
EMDB ID : EMD-53670  
Title : Model of M. pneumoniae 70S eT-TC (flexible)  
Authors : Dobbs, J.M.; Mahamid, J.  
Deposited on : 2025-09-03  
Resolution : 5.80 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:

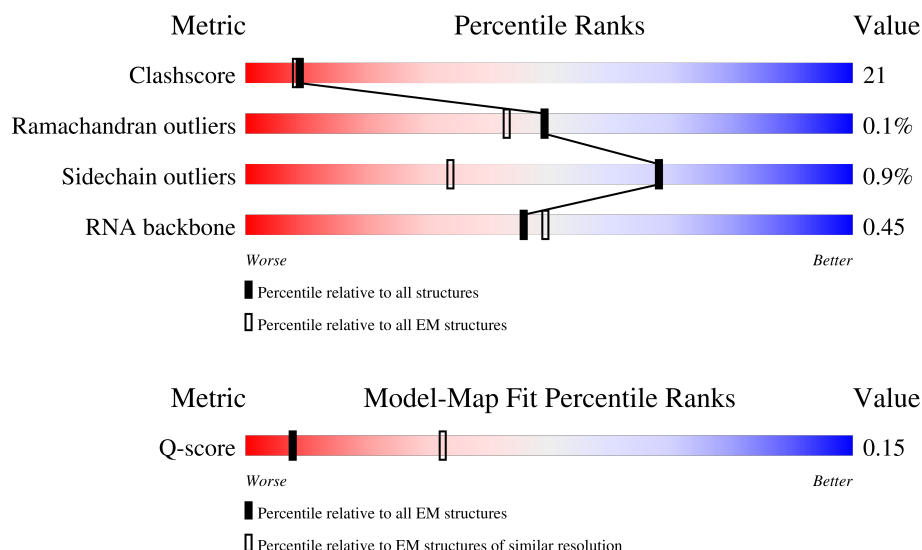
EMDB validation analysis : 0.0.1.dev133  
MolProbity : 4-5-2 with Phenix2.0  
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)  
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.50

# 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 5.80 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.



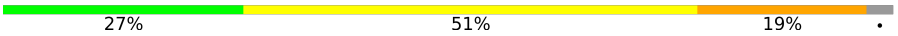
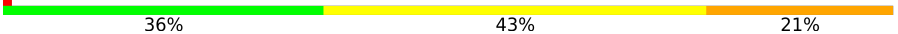
| Metric                | Whole archive<br>(#Entries) | EM structures<br>(#Entries) | Similar EM resolution<br>(#Entries, resolution range(Å)) |
|-----------------------|-----------------------------|-----------------------------|----------------------------------------------------------|
| Clashscore            | 229148                      | 23984                       | -                                                        |
| Ramachandran outliers | 224038                      | 23583                       | -                                                        |
| Sidechain outliers    | 223484                      | 23102                       | -                                                        |
| RNA backbone          | 8273                        | 3508                        | -                                                        |
| Q-score               | -                           | 25397                       | 511 ( 5.30 - 6.30 )                                      |

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   | 0     | 47     |                  |
| 2   | 1     | 59     |                  |
| 3   | 2     | 37     |                  |

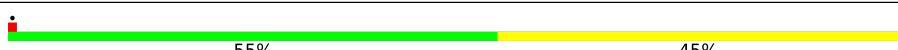
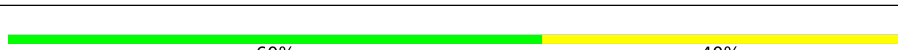
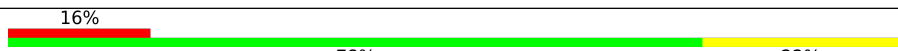
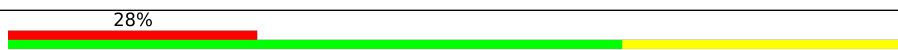
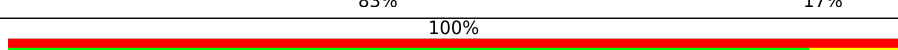
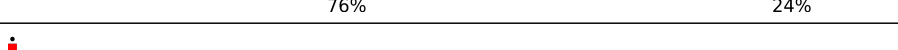
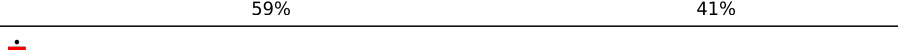
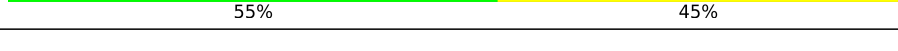
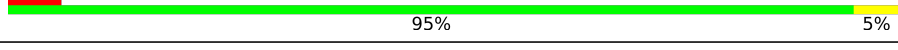
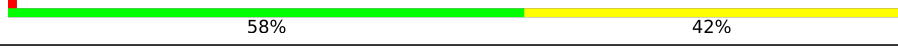
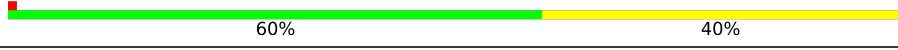
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| Mol | Chain | Length | Quality of chain                                                                     |
|-----|-------|--------|--------------------------------------------------------------------------------------|
| 4   | 3     | 2893   |    |
| 5   | 4     | 108    |    |
| 6   | 5     | 1505   |    |
| 7   | 6     | 327    |    |
| 7   | AA    | 327    |    |
| 8   | 7     | 76     |    |
| 9   | 8     | 1391   |    |
| 10  | 9     | 89     |    |
| 11  | A     | 240    |    |
| 12  | AB    | 366    |    |
| 13  | AC    | 32     |    |
| 14  | AD    | 32     |   |
| 15  | AE    | 160    |  |
| 16  | B     | 215    |  |
| 17  | C     | 203    |  |
| 18  | D     | 153    |  |
| 19  | E     | 167    |  |
| 20  | F     | 154    |  |
| 21  | G     | 141    |  |
| 22  | H     | 128    |  |
| 23  | I     | 101    |  |
| 24  | J     | 114    |  |
| 25  | K     | 136    |  |
| 26  | L     | 118    |  |
| 27  | M     | 60     |  |

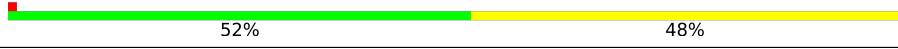
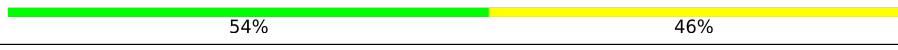
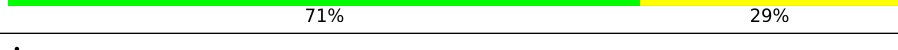
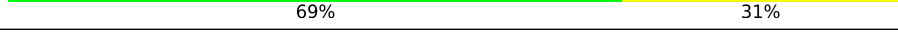
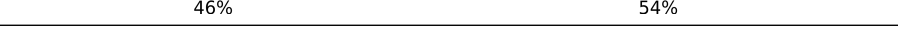
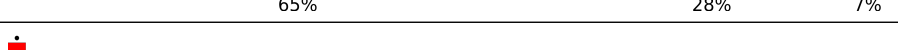
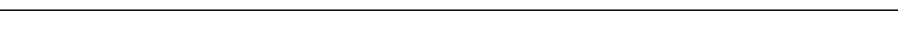
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| Mol | Chain | Length | Quality of chain                                                                     |
|-----|-------|--------|--------------------------------------------------------------------------------------|
| 28  | N     | 83     |    |
| 29  | O     | 80     |    |
| 30  | P     | 83     |    |
| 31  | Q     | 65     |    |
| 32  | R     | 84     |    |
| 33  | S     | 77     |    |
| 34  | T     | 53     |    |
| 35  | U     | 161    |    |
| 36  | V     | 29     |    |
| 36  | W     | 29     |    |
| 36  | X     | 29     |    |
| 36  | Y     | 29     |    |
| 37  | Z     | 1276   |  |
| 38  | a     | 285    |  |
| 39  | b     | 229    |  |
| 40  | c     | 210    |  |
| 41  | d     | 175    |  |
| 42  | e     | 176    |  |
| 43  | f     | 145    |  |
| 44  | h     | 128    |  |
| 45  | i     | 144    |  |
| 46  | j     | 122    |  |
| 47  | k     | 148    |  |
| 48  | l     | 136    |  |
| 49  | m     | 119    |  |

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| Mol | Chain | Length | Quality of chain                                                                     |
|-----|-------|--------|--------------------------------------------------------------------------------------|
| 50  | n     | 116    |    |
| 51  | o     | 115    |    |
| 52  | p     | 114    |    |
| 53  | q     | 99     |    |
| 54  | r     | 139    |    |
| 55  | s     | 92     |    |
| 56  | t     | 111    |    |
| 57  | u     | 86     |    |
| 58  | v     | 63     |    |
| 59  | w     | 108    |    |
| 60  | x     | 44     |    |
| 61  | y     | 56     |  |
| 62  | z     | 50     |  |

## 2 Entry composition

There are 62 unique types of molecules in this entry. The entry contains 177858 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 Large ribosomal subunit protein bL34.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 1   | 0     | 47       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 380   | 236 | 81 | 61 | 2 |         |       |

- Molecule 2 is a protein called 50S ribosomal protein L35.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 2   | 1     | 59       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 477   | 300 | 99 | 77 | 1 |         |       |

- Molecule 3 is a protein called Large ribosomal subunit protein bL36.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 3   | 2     | 37       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 304   | 189 | 65 | 46 | 4 |         |       |

- Molecule 4 is a RNA chain called 23S ribosomal RNA.

| Mol | Chain | Residues | Atoms |       |       |       |      | AltConf | Trace |
|-----|-------|----------|-------|-------|-------|-------|------|---------|-------|
| 4   | 3     | 2878     | Total | C     | N     | O     | P    | 0       | 0     |
|     |       |          | 61664 | 27558 | 11236 | 19995 | 2875 |         |       |

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

| Mol | Chain | Residues | Atoms |      |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|-----|---------|-------|
| 5   | 4     | 105      | Total | C    | N   | O   | P   | 0       | 0     |
|     |       |          | 2239  | 1003 | 409 | 724 | 103 |         |       |

- Molecule 6 is a RNA chain called 16S ribosomal RNA.

| Mol | Chain | Residues | Atoms |       |      |       |      | AltConf | Trace |
|-----|-------|----------|-------|-------|------|-------|------|---------|-------|
| 6   | 5     | 1493     | Total | C     | N    | O     | P    | 0       | 0     |
|     |       |          | 31943 | 14279 | 5792 | 10382 | 1490 |         |       |

- Molecule 7 is a protein called DNA-directed RNA polymerase subunit alpha.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 7   | 6     | 308      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 2421  | 1550 | 407 | 454 | 10 |         |       |
| 7   | AA    | 312      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 2452  | 1571 | 412 | 459 | 10 |         |       |

- Molecule 8 is a RNA chain called tRNA-Phe.

| Mol | Chain | Residues | Atoms |     |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 8   | 7     | 76       | Total | C   | N   | O   | P  | 0       | 0     |
|     |       |          | 1618  | 723 | 289 | 531 | 75 |         |       |

- Molecule 9 is a protein called DNA-directed RNA polymerase subunit beta.

| Mol | Chain | Residues | Atoms |      |      |      |    | AltConf | Trace |
|-----|-------|----------|-------|------|------|------|----|---------|-------|
| 9   | 8     | 1391     | Total | C    | N    | O    | S  | 0       | 0     |
|     |       |          | 10948 | 6905 | 1892 | 2114 | 37 |         |       |

- Molecule 10 is a protein called Probable DNA-directed RNA polymerase subunit delta.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 10  | 9     | 89       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 770   | 505 | 122 | 140 | 3 |         |       |

- Molecule 11 is a protein called Small ribosomal subunit protein uS2.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 11  | A     | 240      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1921  | 1226 | 334 | 352 | 9 |         |       |

- Molecule 12 is a protein called Transcription termination/antitermination protein NusA.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 12  | AB    | 366      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 2884  | 1834 | 479 | 562 | 9 |         |       |

- Molecule 13 is a DNA chain called DNA.

| Mol | Chain | Residues | Atoms |     |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 13  | AC    | 32       | Total | C   | N   | O   | P  | 0       | 0     |
|     |       |          | 663   | 317 | 124 | 190 | 32 |         |       |

- Molecule 14 is a DNA chain called DNA.

| Mol | Chain | Residues | Atoms |     |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 14  | AD    | 32       | Total | C   | N   | O   | P  | 0       | 0     |
|     |       |          | 649   | 313 | 110 | 194 | 32 |         |       |

- Molecule 15 is a protein called Transcription termination/antitermination protein NusG.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 15  | AE    | 160      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1277  | 821 | 220 | 233 | 3 |         |       |

- Molecule 16 is a protein called Small ribosomal subunit protein uS3.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 16  | B     | 215      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1698  | 1073 | 313 | 307 | 5 |         |       |

- Molecule 17 is a protein called Small ribosomal subunit protein uS4.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 17  | C     | 203      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1660  | 1051 | 314 | 290 | 5 |         |       |

- Molecule 18 is a protein called Small ribosomal subunit protein uS5.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 18  | D     | 153      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1173  | 742 | 226 | 202 | 3 |         |       |

- Molecule 19 is a protein called Small ribosomal subunit protein bS6.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 19  | E     | 167      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1362  | 857 | 240 | 263 | 2 |         |       |

- Molecule 20 is a protein called Small ribosomal subunit protein uS7.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 20  | F     | 154      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1246  | 785 | 239 | 216 | 6 |         |       |

- Molecule 21 is a protein called Small ribosomal subunit protein uS8.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 21  | G     | 141      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1110  | 723 | 193 | 192 | 2 |         |       |

- Molecule 22 is a protein called Small ribosomal subunit protein uS9.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 22  | H     | 128      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1028  | 655 | 191 | 181 | 1 |         |       |

- Molecule 23 is a protein called Small ribosomal subunit protein uS10.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 23  | I     | 101      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 809   | 523 | 142 | 143 | 1 |         |       |

- Molecule 24 is a protein called Small ribosomal subunit protein uS11.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 24  | J     | 114      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 829   | 514 | 153 | 156 | 6 |         |       |

- Molecule 25 is a protein called Small ribosomal subunit protein uS12.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 25  | K     | 136      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1076  | 680 | 213 | 181 | 2 |         |       |

- Molecule 26 is a protein called Small ribosomal subunit protein uS13.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 26  | L     | 118      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 951   | 594 | 191 | 166 |   |         |       |

- Molecule 27 is a protein called Small ribosomal subunit protein uS14.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 27  | M     | 60       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 474   | 302 | 96 | 72 | 4 |         |       |

- Molecule 28 is a protein called Small ribosomal subunit protein uS15.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 28  | N     | 83       | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 673   | 428 | 125 | 120 |         |       |

- Molecule 29 is a protein called Small ribosomal subunit protein bS16.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 29  | O     | 80       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 646   | 414 | 119 | 111 | 2 |         |       |

- Molecule 30 is a protein called Small ribosomal subunit protein uS17.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 30  | P     | 83       | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 675   | 425 | 135 | 115 |         |       |

- Molecule 31 is a protein called Small ribosomal subunit protein bS18.

| Mol | Chain | Residues | Atoms |     |     |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 31  | Q     | 65       | Total | C   | N   | O  | S | 0       | 0     |
|     |       |          | 535   | 342 | 103 | 86 | 4 |         |       |

- Molecule 32 is a protein called Small ribosomal subunit protein uS19.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 32  | R     | 84       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 682   | 435 | 127 | 118 | 2 |         |       |

- Molecule 33 is a protein called Small ribosomal subunit protein bS20.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 33  | S     | 77       | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 629   | 383 | 135 | 111 |         |       |

- Molecule 34 is a protein called Small ribosomal subunit protein bS21.

| Mol | Chain | Residues | Atoms |     |     |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 34  | T     | 53       | Total | C   | N   | O  | S | 0       | 0     |
|     |       |          | 471   | 295 | 103 | 72 | 1 |         |       |

- Molecule 35 is a protein called 50S ribosomal protein L10.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 35  | U     | 161      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1239  | 796 | 213 | 225 | 5 |         |       |

- Molecule 36 is a protein called Large ribosomal subunit protein bL12.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 36  | V     | 29       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 232   | 146 | 34 | 50 | 2 |         |       |
| 36  | W     | 29       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 232   | 146 | 34 | 50 | 2 |         |       |
| 36  | X     | 29       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 232   | 146 | 34 | 50 | 2 |         |       |
| 36  | Y     | 29       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 232   | 146 | 34 | 50 | 2 |         |       |

- Molecule 37 is a protein called DNA-directed RNA polymerase subunit beta'.

| Mol | Chain | Residues | Atoms |      |      |      |    | AltConf | Trace |
|-----|-------|----------|-------|------|------|------|----|---------|-------|
| 37  | Z     | 1276     | Total | C    | N    | O    | S  | 0       | 0     |
|     |       |          | 10085 | 6431 | 1752 | 1872 | 30 |         |       |

- Molecule 38 is a protein called Large ribosomal subunit protein uL2.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 38  | a     | 285      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 2225  | 1385 | 437 | 397 | 6 |         |       |

- Molecule 39 is a protein called Large ribosomal subunit protein uL3.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 39  | b     | 229      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1762  | 1119 | 318 | 318 | 7 |         |       |

- Molecule 40 is a protein called Large ribosomal subunit protein uL4.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 40  | c     | 210      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1644  | 1047 | 297 | 297 | 3 |         |       |

- Molecule 41 is a protein called Large ribosomal subunit protein uL5.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 41  | d     | 175      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1388  | 893 | 245 | 246 | 4 |         |       |

- Molecule 42 is a protein called Large ribosomal subunit protein uL6.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 42  | e     | 176      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1396  | 899 | 247 | 250 |   |         |       |

- Molecule 43 is a protein called Large ribosomal subunit protein bL9.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 43  | f     | 145      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1160  | 746 | 204 | 207 | 3 |         |       |

- Molecule 44 is a protein called Large ribosomal subunit protein uL11.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 44  | h     | 128      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 959   | 616 | 160 | 177 | 6 |         |       |

- Molecule 45 is a protein called Large ribosomal subunit protein uL13.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 45  | i     | 144      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1164  | 737 | 213 | 209 | 5 |         |       |

- Molecule 46 is a protein called 50S ribosomal protein L14.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 46  | j     | 122      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 944   | 595 | 178 | 167 | 4 |         |       |

- Molecule 47 is a protein called Large ribosomal subunit protein uL15.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 47  | k     | 148      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1153  | 731 | 226 | 196 |   |         |       |

- Molecule 48 is a protein called Large ribosomal subunit protein uL16.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 48  | l     | 136      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1079  | 694 | 196 | 182 | 7 |         |       |

- Molecule 49 is a protein called Large ribosomal subunit protein bL17.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 49  | m     | 119      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 958   | 609 | 175 | 171 | 3 |         |       |

- Molecule 50 is a protein called Large ribosomal subunit protein uL18.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 50  | n     | 112      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 889   | 557 | 175 | 155 | 2 |         |       |

- Molecule 51 is a protein called Large ribosomal subunit protein bL19.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 51  | o     | 115      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 938   | 592 | 180 | 165 | 1 |         |       |

- Molecule 52 is a protein called Large ribosomal subunit protein bL20.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 52  | p     | 114      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 947   | 603 | 188 | 154 | 2 |         |       |

- Molecule 53 is a protein called Large ribosomal subunit protein bL21.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 53  | q     | 99       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 811   | 525 | 148 | 134 | 4 |         |       |

- Molecule 54 is a protein called Large ribosomal subunit protein uL22.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 54  | r     | 139      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1068  | 663 | 207 | 191 | 7 |         |       |

- Molecule 55 is a protein called Large ribosomal subunit protein uL23.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 55  | s     | 92       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 720   | 475 | 122 | 122 | 1 |         |       |

- Molecule 56 is a protein called 50S ribosomal protein L24.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 56  | t     | 111      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 872   | 550 | 166 | 153 | 3 |         |       |

- Molecule 57 is a protein called Large ribosomal subunit protein bL27.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 57  | u     | 86       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 657   | 409 | 130 | 117 | 1 |         |       |

- Molecule 58 is a protein called Large ribosomal subunit protein bL28.

| Mol | Chain | Residues | Atoms |     |     |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 58  | v     | 63       | Total | C   | N   | O  | S | 0       | 0     |
|     |       |          | 513   | 317 | 108 | 87 | 1 |         |       |

- Molecule 59 is a protein called Large ribosomal subunit protein uL29.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 59  | w     | 100      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 818   | 517 | 153 | 148 |         |       |

- Molecule 60 is a protein called Large ribosomal subunit protein bL31.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 60  | x     | 44       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 344   | 221 | 55 | 64 | 4 |         |       |

- Molecule 61 is a protein called Large ribosomal subunit protein bL32.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 61  | y     | 56       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 452   | 274 | 98 | 75 | 5 |         |       |

- Molecule 62 is a protein called Large ribosomal subunit protein bL33A.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 62  | z     | 50       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 408   | 255 | 81 | 68 | 4 |         |       |

### 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.

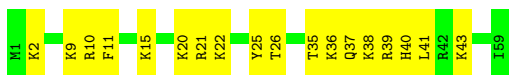
- Molecule 1: Large ribosomal subunit protein bL34

Chain 0: 

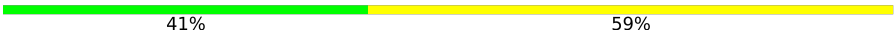


- Molecule 2: 50S ribosomal protein L35

Chain 1: 



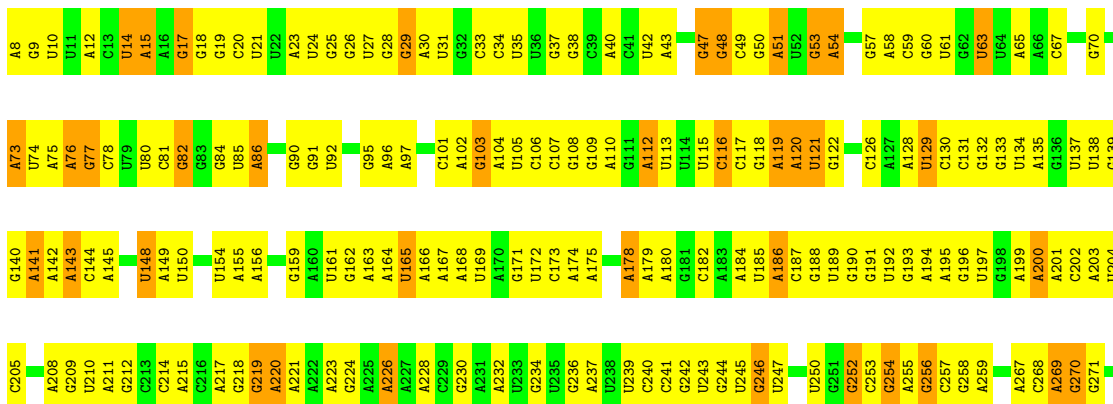
- Molecule 3: Large ribosomal subunit protein bL36

Chain 2: 



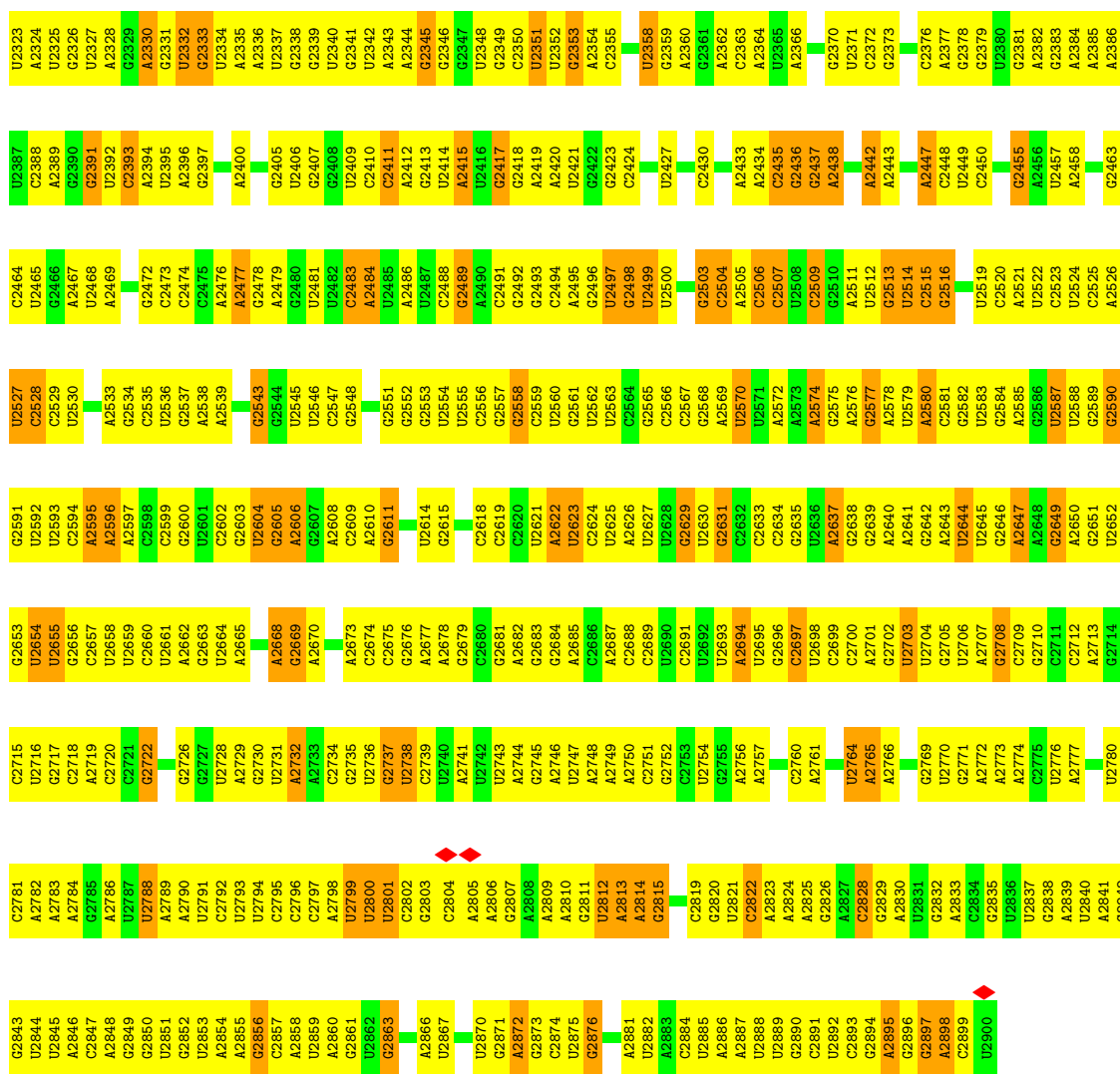
- Molecule 4: 23S ribosomal RNA

Chain 3: 



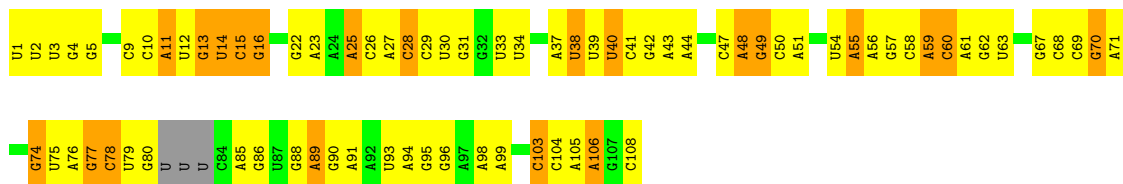
|       |       |       |      |      |      |      |      |      |      |      |      |      |
|-------|-------|-------|------|------|------|------|------|------|------|------|------|------|
| U1213 | G1147 | A1080 | A946 | A876 | G743 | A679 | A611 | C545 | C481 | A412 | A344 | A274 |
| U1214 | U1148 | A1081 | A947 | G877 | U744 | A680 | G612 | U546 | G482 | G413 | A345 | A275 |
| G1215 | G1149 | A1082 | A948 | A878 | U745 | A681 | C613 | A548 | A483 | G418 | G346 | A276 |
| U1216 | U1150 | A1083 | C949 | G815 | U746 | A682 | G614 | A549 | U484 | G419 | C347 |      |
| G1217 | U1151 | C1084 | U950 | A881 | A747 | A683 | G615 | A550 | A485 | A420 | A348 | U279 |
| G1218 | U1152 | C1085 | C951 | C882 |      | G683 | G616 | A551 | A486 | A421 | G349 | A280 |
| U1219 | U1153 | G1086 | U952 | A883 | G752 | A684 | C617 | C552 | C487 | A422 | C350 | U281 |
| A1220 | G1155 | C1087 | G953 | U886 | A753 | G685 | G620 | A553 | G488 | A423 | G351 |      |
| G1221 | A1156 | A1088 | A954 | G891 | U754 | C686 | U621 | A499 | A489 | C424 | C352 | U284 |
| C1222 | G1157 | G1089 | A955 | G892 | C755 | G687 | U622 | C558 | A490 | U425 | A286 | U285 |
| G1223 | C1158 | A1090 | G827 | A893 | A756 | U688 | U623 | A491 | A491 | U426 | C353 | A287 |
| G1224 | C1159 | G1091 | U825 | U825 | C757 | U689 | A624 | C559 | A492 | U427 | A288 | G287 |
| A1225 | G1160 | A1092 | C836 | C836 | A758 | U690 | U624 | U560 | A493 | U428 | A356 | A288 |
| G1226 | A1161 | U1027 | C959 | G894 | U759 | G691 | G625 | A561 | C494 | U429 | A357 | U289 |
| C1227 | A1162 | C1028 | A860 | G895 | U760 | U692 | A626 | C562 | A495 | U430 | A358 | A290 |
| G1228 | G1163 | A1029 | U961 | A828 | G761 | U693 | U627 | A563 | A496 | U431 | G359 | G291 |
| U1229 | A1164 | U1030 | U963 | A829 | A762 | U694 | A628 | A564 | C497 | U432 | G360 | G292 |
| U1230 | G1097 | U1031 | A830 | U831 | G763 | U695 | G629 | C565 | C498 | G433 | G293 | G293 |
| G1231 | U1165 | A964  | A898 | A898 | G764 | U696 | G630 | G566 | G499 | U434 | G294 | G294 |
| G1231 | G1166 | C1033 | C832 | C832 | A765 | U697 | A631 | U567 | U500 | U435 | U295 | U295 |
| U1232 | U1167 | A1034 | C833 | C833 | A766 | A698 | A632 | C570 | A502 | U436 | U296 | U296 |
| A1233 | A1168 | U1035 | G901 | G901 | C767 | U699 | G633 | G505 | G505 | A437 | G367 | G297 |
| U1234 | A1169 | A1036 | A837 | A837 | G768 | U700 | G634 | G506 | G506 | U438 | C368 | U298 |
| U1235 | C1170 | A1037 | U838 | U838 | A769 | A701 | U636 | G572 | G572 | U439 | C369 | A299 |
| U1235 | G1171 | G1038 | A839 | A839 | A770 | U702 | U637 | A571 | G571 | U440 | C370 | G300 |
| G1236 | G1172 | A1104 | C841 | C841 | C771 | A703 | A638 | A573 | G573 | U441 | C371 | G301 |
| A1243 | G1173 | A1105 | U842 | U842 | C772 | G704 | G639 | G574 | U511 | U442 | G372 | G306 |
| A1244 | C1175 | C1042 | G843 | G843 | C773 | A705 | U640 | C575 | U512 | G442 | U373 | C307 |
| G1245 | U1176 | A1043 | G844 | G844 | A774 | G706 | G645 | A576 | G512 | G443 | A374 | A308 |
| U1246 | A1177 | C1044 | U845 | U845 | C775 |      | G646 | A577 | A513 | C445 | A374 | A309 |
| C1247 | U1178 | A1045 | U846 | U846 | A776 | A711 | A646 | A514 | A514 | A446 | U377 | A310 |
| A1248 | G1179 | A1046 | C847 | C847 | G780 | A712 | G647 | A515 | A515 | A447 | G378 | U310 |
| A1249 | U1180 | U1047 | U848 | U848 | U781 | C713 | A648 | A516 | A516 | A448 | G379 | G311 |
| U1250 | A1181 | A1048 | C849 | C849 | A782 | G714 | A649 | A517 | A517 | C449 | A380 | U312 |
| G1251 | U1116 | U1049 | G850 | G850 | G783 | G715 | G650 | A518 | A518 | C450 | A381 | G313 |
| C1252 | A1182 | U1049 | U851 | U851 | A784 | G716 | A651 | A519 | A519 | A451 | U382 | G314 |
| G1253 | A1183 | A1050 | U852 | U852 |      |      | U652 | C520 | C520 | U452 | U383 | A315 |
| U1254 | U1184 | U1118 | C852 | C852 | G788 | G719 | G653 | C521 | C521 | U453 | G384 | C316 |
| G1255 | U1185 | A1119 | G853 | G853 | A789 | A720 | A654 | C522 | C522 | G454 | U385 | U317 |
| A1256 | A1186 | G1124 | A854 | A854 | U790 | G721 | G655 | A523 | A523 | G455 | U386 | U318 |
| U1257 | C1187 | U1125 | A855 | A855 | A791 | C722 | G656 | G524 | G524 | G456 | U387 | G319 |
| C1258 | C1188 | G1126 | C856 | C856 | U792 | U723 | G657 | G525 | G525 | U457 | U388 |      |
| A1259 | G1189 | U1127 | U857 | U857 | C793 | A724 | G658 | C526 | C526 | A390 | C389 | A322 |
| U1260 | C1127 | U1128 | A858 | A858 | G794 | G725 | G659 | A527 | A527 | G460 | A391 | A323 |
| U1261 | A1190 | G1128 | C859 | C859 | U795 | U726 | U660 | U528 | U528 | C461 | U391 | G324 |
| G1262 | A1191 | U1129 | C860 | C860 | A796 | C727 | G661 | G529 | G529 | C462 | A392 | G325 |
| G1263 | U1196 | A1130 | U861 | U861 | U797 | A728 | U662 | G530 | G530 | U463 | C393 | G326 |
| U1264 | G1197 | C1067 | U862 | U862 | G798 | U729 | A663 | G531 | G531 | A464 | A328 | A328 |
| G1265 | G1198 | U1068 | U863 | U863 | A799 | G730 | U664 | A532 | A532 | A465 | G329 | G329 |
| G1266 | G1199 | U1069 | A864 | A864 | C800 | A731 | G665 | G533 | G533 | A466 | G401 | A333 |
| A1267 | U1201 | C1069 | A865 | A865 | U801 | G732 | A667 | U601 | U601 | U467 | A402 | A333 |
| U1268 | A1202 | U1070 | C866 | C866 | U802 | C733 | A668 | G535 | G535 | A468 | U403 | A334 |
| C1269 | G1203 | G1071 | G867 | G867 | G803 | A734 | A669 | A536 | A536 | U474 | C404 | A334 |
| C1270 | A1204 | U1006 | C868 | C868 |      |      | G670 | A604 | A604 | U475 | C405 | C336 |
| A1271 | U1207 | A1074 | U869 | U869 | A806 | U737 | G671 | A605 | A605 | A476 | U406 | G336 |
| G1278 | A1208 | G1075 | A870 | A870 | U807 | U738 | G672 | A606 | A606 | G476 | U407 | U337 |
| U1279 | U1209 | U1076 | C871 | C871 | U808 | G739 | A673 | U607 | U607 | U477 | G338 | G338 |
| G1280 | U1210 | A1010 | C872 | C872 | U809 | A740 | G674 | A608 | A608 | G478 | A409 | G408 |
| A1281 | G1145 | C1077 | U873 | U873 | A809 | A741 | G675 | U609 | U609 | A479 | G410 | G342 |
| U1211 | U1211 | U1012 | U874 | U874 | G811 | G742 | U676 | U543 | U543 | A480 | G411 | G342 |
| G1282 | G1212 | A1146 | G875 | G875 |      |      | U676 | U544 | U544 | C480 | A411 | A343 |

|       |       |       |       |       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| A2255 | A2181 | A2056 | A1907 | G1832 | A1766 | G1701 | U1627 | U     | U1488 | U1418 | C1348 | A1283 |
| C2256 | C2182 | C2057 | A1908 | G1833 | A1767 | A1702 | G1628 | G     | G1489 | U1423 | C1349 | A1284 |
| U2257 | U2183 | G2058 | G1909 | U1834 | G1768 | A1703 | C1632 | A     | G1490 | A1424 | C1350 | U1285 |
| G2258 | A2184 | A2059 | G1910 | G1835 | A1769 | U1706 | C1633 | G     | G1491 | U1286 | U1286 | G1286 |
| G2259 | G2122 | A2061 | G1913 | A1836 | C1770 | C1707 | A1634 | U     | G1492 | C1426 | C1353 | C1287 |
| G2260 | A2123 | C2062 | U1991 | C1837 | C1771 | G1708 | G1635 | G     | G1493 | U1288 | U1354 | C1288 |
| G2264 | A2124 | G2063 | U1992 | A1838 | G1772 | C1709 | U1636 | A     | U1494 | U1289 | C1355 | G1289 |
| G2265 | U2126 | G2064 | G1917 | C1839 | U1775 | U1710 | U1636 | U     | A1495 | G1429 | U1360 | C1290 |
| U2266 | G2127 | A2065 | U1918 | C1840 | G1776 | A1711 | G1640 | C     | U1430 | U1430 | U1361 | C1291 |
| G2267 | A2066 | U1919 | U1918 | C1841 | G1777 | U1712 | A1641 | A     | A1431 | U1431 | U1362 | A1292 |
| C2268 | G2128 | A1995 | A1920 | U1842 | G1778 | A1713 | G1642 | U1570 | C1432 | U1432 | U1293 | U1293 |
| C2268 | U2129 | A1996 | C1921 | C1843 | G1779 | U1714 | A1643 | G1571 | U1433 | G1571 | C1363 | U1294 |
| C2269 | A2130 | U1997 | U1922 | C1844 | G1780 | A1715 | A1644 | U1572 | U1434 | U1434 | C1364 | G1294 |
| U2270 | G2131 | A1998 | A1923 | C1845 | U1780 | U1716 | C1645 | A1573 | A1435 | A1435 | G1365 | A1295 |
| G2274 | C2071 | U2000 | U1928 | A1846 | G1783 | A1717 | C1646 | U1576 | C1436 | C1436 | G1366 | A1298 |
| A2275 | C2072 | C2001 | G1928 | U1847 | G1784 | C1717 | G1646 | U1577 | U1507 | U1507 | G1367 | A1299 |
| A2276 | C2073 | U2002 | G1929 | U1848 | U1785 | G1718 | A1647 | A1578 | G1508 | G1438 | U1368 | G1300 |
| A2277 | G2074 | C2003 | G1934 | G1849 | U1786 | G1719 | A1648 | U1579 | U1509 | U1439 | U1369 | C1301 |
| G2278 | U2075 | G2004 | A1934 | U1850 | U1787 | C1720 | C1649 | G1580 | U1510 | U1440 | A1370 | C1302 |
| G2279 | G2076 | U2007 | A1935 | G1852 | A1788 | G1721 | A1650 | U1581 | C1511 | A1441 | U1371 | U1303 |
| U2280 | A2077 | A2008 | G1936 | G1853 | A1789 | U1722 | C1651 | U1582 | A1512 | U1444 | U1372 | U1304 |
| A2281 | G2078 | U2009 | G1937 | A1854 | G1790 | G1725 | A1652 | G1583 | U1513 | C1444 | C1373 | G1305 |
| G2282 | G2079 | A2010 | U1938 | A1855 | U1791 | U1726 | C1653 | U1584 | U1514 | G1446 | U1374 | G1306 |
| G2285 | C2080 | G2011 | C1941 | G1856 | A1792 | U1727 | G1654 | U1585 | A1515 | U1447 | G1375 | G1307 |
| A2286 | U2082 | A2012 | G1942 | U1857 | A1793 | A1728 | U1655 | U1586 | C1518 | U1448 | G1376 | A1308 |
| G2287 | U2083 | G2017 | A1943 | U1858 | A1794 | C1729 | A1656 | U1587 | U1519 | G1449 | A1377 | G1309 |
| C2288 | A2084 | U2018 | A1944 | A1860 | C1795 | G1730 | U1657 | U1588 | G1450 | U1457 | C1378 | U1310 |
| C2289 | U2085 | G2019 | A1945 | A1861 | A1796 | A1731 | C1659 | U1589 | C1523 | A1458 | C1379 | G1311 |
| G2290 | U2086 | U2020 | U1946 | A1862 | C1797 | G1732 | A1660 | U1590 | C1524 | G1452 | U1380 | A1312 |
| U2291 | G2087 | A2021 | U1947 | G1863 | U1798 | G1733 | A1661 | C1591 | C1524 | U1453 | A1381 | G1313 |
| A2292 | U2088 | A2022 | C1948 | G1866 | U1801 | A1734 | G1662 | U1592 | U1528 | G1454 | A1382 | A1314 |
| C2293 | A2089 | U2023 | A1951 | A1867 | U1802 | A1735 | G1663 | U1593 | U1529 | U1455 | U1385 | A1315 |
| A2294 | C2090 | U2024 | G1952 | A1868 | U1803 | G1736 | U1669 | U1596 | G1530 | C1456 | U1386 | A1316 |
| A2295 | G2091 | C2024 | U1953 | A1869 | U1804 | G1737 | U1670 | U1597 | U1534 | A1457 | G1389 | U1317 |
| G2296 | U2092 | A2025 | U1954 | G1870 | U1805 | G1738 | C1671 | U1598 | A1534 | A1458 | C1390 | U1318 |
| C2297 | A2094 | G2026 | G1955 | U1871 | U1806 | U1740 | C1672 | C1599 | A1535 | A1459 | U1391 | C1320 |
| U2299 | A2095 | U2028 | G1956 | U1872 | U1807 | G1741 | G1676 | A1600 | C1536 | G1460 | C1392 | C1321 |
| A2300 | U2096 | G2029 | G1957 | G1876 | C1808 | C1742 | G1677 | U1603 | U1537 | A1461 | A1393 | A1322 |
| C2301 | A2097 | U2030 | U1958 | C1877 | U1809 | U1743 | G1677 | A1604 | U1538 | A1462 | A1394 | A1323 |
| C2302 | G2031 | C2031 | A1959 | A1878 | C1813 | U1744 | G1681 | A1605 | U1539 | G1463 | A1395 | A1324 |
| A2303 | U2032 | G2032 | A1960 | A1879 | U1814 | G1747 | C1682 | A1605 | A1541 | U1465 | A1396 | C1326 |
| U2304 | G2033 | U2034 | U1962 | G1880 | U1815 | U1748 | U1682 | U1608 | G1542 | U1466 | G1327 | C1326 |
| C2305 | U2035 | G2036 | U1963 | C1881 | A1816 | A1749 | G1685 | C1608 | U1543 | U1467 | U1400 | G1327 |
| A2306 | G2036 | U2037 | C1964 | G1882 | U1817 | U1750 | U1686 | U1609 | G1544 | U1468 | A1401 | C1328 |
| G2311 | A2104 | A2037 | G1971 | G1885 | G1819 | A1751 | G1687 | U1610 | A1545 | C1469 | G1402 | U1329 |
| C2312 | G2105 | A2038 | G1971 | C1886 | U1820 | U1754 | A1688 | U1612 | U1546 | C1470 | U1332 | A1332 |
| U2313 | G2106 | G2039 | U1974 | A1891 | G1821 | A1755 | U1691 | A1613 | G1547 | A1471 | G1405 | A1336 |
| U2314 | A2107 | A2040 | G1975 | A1891 | A1822 | A1756 | U1692 | A1614 | U1548 | C1475 | A1406 | A1337 |
| G2315 | U2110 | C2041 | G1976 | U1894 | U1823 | G1757 | A1693 | G1615 | U1549 | G1476 | U1407 | G1337 |
| G2316 | U2111 | A2042 | A1977 | G1895 | G1824 | C1758 | U1694 | U1616 | G1550 | A1477 | G1408 | G1338 |
| A2317 | C2043 | C2044 | U1978 | G1895 | U1825 | C1759 | A1694 | U1617 | U1551 | U1480 | G1409 | U1341 |
| C2318 | U2112 | C2044 | U1979 | G1895 | A1826 | G1760 | G1695 | U1618 | G1552 | A1481 | A1412 | C1342 |
| G2319 | U2113 | G2050 | G1980 | C1902 | U1827 | G1761 | C1696 | A1619 | G1553 | U1482 | A1413 | C1343 |
| U2320 | C2114 | G2050 | G1981 | U1905 | U1827 | A1762 | C1697 | A1620 | A1554 | U1483 | C1414 | U1344 |
| C2321 | A2115 | C2054 | U1981 | U1905 | U1829 | G1763 | A1698 | U1625 | G1557 | U1487 | A1415 | G1345 |
| G2322 | G2117 | A2055 | U1982 | G1906 | G1830 | U1764 | A1699 | G1625 | A1558 | U1487 | G1416 | G1346 |
|       |       |       | U1983 |       | G1831 | G1765 | G1700 | C1626 | A1559 |       | G1417 | A1347 |



### • Molecule 5: 5S ribosomal RNA

Chain 4: 27% 51% 19%

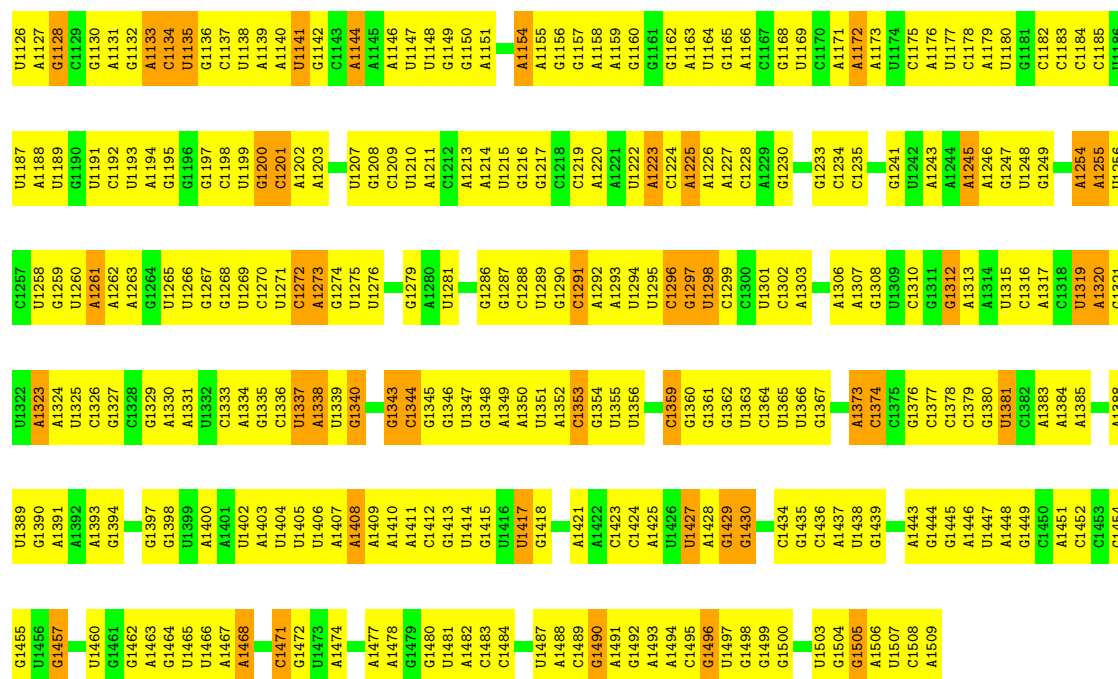


### • Molecule 6: 16S ribosomal RNA

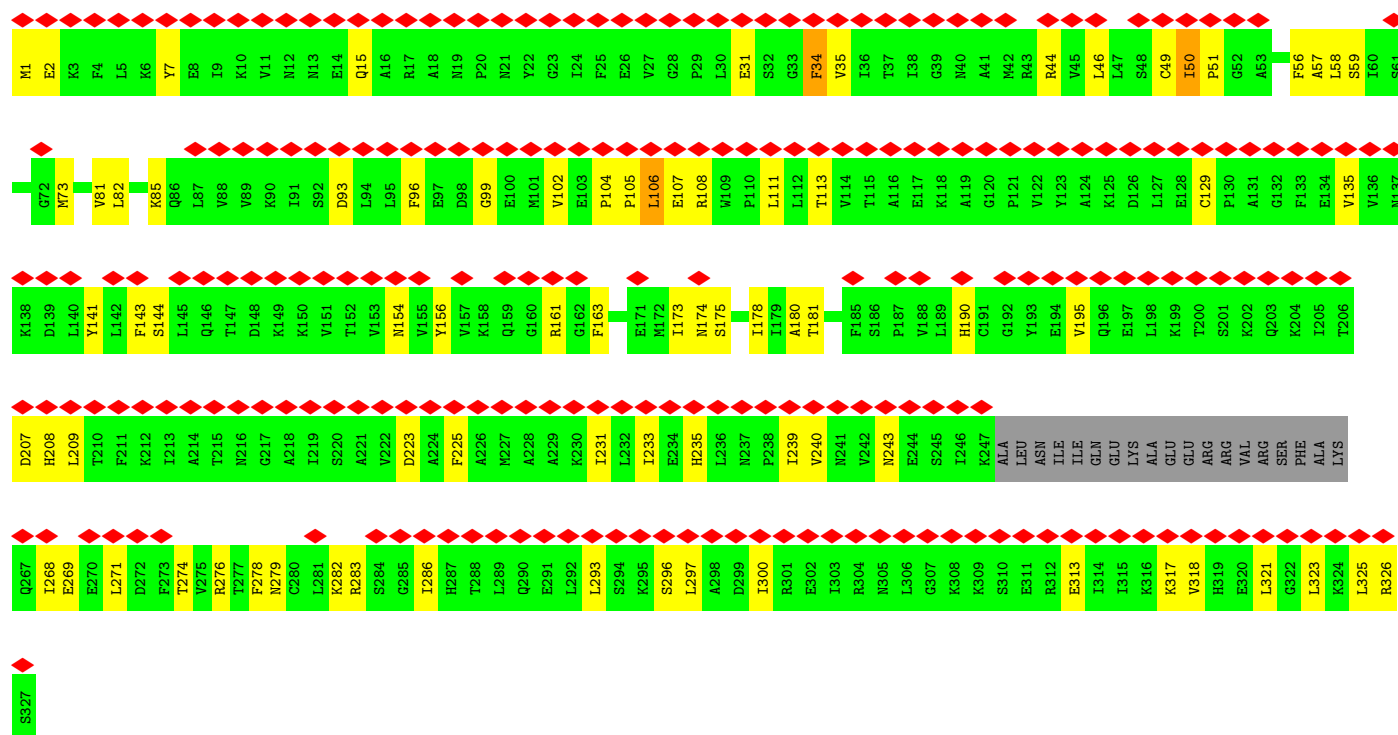
Chain 5: 29% 57% 13%



|       |       |      |      |      |      |      |      |      |      |      |      |      |
|-------|-------|------|------|------|------|------|------|------|------|------|------|------|
| G1055 | A972  | U905 | A746 | G677 | G610 | G542 | U475 | G406 | G343 | G280 | U214 | A71  |
| U1056 | A973  | C906 | C747 | A678 | A611 | C543 | U476 | A407 | G344 | G281 | C215 | A72  |
| C1057 | C974  | A907 | U748 | U679 | G612 | A544 | U477 | U408 | A345 | U281 | G216 | G73  |
| U1061 | U977  | A908 | G749 | G680 | C613 | A545 | G478 | G409 | G346 | G282 | U217 | A79  |
| C1062 | A978  | A909 | A750 | U681 | U614 | G548 | A479 | A410 | G347 | U283 | U218 | U80  |
| G1063 | C979  | G910 | C751 | G682 | G615 | U649 | C480 | A411 | A219 | A284 | A219 | A81  |
| U1064 | C980  | G911 | G752 | G683 | C616 | U550 | U481 | G412 | A349 | G285 | U220 | C92  |
| G981  | C981  | G912 | G753 | A684 | U617 | U551 | U483 | G413 | G350 | C286 | U221 | U82  |
| U1066 | C982  | A913 | A763 | G688 | U618 | G554 | U484 | U416 | C351 | U287 | U222 | U83  |
| U1067 | G983  | U915 | U764 | U689 | A619 | G555 | A488 | U417 | A352 | U288 | G223 | U84  |
| G1068 | A984  | G919 | U767 | G697 | A620 | G556 | U489 | U418 | G353 | A224 | G224 | U85  |
| A1071 | U987  | G920 | G768 | U698 | C621 | A557 | U490 | A419 | U354 | G290 | A225 | A86  |
| G1072 | G988  | G921 | G775 | A699 | G623 | U558 | U491 | A420 | A355 | C291 | G226 | G87  |
| U1073 | C999  | G922 | U776 | G700 | U624 | U559 | G492 | G421 | G357 | U292 | A227 | A88  |
| U1074 | A1000 | G923 | A778 | U701 | A628 | U560 | G493 | U422 | G358 | G294 | G230 | G90  |
| G1075 | A1001 | A924 | U779 | U702 | U629 | A561 | A494 | U423 | A359 | G295 | G231 | C91  |
| U1076 | A1002 | G925 | U780 | A703 | G630 | U562 | U495 | U424 | A360 | G296 | G232 | G92  |
| U1077 | G1003 | C926 | A781 | U704 | C631 | U563 | G498 | G425 | U361 | U299 | C233 | A93  |
| G1085 | A1010 | G927 | G782 | A705 | A632 | G564 | U499 | U426 | U362 | A302 | C236 | A94  |
| U1086 | A1011 | G928 | U786 | U706 | U633 | G565 | G500 | A432 | U363 | A303 | A237 | A95  |
| C1087 | A1012 | A930 | U789 | A708 | U634 | U569 | U501 | C433 | U364 | A304 | U238 | G100 |
| C1088 | C1013 | C931 | U790 | G710 | A638 | A570 | A504 | C434 | U365 | A305 | U239 | A101 |
| C1089 | A1014 | A932 | A791 | G711 | A639 | A571 | G503 | U435 | U366 | A306 | U240 | G102 |
| G1090 | U1015 | G933 | C792 | A712 | U640 | A572 | C505 | U436 | A367 | C307 | C241 | U103 |
| C1091 | A1016 | A934 | C793 | G713 | C641 | G573 | U506 | U437 | C366 | U370 | A242 | A104 |
| A1092 | A1017 | G935 | G794 | A714 | U642 | A574 | U507 | U440 | A367 | A309 | G243 | A105 |
| A1093 | A1018 | U936 | A796 | G715 | U644 | A575 | A508 | U441 | A373 | C310 | U245 | C106 |
| C1094 | G1019 | G937 | G797 | C716 | A645 | G577 | C509 | G442 | G374 | A311 | G247 | A107 |
| G1095 | G     | G938 | U798 | G717 | A646 | C578 | U510 | G443 | C375 | A312 | U248 | C108 |
| A1096 | A     | G939 | U799 | C718 | U649 | G579 | U511 | G444 | G376 | U313 | U249 | G109 |
| G1097 | G     | A941 | A799 | G719 | U650 | G580 | A512 | A445 | A377 | G316 | G250 | U110 |
| C1098 | G     | U871 | C802 | U720 | A651 | G581 | G515 | A446 | A378 | A317 | G251 | A111 |
| G1099 | U     | C872 | A806 | G721 | G652 | A582 | C516 | A447 | A379 | G318 | U252 | C114 |
| A1101 | A     | U873 | C807 | G724 | G653 | A583 | C517 | A448 | G380 | G319 | G253 | A115 |
| A1102 | A     | C874 | G808 | A725 | U654 | U588 | A518 | A449 | C381 | A190 | G254 | A116 |
| U1106 | C1028 | G875 | G809 | A726 | G655 | U589 | G519 | G450 | U382 | A191 | G255 | U117 |
| U1107 | A1031 | G879 | U810 | G727 | U656 | G590 | G523 | G451 | U383 | A192 | G256 | C118 |
| U1108 | G1032 | G880 | A811 | G728 | G657 | A591 | U524 | C452 | G384 | G195 | U257 | U119 |
| U1109 | U1033 | G881 | A812 | G729 | G658 | A592 | U525 | U454 | A385 | A258 | A258 | A120 |
| C1110 | A1037 | G882 | A813 | G730 | U659 | A594 | G526 | U455 | A386 | C326 | A259 | A128 |
| G1111 | G1038 | U883 | C814 | A731 | A660 | G595 | C527 | U456 | U387 | G327 | C260 | U129 |
| G1112 | A1039 | A884 | A815 | A732 | G661 | U596 | G528 | G458 | C329 | G328 | G261 | A129 |
| U1113 | G1039 | U885 | U816 | A733 | G662 | C597 | G529 | C459 | C330 | A199 | A262 | G130 |
| A1114 | G1044 | A886 | U817 | A734 | G663 | U598 | U529 | A460 | C331 | G201 | C263 | G131 |
| G1115 | C1045 | C887 | A818 | C735 | A664 | G599 | A530 | G461 | C332 | G202 | U265 | G132 |
| U1116 | U1046 | A888 | G819 | U736 | G665 | G600 | A531 | G462 | U333 | C203 | G133 | G134 |
| U1117 | A1047 | C893 | A820 | U737 | U669 | U601 | U532 | U463 | A334 | C204 | A269 | A135 |
| A1118 | U1048 | U821 | U821 | A738 | G670 | G602 | A533 | A464 | G397 | U205 | A136 | U136 |
| C1119 | G1048 | A894 | A822 | G739 | G671 | U603 | G536 | A465 | G398 | G206 | A137 | A137 |
| A1120 | U1051 | A895 | C823 | G740 | G672 | U604 | U537 | G466 | C399 | G207 | G271 | A138 |
| U1121 | G1052 | G965 | U824 | G741 | A673 | A605 | A537 | G467 | G400 | C208 | G272 | A139 |
| U1122 | U1053 | A966 | A825 | G742 | A674 | A606 | G538 | A471 | G337 | A209 | C273 | A141 |
| G1123 | C1054 | G900 | G826 | A743 | U674 | A607 | G539 | G472 | C340 | A274 | A274 | G142 |
| U1124 |       | A901 | C827 | U744 | U675 | G608 | U540 | G473 | A403 | A275 | G212 | U143 |
| C1125 |       | A971 | U828 | U745 | U676 | G609 | C541 | G474 | C405 | G342 | U276 | U144 |

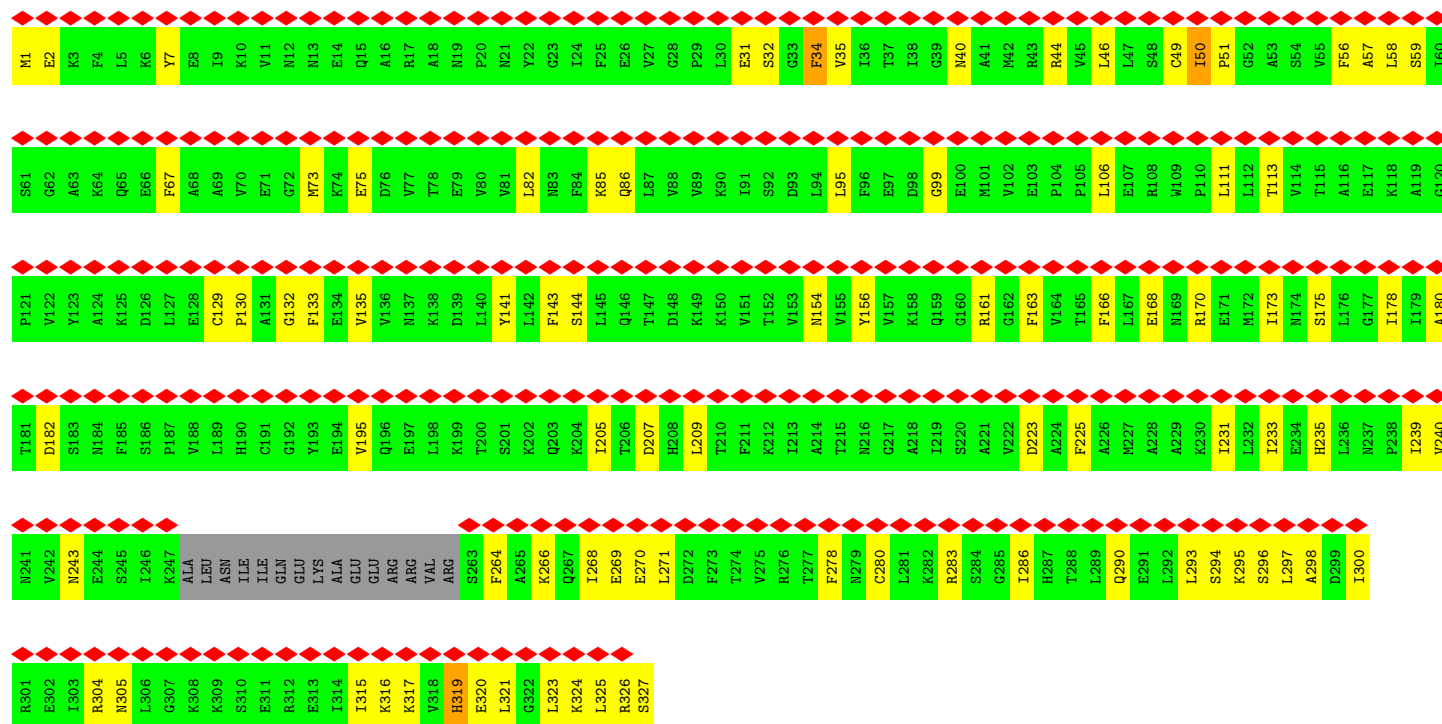


• Molecule 7: DNA-directed RNA polymerase subunit alpha

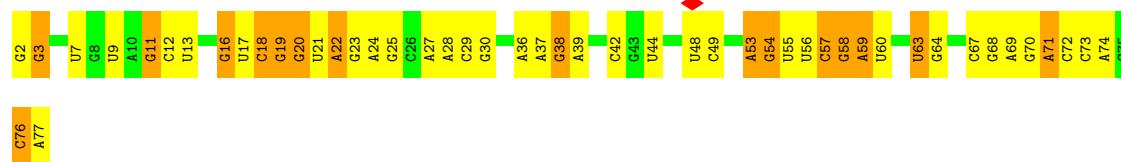


• Molecule 7: DNA-directed RNA polymerase subunit alpha

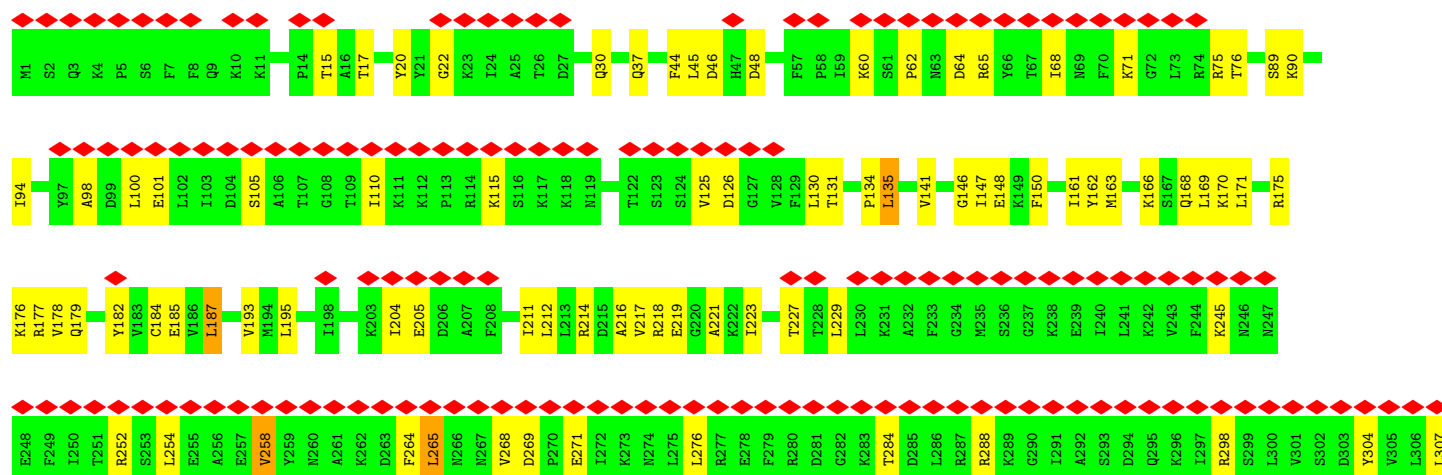
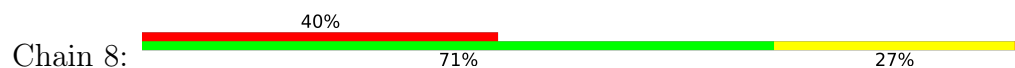




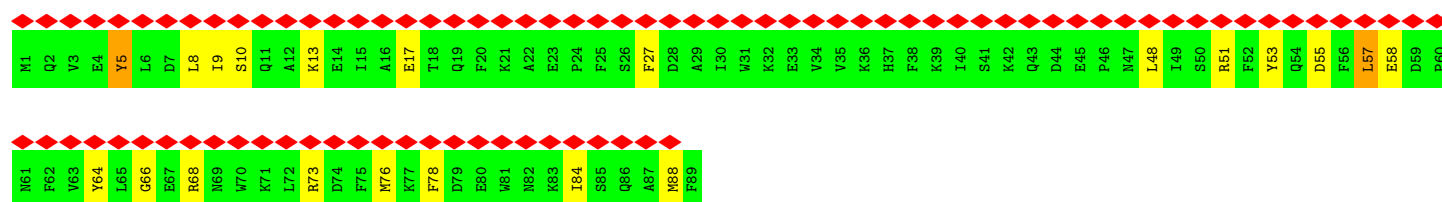
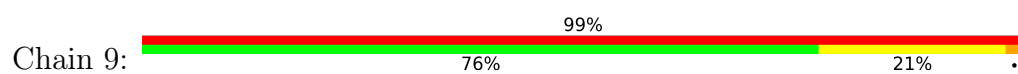
### • Molecule 8: tRNA-Phe



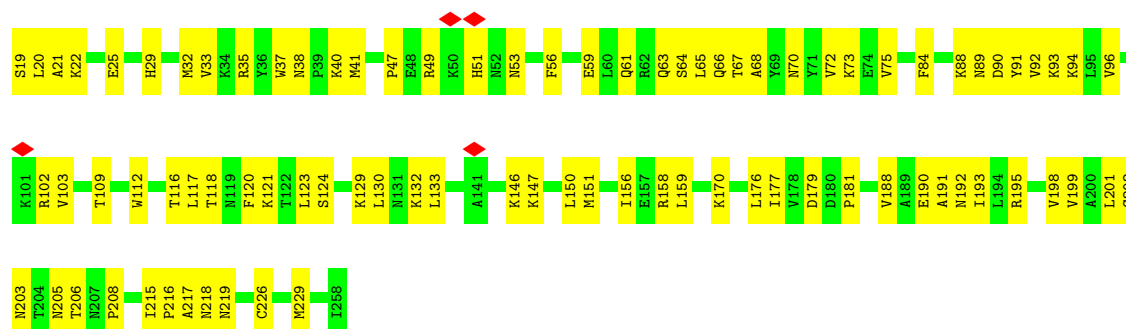
### • Molecule 9: DNA-directed RNA polymerase subunit beta



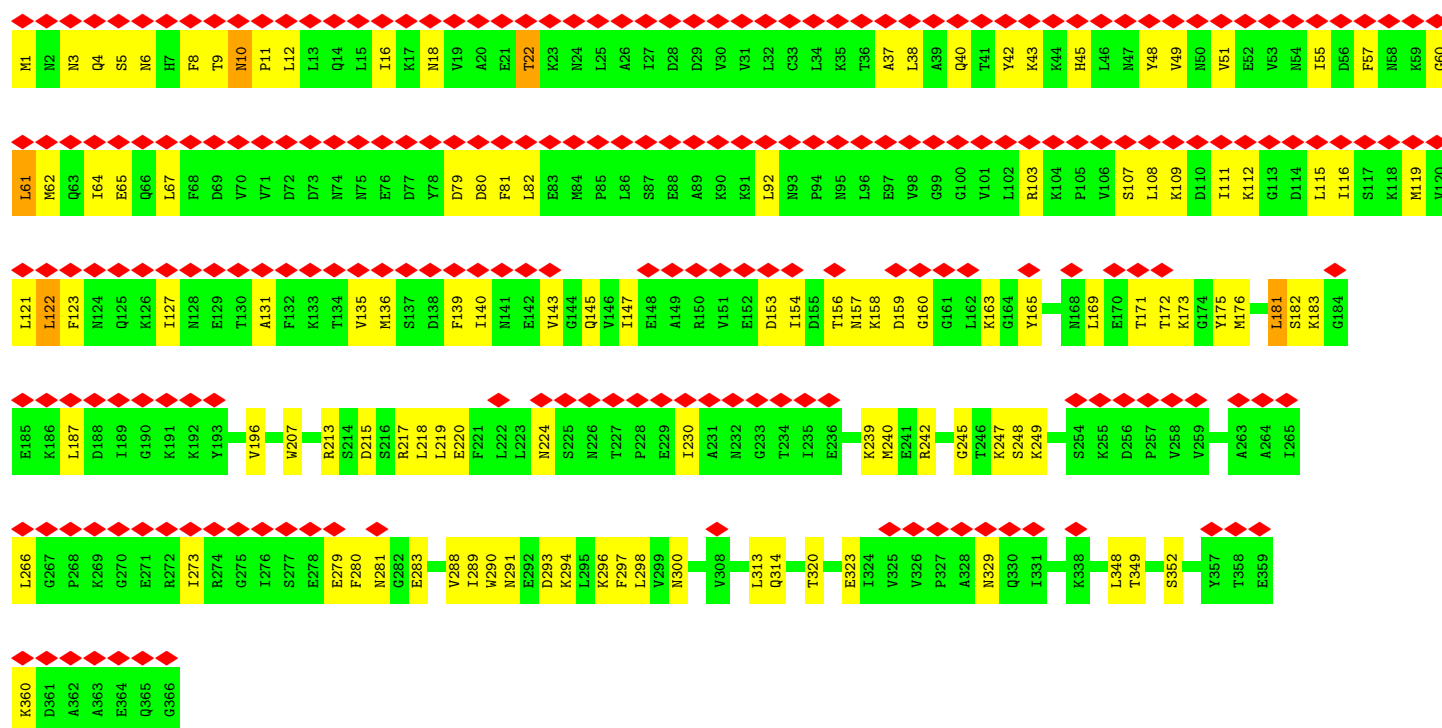




- Molecule 11: Small ribosomal subunit protein uS2



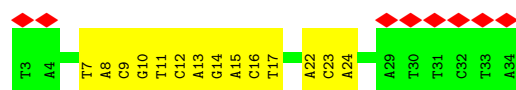
- Molecule 12: Transcription termination/antitermination protein NusA



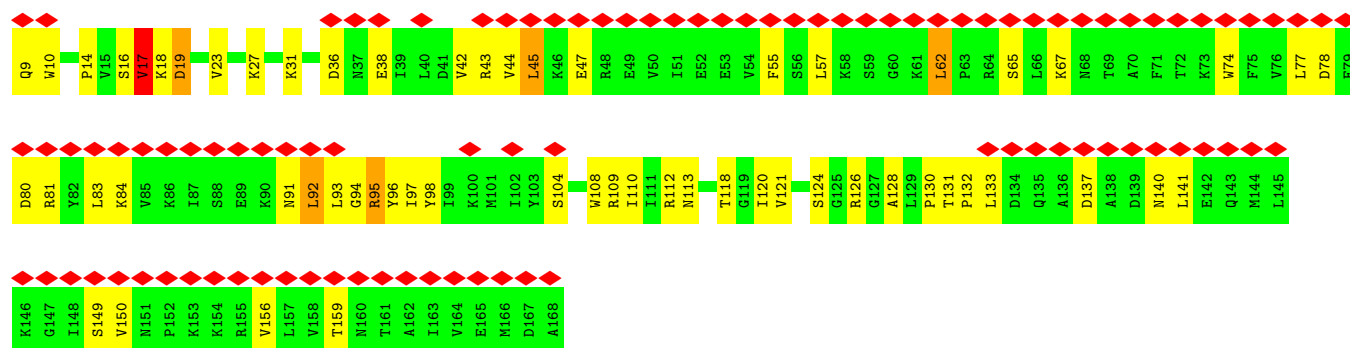
- Molecule 13: DNA



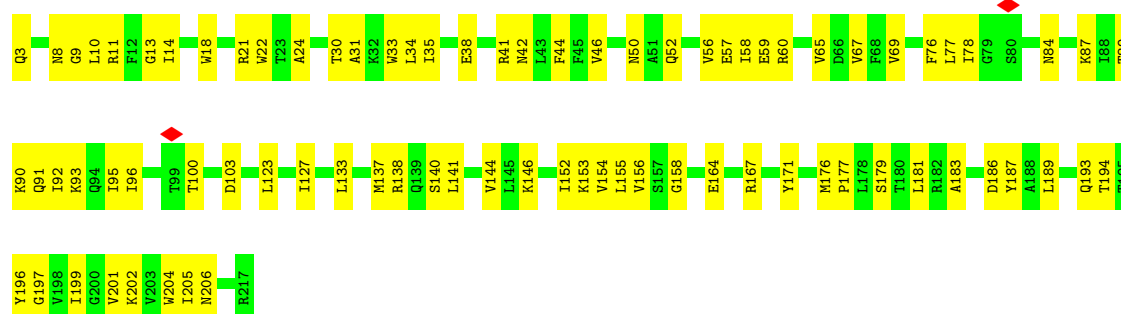
• Molecule 14: DNA



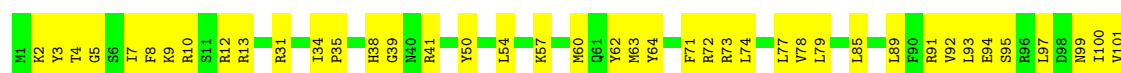
• Molecule 15: Transcription termination/antitermination protein NusG

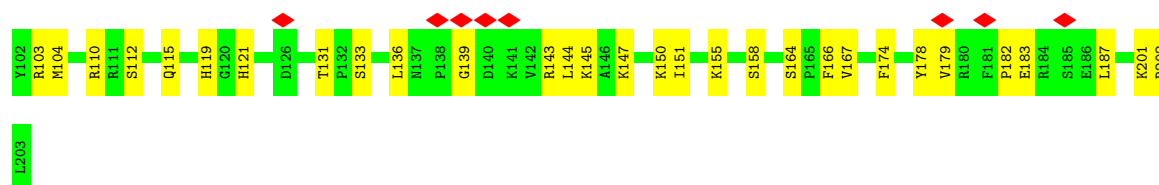


• Molecule 16: Small ribosomal subunit protein uS3



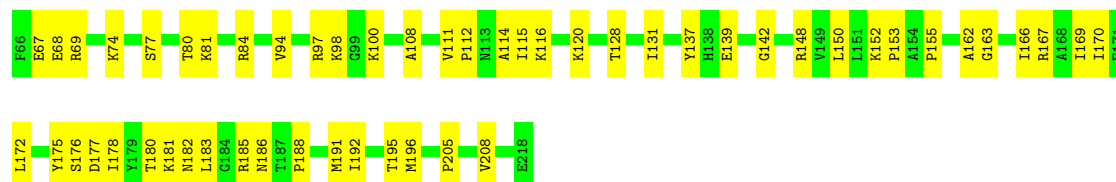
• Molecule 17: Small ribosomal subunit protein uS4





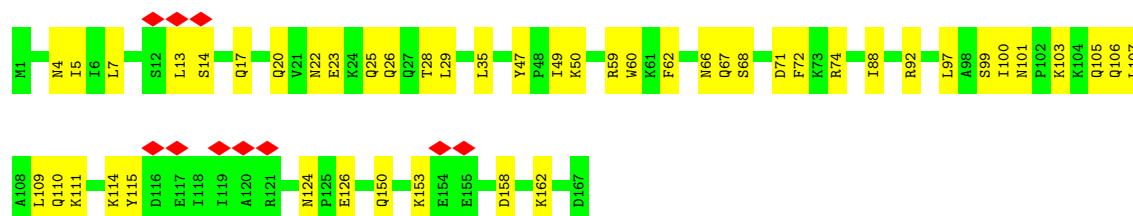
- Molecule 18: Small ribosomal subunit protein uS5

Chain D: 65% 35%



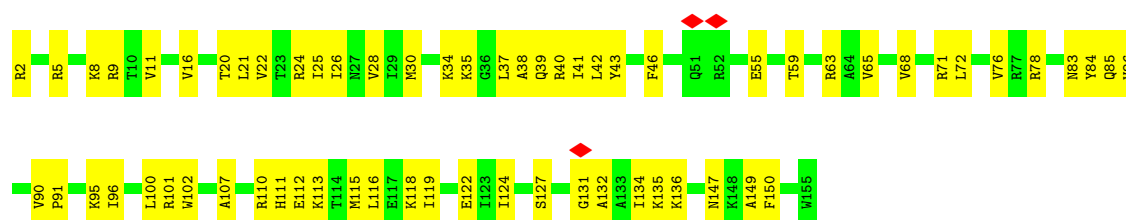
- Molecule 19: Small ribosomal subunit protein bS6

Chain E: 6% 72% 28%



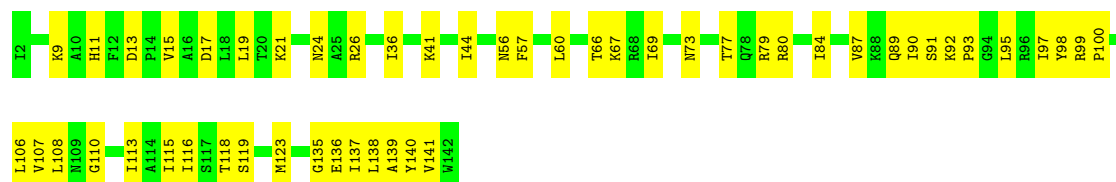
- Molecule 20: Small ribosomal subunit protein uS7

Chain F: 58% 42%



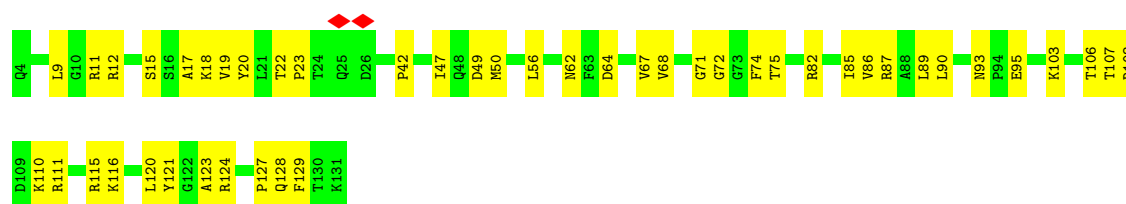
- Molecule 21: Small ribosomal subunit protein uS8

Chain G: 64% 36%



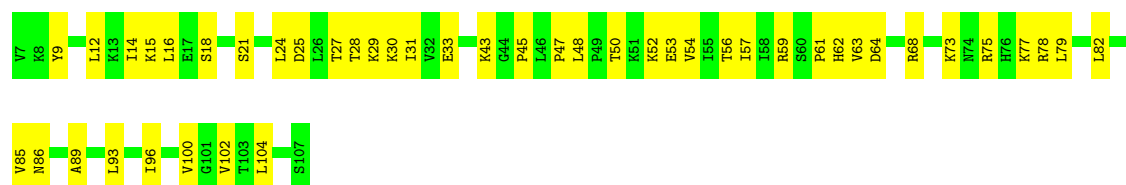
- Molecule 22: Small ribosomal subunit protein uS9

Chain H:  64% 36%



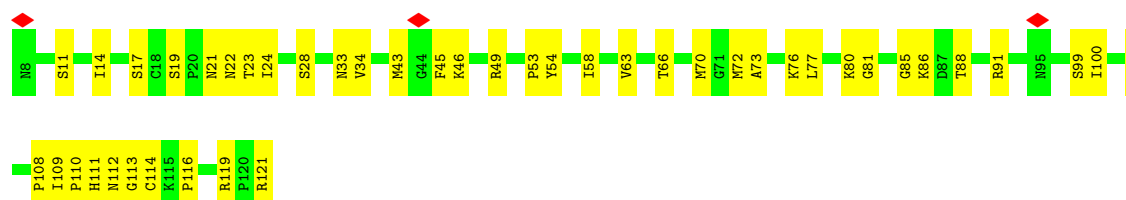
- Molecule 23: Small ribosomal subunit protein uS10

Chain I:  55% 45%



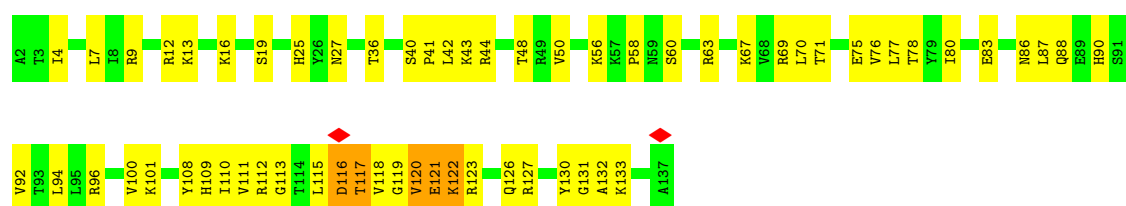
- Molecule 24: Small ribosomal subunit protein uS11

Chain J:  61% 39%



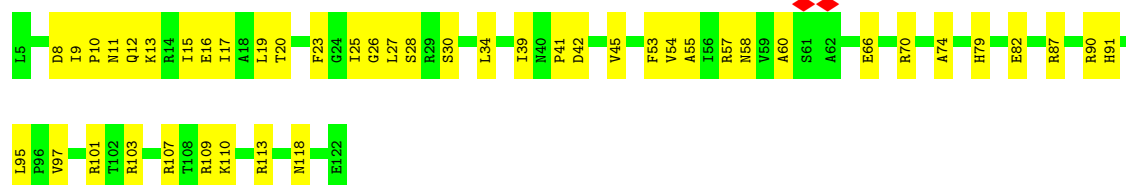
- Molecule 25: Small ribosomal subunit protein uS12

Chain K:  55% 41%



- Molecule 26: Small ribosomal subunit protein uS13

Chain L:  62% 38%



- Molecule 27: Small ribosomal subunit protein uS14

Chain M:  57% 43%



- Molecule 28: Small ribosomal subunit protein uS15

Chain N:  61% 39%



- Molecule 29: Small ribosomal subunit protein bS16

Chain O:  6% 62% 36%



- Molecule 30: Small ribosomal subunit protein uS17

Chain P:  8% 63% 37%



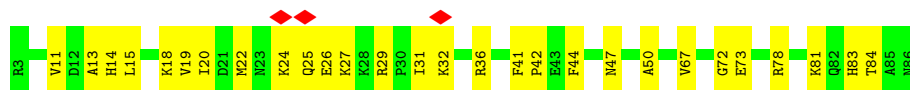
- Molecule 31: Small ribosomal subunit protein bS18

Chain Q:  62% 38%



- Molecule 32: Small ribosomal subunit protein uS19

Chain R:  67% 33%



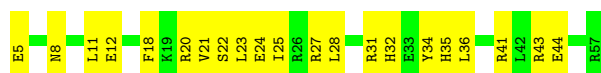
- Molecule 33: Small ribosomal subunit protein bS20

Chain S:  55% 45%

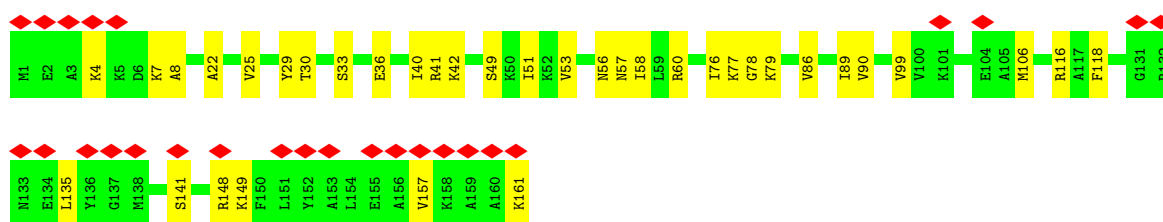
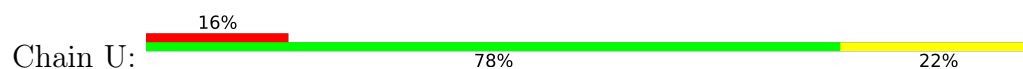




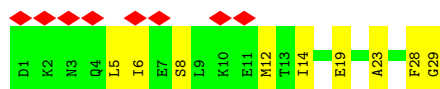
- Molecule 34: Small ribosomal subunit protein bS21



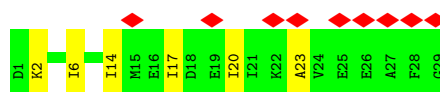
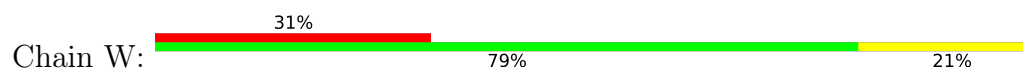
- Molecule 35: 50S ribosomal protein L10



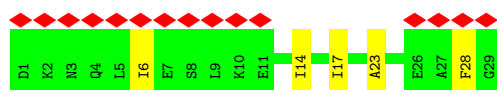
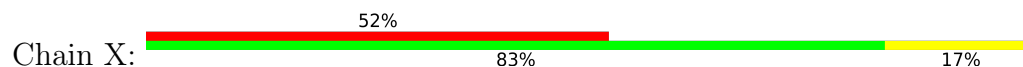
- Molecule 36: Large ribosomal subunit protein bL12



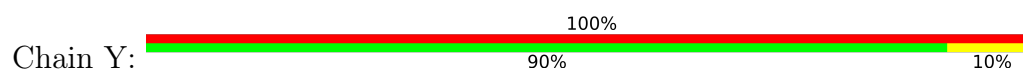
- Molecule 36: Large ribosomal subunit protein bL12

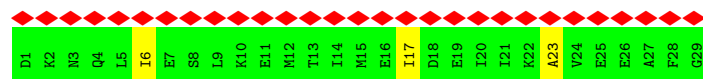


- Molecule 36: Large ribosomal subunit protein bL12

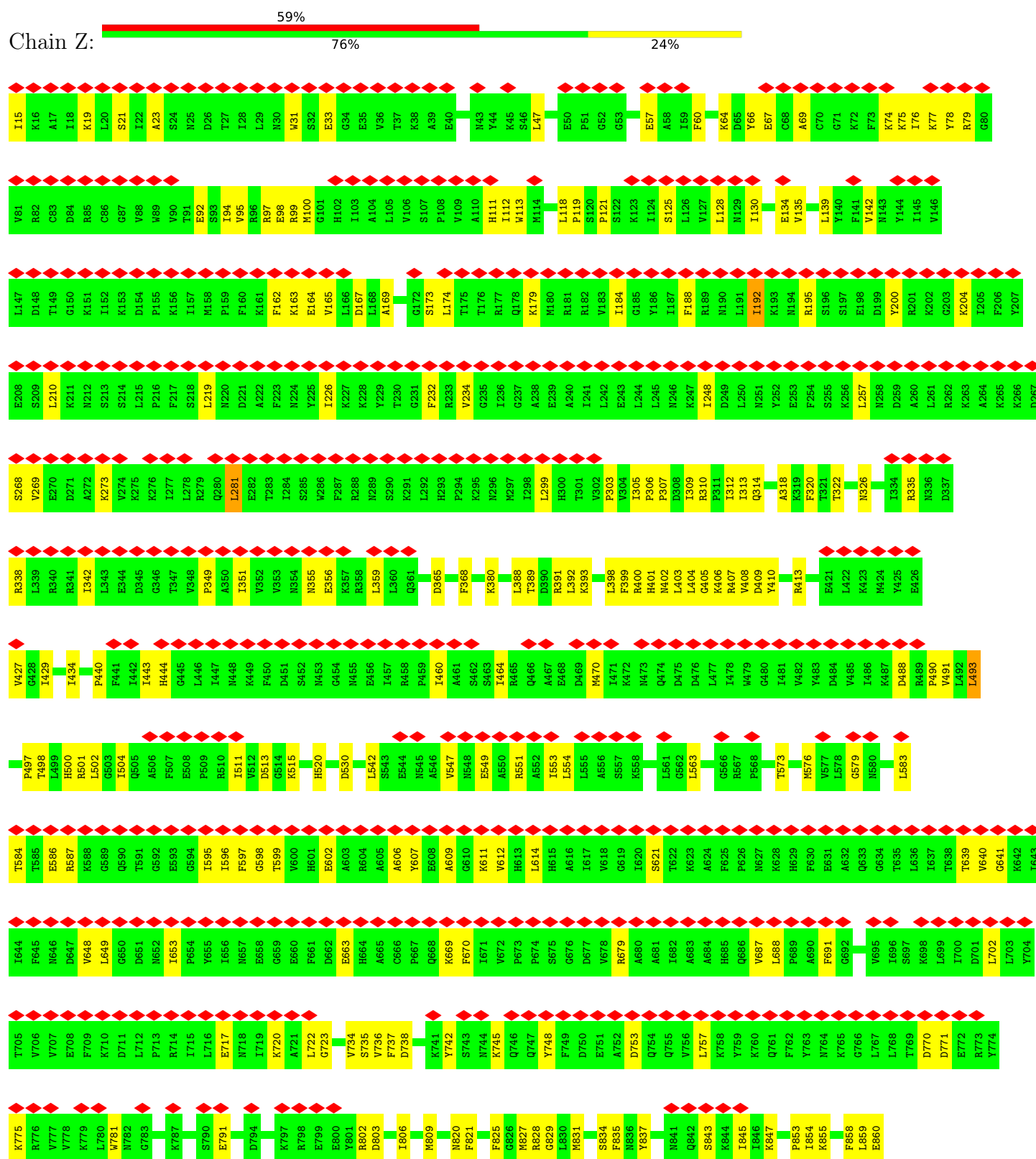


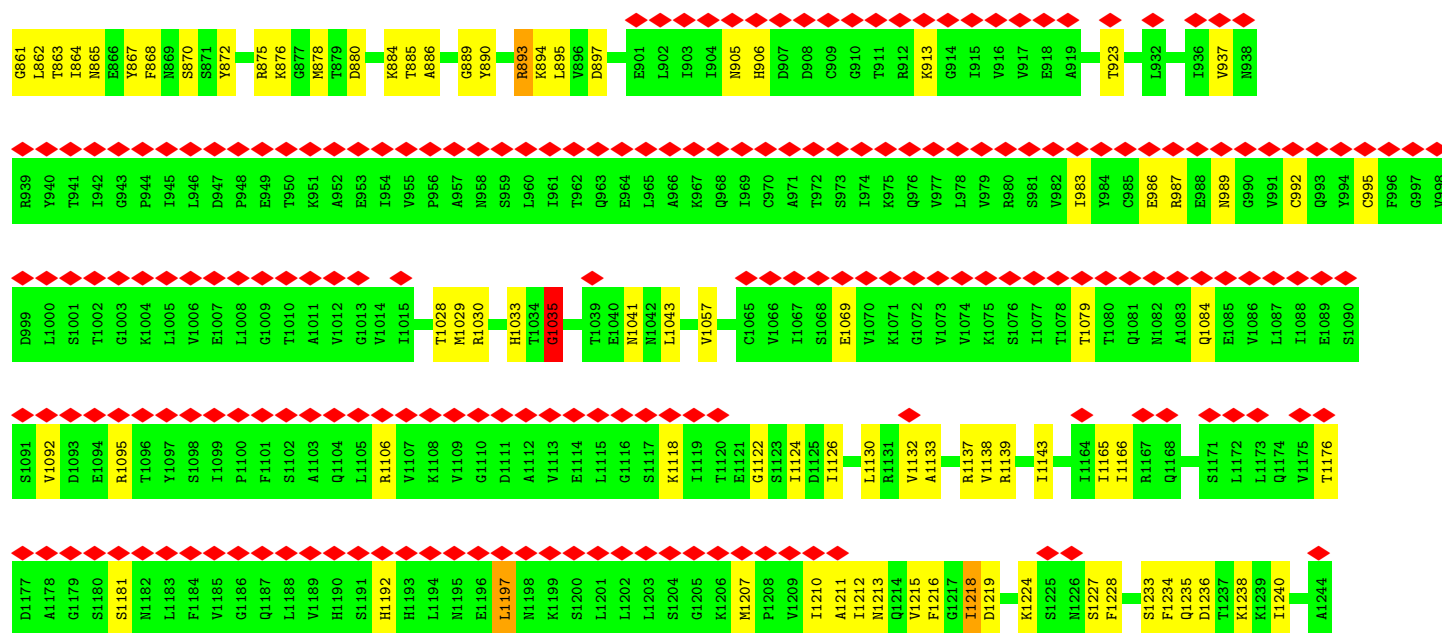
- Molecule 36: Large ribosomal subunit protein bL12



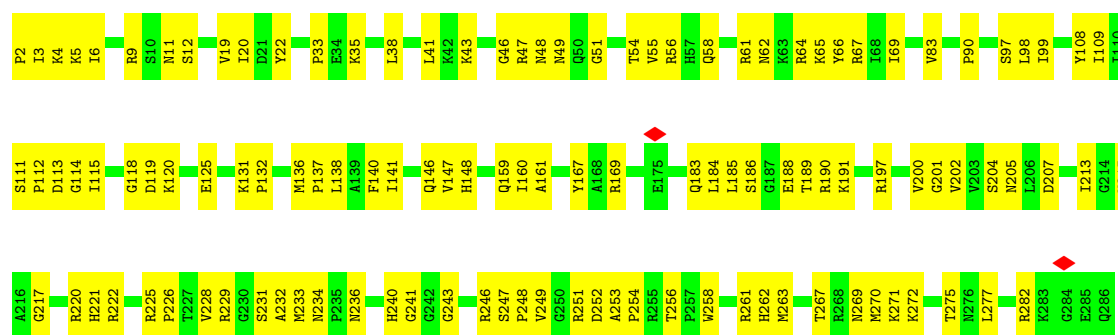


● Molecule 37: DNA-directed RNA polymerase subunit beta'

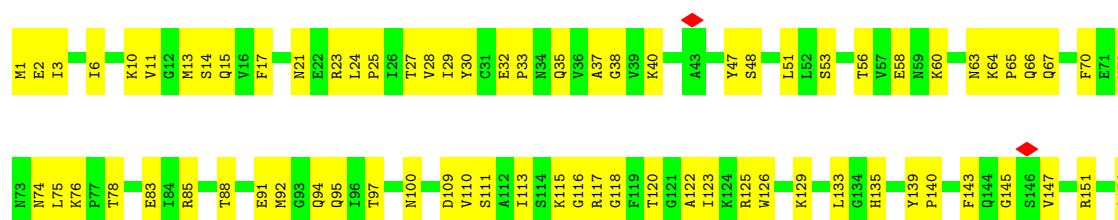




• Molecule 38: Large ribosomal subunit protein uL2



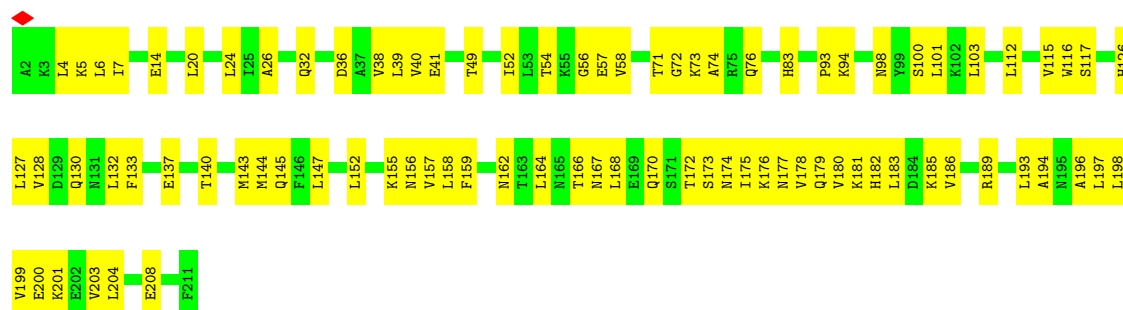
• Molecule 39: Large ribosomal subunit protein uL3





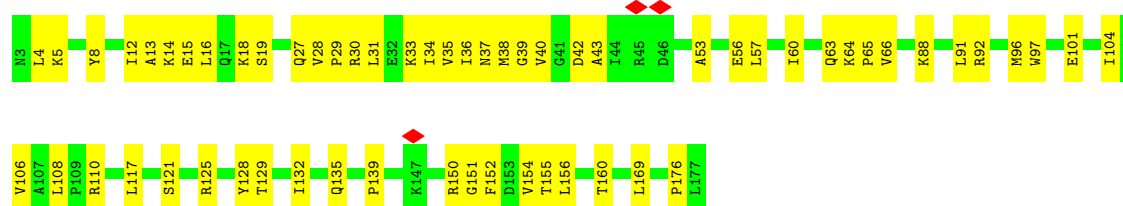
- Molecule 40: Large ribosomal subunit protein uL4

Chain c: 59% 41%



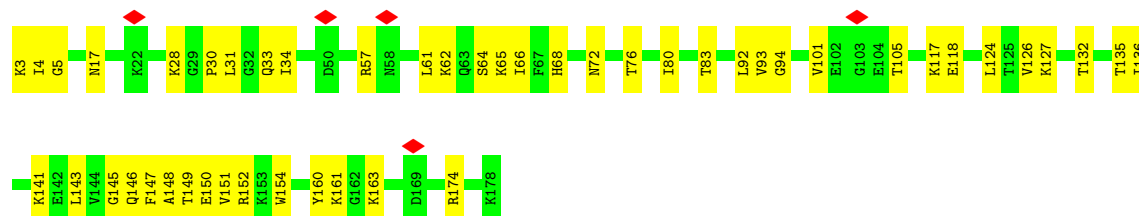
- Molecule 41: Large ribosomal subunit protein uL5

Chain d: 66% 34%



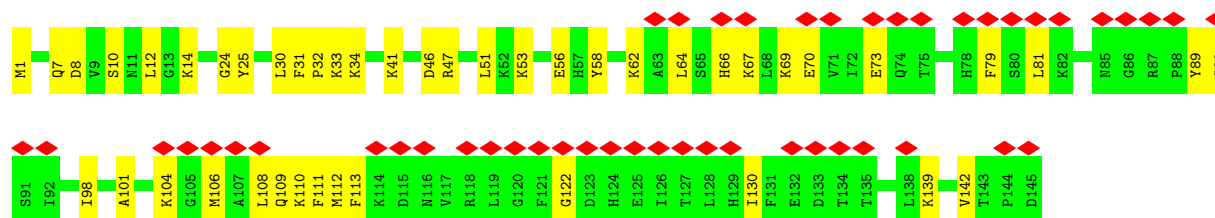
- Molecule 42: Large ribosomal subunit protein uL6

Chain e: 73% 27%

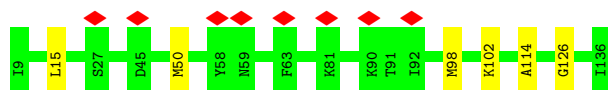


- Molecule 43: Large ribosomal subunit protein bL9

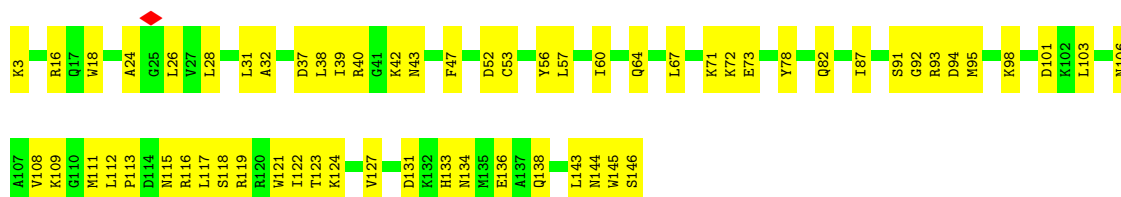
Chain f: 33% 69% 31%



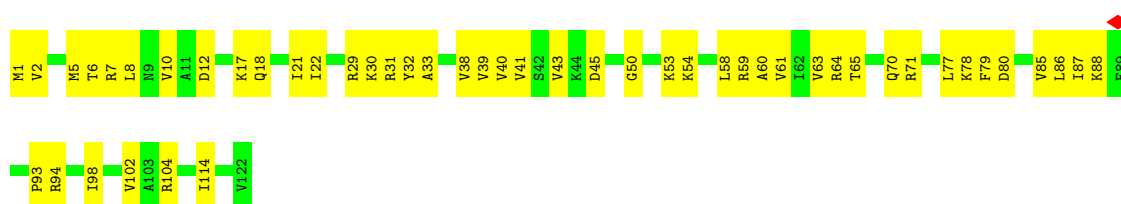
- Molecule 44: Large ribosomal subunit protein uL11



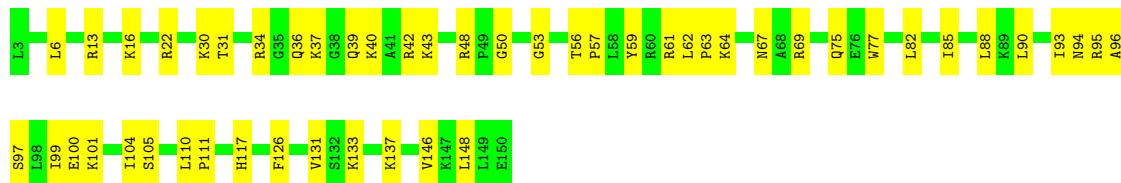
- Molecule 45: Large ribosomal subunit protein uL13



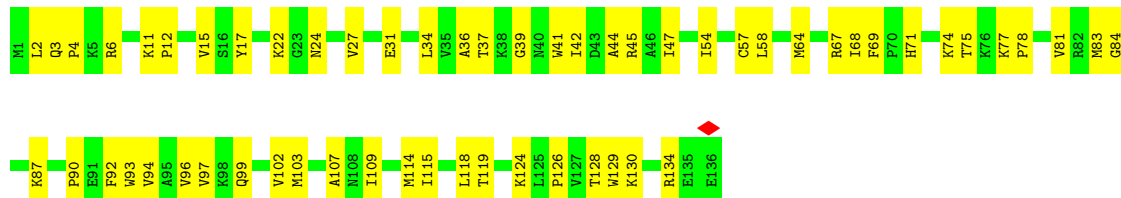
- Molecule 46: 50S ribosomal protein L14



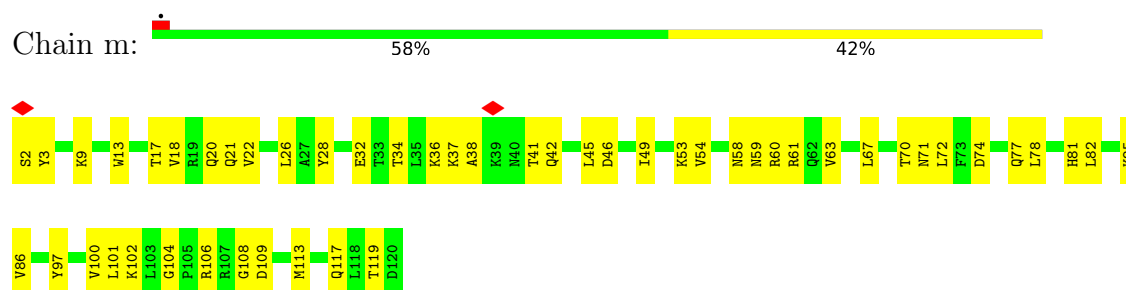
- Molecule 47: Large ribosomal subunit protein uL15



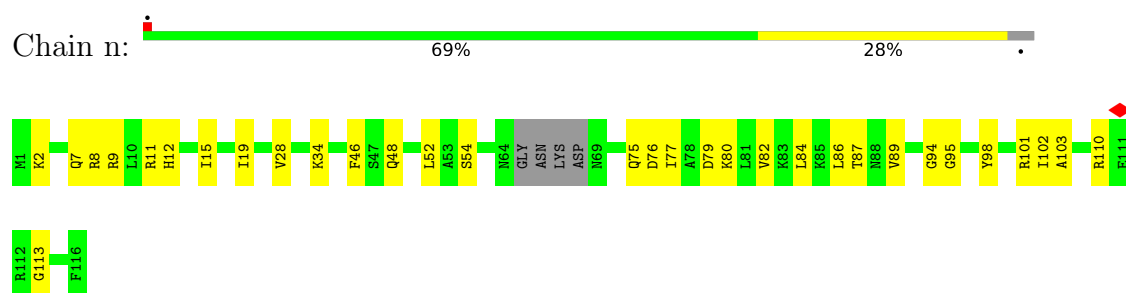
- Molecule 48: Large ribosomal subunit protein uL16



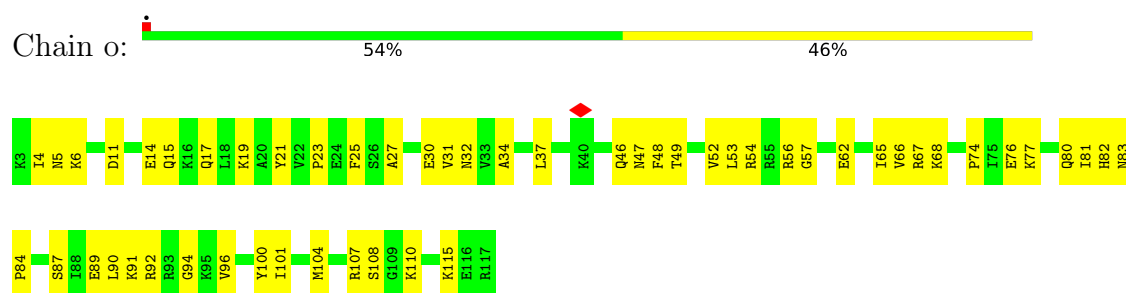
- Molecule 49: Large ribosomal subunit protein bL17



- Molecule 50: Large ribosomal subunit protein uL18



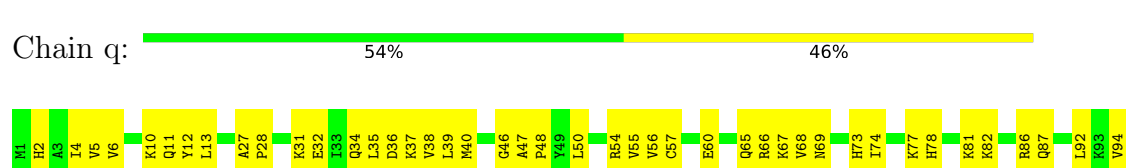
- Molecule 51: Large ribosomal subunit protein bL19



- Molecule 52: Large ribosomal subunit protein bL20



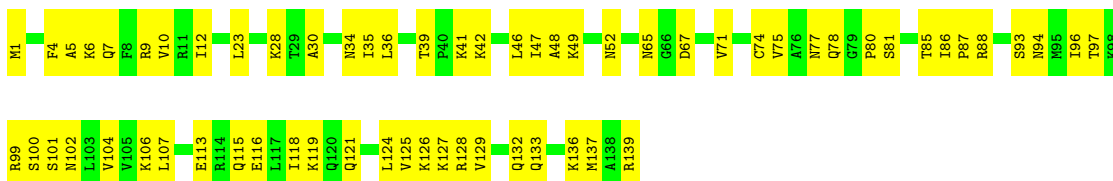
- Molecule 53: Large ribosomal subunit protein bL21





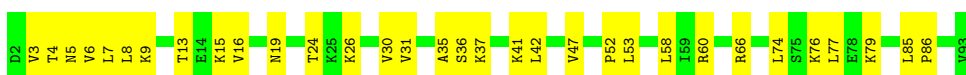
- Molecule 54: Large ribosomal subunit protein uL22

Chain r: 55% 45%



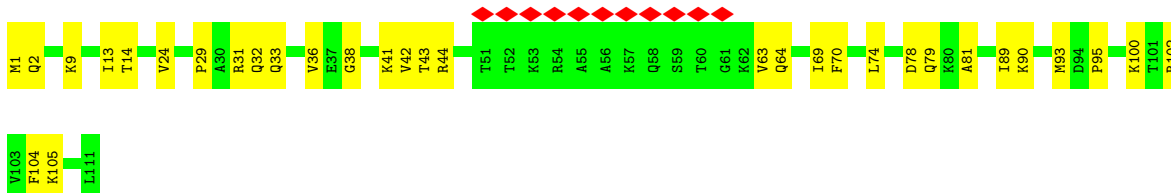
- Molecule 55: Large ribosomal subunit protein uL23

Chain s: 65% 35%



- Molecule 56: 50S ribosomal protein L24

Chain t: 10% 71% 29%



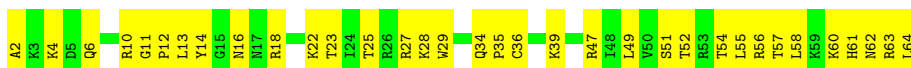
- Molecule 57: Large ribosomal subunit protein bL27

Chain u: 69% 31%



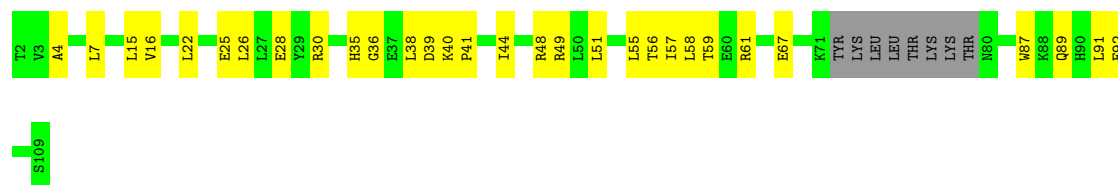
- Molecule 58: Large ribosomal subunit protein bL28

Chain v: 46% 54%

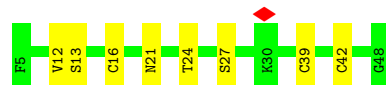
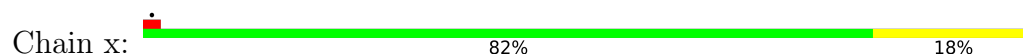


- Molecule 59: Large ribosomal subunit protein uL29

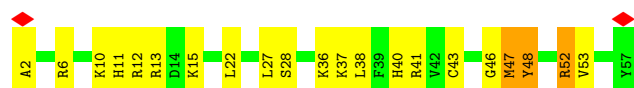
Chain w: 65% 28% 7%



- Molecule 60: Large ribosomal subunit protein bL31



- Molecule 61: Large ribosomal subunit protein bL32



- Molecule 62: Large ribosomal subunit protein bL33A



## 4 Experimental information

| Property                             | Value                                   | Source    |
|--------------------------------------|-----------------------------------------|-----------|
| EM reconstruction method             | SUBTOMOGRAM AVERAGING                   | Depositor |
| Imposed symmetry                     | POINT, C1                               | Depositor |
| Number of subtomograms used          | 4611                                    | Depositor |
| Resolution determination method      | FSC 0.143 CUT-OFF                       | Depositor |
| CTF correction method                | PHASE FLIPPING AND AMPLITUDE CORRECTION | Depositor |
| Microscope                           | TFS KRIOS                               | Depositor |
| Voltage (kV)                         | 300                                     | Depositor |
| Electron dose ( $e^-/\text{\AA}^2$ ) | 120                                     | Depositor |
| Minimum defocus (nm)                 | 2500                                    | Depositor |
| Maximum defocus (nm)                 | 5000                                    | Depositor |
| Magnification                        | Not provided                            |           |
| Image detector                       | GATAN K3 BIOQUANTUM (6k x 4k)           | Depositor |
| Maximum map value                    | 0.023                                   | Depositor |
| Minimum map value                    | -0.007                                  | Depositor |
| Average map value                    | 0.000                                   | Depositor |
| Map value standard deviation         | 0.001                                   | Depositor |
| Recommended contour level            | 0.002                                   | Depositor |
| Map size (Å)                         | 600.0, 600.0, 600.0                     | wwPDB     |
| Map dimensions                       | 300, 300, 300                           | wwPDB     |
| Map angles (°)                       | 90.0, 90.0, 90.0                        | wwPDB     |
| Pixel spacing (Å)                    | 2.0, 2.0, 2.0                           | Depositor |

## 5 Model quality ⓘ

### 5.1 Standard geometry ⓘ

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   | 0     | 0.13         | 0/383        | 0.38        | 0/504         |
| 2   | 1     | 0.19         | 0/484        | 0.54        | 0/637         |
| 3   | 2     | 0.16         | 0/306        | 0.46        | 0/401         |
| 4   | 3     | 0.10         | 0/69073      | 0.23        | 0/107710      |
| 5   | 4     | 0.11         | 0/2505       | 0.28        | 0/3902        |
| 6   | 5     | 0.09         | 0/35768      | 0.22        | 0/55764       |
| 7   | 6     | 0.68         | 0/2458       | 1.00        | 0/3313        |
| 7   | AA    | 0.69         | 0/2490       | 1.00        | 0/3355        |
| 8   | 7     | 0.11         | 0/1808       | 0.28        | 0/2817        |
| 9   | 8     | 0.70         | 0/11124      | 1.06        | 0/15014       |
| 10  | 9     | 0.69         | 0/792        | 1.05        | 0/1065        |
| 11  | A     | 0.15         | 0/1954       | 0.44        | 0/2642        |
| 12  | AB    | 0.70         | 0/2922       | 1.01        | 0/3944        |
| 13  | AC    | 0.47         | 0/745        | 0.61        | 1/1149 (0.1%) |
| 14  | AD    | 0.65         | 1/725 (0.1%) | 0.75        | 2/1115 (0.2%) |
| 15  | AE    | 0.71         | 0/1298       | 1.00        | 0/1752        |
| 16  | B     | 0.18         | 0/1721       | 0.49        | 0/2323        |
| 17  | C     | 0.17         | 0/1691       | 0.49        | 0/2267        |
| 18  | D     | 0.19         | 0/1188       | 0.52        | 1/1593 (0.1%) |
| 19  | E     | 0.17         | 0/1384       | 0.48        | 2/1867 (0.1%) |
| 20  | F     | 0.19         | 0/1266       | 0.56        | 1/1700 (0.1%) |
| 21  | G     | 0.18         | 0/1126       | 0.53        | 0/1517        |
| 22  | H     | 0.17         | 0/1044       | 0.46        | 0/1395        |
| 23  | I     | 0.20         | 0/820        | 0.58        | 1/1103 (0.1%) |
| 24  | J     | 0.16         | 0/844        | 0.44        | 0/1136        |
| 25  | K     | 0.28         | 0/1094       | 0.60        | 3/1468 (0.2%) |
| 26  | L     | 0.18         | 0/962        | 0.50        | 0/1289        |
| 27  | M     | 0.18         | 0/483        | 0.51        | 0/643         |
| 28  | N     | 0.15         | 0/679        | 0.49        | 1/907 (0.1%)  |
| 29  | O     | 0.18         | 0/659        | 0.57        | 1/885 (0.1%)  |
| 30  | P     | 0.14         | 0/684        | 0.42        | 0/913         |
| 31  | Q     | 0.20         | 0/545        | 0.60        | 0/730         |
| 32  | R     | 0.16         | 0/698        | 0.49        | 0/936         |
| 33  | S     | 0.17         | 0/631        | 0.46        | 0/838         |

| Mol | Chain | Bond lengths |                 | Bond angles |                  |
|-----|-------|--------------|-----------------|-------------|------------------|
|     |       | RMSZ         | # Z  >5         | RMSZ        | # Z  >5          |
| 34  | T     | 0.20         | 0/475           | 0.56        | 0/621            |
| 35  | U     | 0.69         | 0/1254          | 1.10        | 0/1677           |
| 36  | V     | 0.64         | 0/232           | 1.16        | 2/307 (0.7%)     |
| 36  | W     | 0.61         | 0/232           | 1.09        | 0/307            |
| 36  | X     | 0.65         | 0/232           | 1.04        | 0/307            |
| 36  | Y     | 0.64         | 0/232           | 1.07        | 0/307            |
| 37  | Z     | 0.71         | 0/10259         | 1.06        | 2/13846 (0.0%)   |
| 38  | a     | 0.16         | 0/2267          | 0.43        | 0/3044           |
| 39  | b     | 0.17         | 0/1795          | 0.51        | 0/2412           |
| 40  | c     | 0.19         | 0/1671          | 0.51        | 1/2246 (0.0%)    |
| 41  | d     | 0.16         | 0/1409          | 0.44        | 0/1894           |
| 42  | e     | 0.15         | 0/1420          | 0.42        | 0/1912           |
| 43  | f     | 0.19         | 0/1183          | 0.56        | 2/1587 (0.1%)    |
| 44  | h     | 0.16         | 0/968           | 0.43        | 0/1298           |
| 45  | i     | 0.15         | 0/1186          | 0.46        | 0/1592           |
| 46  | j     | 0.16         | 0/953           | 0.47        | 0/1275           |
| 47  | k     | 0.17         | 0/1170          | 0.47        | 0/1559           |
| 48  | l     | 0.18         | 0/1104          | 0.47        | 0/1481           |
| 49  | m     | 0.22         | 0/973           | 0.58        | 0/1309           |
| 50  | n     | 0.18         | 0/897           | 0.53        | 0/1198           |
| 51  | o     | 0.17         | 0/948           | 0.50        | 0/1262           |
| 52  | p     | 0.19         | 0/961           | 0.48        | 0/1278           |
| 53  | q     | 0.18         | 0/828           | 0.56        | 0/1111           |
| 54  | r     | 0.18         | 0/1077          | 0.52        | 0/1441           |
| 55  | s     | 0.17         | 0/732           | 0.52        | 1/988 (0.1%)     |
| 56  | t     | 0.14         | 0/879           | 0.44        | 0/1165           |
| 57  | u     | 0.16         | 0/665           | 0.43        | 0/884            |
| 58  | v     | 0.23         | 0/519           | 0.53        | 0/695            |
| 59  | w     | 0.18         | 0/826           | 0.48        | 0/1104           |
| 60  | x     | 0.17         | 0/353           | 0.40        | 0/474            |
| 61  | y     | 0.31         | 0/457           | 0.68        | 0/601            |
| 62  | z     | 0.15         | 0/412           | 0.48        | 0/547            |
| All | All   | 0.32         | 1/190923 (0.0%) | 0.52        | 21/280323 (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 |
|-----|-------|---------------------|---------------------|
| 9   | 8     | 0                   | 1                   |
| 21  | G     | 0                   | 1                   |

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| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 24  | J     | 0                   | 1                   |
| 29  | O     | 0                   | 1                   |
| 37  | Z     | 0                   | 1                   |
| All | All   | 0                   | 5                   |

All (1) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z      | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|-------|--------|-------------|----------|
| 14  | AD    | 22  | DA   | O3'-P | -15.38 | 1.38        | 1.61     |

All (21) bond angle outliers are listed below:

| Mol | Chain | Res  | Type | Atoms     | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-----------|-------|-------------|----------|
| 14  | AD    | 22   | DA   | P-O3'-C3' | 14.74 | 142.30      | 120.20   |
| 13  | AC    | 17   | DT   | P-O3'-C3' | 8.52  | 132.97      | 120.20   |
| 14  | AD    | 22   | DA   | O3'-P-O5' | -8.22 | 91.67       | 104.00   |
| 20  | F     | 16   | VAL  | N-CA-C    | -6.75 | 107.30      | 113.71   |
| 19  | E     | 162  | LYS  | CA-C-N    | 6.27  | 133.51      | 121.54   |
| 19  | E     | 162  | LYS  | C-N-CA    | 6.27  | 133.51      | 121.54   |
| 25  | K     | 122  | LYS  | N-CA-C    | -6.27 | 105.21      | 112.86   |
| 18  | D     | 155  | PRO  | CA-N-CD   | -6.22 | 103.28      | 112.00   |
| 29  | O     | 39   | GLU  | N-CA-C    | -6.04 | 103.84      | 110.91   |
| 37  | Z     | 1035 | GLY  | CA-C-N    | 6.03  | 128.95      | 121.83   |
| 37  | Z     | 1035 | GLY  | C-N-CA    | 6.03  | 128.95      | 121.83   |
| 36  | V     | 28   | PHE  | CA-C-N    | 5.73  | 132.01      | 121.70   |
| 36  | V     | 28   | PHE  | C-N-CA    | 5.73  | 132.01      | 121.70   |
| 25  | K     | 117  | THR  | CB-CA-C   | 5.59  | 119.83      | 109.54   |
| 28  | N     | 19   | VAL  | N-CA-C    | -5.58 | 107.30      | 112.43   |
| 55  | s     | 6    | VAL  | N-CA-C    | -5.24 | 107.61      | 112.43   |
| 43  | f     | 69   | LYS  | CA-C-N    | -5.24 | 112.85      | 120.29   |
| 43  | f     | 69   | LYS  | C-N-CA    | -5.24 | 112.85      | 120.29   |
| 40  | c     | 93   | PRO  | N-CD-CG   | -5.19 | 95.42       | 103.20   |
| 23  | I     | 96   | ILE  | N-CA-C    | -5.02 | 108.94      | 113.71   |
| 25  | K     | 116  | ASP  | N-CA-C    | -5.01 | 106.27      | 112.38   |

There are no chirality outliers.

All (5) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group     |
|-----|-------|-----|------|-----------|
| 9   | 8     | 858 | TYR  | Sidechain |
| 21  | G     | 108 | LEU  | Peptide   |

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| Mol | Chain | Res | Type | Group     |
|-----|-------|-----|------|-----------|
| 24  | J     | 111 | HIS  | Peptide   |
| 29  | O     | 39  | GLU  | Peptide   |
| 37  | Z     | 893 | ARG  | Sidechain |

## 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   | 0     | 380   | 0        | 429      | 10      | 0            |
| 2   | 1     | 477   | 0        | 530      | 23      | 0            |
| 3   | 2     | 304   | 0        | 350      | 16      | 0            |
| 4   | 3     | 61664 | 0        | 30953    | 1934    | 0            |
| 5   | 4     | 2239  | 0        | 1137     | 64      | 0            |
| 6   | 5     | 31943 | 0        | 16058    | 920     | 0            |
| 7   | 6     | 2421  | 0        | 2495     | 139     | 0            |
| 7   | AA    | 2452  | 0        | 2522     | 220     | 0            |
| 8   | 7     | 1618  | 0        | 821      | 45      | 0            |
| 9   | 8     | 10948 | 0        | 11063    | 1040    | 0            |
| 10  | 9     | 770   | 0        | 742      | 32      | 0            |
| 11  | A     | 1921  | 0        | 1973     | 72      | 0            |
| 12  | AB    | 2884  | 0        | 2938     | 457     | 0            |
| 13  | AC    | 663   | 0        | 361      | 82      | 0            |
| 14  | AD    | 649   | 0        | 364      | 99      | 0            |
| 15  | AE    | 1277  | 0        | 1328     | 90      | 0            |
| 16  | B     | 1698  | 0        | 1768     | 72      | 0            |
| 17  | C     | 1660  | 0        | 1719     | 58      | 0            |
| 18  | D     | 1173  | 0        | 1267     | 34      | 0            |
| 19  | E     | 1362  | 0        | 1377     | 41      | 0            |
| 20  | F     | 1246  | 0        | 1308     | 53      | 0            |
| 21  | G     | 1110  | 0        | 1226     | 41      | 0            |
| 22  | H     | 1028  | 0        | 1094     | 35      | 0            |
| 23  | I     | 809   | 0        | 894      | 38      | 0            |
| 24  | J     | 829   | 0        | 855      | 39      | 0            |
| 25  | K     | 1076  | 0        | 1170     | 49      | 0            |
| 26  | L     | 951   | 0        | 1014     | 35      | 0            |
| 27  | M     | 474   | 0        | 509      | 24      | 0            |
| 28  | N     | 673   | 0        | 730      | 29      | 0            |
| 29  | O     | 646   | 0        | 677      | 26      | 0            |

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| Mol | Chain | Non-H  | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|--------|----------|----------|---------|--------------|
| 30  | P     | 675    | 0        | 728      | 25      | 0            |
| 31  | Q     | 535    | 0        | 562      | 23      | 0            |
| 32  | R     | 682    | 0        | 691      | 25      | 0            |
| 33  | S     | 629    | 0        | 681      | 34      | 0            |
| 34  | T     | 471    | 0        | 522      | 18      | 0            |
| 35  | U     | 1239   | 0        | 1301     | 128     | 0            |
| 36  | V     | 232    | 0        | 237      | 9       | 0            |
| 36  | W     | 232    | 0        | 237      | 8       | 0            |
| 36  | X     | 232    | 0        | 237      | 10      | 0            |
| 36  | Y     | 232    | 0        | 237      | 7       | 0            |
| 37  | Z     | 10085  | 0        | 10375    | 820     | 0            |
| 38  | a     | 2225   | 0        | 2301     | 106     | 0            |
| 39  | b     | 1762   | 0        | 1808     | 91      | 0            |
| 40  | c     | 1644   | 0        | 1731     | 70      | 0            |
| 41  | d     | 1388   | 0        | 1469     | 46      | 0            |
| 42  | e     | 1396   | 0        | 1481     | 33      | 0            |
| 43  | f     | 1160   | 0        | 1172     | 34      | 0            |
| 44  | h     | 959    | 0        | 1039     | 9       | 0            |
| 45  | i     | 1164   | 0        | 1192     | 53      | 0            |
| 46  | j     | 944    | 0        | 1019     | 43      | 0            |
| 47  | k     | 1153   | 0        | 1256     | 46      | 0            |
| 48  | l     | 1079   | 0        | 1134     | 50      | 0            |
| 49  | m     | 958    | 0        | 1011     | 40      | 0            |
| 50  | n     | 889    | 0        | 952      | 26      | 0            |
| 51  | o     | 938    | 0        | 1008     | 47      | 0            |
| 52  | p     | 947    | 0        | 1028     | 67      | 0            |
| 53  | q     | 811    | 0        | 858      | 39      | 0            |
| 54  | r     | 1068   | 0        | 1150     | 54      | 0            |
| 55  | s     | 720    | 0        | 803      | 20      | 0            |
| 56  | t     | 872    | 0        | 972      | 18      | 0            |
| 57  | u     | 657    | 0        | 695      | 22      | 0            |
| 58  | v     | 513    | 0        | 560      | 30      | 0            |
| 59  | w     | 818    | 0        | 870      | 20      | 0            |
| 60  | x     | 344    | 0        | 333      | 4       | 0            |
| 61  | y     | 452    | 0        | 472      | 22      | 0            |
| 62  | z     | 408    | 0        | 440      | 16      | 0            |
| All | All   | 177858 | 0        | 132234   | 6177    | 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 21.

All (6177) 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) |
|-------------------|--------------------|--------------------------|-------------------|
| 4:3:1081:A:C4     | 35:U:7:LYS:HD3     | 1.25                     | 1.69              |
| 9:8:999:PHE:CZ    | 12:AB:108:LEU:HD23 | 1.23                     | 1.68              |
| 7:6:107:GLU:HG3   | 7:AA:319:HIS:CD2   | 1.30                     | 1.64              |
| 12:AB:290:TRP:HE1 | 12:AB:293:ASP:CB   | 1.07                     | 1.60              |
| 9:8:999:PHE:CE1   | 12:AB:108:LEU:HD23 | 1.28                     | 1.60              |
| 9:8:1342:LEU:CD1  | 37:Z:392:LEU:CD2   | 1.79                     | 1.59              |
| 9:8:1344:LYS:HG3  | 37:Z:309:ILE:CD1   | 1.26                     | 1.58              |
| 12:AB:157:ASN:C   | 37:Z:76:ILE:CD1    | 1.75                     | 1.57              |
| 9:8:956:ARG:HG3   | 7:AA:296:SER:CB    | 1.34                     | 1.56              |
| 9:8:998:ILE:HG22  | 12:AB:108:LEU:CD2  | 1.19                     | 1.55              |
| 9:8:1306:LEU:CD2  | 37:Z:408:VAL:HG21  | 1.33                     | 1.52              |
| 12:AB:290:TRP:CZ3 | 12:AB:296:LYS:NZ   | 1.74                     | 1.51              |
| 9:8:1342:LEU:CB   | 37:Z:398:LEU:CD2   | 1.85                     | 1.50              |
| 9:8:995:PHE:CE1   | 12:AB:119:MET:SD   | 2.03                     | 1.49              |
| 9:8:998:ILE:HG21  | 12:AB:62:MET:CE    | 1.42                     | 1.47              |
| 9:8:1344:LYS:HD2  | 37:Z:306:PRO:CD    | 1.43                     | 1.47              |
| 4:3:1118:U:C5'    | 35:U:41:ARG:CD     | 1.82                     | 1.46              |
| 9:8:999:PHE:CE1   | 12:AB:42:TYR:OH    | 1.69                     | 1.46              |
| 12:AB:215:ASP:CG  | 12:AB:217:ARG:NH2  | 1.68                     | 1.45              |
| 9:8:998:ILE:CG2   | 12:AB:62:MET:HE2   | 1.45                     | 1.45              |
| 9:8:1342:LEU:HD12 | 37:Z:392:LEU:CD2   | 1.35                     | 1.45              |
| 9:8:1342:LEU:HB2  | 37:Z:398:LEU:CD2   | 0.97                     | 1.45              |
| 9:8:1342:LEU:CB   | 37:Z:398:LEU:HD23  | 1.43                     | 1.44              |
| 9:8:658:PRO:HG3   | 37:Z:868:PHE:CD2   | 1.52                     | 1.43              |
| 7:6:175:SER:H     | 7:AA:324:LYS:NZ    | 1.05                     | 1.43              |
| 9:8:1310:LYS:HB3  | 37:Z:409:ASP:N     | 1.16                     | 1.43              |
| 12:AB:158:LYS:CA  | 37:Z:76:ILE:HD11   | 1.43                     | 1.43              |
| 7:6:175:SER:H     | 7:AA:324:LYS:CE    | 1.27                     | 1.42              |
| 12:AB:290:TRP:NE1 | 12:AB:293:ASP:CB   | 1.72                     | 1.42              |
| 9:8:997:ALA:C     | 12:AB:8:PHE:CE1    | 1.98                     | 1.41              |
| 9:8:1371:LEU:CD1  | 37:Z:95:VAL:HG13   | 0.94                     | 1.41              |
| 9:8:956:ARG:CG    | 7:AA:296:SER:CB    | 1.97                     | 1.41              |
| 9:8:998:ILE:CG2   | 12:AB:108:LEU:CD2  | 1.99                     | 1.40              |
| 9:8:1310:LYS:CB   | 37:Z:409:ASP:H     | 1.35                     | 1.40              |
| 4:3:1081:A:C4     | 35:U:7:LYS:CD      | 2.04                     | 1.39              |
| 4:3:1142:G:C4'    | 35:U:78:GLY:N      | 1.84                     | 1.39              |
| 9:8:956:ARG:HG3   | 7:AA:296:SER:CA    | 1.53                     | 1.38              |
| 11:A:170:LYS:NZ   | 12:AB:360:LYS:CD   | 1.86                     | 1.38              |
| 7:6:107:GLU:CG    | 7:AA:319:HIS:CD2   | 2.01                     | 1.38              |
| 9:8:998:ILE:CG2   | 12:AB:62:MET:CE    | 1.94                     | 1.38              |
| 14:AD:14:DG:C8    | 37:Z:886:ALA:HA    | 1.57                     | 1.38              |
| 9:8:1289:MET:HE3  | 14:AD:15:DA:C5'    | 1.52                     | 1.38              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 9:8:998:ILE:HA     | 12:AB:8:PHE:CZ    | 1.57                     | 1.37              |
| 7:6:105:PRO:CG     | 7:AA:320:GLU:HA   | 1.55                     | 1.37              |
| 9:8:1348:GLY:C     | 37:Z:388:LEU:CD1  | 1.96                     | 1.37              |
| 12:AB:239:LYS:NZ   | 12:AB:294:LYS:HG3 | 1.40                     | 1.36              |
| 9:8:998:ILE:CA     | 12:AB:8:PHE:HZ    | 1.36                     | 1.36              |
| 4:3:1118:U:H5''    | 35:U:41:ARG:CD    | 1.39                     | 1.35              |
| 12:AB:196:VAL:HG11 | 12:AB:217:ARG:NH1 | 1.36                     | 1.34              |
| 9:8:956:ARG:CG     | 7:AA:296:SER:HB3  | 1.54                     | 1.34              |
| 9:8:999:PHE:CZ     | 12:AB:108:LEU:CD2 | 2.09                     | 1.34              |
| 12:AB:158:LYS:N    | 37:Z:76:ILE:HD11  | 1.04                     | 1.34              |
| 12:AB:290:TRP:CH2  | 12:AB:296:LYS:NZ  | 1.95                     | 1.34              |
| 9:8:1349:LEU:HA    | 37:Z:368:PHE:CD1  | 1.62                     | 1.33              |
| 9:8:1310:LYS:HD3   | 37:Z:409:ASP:O    | 1.20                     | 1.33              |
| 9:8:999:PHE:HB3    | 12:AB:108:LEU:O   | 1.24                     | 1.32              |
| 11:A:170:LYS:HZ1   | 12:AB:360:LYS:CD  | 1.40                     | 1.32              |
| 4:3:1088:A:C2      | 35:U:79:LYS:HE3   | 1.63                     | 1.32              |
| 7:AA:283:ARG:NH1   | 12:AB:81:PHE:HB2  | 1.41                     | 1.32              |
| 12:AB:290:TRP:NE1  | 12:AB:293:ASP:HB2 | 1.31                     | 1.32              |
| 9:8:994:LEU:CD1    | 12:AB:12:LEU:HD11 | 1.58                     | 1.31              |
| 9:8:649:HIS:CD2    | 37:Z:837:TYR:CZ   | 2.16                     | 1.31              |
| 7:AA:82:LEU:HD22   | 37:Z:598:GLY:N    | 1.45                     | 1.31              |
| 9:8:1371:LEU:HD12  | 37:Z:95:VAL:CG1   | 0.85                     | 1.31              |
| 37:Z:876:LYS:HG3   | 37:Z:1030:ARG:NH1 | 1.44                     | 1.31              |
| 9:8:216:ALA:C      | 13:AC:20:DG:H2'   | 1.54                     | 1.31              |
| 9:8:1287:GLY:HA3   | 14:AD:16:DC:OP1   | 1.30                     | 1.31              |
| 9:8:1344:LYS:CG    | 37:Z:309:ILE:CD1  | 2.09                     | 1.31              |
| 9:8:994:LEU:CD1    | 12:AB:12:LEU:CD1  | 2.07                     | 1.31              |
| 9:8:1371:LEU:HD11  | 37:Z:92:GLU:O     | 1.24                     | 1.31              |
| 4:3:1142:G:H4'     | 35:U:78:GLY:N     | 1.01                     | 1.30              |
| 12:AB:291:ASN:ND2  | 16:B:146:LYS:NZ   | 1.79                     | 1.30              |
| 9:8:1269:LYS:CE    | 37:Z:313:ILE:HG23 | 1.62                     | 1.29              |
| 9:8:1285:ARG:HB3   | 14:AD:17:DT:P     | 1.72                     | 1.29              |
| 12:AB:131:ALA:O    | 12:AB:171:THR:CB  | 1.79                     | 1.29              |
| 12:AB:157:ASN:O    | 37:Z:76:ILE:CG1   | 1.78                     | 1.29              |
| 9:8:356:ARG:NH1    | 15:AE:113:ASN:HB2 | 1.46                     | 1.29              |
| 12:AB:183:LYS:HD2  | 12:AB:245:GLY:CA  | 1.63                     | 1.29              |
| 9:8:1349:LEU:HD23  | 37:Z:368:PHE:CA   | 1.61                     | 1.29              |
| 4:3:1142:G:C1'     | 35:U:78:GLY:HA2   | 1.63                     | 1.29              |
| 12:AB:290:TRP:CD1  | 12:AB:293:ASP:HB3 | 1.67                     | 1.29              |
| 9:8:649:HIS:CD2    | 37:Z:837:TYR:OH   | 1.86                     | 1.28              |
| 7:6:106:LEU:CB     | 7:AA:319:HIS:HE1  | 1.46                     | 1.28              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 9:8:175:ARG:NH2    | 13:AC:26:DT:C6     | 2.01                     | 1.28              |
| 12:AB:157:ASN:O    | 37:Z:76:ILE:HG12   | 1.16                     | 1.28              |
| 14:AD:23:DC:N1     | 37:Z:380:LYS:HB3   | 1.47                     | 1.28              |
| 9:8:170:LYS:N      | 13:AC:25:DC:H1'    | 1.46                     | 1.28              |
| 9:8:1002:SER:O     | 12:AB:112:LYS:HG2  | 1.18                     | 1.28              |
| 12:AB:131:ALA:O    | 12:AB:171:THR:HB   | 1.23                     | 1.28              |
| 9:8:1289:MET:SD    | 14:AD:15:DA:C4'    | 2.22                     | 1.27              |
| 4:3:1142:G:O4'     | 35:U:78:GLY:C      | 1.78                     | 1.27              |
| 12:AB:288:VAL:HG21 | 12:AB:297:PHE:CD2  | 1.69                     | 1.27              |
| 4:3:1081:A:O2'     | 35:U:7:LYS:NZ      | 1.67                     | 1.27              |
| 12:AB:196:VAL:HG11 | 12:AB:217:ARG:CZ   | 1.65                     | 1.27              |
| 12:AB:291:ASN:ND2  | 16:B:146:LYS:HZ3   | 1.31                     | 1.27              |
| 9:8:999:PHE:CE1    | 12:AB:108:LEU:CD2  | 2.16                     | 1.26              |
| 9:8:998:ILE:CG2    | 12:AB:108:LEU:HD22 | 1.64                     | 1.26              |
| 7:6:175:SER:N      | 7:AA:324:LYS:HZ3   | 1.30                     | 1.26              |
| 9:8:1345:GLU:OE2   | 37:Z:391:ARG:CB    | 1.84                     | 1.25              |
| 37:Z:876:LYS:CG    | 37:Z:1030:ARG:NH1  | 1.99                     | 1.25              |
| 9:8:997:ALA:C      | 12:AB:8:PHE:HE1    | 1.36                     | 1.25              |
| 9:8:1352:SER:OG    | 37:Z:31:TRP:CZ2    | 1.86                     | 1.25              |
| 12:AB:158:LYS:N    | 37:Z:76:ILE:CD1    | 1.86                     | 1.25              |
| 9:8:956:ARG:CB     | 7:AA:296:SER:HB3   | 1.66                     | 1.25              |
| 9:8:1352:SER:OG    | 37:Z:31:TRP:HZ2    | 1.19                     | 1.25              |
| 9:8:1289:MET:CE    | 14:AD:15:DA:H5'    | 1.68                     | 1.24              |
| 9:8:1306:LEU:CD2   | 37:Z:408:VAL:CG2   | 2.15                     | 1.24              |
| 9:8:1349:LEU:HD21  | 37:Z:368:PHE:O     | 1.21                     | 1.24              |
| 9:8:956:ARG:CA     | 7:AA:296:SER:HB3   | 1.67                     | 1.24              |
| 9:8:998:ILE:O      | 12:AB:108:LEU:CD1  | 1.83                     | 1.24              |
| 9:8:1306:LEU:O     | 37:Z:408:VAL:HG12  | 1.36                     | 1.24              |
| 14:AD:13:DA:H4'    | 37:Z:890:TYR:CD1   | 1.55                     | 1.24              |
| 7:6:175:SER:N      | 7:AA:324:LYS:NZ    | 1.76                     | 1.24              |
| 14:AD:10:DG:C4'    | 37:Z:119:PRO:HD3   | 1.68                     | 1.24              |
| 9:8:1344:LYS:O     | 37:Z:305:ILE:HG21  | 1.32                     | 1.23              |
| 12:AB:156:THR:OG1  | 37:Z:76:ILE:HG23   | 1.36                     | 1.23              |
| 9:8:998:ILE:O      | 12:AB:108:LEU:HD13 | 1.37                     | 1.23              |
| 9:8:175:ARG:NH2    | 13:AC:26:DT:C2     | 2.07                     | 1.22              |
| 12:AB:156:THR:CG2  | 37:Z:77:LYS:HA     | 1.49                     | 1.22              |
| 9:8:1342:LEU:CD1   | 37:Z:392:LEU:HD22  | 1.48                     | 1.22              |
| 4:3:1142:G:C4'     | 35:U:78:GLY:CA     | 2.17                     | 1.22              |
| 9:8:1306:LEU:CB    | 37:Z:408:VAL:HG11  | 1.68                     | 1.22              |
| 9:8:1289:MET:CG    | 14:AD:15:DA:H4'    | 1.68                     | 1.22              |
| 12:AB:239:LYS:HZ3  | 12:AB:294:LYS:CG   | 1.52                     | 1.22              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 9:8:1344:LYS:HE3   | 37:Z:306:PRO:CG    | 1.67                     | 1.21              |
| 14:AD:17:DT:H4'    | 37:Z:413:ARG:NH1   | 1.51                     | 1.21              |
| 4:3:1118:U:C5'     | 35:U:41:ARG:HD3    | 1.52                     | 1.21              |
| 12:AB:135:VAL:CG2  | 12:AB:171:THR:OG1  | 1.87                     | 1.21              |
| 7:6:175:SER:N      | 7:AA:324:LYS:CE    | 1.83                     | 1.21              |
| 9:8:1307:LEU:CA    | 37:Z:406:LYS:HD2   | 1.71                     | 1.21              |
| 12:AB:157:ASN:C    | 37:Z:76:ILE:HD11   | 1.45                     | 1.21              |
| 12:AB:215:ASP:CB   | 12:AB:217:ARG:NH2  | 2.01                     | 1.21              |
| 12:AB:290:TRP:CE3  | 12:AB:296:LYS:NZ   | 2.03                     | 1.21              |
| 9:8:1352:SER:CB    | 37:Z:31:TRP:HH2    | 1.53                     | 1.20              |
| 9:8:1371:LEU:CG    | 37:Z:95:VAL:HG13   | 1.70                     | 1.20              |
| 9:8:1269:LYS:HD2   | 37:Z:313:ILE:CG2   | 1.69                     | 1.20              |
| 9:8:1344:LYS:CG    | 37:Z:309:ILE:HD12  | 1.69                     | 1.20              |
| 9:8:649:HIS:CD2    | 37:Z:837:TYR:CE1   | 2.29                     | 1.20              |
| 9:8:998:ILE:C      | 12:AB:108:LEU:HD13 | 1.67                     | 1.20              |
| 9:8:999:PHE:CB     | 12:AB:108:LEU:O    | 1.89                     | 1.20              |
| 7:AA:82:LEU:HD22   | 37:Z:598:GLY:CA    | 1.70                     | 1.20              |
| 4:3:1119:A:C4      | 35:U:53:VAL:HG21   | 1.76                     | 1.19              |
| 9:8:1269:LYS:CD    | 37:Z:313:ILE:HG23  | 1.72                     | 1.19              |
| 9:8:1352:SER:CB    | 37:Z:31:TRP:CH2    | 2.24                     | 1.19              |
| 7:6:105:PRO:HG3    | 7:AA:320:GLU:CA    | 1.71                     | 1.19              |
| 12:AB:215:ASP:CG   | 12:AB:217:ARG:CZ   | 2.14                     | 1.19              |
| 9:8:1289:MET:CE    | 14:AD:14:DG:H2''   | 1.71                     | 1.19              |
| 11:A:170:LYS:NZ    | 12:AB:360:LYS:HD2  | 1.46                     | 1.19              |
| 9:8:1344:LYS:O     | 37:Z:305:ILE:CG2   | 1.91                     | 1.18              |
| 9:8:1344:LYS:CD    | 37:Z:306:PRO:HD2   | 1.71                     | 1.18              |
| 4:3:1081:A:C5      | 35:U:7:LYS:CD      | 2.12                     | 1.18              |
| 9:8:1345:GLU:OE2   | 37:Z:391:ARG:HB3   | 1.44                     | 1.18              |
| 9:8:1105:ILE:CG2   | 37:Z:736:VAL:HG23  | 1.74                     | 1.18              |
| 7:6:106:LEU:HB3    | 7:AA:319:HIS:CE1   | 1.77                     | 1.17              |
| 12:AB:153:ASP:OD1  | 37:Z:77:LYS:NZ     | 1.75                     | 1.17              |
| 14:AD:10:DG:H4'    | 37:Z:119:PRO:HD3   | 1.17                     | 1.17              |
| 4:3:1141:U:O2'     | 35:U:79:LYS:HA     | 1.42                     | 1.17              |
| 9:8:649:HIS:NE2    | 37:Z:837:TYR:CE1   | 2.12                     | 1.17              |
| 14:AD:17:DT:C4'    | 37:Z:413:ARG:NH1   | 2.07                     | 1.16              |
| 12:AB:156:THR:HG21 | 37:Z:77:LYS:CA     | 1.73                     | 1.16              |
| 7:6:174:ASN:HD22   | 7:AA:324:LYS:N     | 1.10                     | 1.16              |
| 9:8:216:ALA:HB1    | 13:AC:20:DG:C8     | 1.80                     | 1.16              |
| 9:8:634:GLY:HA2    | 13:AC:24:DT:C7     | 1.76                     | 1.16              |
| 9:8:1269:LYS:CD    | 37:Z:313:ILE:HG12  | 1.76                     | 1.16              |
| 4:3:1118:U:H5'     | 35:U:41:ARG:CD     | 1.66                     | 1.15              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 9:8:1347:GLN:OE1   | 37:Z:100:MET:SD    | 2.02                     | 1.15              |
| 9:8:1352:SER:CA    | 37:Z:31:TRP:HH2    | 1.59                     | 1.15              |
| 12:AB:153:ASP:OD2  | 37:Z:75:LYS:NZ     | 1.80                     | 1.15              |
| 35:U:42:LYS:HE2    | 44:h:114:ALA:N     | 1.58                     | 1.15              |
| 4:3:1142:G:C4'     | 35:U:78:GLY:H      | 1.48                     | 1.14              |
| 9:8:175:ARG:NH2    | 13:AC:26:DT:C5     | 2.13                     | 1.14              |
| 9:8:1348:GLY:CA    | 37:Z:388:LEU:CD1   | 2.24                     | 1.14              |
| 9:8:814:LEU:HD23   | 9:8:858:TYR:CZ     | 1.83                     | 1.14              |
| 9:8:998:ILE:CA     | 12:AB:8:PHE:CZ     | 2.22                     | 1.14              |
| 9:8:1289:MET:SD    | 14:AD:15:DA:H4'    | 1.82                     | 1.14              |
| 9:8:1344:LYS:CD    | 37:Z:306:PRO:CD    | 2.24                     | 1.14              |
| 9:8:1273:GLN:NE2   | 37:Z:402:ASN:HD22  | 1.44                     | 1.14              |
| 9:8:1371:LEU:CD2   | 37:Z:94:ILE:HG22   | 1.78                     | 1.14              |
| 9:8:1348:GLY:HA3   | 37:Z:388:LEU:CD1   | 1.78                     | 1.13              |
| 12:AB:183:LYS:CD   | 12:AB:245:GLY:HA2  | 1.77                     | 1.13              |
| 7:6:107:GLU:CD     | 7:AA:319:HIS:CD2   | 2.25                     | 1.13              |
| 9:8:1306:LEU:HB3   | 37:Z:408:VAL:HG11  | 1.15                     | 1.13              |
| 9:8:1371:LEU:HD12  | 37:Z:95:VAL:HG11   | 1.19                     | 1.13              |
| 4:3:1142:G:OP1     | 35:U:56:ASN:HB2    | 1.48                     | 1.13              |
| 9:8:1289:MET:SD    | 14:AD:15:DA:O4'    | 2.06                     | 1.13              |
| 9:8:1345:GLU:HA    | 37:Z:388:LEU:HD22  | 1.30                     | 1.13              |
| 9:8:998:ILE:HD13   | 12:AB:62:MET:HE1   | 1.18                     | 1.13              |
| 9:8:1349:LEU:CD2   | 37:Z:368:PHE:O     | 1.97                     | 1.13              |
| 12:AB:135:VAL:HG23 | 12:AB:171:THR:OG1  | 0.96                     | 1.12              |
| 9:8:1344:LYS:CE    | 37:Z:306:PRO:HG2   | 1.78                     | 1.12              |
| 6:5:1331:A:N6      | 6:5:1340:G:H1      | 1.44                     | 1.12              |
| 7:6:174:ASN:ND2    | 7:AA:324:LYS:N     | 1.93                     | 1.12              |
| 9:8:175:ARG:NH2    | 13:AC:26:DT:C4     | 2.18                     | 1.12              |
| 9:8:1348:GLY:O     | 37:Z:368:PHE:CE1   | 2.01                     | 1.12              |
| 12:AB:156:THR:CB   | 37:Z:76:ILE:HG23   | 1.71                     | 1.12              |
| 7:6:106:LEU:CB     | 7:AA:319:HIS:CE1   | 2.30                     | 1.12              |
| 9:8:647:ASP:HB2    | 37:Z:835:PHE:CZ    | 1.84                     | 1.12              |
| 12:AB:215:ASP:C    | 12:AB:217:ARG:H    | 1.48                     | 1.12              |
| 13:AC:17:DT:H5''   | 15:AE:118:THR:HG22 | 1.14                     | 1.12              |
| 7:6:279:ASN:OD1    | 12:AB:314:GLN:OE1  | 1.67                     | 1.11              |
| 13:AC:16:DG:H4'    | 15:AE:16:SER:HB2   | 1.29                     | 1.11              |
| 14:AD:23:DC:C6     | 37:Z:380:LYS:CB    | 2.31                     | 1.11              |
| 9:8:1348:GLY:C     | 37:Z:388:LEU:HD13  | 1.71                     | 1.11              |
| 9:8:1349:LEU:CD2   | 37:Z:368:PHE:HA    | 1.79                     | 1.11              |
| 9:8:998:ILE:HG21   | 12:AB:62:MET:HE1   | 1.11                     | 1.11              |
| 9:8:1001:GLU:H     | 12:AB:109:LYS:HG2  | 1.14                     | 1.11              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 36:W:14:ILE:HD11  | 36:X:17:ILE:HG13   | 1.31                     | 1.11              |
| 9:8:1269:LYS:NZ   | 37:Z:313:ILE:HG23  | 1.64                     | 1.11              |
| 15:AE:137:ASP:OD2 | 37:Z:349:PRO:HB3   | 1.50                     | 1.11              |
| 9:8:175:ARG:NH2   | 13:AC:26:DT:N1     | 1.99                     | 1.10              |
| 12:AB:196:VAL:CG1 | 12:AB:217:ARG:NH1  | 2.15                     | 1.10              |
| 14:AD:14:DG:H5'   | 37:Z:890:TYR:CB    | 1.81                     | 1.10              |
| 9:8:997:ALA:C     | 12:AB:8:PHE:CZ     | 2.28                     | 1.10              |
| 9:8:1349:LEU:CD2  | 37:Z:368:PHE:CA    | 2.28                     | 1.10              |
| 14:AD:10:DG:H4'   | 37:Z:119:PRO:CD    | 1.82                     | 1.10              |
| 35:U:42:LYS:CE    | 44:h:114:ALA:N     | 1.98                     | 1.10              |
| 4:3:1081:A:C5     | 35:U:7:LYS:HD2     | 1.76                     | 1.10              |
| 7:6:175:SER:N     | 7:AA:324:LYS:HE2   | 1.49                     | 1.10              |
| 9:8:356:ARG:NH1   | 15:AE:109:ARG:O    | 1.85                     | 1.10              |
| 9:8:1307:LEU:HA   | 37:Z:406:LYS:HD2   | 1.33                     | 1.10              |
| 9:8:901:ASN:ND2   | 9:8:1232:ARG:HH12  | 1.49                     | 1.09              |
| 9:8:1344:LYS:HD2  | 37:Z:306:PRO:HD3   | 1.32                     | 1.09              |
| 4:3:1142:G:C3'    | 35:U:78:GLY:H      | 1.65                     | 1.09              |
| 9:8:1306:LEU:HD23 | 37:Z:408:VAL:CB    | 1.82                     | 1.09              |
| 9:8:1348:GLY:CA   | 37:Z:388:LEU:HD11  | 1.81                     | 1.09              |
| 12:AB:157:ASN:C   | 37:Z:76:ILE:HD13   | 1.58                     | 1.09              |
| 9:8:170:LYS:H     | 13:AC:25:DC:C1'    | 1.64                     | 1.09              |
| 14:AD:13:DA:H4'   | 37:Z:890:TYR:CG    | 1.79                     | 1.09              |
| 4:3:1142:G:H4'    | 35:U:78:GLY:CA     | 1.76                     | 1.08              |
| 9:8:1352:SER:HA   | 37:Z:31:TRP:CH2    | 1.86                     | 1.08              |
| 12:AB:239:LYS:NZ  | 12:AB:294:LYS:CG   | 2.09                     | 1.08              |
| 37:Z:400:ARG:NH2  | 37:Z:1234:PHE:O    | 1.85                     | 1.08              |
| 7:6:174:ASN:ND2   | 7:AA:324:LYS:H     | 1.49                     | 1.08              |
| 9:8:217:VAL:N     | 13:AC:20:DG:H2'    | 1.68                     | 1.08              |
| 9:8:1348:GLY:HA3  | 37:Z:388:LEU:HD11  | 1.23                     | 1.08              |
| 9:8:1287:GLY:CA   | 14:AD:16:DC:OP1    | 2.01                     | 1.08              |
| 4:3:1807:C:H42    | 4:3:1824:G:N2      | 1.51                     | 1.07              |
| 9:8:1342:LEU:HB2  | 37:Z:398:LEU:HD21  | 1.15                     | 1.07              |
| 15:AE:108:TRP:HE1 | 15:AE:112:ARG:CZ   | 1.67                     | 1.07              |
| 9:8:998:ILE:CG2   | 12:AB:108:LEU:HD21 | 1.78                     | 1.07              |
| 9:8:1285:ARG:CB   | 14:AD:17:DT:P      | 2.41                     | 1.07              |
| 12:AB:139:PHE:CE2 | 12:AB:147:ILE:HD11 | 1.89                     | 1.07              |
| 9:8:1311:SER:HB2  | 37:Z:407:ARG:O     | 1.55                     | 1.07              |
| 12:AB:239:LYS:HB2 | 12:AB:293:ASP:N    | 1.70                     | 1.07              |
| 4:3:1081:A:N3     | 35:U:7:LYS:HD3     | 1.68                     | 1.07              |
| 9:8:356:ARG:HH11  | 15:AE:113:ASN:CB   | 1.67                     | 1.07              |
| 9:8:523:ASP:OD2   | 37:Z:837:TYR:CD1   | 2.07                     | 1.07              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 14:AD:23:DC:C2    | 37:Z:380:LYS:HB3   | 1.90                     | 1.06              |
| 9:8:1342:LEU:HD11 | 37:Z:392:LEU:HD22  | 1.09                     | 1.06              |
| 7:AA:304:ARG:NH1  | 12:AB:48:TYR:CZ    | 2.22                     | 1.06              |
| 13:AC:29:DC:H5''  | 37:Z:1057:VAL:HG22 | 1.38                     | 1.06              |
| 4:3:1142:G:C4'    | 35:U:78:GLY:O      | 2.03                     | 1.05              |
| 9:8:628:ILE:HD11  | 9:8:673:LEU:HD12   | 1.34                     | 1.05              |
| 9:8:1002:SER:O    | 12:AB:112:LYS:CG   | 2.03                     | 1.05              |
| 9:8:1352:SER:HB2  | 37:Z:23:ALA:HB2    | 1.07                     | 1.05              |
| 6:5:1136:G:H1     | 6:5:1151:A:N6      | 1.53                     | 1.05              |
| 9:8:829:ASN:O     | 9:8:848:LYS:CE     | 2.05                     | 1.05              |
| 9:8:1289:MET:HG3  | 14:AD:15:DA:H4'    | 1.37                     | 1.05              |
| 9:8:1348:GLY:O    | 37:Z:368:PHE:HE1   | 1.33                     | 1.05              |
| 12:AB:183:LYS:HD2 | 12:AB:245:GLY:HA2  | 1.08                     | 1.05              |
| 7:6:173:ILE:HG22  | 7:AA:324:LYS:NZ    | 1.71                     | 1.04              |
| 9:8:216:ALA:CB    | 13:AC:20:DG:C8     | 2.39                     | 1.04              |
| 9:8:1269:LYS:HD2  | 37:Z:313:ILE:CG1   | 1.87                     | 1.04              |
| 9:8:994:LEU:HD11  | 12:AB:12:LEU:HD11  | 1.05                     | 1.04              |
| 9:8:998:ILE:HD13  | 12:AB:62:MET:CE    | 1.86                     | 1.04              |
| 12:AB:290:TRP:NE1 | 12:AB:293:ASP:HB3  | 1.48                     | 1.04              |
| 9:8:1105:ILE:HG22 | 37:Z:736:VAL:HG23  | 1.09                     | 1.04              |
| 7:AA:86:GLN:NE2   | 37:Z:599:THR:CG2   | 2.21                     | 1.04              |
| 4:3:1119:A:N9     | 35:U:53:VAL:HG21   | 1.72                     | 1.03              |
| 7:6:161:ARG:NH1   | 7:AA:2:GLU:O       | 1.90                     | 1.03              |
| 9:8:217:VAL:CA    | 13:AC:20:DG:H2''   | 1.74                     | 1.03              |
| 12:AB:158:LYS:HA  | 37:Z:76:ILE:HD11   | 1.37                     | 1.03              |
| 37:Z:890:TYR:CE1  | 37:Z:894:LYS:HE3   | 1.92                     | 1.03              |
| 4:3:1807:C:N4     | 4:3:1824:G:H22     | 1.56                     | 1.03              |
| 11:A:170:LYS:NZ   | 12:AB:360:LYS:HD3  | 1.59                     | 1.03              |
| 6:5:684:A:H62     | 6:5:700:G:N2       | 1.55                     | 1.03              |
| 7:6:107:GLU:OE1   | 7:AA:319:HIS:HD2   | 1.41                     | 1.03              |
| 9:8:216:ALA:C     | 13:AC:20:DG:C2'    | 2.32                     | 1.03              |
| 9:8:997:ALA:O     | 12:AB:8:PHE:CE1    | 2.10                     | 1.03              |
| 9:8:1306:LEU:HD22 | 37:Z:408:VAL:CG2   | 1.81                     | 1.03              |
| 13:AC:17:DT:C5'   | 15:AE:118:THR:HG22 | 1.87                     | 1.03              |
| 14:AD:14:DG:H5'   | 37:Z:890:TYR:HB2   | 1.04                     | 1.03              |
| 7:6:279:ASN:CG    | 12:AB:314:GLN:OE1  | 2.02                     | 1.03              |
| 9:8:729:ILE:HG21  | 9:8:734:ILE:HD11   | 1.39                     | 1.03              |
| 9:8:998:ILE:CG2   | 12:AB:108:LEU:CD1  | 2.34                     | 1.03              |
| 12:AB:213:ARG:O   | 12:AB:218:LEU:HB2  | 1.56                     | 1.03              |
| 4:3:1119:A:N1     | 35:U:29:TYR:CE2    | 2.27                     | 1.03              |
| 4:3:1142:G:O4'    | 35:U:78:GLY:CA     | 2.06                     | 1.03              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 9:8:956:ARG:HG3   | 7:AA:296:SER:HA    | 1.41                     | 1.03              |
| 9:8:1093:PRO:HB2  | 37:Z:734:VAL:HG23  | 1.41                     | 1.03              |
| 9:8:1352:SER:CB   | 37:Z:23:ALA:HB2    | 1.87                     | 1.03              |
| 9:8:658:PRO:CG    | 37:Z:868:PHE:CD2   | 2.41                     | 1.02              |
| 9:8:997:ALA:CA    | 12:AB:8:PHE:HE1    | 1.72                     | 1.02              |
| 12:AB:156:THR:CG2 | 37:Z:77:LYS:CA     | 2.29                     | 1.02              |
| 6:5:661:G:H1      | 6:5:738:A:N6       | 1.55                     | 1.02              |
| 9:8:998:ILE:N     | 12:AB:8:PHE:CZ     | 2.26                     | 1.02              |
| 9:8:1001:GLU:N    | 12:AB:109:LYS:HG2  | 1.74                     | 1.02              |
| 9:8:1307:LEU:CD2  | 37:Z:406:LYS:HG3   | 1.88                     | 1.02              |
| 9:8:1341:LEU:HD12 | 37:Z:309:ILE:HG23  | 1.41                     | 1.02              |
| 12:AB:157:ASN:O   | 37:Z:76:ILE:CD1    | 1.99                     | 1.02              |
| 12:AB:290:TRP:CD1 | 12:AB:293:ASP:CB   | 2.34                     | 1.02              |
| 14:AD:13:DA:C4'   | 37:Z:890:TYR:CD1   | 2.42                     | 1.02              |
| 9:8:175:ARG:NH2   | 13:AC:26:DT:N3     | 2.08                     | 1.01              |
| 12:AB:131:ALA:C   | 12:AB:171:THR:HB   | 1.85                     | 1.01              |
| 12:AB:183:LYS:HD3 | 12:AB:280:PHE:O    | 1.60                     | 1.01              |
| 12:AB:183:LYS:NZ  | 12:AB:245:GLY:O    | 1.93                     | 1.01              |
| 15:AE:124:SER:HB3 | 37:Z:142:VAL:HG13  | 1.41                     | 1.01              |
| 9:8:998:ILE:HG22  | 12:AB:108:LEU:CG   | 1.88                     | 1.01              |
| 9:8:1345:GLU:OE2  | 37:Z:391:ARG:HB2   | 1.55                     | 1.01              |
| 12:AB:156:THR:OG1 | 37:Z:76:ILE:CG2    | 2.05                     | 1.01              |
| 9:8:1297:TYR:OH   | 37:Z:504:ILE:O     | 1.77                     | 1.01              |
| 37:Z:876:LYS:HG2  | 37:Z:1030:ARG:HH11 | 1.19                     | 1.01              |
| 4:3:1142:G:H5'    | 35:U:78:GLY:O      | 1.60                     | 1.01              |
| 7:6:106:LEU:HB3   | 7:AA:319:HIS:HE1   | 0.85                     | 1.01              |
| 9:8:1349:LEU:HD23 | 37:Z:368:PHE:HA    | 1.04                     | 1.01              |
| 9:8:997:ALA:CB    | 12:AB:8:PHE:HE1    | 1.73                     | 1.01              |
| 9:8:1341:LEU:HD12 | 37:Z:309:ILE:CG2   | 1.90                     | 1.01              |
| 6:5:69:G:H1       | 6:5:86:A:H61       | 1.06                     | 1.00              |
| 9:8:997:ALA:CB    | 12:AB:8:PHE:CE1    | 2.43                     | 1.00              |
| 9:8:998:ILE:HG23  | 12:AB:108:LEU:HD11 | 1.43                     | 1.00              |
| 9:8:1325:VAL:CG1  | 37:Z:464:ILE:CG2   | 2.38                     | 1.00              |
| 9:8:1325:VAL:CG1  | 37:Z:464:ILE:HG21  | 1.91                     | 1.00              |
| 9:8:1344:LYS:HD2  | 37:Z:306:PRO:HD2   | 1.02                     | 1.00              |
| 12:AB:139:PHE:CZ  | 12:AB:147:ILE:HD11 | 1.97                     | 1.00              |
| 4:3:192:U:H3      | 4:3:212:G:H1       | 1.10                     | 1.00              |
| 9:8:953:ALA:O     | 7:AA:326:ARG:HD3   | 1.60                     | 1.00              |
| 9:8:1341:LEU:CD1  | 37:Z:309:ILE:HG23  | 1.89                     | 1.00              |
| 12:AB:291:ASN:H   | 12:AB:296:LYS:CB   | 1.75                     | 1.00              |
| 9:8:408:LEU:HD23  | 9:8:410:CYS:O      | 1.59                     | 1.00              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 9:8:1306:LEU:C     | 37:Z:408:VAL:HG12 | 1.86                     | 1.00              |
| 13:AC:29:DC:H5''   | 37:Z:1057:VAL:CG2 | 1.92                     | 1.00              |
| 14:AD:14:DG:C5'    | 37:Z:890:TYR:HB2  | 1.91                     | 1.00              |
| 9:8:956:ARG:HA     | 7:AA:296:SER:HB3  | 1.39                     | 1.00              |
| 12:AB:1:MET:HE3    | 12:AB:92:LEU:O    | 1.61                     | 1.00              |
| 12:AB:196:VAL:HG11 | 12:AB:217:ARG:NH2 | 1.76                     | 1.00              |
| 12:AB:160:GLY:HA3  | 37:Z:79:ARG:HB3   | 1.43                     | 1.00              |
| 9:8:999:PHE:CA     | 12:AB:108:LEU:HB3 | 1.92                     | 1.00              |
| 4:3:226:A:N6       | 4:3:236:G:C2      | 2.30                     | 0.99              |
| 4:3:1089:A:H1'     | 35:U:30:THR:HG23  | 1.44                     | 0.99              |
| 14:AD:23:DC:C6     | 37:Z:380:LYS:HB3  | 1.66                     | 0.99              |
| 9:8:217:VAL:HA     | 13:AC:20:DG:H2''  | 1.41                     | 0.99              |
| 9:8:998:ILE:O      | 12:AB:6:ASN:ND2   | 1.96                     | 0.99              |
| 9:8:1310:LYS:CD    | 37:Z:409:ASP:O    | 2.10                     | 0.99              |
| 35:U:42:LYS:HE2    | 44:h:114:ALA:H    | 1.12                     | 0.99              |
| 4:3:629:G:H1       | 4:3:696:U:H3      | 1.02                     | 0.99              |
| 4:3:1141:U:N3      | 35:U:79:LYS:HE2   | 1.77                     | 0.99              |
| 6:5:460:A:H2       | 6:5:467:G:H1      | 1.06                     | 0.99              |
| 12:AB:111:ILE:HD13 | 12:AB:119:MET:HE1 | 1.45                     | 0.99              |
| 12:AB:215:ASP:OD2  | 12:AB:217:ARG:NH2 | 1.93                     | 0.99              |
| 4:3:1142:G:OP1     | 35:U:56:ASN:CB    | 2.08                     | 0.99              |
| 4:3:1142:G:C2'     | 35:U:78:GLY:HA2   | 1.92                     | 0.99              |
| 9:8:163:MET:HE2    | 9:8:514:ILE:HD12  | 1.45                     | 0.99              |
| 9:8:217:VAL:CA     | 13:AC:20:DG:C2'   | 2.39                     | 0.99              |
| 9:8:999:PHE:CE2    | 12:AB:108:LEU:CD2 | 2.45                     | 0.99              |
| 9:8:1371:LEU:CD1   | 37:Z:92:GLU:O     | 2.10                     | 0.99              |
| 7:AA:283:ARG:HH11  | 12:AB:81:PHE:HB2  | 0.92                     | 0.99              |
| 9:8:998:ILE:CD1    | 12:AB:62:MET:HE1  | 1.93                     | 0.99              |
| 14:AD:17:DT:C4'    | 37:Z:413:ARG:HH12 | 1.71                     | 0.99              |
| 4:3:204:U:H3       | 4:3:254:G:H1      | 1.05                     | 0.99              |
| 6:5:290:G:H1       | 6:5:299:U:H3      | 1.08                     | 0.98              |
| 9:8:1306:LEU:HD23  | 37:Z:408:VAL:CG2  | 1.88                     | 0.98              |
| 12:AB:158:LYS:CA   | 37:Z:76:ILE:CD1   | 2.32                     | 0.98              |
| 39:b:185:ASP:O     | 39:b:189:MET:HA   | 1.63                     | 0.98              |
| 9:8:1102:ILE:HD11  | 37:Z:858:PHE:C    | 1.87                     | 0.98              |
| 11:A:170:LYS:HZ2   | 12:AB:360:LYS:HD3 | 1.10                     | 0.98              |
| 12:AB:290:TRP:CD2  | 12:AB:296:LYS:HD2 | 1.98                     | 0.98              |
| 6:5:684:A:N6       | 6:5:700:G:H21     | 1.60                     | 0.98              |
| 9:8:1349:LEU:CD2   | 37:Z:368:PHE:C    | 2.37                     | 0.98              |
| 9:8:956:ARG:CG     | 7:AA:296:SER:HB2  | 1.91                     | 0.98              |
| 9:8:1269:LYS:HD3   | 37:Z:313:ILE:HG12 | 1.38                     | 0.98              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 9:8:1306:LEU:HD22 | 37:Z:408:VAL:HG21  | 1.00                     | 0.98              |
| 35:U:42:LYS:CE    | 44:h:114:ALA:H     | 1.62                     | 0.98              |
| 9:8:94:ILE:HG23   | 9:8:135:LEU:HD12   | 1.43                     | 0.98              |
| 12:AB:158:LYS:HA  | 37:Z:76:ILE:CD1    | 1.93                     | 0.98              |
| 12:AB:239:LYS:CE  | 12:AB:294:LYS:HG3  | 1.92                     | 0.98              |
| 7:6:107:GLU:HG3   | 7:AA:319:HIS:NE2   | 1.78                     | 0.97              |
| 9:8:956:ARG:CA    | 7:AA:296:SER:CB    | 2.42                     | 0.97              |
| 9:8:1342:LEU:CA   | 37:Z:398:LEU:CD2   | 2.42                     | 0.97              |
| 9:8:999:PHE:CE2   | 12:AB:108:LEU:HD23 | 1.99                     | 0.97              |
| 9:8:1094:LEU:HD23 | 37:Z:809:MET:SD    | 2.03                     | 0.97              |
| 9:8:1289:MET:HE1  | 14:AD:14:DG:H2''   | 1.45                     | 0.97              |
| 4:3:1142:G:C1'    | 35:U:78:GLY:CA     | 2.42                     | 0.97              |
| 4:3:1807:C:H42    | 4:3:1824:G:H22     | 1.03                     | 0.97              |
| 9:8:634:GLY:HA2   | 13:AC:24:DT:H72    | 1.46                     | 0.97              |
| 9:8:1325:VAL:HG11 | 37:Z:464:ILE:HG21  | 1.43                     | 0.97              |
| 12:AB:215:ASP:CB  | 12:AB:217:ARG:HE   | 1.77                     | 0.97              |
| 9:8:772:GLU:O     | 37:Z:862:LEU:N     | 1.97                     | 0.97              |
| 9:8:998:ILE:HA    | 12:AB:8:PHE:HZ     | 0.80                     | 0.97              |
| 9:8:1307:LEU:HD22 | 37:Z:406:LYS:HG3   | 1.47                     | 0.97              |
| 12:AB:289:ILE:O   | 12:AB:300:ASN:ND2  | 1.97                     | 0.97              |
| 9:8:956:ARG:HA    | 7:AA:296:SER:CB    | 1.94                     | 0.97              |
| 15:AE:137:ASP:CG  | 37:Z:349:PRO:HG3   | 1.89                     | 0.96              |
| 4:3:1089:A:H1'    | 35:U:30:THR:CG2    | 1.94                     | 0.96              |
| 4:3:1764:U:C2     | 4:3:1769:A:N6      | 2.32                     | 0.96              |
| 6:5:779:A:H62     | 6:5:797:G:N2       | 1.63                     | 0.96              |
| 7:AA:268:ILE:HD11 | 7:AA:286:ILE:HG22  | 1.47                     | 0.96              |
| 7:6:107:GLU:CD    | 7:AA:319:HIS:HD2   | 1.70                     | 0.96              |
| 9:8:376:ARG:NH2   | 13:AC:20:DG:N7     | 2.13                     | 0.96              |
| 9:8:998:ILE:HG23  | 12:AB:108:LEU:CD1  | 1.95                     | 0.96              |
| 12:AB:139:PHE:CE1 | 12:AB:147:ILE:HG13 | 2.00                     | 0.96              |
| 6:5:319:U:H3      | 6:5:323:A:H62      | 1.07                     | 0.96              |
| 4:3:633:G:H1      | 4:3:692:U:H3       | 1.03                     | 0.96              |
| 12:AB:196:VAL:CG1 | 12:AB:217:ARG:HH12 | 1.75                     | 0.96              |
| 9:8:1307:LEU:CB   | 37:Z:406:LYS:HD2   | 1.95                     | 0.96              |
| 4:3:2695:U:H3     | 4:3:2730:G:H1      | 1.06                     | 0.96              |
| 9:8:997:ALA:HB1   | 12:AB:8:PHE:CE1    | 2.01                     | 0.96              |
| 9:8:1344:LYS:CG   | 37:Z:309:ILE:HD13  | 1.95                     | 0.96              |
| 9:8:995:PHE:CD1   | 12:AB:119:MET:SD   | 2.59                     | 0.95              |
| 9:8:775:ASP:OD1   | 37:Z:828:ARG:NH2   | 1.99                     | 0.95              |
| 9:8:999:PHE:HE1   | 12:AB:42:TYR:OH    | 1.40                     | 0.95              |
| 4:3:1142:G:C5'    | 35:U:78:GLY:O      | 2.13                     | 0.95              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 9:8:814:LEU:HD23   | 9:8:858:TYR:OH     | 1.66                     | 0.95              |
| 37:Z:687:VAL:HG11  | 37:Z:802:ARG:HH22  | 1.31                     | 0.95              |
| 9:8:1003:VAL:HG22  | 12:AB:116:ILE:HD11 | 1.47                     | 0.95              |
| 9:8:1349:LEU:N     | 37:Z:388:LEU:HD13  | 1.80                     | 0.95              |
| 9:8:258:VAL:HG12   | 9:8:268:VAL:HG11   | 1.46                     | 0.95              |
| 9:8:997:ALA:O      | 12:AB:8:PHE:CZ     | 2.19                     | 0.95              |
| 9:8:1200:PHE:CE2   | 37:Z:864:ILE:HD13  | 2.00                     | 0.95              |
| 4:3:418:G:H1       | 4:3:430:U:H3       | 1.07                     | 0.95              |
| 4:3:900:G:N2       | 4:3:903:A:H61      | 1.64                     | 0.95              |
| 9:8:567:GLY:HA3    | 15:AE:31:LYS:HE2   | 1.48                     | 0.95              |
| 9:8:829:ASN:O      | 9:8:848:LYS:HE3    | 1.66                     | 0.95              |
| 4:3:1118:U:H5'     | 35:U:41:ARG:HD2    | 1.47                     | 0.95              |
| 4:3:1142:G:O4'     | 35:U:78:GLY:O      | 1.83                     | 0.95              |
| 7:AA:283:ARG:HH11  | 12:AB:81:PHE:CB    | 1.79                     | 0.94              |
| 37:Z:427:VAL:HG21  | 37:Z:493:LEU:HD11  | 1.48                     | 0.94              |
| 9:8:1324:ILE:HD13  | 37:Z:440:PRO:HG3   | 1.49                     | 0.94              |
| 12:AB:239:LYS:HZ3  | 12:AB:294:LYS:CB   | 1.78                     | 0.94              |
| 9:8:998:ILE:HG23   | 12:AB:62:MET:HE2   | 0.95                     | 0.94              |
| 15:AE:137:ASP:OD2  | 37:Z:349:PRO:CB    | 2.15                     | 0.94              |
| 7:6:268:ILE:HD11   | 7:6:286:ILE:HG22   | 1.49                     | 0.94              |
| 9:8:1293:ALA:HB2   | 37:Z:498:THR:HG21  | 1.47                     | 0.94              |
| 9:8:60:LYS:HD3     | 9:8:64:ASP:OD1     | 1.68                     | 0.94              |
| 9:8:998:ILE:CA     | 12:AB:108:LEU:HD13 | 1.97                     | 0.94              |
| 9:8:1325:VAL:HG13  | 37:Z:464:ILE:HG23  | 1.47                     | 0.94              |
| 4:3:725:G:H1       | 4:3:807:U:H3       | 1.09                     | 0.94              |
| 7:6:99:GLY:O       | 7:AA:1:MET:N       | 2.01                     | 0.94              |
| 4:3:2035:U:H3      | 4:3:2040:A:N6      | 1.66                     | 0.94              |
| 6:5:1405:U:H3      | 6:5:1445:G:H1      | 1.02                     | 0.94              |
| 12:AB:291:ASN:HD21 | 16:B:146:LYS:HZ3   | 1.04                     | 0.94              |
| 14:AD:14:DG:C8     | 37:Z:886:ALA:CA    | 2.50                     | 0.94              |
| 6:5:63:U:H3        | 6:5:90:G:H1        | 1.14                     | 0.93              |
| 14:AD:14:DG:H1'    | 37:Z:889:GLY:HA3   | 1.50                     | 0.93              |
| 9:8:1342:LEU:CD1   | 37:Z:392:LEU:HD23  | 1.96                     | 0.93              |
| 9:8:1352:SER:HB2   | 37:Z:31:TRP:CH2    | 1.99                     | 0.93              |
| 4:3:1142:G:H1'     | 35:U:78:GLY:HA2    | 1.46                     | 0.93              |
| 36:X:6:ILE:HD11    | 36:Y:23:ALA:HB1    | 1.49                     | 0.93              |
| 4:3:2299:U:H3      | 4:3:2349:G:H1      | 0.93                     | 0.93              |
| 9:8:219:GLU:HG3    | 13:AC:21:DC:N4     | 1.83                     | 0.93              |
| 12:AB:215:ASP:OD1  | 12:AB:217:ARG:CZ   | 2.15                     | 0.93              |
| 4:3:1142:G:O2'     | 35:U:78:GLY:HA2    | 1.67                     | 0.93              |
| 9:8:1306:LEU:HD23  | 37:Z:408:VAL:HG21  | 1.48                     | 0.93              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 12:AB:182:SER:HB3 | 12:AB:280:PHE:CE1  | 2.03                     | 0.93              |
| 9:8:1306:LEU:HB3  | 37:Z:408:VAL:CG1   | 1.98                     | 0.93              |
| 9:8:1349:LEU:HG   | 37:Z:388:LEU:HB2   | 1.51                     | 0.93              |
| 11:A:170:LYS:CE   | 12:AB:360:LYS:HD2  | 1.98                     | 0.93              |
| 9:8:169:LEU:HD13  | 9:8:193:VAL:HG11   | 1.50                     | 0.93              |
| 4:3:1088:A:H2     | 35:U:79:LYS:HE3    | 1.18                     | 0.92              |
| 9:8:1344:LYS:CE   | 37:Z:306:PRO:CG    | 2.40                     | 0.92              |
| 6:5:518:A:H62     | 6:5:527:G:H21      | 1.15                     | 0.92              |
| 9:8:1348:GLY:CA   | 37:Z:388:LEU:HD13  | 1.93                     | 0.92              |
| 12:AB:215:ASP:HB3 | 12:AB:217:ARG:HE   | 1.33                     | 0.92              |
| 9:8:649:HIS:HD2   | 37:Z:837:TYR:OH    | 1.37                     | 0.92              |
| 12:AB:239:LYS:HZ3 | 12:AB:294:LYS:HG3  | 1.04                     | 0.92              |
| 7:6:271:LEU:O     | 7:6:317:LYS:HE2    | 1.70                     | 0.92              |
| 9:8:1351:LEU:HD11 | 37:Z:113:TRP:CZ3   | 2.05                     | 0.92              |
| 4:3:739:G:HO2'    | 4:3:761:G:H1       | 1.01                     | 0.92              |
| 9:8:1352:SER:HA   | 37:Z:31:TRP:HH2    | 1.25                     | 0.92              |
| 4:3:1142:G:C4'    | 35:U:78:GLY:C      | 2.34                     | 0.92              |
| 9:8:995:PHE:CZ    | 12:AB:119:MET:SD   | 2.62                     | 0.92              |
| 9:8:1348:GLY:C    | 37:Z:388:LEU:HD12  | 1.92                     | 0.92              |
| 12:AB:131:ALA:O   | 12:AB:171:THR:OG1  | 1.88                     | 0.92              |
| 14:AD:17:DT:H4'   | 37:Z:413:ARG:HH11  | 1.28                     | 0.92              |
| 7:6:269:GLU:OE1   | 7:6:282:LYS:NZ     | 2.03                     | 0.92              |
| 9:8:1349:LEU:HD21 | 37:Z:368:PHE:C     | 1.95                     | 0.92              |
| 9:8:994:LEU:CD1   | 12:AB:12:LEU:HD12  | 1.99                     | 0.91              |
| 9:8:1371:LEU:HD23 | 37:Z:94:ILE:HG22   | 1.48                     | 0.91              |
| 4:3:1141:U:C2     | 35:U:79:LYS:HE2    | 2.04                     | 0.91              |
| 9:8:170:LYS:H     | 13:AC:25:DC:H1'    | 1.09                     | 0.91              |
| 41:d:132:ILE:O    | 41:d:151:GLY:HA3   | 1.70                     | 0.91              |
| 4:3:1027:U:H3     | 4:3:1198:G:H1      | 1.10                     | 0.91              |
| 9:8:994:LEU:HD13  | 12:AB:12:LEU:HD12  | 1.52                     | 0.91              |
| 9:8:1000:PRO:HD2  | 12:AB:6:ASN:HD21   | 1.32                     | 0.91              |
| 9:8:999:PHE:CD1   | 12:AB:108:LEU:HD23 | 2.04                     | 0.91              |
| 9:8:1306:LEU:HD23 | 37:Z:408:VAL:HB    | 1.52                     | 0.91              |
| 9:8:1349:LEU:HD23 | 37:Z:368:PHE:CB    | 2.01                     | 0.91              |
| 7:AA:82:LEU:HD22  | 37:Z:597:PHE:C     | 1.94                     | 0.91              |
| 9:8:1352:SER:HB2  | 37:Z:23:ALA:CB     | 1.99                     | 0.91              |
| 12:AB:215:ASP:OD1 | 12:AB:217:ARG:NE   | 2.02                     | 0.91              |
| 4:3:2061:A:H62    | 4:3:2585:A:H61     | 1.11                     | 0.91              |
| 9:8:45:LEU:O      | 9:8:75:ARG:NH2     | 2.04                     | 0.91              |
| 9:8:994:LEU:HD12  | 12:AB:12:LEU:CD1   | 1.98                     | 0.91              |
| 11:A:170:LYS:HZ1  | 12:AB:360:LYS:HD2  | 1.07                     | 0.91              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 12:AB:290:TRP:CZ2  | 12:AB:296:LYS:NZ   | 2.38                     | 0.91              |
| 12:AB:291:ASN:H    | 12:AB:296:LYS:HB3  | 1.33                     | 0.91              |
| 9:8:523:ASP:OD2    | 37:Z:837:TYR:HD1   | 1.50                     | 0.90              |
| 9:8:1370:ILE:HG22  | 37:Z:94:ILE:HG21   | 1.52                     | 0.90              |
| 7:6:174:ASN:HD22   | 7:AA:324:LYS:H     | 0.97                     | 0.90              |
| 9:8:998:ILE:O      | 12:AB:108:LEU:CB   | 2.20                     | 0.90              |
| 7:AA:82:LEU:CD2    | 37:Z:598:GLY:N     | 2.34                     | 0.90              |
| 12:AB:215:ASP:HB3  | 12:AB:217:ARG:NE   | 1.86                     | 0.90              |
| 4:3:1801:U:H3      | 4:3:1832:G:H1      | 1.18                     | 0.90              |
| 9:8:1344:LYS:HG3   | 37:Z:309:ILE:HD13  | 1.51                     | 0.90              |
| 9:8:1366:ASN:ND2   | 37:Z:31:TRP:O      | 2.04                     | 0.90              |
| 4:3:1118:U:H5''    | 35:U:41:ARG:HD3    | 1.09                     | 0.90              |
| 9:8:998:ILE:HG22   | 12:AB:108:LEU:CD1  | 2.01                     | 0.90              |
| 48:1:68:ILE:HD11   | 48:1:103:MET:HB2   | 1.51                     | 0.90              |
| 9:8:1342:LEU:CB    | 37:Z:398:LEU:HD21  | 1.79                     | 0.90              |
| 12:AB:196:VAL:HG11 | 12:AB:217:ARG:HH12 | 1.10                     | 0.90              |
| 6:5:245:U:H3       | 6:5:271:G:H1       | 1.16                     | 0.90              |
| 7:6:107:GLU:N      | 7:AA:319:HIS:CE1   | 2.40                     | 0.90              |
| 4:3:80:U:H3        | 4:3:109:G:H1       | 0.95                     | 0.90              |
| 4:3:742:G:H1       | 4:3:759:U:H3       | 1.08                     | 0.90              |
| 7:6:7:TYR:OH       | 7:AA:235:HIS:O     | 1.89                     | 0.90              |
| 9:8:999:PHE:HA     | 12:AB:108:LEU:HB3  | 1.51                     | 0.90              |
| 12:AB:183:LYS:HG2  | 12:AB:281:ASN:CB   | 2.01                     | 0.90              |
| 4:3:1142:G:H4'     | 35:U:77:LYS:C      | 1.97                     | 0.90              |
| 6:5:1390:G:H1      | 6:5:1460:U:H3      | 1.19                     | 0.90              |
| 12:AB:290:TRP:CG   | 12:AB:296:LYS:HD2  | 2.07                     | 0.90              |
| 7:6:107:GLU:OE1    | 7:AA:319:HIS:CD2   | 2.23                     | 0.89              |
| 9:8:997:ALA:HB1    | 12:AB:8:PHE:CD1    | 2.06                     | 0.89              |
| 9:8:1345:GLU:HA    | 37:Z:388:LEU:CD2   | 2.02                     | 0.89              |
| 12:AB:215:ASP:C    | 12:AB:217:ARG:N    | 2.30                     | 0.89              |
| 9:8:1370:ILE:HD13  | 37:Z:94:ILE:HD11   | 1.54                     | 0.89              |
| 12:AB:1:MET:CE     | 12:AB:92:LEU:O     | 2.19                     | 0.89              |
| 9:8:1370:ILE:HD12  | 37:Z:97:ARG:HD3    | 1.52                     | 0.89              |
| 37:Z:775:LYS:HE3   | 37:Z:845:ILE:HD13  | 1.53                     | 0.89              |
| 9:8:1269:LYS:HB2   | 37:Z:313:ILE:CD1   | 2.03                     | 0.89              |
| 9:8:1349:LEU:HG    | 37:Z:388:LEU:CB    | 2.03                     | 0.89              |
| 9:8:567:GLY:HA3    | 15:AE:31:LYS:CE    | 2.02                     | 0.89              |
| 9:8:1269:LYS:CD    | 37:Z:313:ILE:CG1   | 2.47                     | 0.89              |
| 7:6:173:ILE:HG22   | 7:AA:324:LYS:HZ2   | 1.33                     | 0.89              |
| 9:8:402:ARG:HD3    | 9:8:510:TYR:CE2    | 2.08                     | 0.89              |
| 9:8:1366:ASN:ND2   | 37:Z:100:MET:HB2   | 1.85                     | 0.89              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 4:3:413:G:H1      | 4:3:435:U:H3       | 1.18                     | 0.89              |
| 9:8:1289:MET:CE   | 14:AD:15:DA:O4'    | 2.20                     | 0.89              |
| 9:8:1342:LEU:HD12 | 37:Z:392:LEU:HD21  | 0.90                     | 0.89              |
| 9:8:1338:SER:O    | 37:Z:398:LEU:HD11  | 1.70                     | 0.89              |
| 4:3:1088:A:N1     | 35:U:79:LYS:HE3    | 1.88                     | 0.88              |
| 6:5:826:G:H1      | 6:5:851:U:H3       | 1.17                     | 0.88              |
| 7:6:235:HIS:O     | 7:AA:7:TYR:OH      | 1.91                     | 0.88              |
| 9:8:1342:LEU:HD13 | 37:Z:392:LEU:CD2   | 1.99                     | 0.88              |
| 4:3:1081:A:H61    | 35:U:8:ALA:N       | 1.70                     | 0.88              |
| 15:AE:23:VAL:HG21 | 15:AE:44:VAL:HG23  | 1.53                     | 0.88              |
| 37:Z:488:ASP:HB3  | 37:Z:551:ARG:HH22  | 1.37                     | 0.88              |
| 9:8:658:PRO:HG3   | 37:Z:868:PHE:HD2   | 0.97                     | 0.88              |
| 9:8:729:ILE:CG2   | 9:8:734:ILE:HD11   | 2.01                     | 0.88              |
| 9:8:779:ALA:CB    | 37:Z:867:TYR:OH    | 2.22                     | 0.88              |
| 9:8:998:ILE:HG23  | 12:AB:62:MET:CE    | 1.82                     | 0.88              |
| 6:5:590:G:H1      | 6:5:644:U:H3       | 1.20                     | 0.88              |
| 9:8:1289:MET:CE   | 14:AD:15:DA:C5'    | 2.39                     | 0.88              |
| 4:3:2360:A:H62    | 4:3:2373:G:H21     | 1.14                     | 0.88              |
| 9:8:1371:LEU:CG   | 37:Z:94:ILE:HG22   | 2.03                     | 0.88              |
| 14:AD:23:DC:C2    | 37:Z:380:LYS:CB    | 2.52                     | 0.88              |
| 9:8:1347:GLN:O    | 37:Z:303:PRO:HG2   | 1.74                     | 0.88              |
| 9:8:1371:LEU:HD12 | 37:Z:95:VAL:CB     | 2.01                     | 0.88              |
| 12:AB:215:ASP:HB3 | 12:AB:217:ARG:NH2  | 1.87                     | 0.88              |
| 6:5:253:G:H1      | 6:5:265:U:H3       | 1.19                     | 0.88              |
| 9:8:634:GLY:HA2   | 13:AC:24:DT:H73    | 1.55                     | 0.88              |
| 9:8:779:ALA:HB2   | 37:Z:867:TYR:OH    | 1.74                     | 0.88              |
| 9:8:1105:ILE:HG22 | 37:Z:736:VAL:CG2   | 2.01                     | 0.88              |
| 9:8:1269:LYS:CD   | 37:Z:313:ILE:CG2   | 2.41                     | 0.88              |
| 9:8:1306:LEU:CB   | 37:Z:408:VAL:CG1   | 2.52                     | 0.88              |
| 12:AB:291:ASN:ND2 | 16:B:146:LYS:HZ1   | 1.71                     | 0.88              |
| 9:8:956:ARG:HG2   | 7:AA:296:SER:HB2   | 1.54                     | 0.88              |
| 4:3:1088:A:C2     | 35:U:79:LYS:CE     | 2.56                     | 0.88              |
| 4:3:1494:U:H3     | 4:3:1550:G:H1      | 1.16                     | 0.88              |
| 9:8:1345:GLU:CA   | 37:Z:388:LEU:HD22  | 2.03                     | 0.88              |
| 37:Z:488:ASP:O    | 37:Z:551:ARG:NH2   | 2.07                     | 0.88              |
| 7:6:2:GLU:O       | 7:AA:161:ARG:NH1   | 2.06                     | 0.87              |
| 9:8:999:PHE:CD1   | 12:AB:108:LEU:CD2  | 2.57                     | 0.87              |
| 9:8:1273:GLN:HE22 | 37:Z:402:ASN:HD22  | 1.15                     | 0.87              |
| 4:3:2090:G:H1     | 4:3:2244:U:H3      | 1.21                     | 0.87              |
| 9:8:1347:GLN:HB3  | 37:Z:100:MET:HE1   | 1.53                     | 0.87              |
| 37:Z:876:LYS:HG3  | 37:Z:1030:ARG:HH12 | 1.06                     | 0.87              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 6:5:779:A:H62     | 6:5:797:G:H21      | 1.17                     | 0.87              |
| 4:3:2035:U:H3     | 4:3:2040:A:H62     | 0.89                     | 0.87              |
| 4:3:442:G:H1      | 4:3:457:U:H3       | 1.18                     | 0.87              |
| 9:8:814:LEU:CD2   | 9:8:858:TYR:CZ     | 2.58                     | 0.87              |
| 9:8:1310:LYS:CB   | 37:Z:409:ASP:N     | 2.09                     | 0.87              |
| 9:8:1371:LEU:HG   | 37:Z:94:ILE:CG2    | 2.04                     | 0.87              |
| 15:AE:78:ASP:OD1  | 15:AE:81:ARG:HB2   | 1.75                     | 0.87              |
| 9:8:1352:SER:CA   | 37:Z:31:TRP:CH2    | 2.43                     | 0.87              |
| 12:AB:183:LYS:HD2 | 12:AB:245:GLY:HA3  | 1.57                     | 0.87              |
| 39:b:40:LYS:O     | 39:b:48:SER:HA     | 1.74                     | 0.87              |
| 4:3:1119:A:C1'    | 35:U:53:VAL:HB     | 2.04                     | 0.86              |
| 9:8:1349:LEU:CA   | 37:Z:368:PHE:CD1   | 2.54                     | 0.86              |
| 10:9:5:TYR:CE2    | 10:9:48:LEU:HD23   | 2.10                     | 0.86              |
| 13:AC:19:DT:H2''  | 13:AC:21:DC:H4'    | 1.54                     | 0.86              |
| 36:X:23:ALA:HB1   | 36:Y:6:ILE:HD11    | 1.55                     | 0.86              |
| 4:3:163:A:H62     | 4:3:169:U:H3       | 1.21                     | 0.86              |
| 4:3:1071:G:H1     | 4:3:1154:U:H3      | 0.88                     | 0.86              |
| 9:8:1366:ASN:HD21 | 37:Z:100:MET:HB2   | 1.38                     | 0.86              |
| 7:6:279:ASN:ND2   | 12:AB:314:GLN:OE1  | 2.08                     | 0.86              |
| 9:8:1347:GLN:OE1  | 37:Z:100:MET:CE    | 2.22                     | 0.86              |
| 12:AB:160:GLY:HA3 | 37:Z:79:ARG:CB     | 2.05                     | 0.86              |
| 6:5:779:A:N6      | 6:5:797:G:H21      | 1.73                     | 0.86              |
| 9:8:953:ALA:O     | 7:AA:326:ARG:CD    | 2.24                     | 0.86              |
| 12:AB:153:ASP:OD1 | 37:Z:77:LYS:CE     | 2.23                     | 0.86              |
| 9:8:1102:ILE:HD11 | 37:Z:859:LEU:N     | 1.91                     | 0.86              |
| 9:8:1269:LYS:HB2  | 37:Z:313:ILE:HD11  | 1.58                     | 0.86              |
| 7:6:108:ARG:HH21  | 7:AA:316:LYS:CE    | 1.88                     | 0.86              |
| 9:8:1269:LYS:HZ2  | 37:Z:313:ILE:CG2   | 1.88                     | 0.86              |
| 37:Z:905:ASN:ND2  | 37:Z:989:ASN:O     | 2.09                     | 0.86              |
| 9:8:998:ILE:CG2   | 12:AB:108:LEU:HD13 | 2.06                     | 0.85              |
| 9:8:1371:LEU:CD1  | 37:Z:95:VAL:CG1    | 1.80                     | 0.85              |
| 9:8:1324:ILE:HD12 | 37:Z:410:TYR:OH    | 1.76                     | 0.85              |
| 9:8:1342:LEU:CA   | 37:Z:398:LEU:HD22  | 2.06                     | 0.85              |
| 14:AD:14:DG:C1'   | 37:Z:889:GLY:HA3   | 2.06                     | 0.85              |
| 9:8:217:VAL:N     | 13:AC:20:DG:C2'    | 2.40                     | 0.85              |
| 9:8:1306:LEU:CA   | 37:Z:408:VAL:CG1   | 2.55                     | 0.85              |
| 12:AB:215:ASP:CB  | 12:AB:217:ARG:NE   | 2.39                     | 0.85              |
| 51:o:92:ARG:HD3   | 51:o:115:LYS:HE3   | 1.58                     | 0.85              |
| 13:AC:15:DT:H3'   | 15:AE:95:ARG:HH22  | 1.39                     | 0.85              |
| 12:AB:249:LYS:HB2 | 12:AB:297:PHE:CE1  | 2.10                     | 0.85              |
| 9:8:1289:MET:CE   | 14:AD:15:DA:C4'    | 2.53                     | 0.85              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 15:AE:108:TRP:NE1 | 15:AE:112:ARG:CZ   | 2.39                     | 0.85              |
| 9:8:1325:VAL:HG12 | 37:Z:464:ILE:HD13  | 1.58                     | 0.85              |
| 6:5:365:U:H3      | 6:5:388:G:H1       | 1.20                     | 0.84              |
| 37:Z:488:ASP:HB3  | 37:Z:551:ARG:NH2   | 1.92                     | 0.84              |
| 7:6:82:LEU:HD13   | 9:8:794:LYS:HE3    | 1.59                     | 0.84              |
| 9:8:356:ARG:CZ    | 15:AE:109:ARG:O    | 2.25                     | 0.84              |
| 4:3:1119:A:H1'    | 35:U:53:VAL:HB     | 1.59                     | 0.84              |
| 9:8:956:ARG:HG3   | 7:AA:296:SER:HB3   | 1.21                     | 0.84              |
| 9:8:1293:ALA:CB   | 37:Z:498:THR:HG21  | 2.07                     | 0.84              |
| 4:3:61:U:H3       | 4:3:70:G:H1        | 0.87                     | 0.84              |
| 4:3:2810:A:N7     | 4:3:2895:A:N6      | 2.24                     | 0.84              |
| 15:AE:43:ARG:NH1  | 15:AE:159:THR:O    | 2.10                     | 0.84              |
| 6:5:1112:U:H3     | 6:5:1128:G:H1      | 0.86                     | 0.84              |
| 9:8:567:GLY:CA    | 15:AE:31:LYS:HE2   | 2.07                     | 0.84              |
| 9:8:1289:MET:CE   | 14:AD:14:DG:C2'    | 2.56                     | 0.84              |
| 9:8:1342:LEU:CG   | 37:Z:398:LEU:HD23  | 2.08                     | 0.84              |
| 9:8:1371:LEU:HD11 | 37:Z:95:VAL:HG13   | 1.54                     | 0.84              |
| 13:AC:29:DC:C5'   | 37:Z:1057:VAL:HG13 | 2.08                     | 0.84              |
| 9:8:1269:LYS:HZ2  | 37:Z:313:ILE:HG23  | 1.39                     | 0.84              |
| 4:3:2534:G:H1     | 4:3:2545:U:H3      | 0.84                     | 0.84              |
| 7:6:173:ILE:CG2   | 7:AA:324:LYS:NZ    | 2.40                     | 0.84              |
| 9:8:658:PRO:HB3   | 37:Z:868:PHE:CE2   | 2.13                     | 0.84              |
| 7:AA:283:ARG:HD3  | 12:AB:49:VAL:HG21  | 1.58                     | 0.84              |
| 12:AB:215:ASP:CB  | 12:AB:217:ARG:CZ   | 2.54                     | 0.84              |
| 9:8:772:GLU:HB2   | 37:Z:862:LEU:O     | 1.78                     | 0.84              |
| 4:3:1081:A:N7     | 35:U:7:LYS:HD2     | 1.91                     | 0.83              |
| 4:3:1142:G:OP1    | 35:U:56:ASN:CG     | 2.20                     | 0.83              |
| 9:8:1306:LEU:CD2  | 37:Z:408:VAL:HG11  | 2.07                     | 0.83              |
| 5:4:5:G:OP1       | 50:n:9:ARG:NH1     | 2.10                     | 0.83              |
| 14:AD:12:DC:H4'   | 37:Z:1235:GLN:OE1  | 1.78                     | 0.83              |
| 11:A:170:LYS:HZ2  | 12:AB:360:LYS:CD   | 1.67                     | 0.83              |
| 6:5:134:G:H1      | 6:5:160:A:H61      | 1.26                     | 0.83              |
| 9:8:394:SER:HA    | 9:8:489:ILE:HD11   | 1.60                     | 0.83              |
| 9:8:647:ASP:CB    | 37:Z:835:PHE:CZ    | 2.60                     | 0.83              |
| 9:8:1225:LYS:NZ   | 37:Z:738:ASP:OD1   | 2.10                     | 0.83              |
| 9:8:1269:LYS:HD2  | 37:Z:313:ILE:CB    | 2.08                     | 0.83              |
| 12:AB:182:SER:HB3 | 12:AB:280:PHE:HE1  | 1.44                     | 0.83              |
| 9:8:523:ASP:OD2   | 37:Z:837:TYR:CE1   | 2.31                     | 0.83              |
| 50:n:7:GLN:HG3    | 50:n:11:ARG:HH21   | 1.44                     | 0.83              |
| 9:8:1259:ILE:HD12 | 37:Z:515:LYS:HB3   | 1.61                     | 0.83              |
| 43:f:112:MET:HE3  | 43:f:130:ILE:HG23  | 1.59                     | 0.83              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 6:5:579:G:H5'      | 28:N:58:SER:HB2    | 1.59                     | 0.83              |
| 9:8:176:LYS:HE3    | 14:AD:9:DC:C5      | 2.14                     | 0.83              |
| 9:8:216:ALA:O      | 13:AC:20:DG:C2'    | 2.22                     | 0.83              |
| 13:AC:17:DT:H2''   | 13:AC:18:DG:C8     | 2.14                     | 0.83              |
| 4:3:2405:G:H1      | 4:3:2427:U:H3      | 1.25                     | 0.83              |
| 4:3:2851:U:H3      | 4:3:2873:G:H1      | 1.25                     | 0.83              |
| 9:8:1310:LYS:HE2   | 37:Z:410:TYR:HB2   | 1.59                     | 0.83              |
| 9:8:1311:SER:CB    | 37:Z:407:ARG:O     | 2.27                     | 0.83              |
| 9:8:1344:LYS:HE3   | 37:Z:306:PRO:HG2   | 0.86                     | 0.83              |
| 10:9:58:GLU:HG2    | 37:Z:1213:ASN:HD21 | 1.44                     | 0.83              |
| 7:AA:205:ILE:HD11  | 37:Z:513:ASP:OD2   | 1.79                     | 0.83              |
| 15:AE:124:SER:CB   | 37:Z:142:VAL:HG13  | 2.08                     | 0.83              |
| 12:AB:215:ASP:CG   | 12:AB:217:ARG:NE   | 2.36                     | 0.83              |
| 9:8:1293:ALA:HB2   | 37:Z:498:THR:CG2   | 2.09                     | 0.83              |
| 7:AA:271:LEU:O     | 7:AA:317:LYS:HE2   | 1.79                     | 0.83              |
| 9:8:1289:MET:HE3   | 14:AD:15:DA:C4'    | 2.08                     | 0.82              |
| 7:AA:85:LYS:HD3    | 37:Z:602:GLU:OE1   | 1.77                     | 0.82              |
| 12:AB:215:ASP:HB3  | 12:AB:217:ARG:CZ   | 2.09                     | 0.82              |
| 12:AB:135:VAL:HG23 | 12:AB:171:THR:HG1  | 1.03                     | 0.82              |
| 12:AB:239:LYS:CB   | 12:AB:293:ASP:N    | 2.42                     | 0.82              |
| 9:8:1368:VAL:O     | 37:Z:98:GLU:HB2    | 1.78                     | 0.82              |
| 9:8:999:PHE:HA     | 12:AB:108:LEU:CB   | 2.09                     | 0.82              |
| 9:8:1285:ARG:HB3   | 14:AD:17:DT:OP2    | 1.79                     | 0.82              |
| 10:9:78:PHE:CE2    | 37:Z:1095:ARG:NH1  | 2.47                     | 0.82              |
| 9:8:1093:PRO:CB    | 37:Z:734:VAL:HG23  | 2.08                     | 0.82              |
| 4:3:1119:A:N9      | 35:U:53:VAL:CG2    | 2.43                     | 0.82              |
| 9:8:169:LEU:HD23   | 13:AC:25:DC:N3     | 1.95                     | 0.82              |
| 4:3:313:G:N2       | 4:3:394:C:O2       | 2.13                     | 0.82              |
| 4:3:1118:U:H5'     | 35:U:41:ARG:HD3    | 1.37                     | 0.82              |
| 9:8:998:ILE:HG22   | 12:AB:108:LEU:HD22 | 0.83                     | 0.82              |
| 9:8:1289:MET:HE3   | 14:AD:15:DA:H5'    | 0.83                     | 0.82              |
| 9:8:1348:GLY:C     | 37:Z:388:LEU:HD11  | 2.01                     | 0.82              |
| 9:8:999:PHE:CG     | 12:AB:108:LEU:O    | 2.09                     | 0.82              |
| 9:8:1371:LEU:HG    | 37:Z:94:ILE:HG22   | 1.62                     | 0.82              |
| 7:AA:205:ILE:CD1   | 37:Z:513:ASP:OD2   | 2.28                     | 0.82              |
| 12:AB:158:LYS:HA   | 37:Z:66:TYR:CE2    | 2.11                     | 0.82              |
| 51:o:80:GLN:HG3    | 51:o:83:ASN:HB2    | 1.61                     | 0.82              |
| 4:3:1142:G:O2'     | 35:U:78:GLY:CA     | 2.27                     | 0.82              |
| 9:8:1346:LEU:CD2   | 37:Z:392:LEU:HD11  | 2.10                     | 0.82              |
| 12:AB:139:PHE:CZ   | 12:AB:147:ILE:CD1  | 2.62                     | 0.82              |
| 9:8:1289:MET:HG3   | 14:AD:15:DA:C4'    | 2.10                     | 0.82              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 9:8:170:LYS:NZ     | 13:AC:25:DC:O5'   | 2.13                     | 0.81              |
| 9:8:729:ILE:HG21   | 9:8:734:ILE:CD1   | 2.09                     | 0.81              |
| 9:8:995:PHE:HE1    | 12:AB:119:MET:SD  | 2.02                     | 0.81              |
| 8:7:2:G:N2         | 8:7:73:C:O2       | 2.13                     | 0.81              |
| 9:8:141:VAL:HG11   | 9:8:613:LEU:HD22  | 1.61                     | 0.81              |
| 8:7:2:G:N1         | 8:7:73:C:N3       | 2.28                     | 0.81              |
| 9:8:355:LEU:HD12   | 9:8:372:LEU:HD22  | 1.62                     | 0.81              |
| 9:8:995:PHE:HE1    | 12:AB:38:LEU:CD2  | 1.92                     | 0.81              |
| 7:AA:86:GLN:NE2    | 37:Z:599:THR:HG22 | 1.95                     | 0.81              |
| 12:AB:290:TRP:CE2  | 12:AB:296:LYS:HD2 | 2.15                     | 0.81              |
| 9:8:956:ARG:HG2    | 7:AA:296:SER:CB   | 2.07                     | 0.81              |
| 9:8:1307:LEU:HD23  | 37:Z:406:LYS:CG   | 2.10                     | 0.81              |
| 9:8:1350:ALA:HB2   | 37:Z:368:PHE:HZ   | 1.44                     | 0.81              |
| 7:AA:296:SER:HA    | 7:AA:326:ARG:O    | 1.81                     | 0.81              |
| 13:AC:32:DA:H5''   | 37:Z:121:PRO:HD3  | 1.63                     | 0.81              |
| 36:V:23:ALA:HB1    | 36:W:6:ILE:HD11   | 1.63                     | 0.81              |
| 49:m:26:LEU:HD21   | 49:m:67:LEU:HD11  | 1.62                     | 0.81              |
| 4:3:900:G:N2       | 4:3:903:A:N6      | 2.29                     | 0.81              |
| 4:3:1119:A:C2      | 35:U:29:TYR:CE2   | 2.67                     | 0.81              |
| 7:6:107:GLU:CG     | 7:AA:319:HIS:HD2  | 1.80                     | 0.81              |
| 9:8:901:ASN:HD21   | 9:8:1232:ARG:HH12 | 1.29                     | 0.81              |
| 9:8:1310:LYS:HA    | 37:Z:409:ASP:HB2  | 1.62                     | 0.81              |
| 7:AA:264:PHE:HB3   | 7:AA:290:GLN:HB2  | 1.62                     | 0.81              |
| 9:8:1289:MET:HE1   | 14:AD:14:DG:C2'   | 2.09                     | 0.81              |
| 45:i:32:ALA:HB1    | 45:i:111:MET:HE1  | 1.63                     | 0.81              |
| 9:8:1310:LYS:HB3   | 37:Z:408:VAL:C    | 2.05                     | 0.81              |
| 21:G:56:ASN:HB2    | 21:G:73:ASN:HD22  | 1.46                     | 0.81              |
| 9:8:1307:LEU:CD2   | 37:Z:406:LYS:CG   | 2.58                     | 0.80              |
| 12:AB:135:VAL:CG2  | 12:AB:171:THR:HG1 | 1.79                     | 0.80              |
| 9:8:218:ARG:HH22   | 15:AE:126:ARG:HG2 | 1.45                     | 0.80              |
| 14:AD:12:DC:O3'    | 37:Z:890:TYR:OH   | 1.98                     | 0.80              |
| 9:8:953:ALA:HA     | 7:AA:294:SER:O    | 1.79                     | 0.80              |
| 9:8:1325:VAL:CG1   | 37:Z:464:ILE:HG23 | 2.07                     | 0.80              |
| 7:AA:283:ARG:NH1   | 12:AB:81:PHE:CB   | 2.36                     | 0.80              |
| 12:AB:196:VAL:HG21 | 12:AB:217:ARG:CZ  | 2.11                     | 0.80              |
| 15:AE:55:PHE:HB3   | 15:AE:62:LEU:HD12 | 1.63                     | 0.80              |
| 4:3:1054:U:O2'     | 4:3:1056:A:N7     | 2.14                     | 0.80              |
| 9:8:1345:GLU:CD    | 37:Z:391:ARG:CB   | 2.54                     | 0.80              |
| 7:AA:168:GLU:OE1   | 37:Z:611:LYS:NZ   | 2.14                     | 0.80              |
| 9:8:994:LEU:HD13   | 12:AB:12:LEU:CD1  | 2.01                     | 0.80              |
| 4:3:900:G:H21      | 4:3:903:A:N6      | 1.79                     | 0.80              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 4:3:1382:A:H62    | 4:3:1405:G:H21    | 1.30                     | 0.80              |
| 4:3:2570:U:H3     | 4:3:2574:A:H62    | 1.25                     | 0.80              |
| 9:8:412:LEU:HD13  | 9:8:471:LEU:HD11  | 1.63                     | 0.80              |
| 9:8:1000:PRO:CD   | 12:AB:6:ASN:HD21  | 1.94                     | 0.80              |
| 9:8:1288:GLU:OE1  | 37:Z:893:ARG:NH2  | 2.14                     | 0.80              |
| 6:5:661:G:H1      | 6:5:738:A:H61     | 0.84                     | 0.80              |
| 6:5:69:G:H1       | 6:5:86:A:N6       | 1.79                     | 0.80              |
| 9:8:1370:ILE:CD1  | 37:Z:97:ARG:HD3   | 2.10                     | 0.80              |
| 9:8:1370:ILE:CD1  | 37:Z:94:ILE:CG1   | 2.60                     | 0.80              |
| 12:AB:111:ILE:CD1 | 12:AB:119:MET:HE1 | 2.11                     | 0.80              |
| 24:J:17:SER:HB2   | 24:J:80:LYS:HE3   | 1.63                     | 0.80              |
| 28:N:35:GLN:HG2   | 28:N:39:HIS:HE1   | 1.46                     | 0.80              |
| 9:8:170:LYS:N     | 13:AC:25:DC:C1'   | 2.28                     | 0.79              |
| 9:8:1350:ALA:HB2  | 37:Z:368:PHE:CZ   | 2.17                     | 0.79              |
| 37:Z:923:THR:OG1  | 37:Z:1106:ARG:NH2 | 2.16                     | 0.79              |
| 9:8:1306:LEU:HD21 | 37:Z:408:VAL:HG21 | 1.60                     | 0.79              |
| 12:AB:183:LYS:CD  | 12:AB:245:GLY:CA  | 2.48                     | 0.79              |
| 12:AB:183:LYS:HG2 | 12:AB:281:ASN:HB3 | 1.63                     | 0.79              |
| 4:3:1492:G:H5''   | 4:3:1493:A:H5'    | 1.64                     | 0.79              |
| 4:3:186:A:N1      | 4:3:219:G:O6      | 2.16                     | 0.79              |
| 9:8:1297:TYR:CZ   | 37:Z:504:ILE:O    | 2.35                     | 0.79              |
| 4:3:2799:U:O4     | 4:3:2895:A:C6     | 2.36                     | 0.79              |
| 9:8:1310:LYS:HG2  | 37:Z:409:ASP:HB2  | 1.62                     | 0.79              |
| 12:AB:183:LYS:HG2 | 12:AB:281:ASN:HB2 | 1.64                     | 0.79              |
| 4:3:329:G:H1      | 4:3:377:U:H3      | 1.28                     | 0.79              |
| 4:3:1305:G:N3     | 49:m:20:GLN:NE2   | 2.30                     | 0.79              |
| 9:8:653:TYR:HE2   | 37:Z:865:ASN:OD1  | 1.65                     | 0.79              |
| 13:AC:16:DG:C4'   | 15:AE:16:SER:HB2  | 2.09                     | 0.79              |
| 9:8:288:ARG:HB3   | 9:8:298:ARG:NH2   | 1.97                     | 0.79              |
| 9:8:901:ASN:ND2   | 9:8:1232:ARG:NH1  | 2.30                     | 0.79              |
| 7:AA:283:ARG:NH2  | 12:AB:79:ASP:OD2  | 2.15                     | 0.79              |
| 51:o:34:ALA:HA    | 51:o:46:GLN:O     | 1.83                     | 0.79              |
| 11:A:191:ALA:HB1  | 11:A:198:VAL:HG21 | 1.65                     | 0.79              |
| 12:AB:143:VAL:C   | 12:AB:145:GLN:HG2 | 2.06                     | 0.79              |
| 4:3:1118:U:C5'    | 35:U:41:ARG:HD2   | 2.02                     | 0.78              |
| 12:AB:196:VAL:CG1 | 12:AB:217:ARG:CZ  | 2.54                     | 0.78              |
| 6:5:1136:G:H1     | 6:5:1151:A:H61    | 0.80                     | 0.78              |
| 9:8:648:VAL:HB    | 37:Z:872:TYR:CD1  | 2.19                     | 0.78              |
| 4:3:454:G:H2'     | 4:3:455:G:H8      | 1.47                     | 0.78              |
| 4:3:2143:G:H1     | 4:3:2162:U:H3     | 1.31                     | 0.78              |
| 9:8:1368:VAL:O    | 37:Z:98:GLU:CB    | 2.31                     | 0.78              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 12:AB:5:SER:HB2    | 12:AB:61:LEU:CD2   | 2.13                     | 0.78              |
| 4:3:1141:U:C2      | 35:U:79:LYS:CE     | 2.63                     | 0.78              |
| 4:3:1937:G:HO2'    | 4:3:1975:G:H1      | 1.31                     | 0.78              |
| 9:8:264:PHE:HZ     | 9:8:342:ARG:HG2    | 1.47                     | 0.78              |
| 9:8:653:TYR:CE2    | 37:Z:865:ASN:OD1   | 2.36                     | 0.78              |
| 9:8:356:ARG:NH1    | 15:AE:113:ASN:CB   | 2.36                     | 0.78              |
| 9:8:1346:LEU:CD2   | 37:Z:392:LEU:CD1   | 2.62                     | 0.78              |
| 13:AC:19:DT:C2'    | 13:AC:21:DC:H4'    | 2.13                     | 0.78              |
| 12:AB:156:THR:HG21 | 37:Z:77:LYS:HA     | 0.79                     | 0.78              |
| 15:AE:44:VAL:HG22  | 15:AE:97:ILE:HG22  | 1.66                     | 0.78              |
| 9:8:998:ILE:O      | 12:AB:108:LEU:HD12 | 1.84                     | 0.78              |
| 7:AA:86:GLN:HE21   | 37:Z:599:THR:CG2   | 1.96                     | 0.78              |
| 4:3:2570:U:H3      | 4:3:2574:A:N6      | 1.82                     | 0.78              |
| 13:AC:29:DC:H5''   | 37:Z:1057:VAL:CG1  | 2.14                     | 0.78              |
| 9:8:258:VAL:CG1    | 9:8:268:VAL:HG11   | 2.13                     | 0.77              |
| 9:8:444:ILE:HG22   | 9:8:446:PHE:CD1    | 2.19                     | 0.77              |
| 9:8:618:PRO:HA     | 9:8:814:LEU:HD12   | 1.66                     | 0.77              |
| 9:8:998:ILE:N      | 12:AB:8:PHE:HZ     | 1.69                     | 0.77              |
| 4:3:358:A:N6       | 4:3:372:G:H21      | 1.82                     | 0.77              |
| 9:8:999:PHE:CE2    | 12:AB:108:LEU:HD22 | 2.19                     | 0.77              |
| 9:8:1307:LEU:HA    | 37:Z:406:LYS:CD    | 2.14                     | 0.77              |
| 20:F:115:MET:HG3   | 20:F:118:LYS:HE2   | 1.64                     | 0.77              |
| 9:8:658:PRO:HG3    | 37:Z:868:PHE:CE2   | 2.17                     | 0.77              |
| 6:5:732:A:H2'      | 6:5:733:A:H8       | 1.49                     | 0.77              |
| 9:8:998:ILE:N      | 12:AB:8:PHE:CE1    | 2.51                     | 0.77              |
| 9:8:1289:MET:HE3   | 14:AD:14:DG:H2''   | 1.66                     | 0.77              |
| 37:Z:876:LYS:HG2   | 37:Z:1030:ARG:NH1  | 1.81                     | 0.77              |
| 9:8:1344:LYS:C     | 37:Z:305:ILE:HG21  | 2.10                     | 0.77              |
| 14:AD:12:DC:H5''   | 37:Z:1235:GLN:HB2  | 1.66                     | 0.77              |
| 4:3:2175:U:N3      | 4:3:2179:A:C8      | 2.53                     | 0.77              |
| 6:5:603:U:H3       | 6:5:630:G:H1       | 1.32                     | 0.77              |
| 6:5:655:G:O6       | 6:5:744:U:C2       | 2.38                     | 0.77              |
| 8:7:12:C:O2        | 8:7:25:G:N2        | 2.17                     | 0.77              |
| 9:8:1269:LYS:NZ    | 37:Z:313:ILE:CG2   | 2.42                     | 0.77              |
| 9:8:1324:ILE:CD1   | 37:Z:410:TYR:OH    | 2.32                     | 0.77              |
| 39:b:110:VAL:HG11  | 39:b:197:ILE:HD12  | 1.67                     | 0.77              |
| 40:c:54:THR:HG22   | 40:c:57:GLU:HG3    | 1.66                     | 0.77              |
| 41:d:31:LEU:HD11   | 41:d:156:LEU:HB3   | 1.66                     | 0.77              |
| 4:3:2116:U:OP1     | 4:3:2156:G:N2      | 2.17                     | 0.77              |
| 37:Z:669:LYS:HE3   | 37:Z:670:PHE:CZ    | 2.18                     | 0.77              |
| 48:l:74:LYS:HB2    | 48:l:92:PHE:HB2    | 1.65                     | 0.77              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 9:8:1291:VAL:HG21  | 37:Z:404:LEU:O     | 1.84                     | 0.77              |
| 9:8:1349:LEU:O     | 37:Z:111:HIS:NE2   | 2.18                     | 0.77              |
| 12:AB:290:TRP:CD2  | 12:AB:296:LYS:CD   | 2.68                     | 0.77              |
| 19:E:59:ARG:HH22   | 31:Q:54:ILE:HD13   | 1.50                     | 0.77              |
| 51:o:25:PHE:HE1    | 51:o:31:VAL:HG21   | 1.47                     | 0.77              |
| 57:u:86:PHE:O      | 57:u:92:LYS:HB2    | 1.85                     | 0.77              |
| 7:AA:86:GLN:HE21   | 37:Z:599:THR:HG23  | 1.49                     | 0.77              |
| 12:AB:249:LYS:CB   | 12:AB:297:PHE:CE1  | 2.46                     | 0.77              |
| 18:D:192:ILE:HG22  | 18:D:196:MET:HE1   | 1.67                     | 0.77              |
| 49:m:46:ASP:HB2    | 49:m:97:TYR:HD1    | 1.50                     | 0.77              |
| 7:6:105:PRO:CB     | 7:AA:320:GLU:HA    | 2.15                     | 0.76              |
| 9:8:1346:LEU:HD21  | 37:Z:392:LEU:HD13  | 1.66                     | 0.76              |
| 51:o:27:ALA:HB3    | 51:o:96:VAL:HG21   | 1.66                     | 0.76              |
| 53:q:65:GLN:HB3    | 53:q:87:GLN:HB3    | 1.67                     | 0.76              |
| 4:3:186:A:H2       | 4:3:219:G:H1       | 1.29                     | 0.76              |
| 4:3:2189:U:H2'     | 4:3:2190:G:H8      | 1.50                     | 0.76              |
| 6:5:319:U:O4       | 6:5:323:A:N7       | 2.19                     | 0.76              |
| 6:5:1381:U:O2      | 6:5:1492:G:N2      | 2.18                     | 0.76              |
| 9:8:1324:ILE:HD13  | 37:Z:440:PRO:CG    | 2.15                     | 0.76              |
| 9:8:1346:LEU:HD21  | 37:Z:392:LEU:CD1   | 2.15                     | 0.76              |
| 10:9:5:TYR:CE2     | 10:9:48:LEU:CD2    | 2.68                     | 0.76              |
| 23:I:48:LEU:HB3    | 23:I:77:LYS:HE2    | 1.67                     | 0.76              |
| 4:3:2590:G:N2      | 4:3:2591:G:N2      | 2.34                     | 0.76              |
| 9:8:169:LEU:C      | 13:AC:25:DC:H1'    | 2.09                     | 0.76              |
| 9:8:185:GLU:HG2    | 9:8:195:LEU:HD21   | 1.66                     | 0.76              |
| 9:8:1350:ALA:CB    | 37:Z:368:PHE:CZ    | 2.68                     | 0.76              |
| 15:AE:47:GLU:HB2   | 15:AE:92:LEU:HD12  | 1.67                     | 0.76              |
| 38:a:119:ASP:OD2   | 38:a:120:LYS:N     | 2.18                     | 0.76              |
| 4:3:2683:G:H5''    | 46:j:31:ARG:HH12   | 1.51                     | 0.76              |
| 9:8:1310:LYS:CA    | 37:Z:409:ASP:H     | 1.97                     | 0.76              |
| 4:3:1785:U:H3      | 4:3:1792:A:H62     | 1.33                     | 0.76              |
| 7:6:106:LEU:C      | 7:AA:319:HIS:CE1   | 2.64                     | 0.76              |
| 7:6:173:ILE:HG22   | 7:AA:324:LYS:HZ1   | 1.48                     | 0.76              |
| 7:AA:82:LEU:CD2    | 37:Z:598:GLY:CA    | 2.60                     | 0.76              |
| 12:AB:247:LYS:HE2  | 12:AB:348:LEU:HD11 | 1.67                     | 0.76              |
| 51:o:30:GLU:HB3    | 51:o:92:ARG:HB2    | 1.67                     | 0.76              |
| 4:3:1446:G:H22     | 4:3:1612:U:H5''    | 1.50                     | 0.76              |
| 4:3:2291:U:O2      | 4:3:2333:G:O6      | 2.04                     | 0.76              |
| 12:AB:288:VAL:HG21 | 12:AB:297:PHE:HD2  | 1.46                     | 0.76              |
| 6:5:1331:A:N1      | 6:5:1340:G:N2      | 2.33                     | 0.76              |
| 9:8:995:PHE:CE1    | 12:AB:38:LEU:HD21  | 2.21                     | 0.76              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 9:8:1306:LEU:CA    | 37:Z:408:VAL:HG12  | 2.15                     | 0.76              |
| 9:8:1286:PHE:HB3   | 37:Z:406:LYS:O     | 1.85                     | 0.76              |
| 14:AD:11:DT:H4'    | 37:Z:1236:ASP:OD1  | 1.86                     | 0.76              |
| 9:8:374:CYS:CB     | 9:8:459:VAL:CG1    | 2.63                     | 0.76              |
| 9:8:408:LEU:HD12   | 9:8:427:LEU:HD11   | 1.68                     | 0.76              |
| 9:8:998:ILE:HG21   | 12:AB:108:LEU:HD21 | 1.68                     | 0.76              |
| 12:AB:111:ILE:HD13 | 12:AB:119:MET:CE   | 2.15                     | 0.76              |
| 4:3:2019:G:H4'     | 54:r:96:ILE:HD11   | 1.67                     | 0.75              |
| 7:6:105:PRO:CG     | 7:AA:320:GLU:CA    | 2.48                     | 0.75              |
| 36:V:6:ILE:HD11    | 36:W:23:ALA:HB1    | 1.68                     | 0.75              |
| 38:a:233:MET:SD    | 38:a:234:ASN:N     | 2.55                     | 0.75              |
| 6:5:36:G:H4'       | 25:K:131:GLY:HA2   | 1.67                     | 0.75              |
| 9:8:216:ALA:HB1    | 13:AC:20:DG:H8     | 1.51                     | 0.75              |
| 9:8:1102:ILE:CD1   | 37:Z:859:LEU:HA    | 2.16                     | 0.75              |
| 12:AB:156:THR:HG23 | 37:Z:77:LYS:CB     | 2.16                     | 0.75              |
| 6:5:619:A:O2'      | 17:C:73:ARG:NH2    | 2.19                     | 0.75              |
| 7:6:190:HIS:HE1    | 9:8:1083:ASP:O     | 1.67                     | 0.75              |
| 13:AC:29:DC:H5''   | 37:Z:1057:VAL:HG13 | 1.67                     | 0.75              |
| 14:AD:10:DG:O4'    | 37:Z:119:PRO:HD3   | 1.84                     | 0.75              |
| 4:3:1830:G:H5''    | 38:a:55:VAL:HG21   | 1.66                     | 0.75              |
| 9:8:428:VAL:HG23   | 9:8:431:GLU:OE2    | 1.86                     | 0.75              |
| 9:8:998:ILE:CG2    | 12:AB:62:MET:HE1   | 1.85                     | 0.75              |
| 9:8:1307:LEU:HD23  | 37:Z:406:LYS:HG3   | 1.66                     | 0.75              |
| 9:8:1344:LYS:CE    | 37:Z:306:PRO:CD    | 2.64                     | 0.75              |
| 7:6:34:PHE:HE2     | 7:AA:49:CYS:HG     | 1.34                     | 0.75              |
| 7:6:107:GLU:CG     | 7:AA:319:HIS:CG    | 2.69                     | 0.75              |
| 9:8:1273:GLN:CD    | 37:Z:402:ASN:HD22  | 1.95                     | 0.75              |
| 4:3:2088:U:H3      | 4:3:2247:G:H1      | 1.33                     | 0.75              |
| 6:5:1295:U:H3'     | 6:5:1296:C:H2'     | 1.68                     | 0.75              |
| 9:8:1105:ILE:CG2   | 37:Z:736:VAL:CG2   | 2.63                     | 0.75              |
| 9:8:1349:LEU:N     | 37:Z:388:LEU:CD1   | 2.43                     | 0.75              |
| 12:AB:45:HIS:HB3   | 12:AB:115:LEU:HD21 | 1.67                     | 0.75              |
| 4:3:1141:U:H3      | 35:U:79:LYS:HE2    | 1.50                     | 0.75              |
| 4:3:1764:U:N3      | 4:3:1769:A:C6      | 2.55                     | 0.75              |
| 6:5:833:G:H1       | 6:5:844:U:H3       | 0.79                     | 0.75              |
| 4:3:1541:A:O2'     | 4:3:1590:U:O2'     | 2.04                     | 0.75              |
| 6:5:711:G:H2'      | 6:5:712:A:H8       | 1.51                     | 0.75              |
| 9:8:1341:LEU:HD13  | 37:Z:309:ILE:HG23  | 1.69                     | 0.75              |
| 9:8:1344:LYS:HB3   | 37:Z:305:ILE:HB    | 1.68                     | 0.75              |
| 9:8:999:PHE:CZ     | 12:AB:42:TYR:OH    | 2.31                     | 0.74              |
| 12:AB:157:ASN:CA   | 37:Z:76:ILE:HD13   | 2.15                     | 0.74              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 49:m:42:GLN:HE21   | 49:m:100:VAL:HG11  | 1.52                     | 0.74              |
| 6:5:41:C:H2'       | 6:5:42:G:H8        | 1.53                     | 0.74              |
| 6:5:1138:U:H3      | 6:5:1149:G:H1      | 1.35                     | 0.74              |
| 9:8:1342:LEU:CD1   | 37:Z:392:LEU:HD21  | 1.75                     | 0.74              |
| 10:9:5:TYR:OH      | 10:9:51:ARG:HB2    | 1.86                     | 0.74              |
| 4:3:1392:G:N2      | 4:3:1395:A:OP2     | 2.19                     | 0.74              |
| 4:3:2645:U:H3      | 4:3:2784:A:H62     | 1.35                     | 0.74              |
| 9:8:658:PRO:CG     | 37:Z:868:PHE:CE2   | 2.69                     | 0.74              |
| 12:AB:176:MET:HE1  | 12:AB:187:LEU:HD11 | 1.68                     | 0.74              |
| 37:Z:835:PHE:HB2   | 37:Z:837:TYR:CE2   | 2.22                     | 0.74              |
| 8:7:12:C:N3        | 8:7:25:G:N1        | 2.35                     | 0.74              |
| 10:9:5:TYR:HE2     | 10:9:48:LEU:HD23   | 1.50                     | 0.74              |
| 12:AB:183:LYS:HE2  | 12:AB:281:ASN:HB3  | 1.67                     | 0.74              |
| 12:AB:288:VAL:HB   | 12:AB:300:ASN:HD22 | 1.52                     | 0.74              |
| 6:5:600:G:H1       | 6:5:633:U:H3       | 1.33                     | 0.74              |
| 9:8:613:LEU:HD23   | 9:8:615:HIS:NE2    | 2.03                     | 0.74              |
| 9:8:998:ILE:HD13   | 12:AB:62:MET:SD    | 2.27                     | 0.74              |
| 9:8:1341:LEU:CD1   | 37:Z:309:ILE:CG2   | 2.58                     | 0.74              |
| 9:8:46:ASP:HA      | 9:8:75:ARG:HH22    | 1.51                     | 0.74              |
| 9:8:1002:SER:OG    | 12:AB:108:LEU:O    | 2.05                     | 0.74              |
| 12:AB:291:ASN:HD21 | 16:B:146:LYS:NZ    | 1.65                     | 0.74              |
| 40:c:175:ILE:HG22  | 40:c:177:ASN:H     | 1.52                     | 0.74              |
| 4:3:219:G:N2       | 4:3:468:A:N1       | 2.35                     | 0.74              |
| 7:6:293:LEU:HD11   | 7:6:323:LEU:HD13   | 1.68                     | 0.74              |
| 13:AC:29:DC:C5'    | 37:Z:1057:VAL:CG1  | 2.65                     | 0.74              |
| 4:3:421:A:N6       | 4:3:424:G:OP2      | 2.20                     | 0.74              |
| 4:3:675:U:H3       | 4:3:685:G:H1       | 1.35                     | 0.74              |
| 4:3:2360:A:H62     | 4:3:2373:G:N2      | 1.86                     | 0.74              |
| 9:8:1344:LYS:HG3   | 37:Z:309:ILE:HD12  | 0.74                     | 0.74              |
| 7:AA:82:LEU:CD2    | 37:Z:597:PHE:C     | 2.58                     | 0.74              |
| 16:B:152:ILE:HD12  | 16:B:205:ILE:HD12  | 1.70                     | 0.74              |
| 9:8:412:LEU:HD13   | 9:8:471:LEU:CD1    | 2.17                     | 0.74              |
| 26:L:34:LEU:HA     | 26:L:39:ILE:HD12   | 1.69                     | 0.74              |
| 4:3:161:U:H3       | 4:3:171:G:H1       | 1.33                     | 0.74              |
| 4:3:1081:A:H61     | 35:U:8:ALA:H       | 1.35                     | 0.74              |
| 7:6:276:ARG:CZ     | 12:AB:323:GLU:OE1  | 2.36                     | 0.74              |
| 10:9:88:MET:HB3    | 37:Z:1212:ILE:CD1  | 2.18                     | 0.74              |
| 19:E:158:ASP:HB2   | 21:G:80:ARG:HH11   | 1.52                     | 0.74              |
| 6:5:715:A:H61      | 31:Q:94:ARG:HH22   | 1.36                     | 0.73              |
| 9:8:1287:GLY:HA3   | 14:AD:16:DC:P      | 2.27                     | 0.73              |
| 15:AE:94:GLY:O     | 37:Z:338:ARG:NH2   | 2.21                     | 0.73              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 15:AE:108:TRP:HE1 | 15:AE:112:ARG:NH2 | 1.85                     | 0.73              |
| 6:5:317:A:N1      | 6:5:328:G:O6      | 2.21                     | 0.73              |
| 7:6:276:ARG:NH1   | 12:AB:323:GLU:OE1 | 2.20                     | 0.73              |
| 9:8:1306:LEU:CD2  | 37:Z:408:VAL:CB   | 2.53                     | 0.73              |
| 9:8:1352:SER:HB2  | 37:Z:31:TRP:HH2   | 1.39                     | 0.73              |
| 56:t:69:ILE:HD12  | 56:t:74:LEU:HD21  | 1.70                     | 0.73              |
| 4:3:2223:C:H2'    | 4:3:2224:A:H8     | 1.52                     | 0.73              |
| 4:3:2589:G:N2     | 4:3:2589:G:OP2    | 2.22                     | 0.73              |
| 12:AB:239:LYS:HD2 | 12:AB:293:ASP:HA  | 1.70                     | 0.73              |
| 21:G:92:LYS:HB2   | 21:G:95:LEU:HB2   | 1.68                     | 0.73              |
| 9:8:218:ARG:NH2   | 15:AE:126:ARG:HG2 | 2.03                     | 0.73              |
| 12:AB:131:ALA:CA  | 12:AB:171:THR:HB  | 2.18                     | 0.73              |
| 1:0:24:THR:HG23   | 1:0:27:GLY:H      | 1.54                     | 0.73              |
| 6:5:1136:G:N2     | 6:5:1151:A:N1     | 2.35                     | 0.73              |
| 9:8:1349:LEU:HA   | 37:Z:368:PHE:CE1  | 2.22                     | 0.73              |
| 11:A:90:ASP:HB2   | 11:A:94:LYS:HE2   | 1.70                     | 0.73              |
| 4:3:2820:G:N3     | 4:3:2887:A:O2'    | 2.20                     | 0.73              |
| 6:5:21:U:O2'      | 6:5:571:A:N6      | 2.21                     | 0.73              |
| 9:8:1273:GLN:NE2  | 37:Z:402:ASN:ND2  | 2.30                     | 0.73              |
| 56:t:38:GLY:H     | 56:t:41:LYS:HE2   | 1.54                     | 0.73              |
| 4:3:2332:U:H3     | 4:3:2339:G:H1     | 1.34                     | 0.73              |
| 7:6:107:GLU:CD    | 7:AA:319:HIS:CG   | 2.66                     | 0.73              |
| 9:8:1306:LEU:CA   | 37:Z:408:VAL:HG11 | 2.18                     | 0.73              |
| 13:AC:15:DT:H3'   | 15:AE:95:ARG:NH2  | 2.04                     | 0.73              |
| 6:5:807:C:O2'     | 6:5:894:A:N6      | 2.20                     | 0.73              |
| 9:8:131:THR:HG21  | 9:8:600:ILE:HD12  | 1.70                     | 0.73              |
| 11:A:170:LYS:HZ1  | 12:AB:360:LYS:CG  | 2.01                     | 0.73              |
| 4:3:247:U:N3      | 4:3:259:A:C8      | 2.56                     | 0.73              |
| 6:5:111:A:OP1     | 6:5:603:U:O2'     | 2.07                     | 0.73              |
| 6:5:518:A:H62     | 6:5:527:G:N2      | 1.86                     | 0.73              |
| 9:8:1348:GLY:O    | 37:Z:368:PHE:CD1  | 2.41                     | 0.73              |
| 20:F:55:GLU:OE2   | 20:F:59:THR:OG1   | 2.05                     | 0.73              |
| 50:n:76:ASP:OD1   | 50:n:77:ILE:N     | 2.21                     | 0.73              |
| 4:3:1803:U:H3     | 4:3:1830:G:H1     | 1.37                     | 0.73              |
| 7:AA:82:LEU:HD22  | 37:Z:598:GLY:HA2  | 1.69                     | 0.73              |
| 12:AB:5:SER:HB2   | 12:AB:61:LEU:HD21 | 1.70                     | 0.73              |
| 4:3:898:A:O2'     | 5:4:76:A:N3       | 2.22                     | 0.72              |
| 6:5:170:A:O2'     | 6:5:220:U:OP1     | 2.06                     | 0.72              |
| 9:8:402:ARG:HD3   | 9:8:510:TYR:CD2   | 2.23                     | 0.72              |
| 10:9:78:PHE:CZ    | 37:Z:1095:ARG:CZ  | 2.72                     | 0.72              |
| 11:A:176:LEU:HD21 | 11:A:198:VAL:HG22 | 1.70                     | 0.72              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 5:4:40:U:H4'       | 41:d:64:LYS:HB2    | 1.70                     | 0.72              |
| 6:5:1224:C:N3      | 6:5:1262:A:N7      | 2.37                     | 0.72              |
| 9:8:814:LEU:CD2    | 9:8:858:TYR:CE2    | 2.72                     | 0.72              |
| 37:Z:771:ASP:HB3   | 37:Z:845:ILE:HD12  | 1.70                     | 0.72              |
| 37:Z:895:LEU:HD22  | 37:Z:1165:ILE:HD13 | 1.70                     | 0.72              |
| 12:AB:290:TRP:CD1  | 12:AB:296:LYS:HD2  | 2.23                     | 0.72              |
| 2:1:20:LYS:HZ3     | 4:3:666:G:H5'      | 1.55                     | 0.72              |
| 4:3:1832:G:OP2     | 38:a:56:ARG:NH2    | 2.22                     | 0.72              |
| 9:8:998:ILE:CD1    | 12:AB:62:MET:CE    | 2.59                     | 0.72              |
| 9:8:999:PHE:CE1    | 12:AB:108:LEU:CG   | 2.69                     | 0.72              |
| 9:8:999:PHE:CD2    | 12:AB:108:LEU:HD22 | 2.24                     | 0.72              |
| 9:8:1289:MET:HG3   | 14:AD:15:DA:C5'    | 2.20                     | 0.72              |
| 4:3:1956:G:H2'     | 4:3:1957:G:C8      | 2.24                     | 0.72              |
| 9:8:613:LEU:HD23   | 9:8:615:HIS:HE2    | 1.54                     | 0.72              |
| 9:8:1126:CYS:O     | 9:8:1154:LYS:HE2   | 1.90                     | 0.72              |
| 9:8:1351:LEU:CD1   | 37:Z:113:TRP:CZ3   | 2.73                     | 0.72              |
| 30:P:22:ALA:HB3    | 30:P:47:ALA:O      | 1.90                     | 0.72              |
| 4:3:1119:A:H1'     | 35:U:53:VAL:CB     | 2.19                     | 0.72              |
| 4:3:1489:G:H2'     | 4:3:1490:G:C8      | 2.24                     | 0.72              |
| 9:8:673:LEU:HD23   | 9:8:677:ALA:HB3    | 1.71                     | 0.72              |
| 12:AB:290:TRP:HE1  | 12:AB:293:ASP:HB2  | 0.55                     | 0.72              |
| 20:F:102:TRP:CD1   | 20:F:136:LYS:HZ2   | 2.07                     | 0.72              |
| 7:6:173:ILE:CG2    | 7:AA:324:LYS:HZ1   | 2.00                     | 0.72              |
| 14:AD:13:DA:C4'    | 37:Z:890:TYR:CG    | 2.59                     | 0.72              |
| 4:3:1262:G:H2'     | 4:3:1263:G:C8      | 2.25                     | 0.71              |
| 31:Q:81:MET:HE3    | 31:Q:85:HIS:HE1    | 1.55                     | 0.71              |
| 46:j:70:GLN:NE2    | 46:j:71:ARG:O      | 2.23                     | 0.71              |
| 54:r:126:LYS:HA    | 54:r:129:VAL:HG22  | 1.71                     | 0.71              |
| 59:w:57:ILE:O      | 59:w:61:ARG:NH1    | 2.22                     | 0.71              |
| 4:3:51:A:N7        | 4:3:121:U:O4       | 2.24                     | 0.71              |
| 4:3:1070:U:H3      | 4:3:1155:G:H1      | 1.37                     | 0.71              |
| 9:8:1307:LEU:HB3   | 37:Z:406:LYS:HD2   | 1.71                     | 0.71              |
| 37:Z:1133:ALA:HB1  | 37:Z:1137:ARG:HD3  | 1.72                     | 0.71              |
| 12:AB:159:ASP:CG   | 37:Z:79:ARG:HH22   | 1.98                     | 0.71              |
| 4:3:598:G:H1       | 4:3:609:U:H3       | 1.38                     | 0.71              |
| 6:5:460:A:H2       | 6:5:467:G:N1       | 1.87                     | 0.71              |
| 6:5:1217:G:H1      | 6:5:1269:U:H3      | 1.38                     | 0.71              |
| 9:8:1370:ILE:CD1   | 37:Z:94:ILE:HG12   | 2.20                     | 0.71              |
| 12:AB:135:VAL:HG21 | 12:AB:172:THR:HG22 | 1.71                     | 0.71              |
| 12:AB:239:LYS:HZ1  | 12:AB:294:LYS:CD   | 2.03                     | 0.71              |
| 12:AB:242:ARG:HG3  | 12:AB:248:SER:OG   | 1.90                     | 0.71              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 32:R:27:LYS:HZ1    | 32:R:47:ASN:HD22  | 1.38                     | 0.71              |
| 4:3:638:A:H62      | 4:3:660:U:H3      | 1.38                     | 0.71              |
| 6:5:1193:U:H2'     | 6:5:1194:A:H8     | 1.54                     | 0.71              |
| 9:8:628:ILE:HD11   | 9:8:673:LEU:CD1   | 2.17                     | 0.71              |
| 9:8:998:ILE:CG1    | 12:AB:62:MET:CE   | 2.68                     | 0.71              |
| 9:8:1344:LYS:CG    | 37:Z:306:PRO:HD2  | 2.20                     | 0.71              |
| 13:AC:16:DG:H4'    | 15:AE:16:SER:CB   | 2.17                     | 0.71              |
| 15:AE:108:TRP:NE1  | 15:AE:112:ARG:NE  | 2.37                     | 0.71              |
| 16:B:155:LEU:HD23  | 16:B:202:LYS:HD2  | 1.70                     | 0.71              |
| 25:K:86:ASN:OD1    | 25:K:88:GLN:NE2   | 2.23                     | 0.71              |
| 4:3:1385:U:H3      | 4:3:1402:G:H1     | 1.38                     | 0.71              |
| 4:3:2695:U:O2      | 4:3:2730:G:N2     | 2.23                     | 0.71              |
| 9:8:168:GLN:O      | 13:AC:25:DC:C2'   | 2.38                     | 0.71              |
| 16:B:176:MET:HE2   | 16:B:204:TRP:HB3  | 1.71                     | 0.71              |
| 40:c:183:LEU:HG    | 40:c:203:VAL:HG11 | 1.72                     | 0.71              |
| 4:3:1081:A:C8      | 35:U:7:LYS:HD2    | 2.25                     | 0.71              |
| 9:8:1307:LEU:O     | 37:Z:406:LYS:CD   | 2.38                     | 0.71              |
| 55:s:60:ARG:O      | 55:s:77:LEU:HA    | 1.90                     | 0.71              |
| 9:8:1344:LYS:O     | 37:Z:305:ILE:HG22 | 1.88                     | 0.71              |
| 24:J:100:ILE:HG23  | 34:T:8:ASN:HD21   | 1.55                     | 0.71              |
| 9:8:217:VAL:HA     | 13:AC:20:DG:C2'   | 2.11                     | 0.71              |
| 58:v:34:GLN:HE22   | 58:v:55:LEU:HD11  | 1.54                     | 0.71              |
| 4:3:1661:A:H2'     | 4:3:1662:G:H8     | 1.54                     | 0.71              |
| 4:3:2572:A:N6      | 4:3:2655:U:O2'    | 2.24                     | 0.71              |
| 6:5:1413:G:N2      | 6:5:1438:U:O2     | 2.24                     | 0.71              |
| 7:6:106:LEU:CA     | 7:AA:319:HIS:CE1  | 2.74                     | 0.71              |
| 12:AB:288:VAL:HG21 | 12:AB:297:PHE:CE2 | 2.23                     | 0.71              |
| 4:3:250:U:H3       | 4:3:256:G:H1      | 1.39                     | 0.70              |
| 4:3:990:G:H1       | 4:3:999:U:H3      | 1.37                     | 0.70              |
| 4:3:1083:A:H1'     | 4:3:1147:G:H21    | 1.56                     | 0.70              |
| 9:8:995:PHE:HE1    | 12:AB:38:LEU:HD21 | 1.56                     | 0.70              |
| 12:AB:290:TRP:CE2  | 12:AB:296:LYS:NZ  | 2.59                     | 0.70              |
| 51:o:62:GLU:HB3    | 51:o:81:ILE:HD12  | 1.72                     | 0.70              |
| 4:3:226:A:N6       | 4:3:236:G:N2      | 2.39                     | 0.70              |
| 4:3:313:G:N1       | 4:3:394:C:N3      | 2.37                     | 0.70              |
| 4:3:1143:U:C4      | 4:3:1144:C:N4     | 2.58                     | 0.70              |
| 4:3:2061:A:H62     | 4:3:2585:A:N6     | 1.85                     | 0.70              |
| 6:5:739:G:OP1      | 28:N:56:LYS:NZ    | 2.22                     | 0.70              |
| 12:AB:131:ALA:HA   | 12:AB:171:THR:HB  | 1.73                     | 0.70              |
| 12:AB:135:VAL:N    | 12:AB:171:THR:OG1 | 2.24                     | 0.70              |
| 21:G:115:ILE:HB    | 21:G:138:LEU:HB2  | 1.74                     | 0.70              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 31:Q:78:ASN:HB3   | 31:Q:82:HIS:HB2   | 1.72                     | 0.70              |
| 4:3:2799:U:C4     | 4:3:2895:A:N1     | 2.60                     | 0.70              |
| 12:AB:196:VAL:CG1 | 12:AB:217:ARG:NH2 | 2.52                     | 0.70              |
| 30:P:68:PRO:HB3   | 30:P:74:ARG:HG2   | 1.73                     | 0.70              |
| 33:S:13:GLN:HA    | 33:S:16:LYS:HE2   | 1.72                     | 0.70              |
| 4:3:1090:G:H4'    | 35:U:33:SER:HA    | 1.73                     | 0.70              |
| 9:8:952:ASP:CB    | 7:AA:295:LYS:HD3  | 2.21                     | 0.70              |
| 9:8:1000:PRO:CD   | 12:AB:6:ASN:ND2   | 2.54                     | 0.70              |
| 9:8:1306:LEU:CD2  | 37:Z:408:VAL:CG1  | 2.69                     | 0.70              |
| 7:AA:166:PHE:CE2  | 37:Z:679:ARG:NH2  | 2.60                     | 0.70              |
| 4:3:2010:A:N3     | 49:m:2:SER:N      | 2.39                     | 0.70              |
| 6:5:1316:C:H2'    | 6:5:1317:A:C8     | 2.27                     | 0.70              |
| 9:8:956:ARG:CG    | 7:AA:296:SER:CA   | 2.50                     | 0.70              |
| 4:3:1081:A:N9     | 35:U:7:LYS:HD3    | 1.99                     | 0.70              |
| 4:3:1142:G:C2'    | 35:U:78:GLY:CA    | 2.67                     | 0.70              |
| 4:3:2360:A:N6     | 4:3:2373:G:H21    | 1.90                     | 0.70              |
| 5:4:28:C:O2'      | 5:4:55:A:N1       | 2.25                     | 0.70              |
| 6:5:688:G:N7      | 24:J:21:ASN:ND2   | 2.40                     | 0.70              |
| 7:6:108:ARG:HH21  | 7:AA:316:LYS:HE3  | 1.57                     | 0.70              |
| 9:8:374:CYS:CB    | 9:8:459:VAL:HG11  | 2.22                     | 0.70              |
| 12:AB:8:PHE:O     | 12:AB:60:GLY:HA3  | 1.91                     | 0.70              |
| 59:w:57:ILE:HG22  | 59:w:61:ARG:HH22  | 1.55                     | 0.70              |
| 6:5:885:U:O2      | 6:5:901:A:N7      | 2.25                     | 0.70              |
| 9:8:1003:VAL:HG13 | 12:AB:116:ILE:CD1 | 2.21                     | 0.70              |
| 9:8:1285:ARG:CB   | 14:AD:17:DT:OP2   | 2.37                     | 0.70              |
| 12:AB:239:LYS:HZ1 | 12:AB:294:LYS:CG  | 2.03                     | 0.70              |
| 12:AB:290:TRP:CD2 | 12:AB:296:LYS:NZ  | 2.46                     | 0.70              |
| 4:3:1807:C:O2'    | 38:a:159:GLN:NE2  | 2.25                     | 0.70              |
| 6:5:821:U:O2      | 21:G:11:HIS:NE2   | 2.25                     | 0.70              |
| 12:AB:160:GLY:CA  | 37:Z:79:ARG:CB    | 2.69                     | 0.70              |
| 15:AE:108:TRP:CZ3 | 15:AE:130:PRO:HB3 | 2.26                     | 0.70              |
| 6:5:684:A:H62     | 6:5:700:G:H21     | 0.78                     | 0.70              |
| 9:8:356:ARG:CZ    | 15:AE:109:ARG:C   | 2.62                     | 0.70              |
| 9:8:561:ALA:HB1   | 9:8:585:LEU:HD11  | 1.74                     | 0.70              |
| 12:AB:183:LYS:O   | 12:AB:279:GLU:O   | 2.10                     | 0.70              |
| 12:AB:239:LYS:HZ1 | 12:AB:294:LYS:HG3 | 1.56                     | 0.70              |
| 18:D:169:ILE:HD11 | 18:D:192:ILE:HD12 | 1.73                     | 0.70              |
| 4:3:487:C:N4      | 4:3:490:A:OP2     | 2.25                     | 0.70              |
| 4:3:638:A:N6      | 4:3:661:G:C6      | 2.58                     | 0.70              |
| 4:3:1119:A:C2     | 35:U:29:TYR:CZ    | 2.80                     | 0.70              |
| 14:AD:14:DG:N7    | 37:Z:886:ALA:HA   | 2.03                     | 0.70              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 57:u:84:GLN:OE1   | 57:u:94:ARG:NH2    | 2.25                     | 0.70              |
| 4:3:1446:G:O2'    | 4:3:1613:A:N6      | 2.21                     | 0.69              |
| 6:5:1106:U:H3     | 6:5:1160:G:H1      | 1.40                     | 0.69              |
| 9:8:185:GLU:HG2   | 9:8:195:LEU:CD2    | 2.21                     | 0.69              |
| 9:8:999:PHE:CB    | 12:AB:108:LEU:C    | 2.65                     | 0.69              |
| 14:AD:14:DG:H5'   | 37:Z:890:TYR:CA    | 2.21                     | 0.69              |
| 44:h:15:LEU:HA    | 44:h:50:MET:HA     | 1.73                     | 0.69              |
| 2:1:36:LYS:O      | 2:1:40:HIS:ND1     | 2.25                     | 0.69              |
| 4:3:1553:G:N2     | 4:3:1577:A:OP2     | 2.24                     | 0.69              |
| 4:3:2536:U:H3     | 4:3:2543:G:H1      | 1.40                     | 0.69              |
| 6:5:1046:A:N7     | 6:5:1175:C:N4      | 2.40                     | 0.69              |
| 12:AB:248:SER:OG  | 12:AB:283:GLU:OE1  | 2.10                     | 0.69              |
| 2:1:39:ARG:NH2    | 4:3:2359:G:O6      | 2.25                     | 0.69              |
| 4:3:631:A:H2'     | 4:3:632:A:H8       | 1.56                     | 0.69              |
| 4:3:1738:G:H2'    | 4:3:1739:G:C8      | 2.27                     | 0.69              |
| 4:3:2455:G:H21    | 4:3:2457:U:H3'     | 1.56                     | 0.69              |
| 9:8:998:ILE:HA    | 12:AB:8:PHE:CE2    | 2.24                     | 0.69              |
| 9:8:1200:PHE:CE2  | 37:Z:864:ILE:CD1   | 2.74                     | 0.69              |
| 12:AB:139:PHE:CE1 | 12:AB:147:ILE:CG1  | 2.74                     | 0.69              |
| 43:f:47:ARG:HH22  | 43:f:51:LEU:HB2    | 1.57                     | 0.69              |
| 2:1:36:LYS:HG3    | 2:1:40:HIS:HE1     | 1.57                     | 0.69              |
| 4:3:358:A:H62     | 4:3:372:G:N2       | 1.91                     | 0.69              |
| 4:3:782:U:H2'     | 54:r:88:ARG:HH21   | 1.56                     | 0.69              |
| 4:3:849:C:H2'     | 4:3:850:G:H8       | 1.55                     | 0.69              |
| 4:3:1764:U:N3     | 4:3:1769:A:N6      | 2.39                     | 0.69              |
| 6:5:134:G:H1      | 6:5:160:A:N6       | 1.89                     | 0.69              |
| 6:5:1162:G:N2     | 27:M:60:SER:OG     | 2.25                     | 0.69              |
| 9:8:176:LYS:HD2   | 14:AD:8:DA:H2'     | 1.75                     | 0.69              |
| 9:8:1370:ILE:HD13 | 37:Z:94:ILE:CD1    | 2.23                     | 0.69              |
| 15:AE:57:LEU:HD12 | 15:AE:80:ASP:HA    | 1.75                     | 0.69              |
| 28:N:35:GLN:HG2   | 28:N:39:HIS:CE1    | 2.27                     | 0.69              |
| 16:B:93:LYS:HA    | 16:B:96:ILE:HG22   | 1.73                     | 0.69              |
| 58:v:4:LYS:O      | 58:v:6:GLN:NE2     | 2.26                     | 0.69              |
| 4:3:703:A:H2'     | 4:3:705:A:H62      | 1.57                     | 0.69              |
| 7:6:107:GLU:N     | 7:AA:319:HIS:ND1   | 2.40                     | 0.69              |
| 9:8:94:ILE:CG2    | 9:8:135:LEU:HD12   | 2.21                     | 0.69              |
| 9:8:998:ILE:O     | 12:AB:108:LEU:HB2  | 1.92                     | 0.69              |
| 9:8:999:PHE:CE2   | 12:AB:111:ILE:HD12 | 2.27                     | 0.69              |
| 20:F:43:TYR:HA    | 20:F:46:PHE:HD2    | 1.58                     | 0.69              |
| 24:J:116:PRO:HD2  | 34:T:35:HIS:HB2    | 1.74                     | 0.69              |
| 48:l:39:GLY:HA2   | 48:l:97:VAL:O      | 1.92                     | 0.69              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 4:3:1141:U:O2'    | 35:U:79:LYS:CA     | 2.34                     | 0.69              |
| 4:3:1418:U:O4     | 4:3:1423:A:N7      | 2.26                     | 0.69              |
| 16:B:127:ILE:HD12 | 16:B:133:LEU:HD22  | 1.73                     | 0.69              |
| 7:6:108:ARG:NH2   | 7:AA:316:LYS:CE    | 2.54                     | 0.69              |
| 7:AA:73:MET:HE3   | 7:AA:143:PHE:CD2   | 2.28                     | 0.69              |
| 7:AA:283:ARG:HD3  | 12:AB:49:VAL:CG2   | 2.23                     | 0.69              |
| 12:AB:247:LYS:HE2 | 12:AB:348:LEU:CD1  | 2.23                     | 0.69              |
| 15:AE:27:LYS:HE3  | 15:AE:42:VAL:O     | 1.92                     | 0.69              |
| 57:u:35:LEU:HD13  | 57:u:54:GLN:HA     | 1.75                     | 0.69              |
| 3:2:27:CYS:SG     | 3:2:28:LYS:N       | 2.66                     | 0.69              |
| 4:3:1099:C:N4     | 4:3:1105:A:OP1     | 2.22                     | 0.69              |
| 6:5:249:U:H3      | 6:5:269:A:H61      | 1.41                     | 0.69              |
| 9:8:219:GLU:HG3   | 13:AC:21:DC:H42    | 1.58                     | 0.69              |
| 9:8:998:ILE:CD1   | 12:AB:62:MET:SD    | 2.81                     | 0.69              |
| 9:8:1346:LEU:HD23 | 37:Z:392:LEU:HD11  | 1.74                     | 0.69              |
| 12:AB:182:SER:CB  | 12:AB:280:PHE:HE1  | 2.05                     | 0.69              |
| 4:3:420:A:H62     | 4:3:425:U:H3       | 1.40                     | 0.69              |
| 4:3:2574:A:H4'    | 4:3:2575:G:H5''    | 1.74                     | 0.69              |
| 9:8:644:ASP:O     | 37:Z:835:PHE:CE1   | 2.45                     | 0.69              |
| 25:K:67:LYS:HE3   | 25:K:75:GLU:HG3    | 1.74                     | 0.69              |
| 46:j:86:LEU:HB3   | 46:j:94:ARG:HD2    | 1.75                     | 0.69              |
| 3:2:3:VAL:HG12    | 3:2:35:ARG:HB3     | 1.75                     | 0.68              |
| 6:5:70:A:H2'      | 6:5:71:A:H8        | 1.57                     | 0.68              |
| 9:8:265:LEU:HD11  | 9:8:335:MET:HE3    | 1.73                     | 0.68              |
| 9:8:1003:VAL:CG2  | 12:AB:116:ILE:HD11 | 2.21                     | 0.68              |
| 4:3:1089:A:H1'    | 35:U:30:THR:HG22   | 1.75                     | 0.68              |
| 9:8:956:ARG:HA    | 7:AA:296:SER:OG    | 1.93                     | 0.68              |
| 13:AC:17:DT:H4'   | 13:AC:18:DG:OP1    | 1.92                     | 0.68              |
| 37:Z:128:LEU:HD23 | 37:Z:248:ILE:HD11  | 1.75                     | 0.68              |
| 4:3:2661:U:O2     | 4:3:2676:G:C2      | 2.46                     | 0.68              |
| 6:5:1150:G:H2'    | 6:5:1151:A:H8      | 1.58                     | 0.68              |
| 7:6:1:MET:N       | 7:AA:99:GLY:O      | 2.20                     | 0.68              |
| 9:8:216:ALA:HB3   | 13:AC:20:DG:C8     | 2.25                     | 0.68              |
| 9:8:390:ARG:CD    | 9:8:496:ASN:O      | 2.41                     | 0.68              |
| 14:AD:10:DG:H4'   | 37:Z:119:PRO:N     | 2.07                     | 0.68              |
| 4:3:640:U:H3      | 4:3:658:G:H1       | 1.40                     | 0.68              |
| 4:3:895:G:OP2     | 57:u:58:ARG:NH1    | 2.26                     | 0.68              |
| 4:3:1043:C:H3'    | 4:3:1044:C:H2'     | 1.74                     | 0.68              |
| 4:3:1141:U:N3     | 35:U:79:LYS:CE     | 2.56                     | 0.68              |
| 4:3:1379:C:O2'    | 4:3:1605:A:O2'     | 2.12                     | 0.68              |
| 4:3:2754:U:H5''   | 42:e:141:LYS:HE2   | 1.75                     | 0.68              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 6:5:742:C:H2'     | 6:5:743:A:C8      | 2.28                     | 0.68              |
| 6:5:1164:U:H5''   | 16:B:10:LEU:HD11  | 1.75                     | 0.68              |
| 7:6:105:PRO:CB    | 7:AA:320:GLU:CA   | 2.70                     | 0.68              |
| 9:8:1371:LEU:HG   | 37:Z:94:ILE:HG23  | 1.74                     | 0.68              |
| 4:3:226:A:C6      | 4:3:236:G:N2      | 2.61                     | 0.68              |
| 4:3:1081:A:C2'    | 35:U:7:LYS:NZ     | 2.55                     | 0.68              |
| 4:3:1554:A:OP2    | 4:3:1576:G:N2     | 2.27                     | 0.68              |
| 9:8:1310:LYS:HA   | 37:Z:409:ASP:CB   | 2.23                     | 0.68              |
| 9:8:1349:LEU:HD11 | 37:Z:389:THR:N    | 2.09                     | 0.68              |
| 11:A:170:LYS:HZ1  | 12:AB:360:LYS:CB  | 2.06                     | 0.68              |
| 43:f:7:GLN:NE2    | 43:f:8:ASP:OD1    | 2.26                     | 0.68              |
| 4:3:1067:A:N1     | 4:3:1157:G:O6     | 2.27                     | 0.68              |
| 6:5:294:A:O2'     | 6:5:295:G:O5'     | 2.09                     | 0.68              |
| 12:AB:175:TYR:HB2 | 12:AB:207:TRP:HB3 | 1.76                     | 0.68              |
| 12:AB:291:ASN:H   | 12:AB:296:LYS:CG  | 1.79                     | 0.68              |
| 38:a:3:ILE:HD11   | 38:a:207:ASP:HB3  | 1.76                     | 0.68              |
| 4:3:2570:U:O4     | 4:3:2574:A:N7     | 2.26                     | 0.68              |
| 6:5:1077:U:H3     | 6:5:1090:G:H22    | 1.40                     | 0.68              |
| 10:9:64:TYR:HB3   | 10:9:88:MET:HE1   | 1.74                     | 0.68              |
| 7:AA:82:LEU:CD1   | 37:Z:621:SER:HB2  | 2.23                     | 0.68              |
| 12:AB:9:THR:C     | 12:AB:11:PRO:HD2  | 2.19                     | 0.68              |
| 37:Z:884:LYS:HG2  | 37:Z:1029:MET:HG3 | 1.75                     | 0.68              |
| 39:b:158:ARG:NH1  | 39:b:159:VAL:O    | 2.27                     | 0.68              |
| 46:j:63:VAL:HG23  | 46:j:64:ARG:HG3   | 1.73                     | 0.68              |
| 6:5:273:C:H5''    | 30:P:44:LYS:HE2   | 1.75                     | 0.68              |
| 6:5:662:G:O6      | 6:5:721:G:O6      | 2.12                     | 0.68              |
| 6:5:1224:C:O2     | 6:5:1262:A:N6     | 2.27                     | 0.68              |
| 7:6:106:LEU:HB2   | 7:AA:319:HIS:CE1  | 2.26                     | 0.68              |
| 25:K:86:ASN:HD22  | 25:K:118:VAL:H    | 1.39                     | 0.68              |
| 40:c:159:PHE:HB2  | 40:c:180:VAL:HG22 | 1.76                     | 0.68              |
| 56:t:93:MET:HG3   | 56:t:95:PRO:HD3   | 1.75                     | 0.68              |
| 4:3:733:C:H4'     | 4:3:769:A:H61     | 1.59                     | 0.68              |
| 37:Z:828:ARG:NH1  | 37:Z:870:SER:HB2  | 2.09                     | 0.68              |
| 4:3:2124:A:O2'    | 4:3:2126:A:OP2    | 2.11                     | 0.68              |
| 4:3:2521:A:OP1    | 39:b:164:LYS:NZ   | 2.27                     | 0.68              |
| 6:5:201:G:H1      | 6:5:214:U:H3      | 1.42                     | 0.68              |
| 20:F:86:VAL:HG22  | 20:F:150:PHE:HB3  | 1.76                     | 0.68              |
| 4:3:1295:A:H61    | 4:3:2020:A:H3'    | 1.60                     | 0.67              |
| 4:3:1700:G:H4'    | 46:j:6:THR:HG23   | 1.75                     | 0.67              |
| 4:3:2020:A:H1'    | 54:r:94:ASN:HD21  | 1.59                     | 0.67              |
| 5:4:22:G:O2'      | 5:4:25:A:N6       | 2.28                     | 0.67              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 12:AB:165:TYR:CE2  | 12:AB:181:LEU:HD11 | 2.30                     | 0.67              |
| 21:G:118:THR:HA    | 21:G:135:GLY:HA3   | 1.76                     | 0.67              |
| 59:w:38:LEU:HD23   | 59:w:40:LYS:H      | 1.59                     | 0.67              |
| 4:3:2321:C:H2'     | 4:3:2322:G:H8      | 1.60                     | 0.67              |
| 4:3:2655:U:H2'     | 4:3:2656:G:H8      | 1.58                     | 0.67              |
| 12:AB:196:VAL:HG11 | 12:AB:217:ARG:HH22 | 1.56                     | 0.67              |
| 14:AD:10:DG:H4'    | 37:Z:118:LEU:C     | 2.18                     | 0.67              |
| 18:D:163:GLY:O     | 18:D:167:ARG:N     | 2.24                     | 0.67              |
| 35:U:42:LYS:HE2    | 44:h:114:ALA:C     | 2.19                     | 0.67              |
| 39:b:3:ILE:HG23    | 39:b:209:THR:HB    | 1.76                     | 0.67              |
| 6:5:1213:A:N6      | 6:5:1275:U:N3      | 2.40                     | 0.67              |
| 9:8:170:LYS:NZ     | 13:AC:25:DC:C5'    | 2.57                     | 0.67              |
| 9:8:1306:LEU:O     | 37:Z:408:VAL:CG1   | 2.30                     | 0.67              |
| 9:8:1306:LEU:C     | 37:Z:408:VAL:CG1   | 2.65                     | 0.67              |
| 12:AB:139:PHE:CE2  | 12:AB:147:ILE:CD1  | 2.73                     | 0.67              |
| 33:S:35:PHE:HE1    | 33:S:44:LEU:HB2    | 1.59                     | 0.67              |
| 33:S:52:ASP:O      | 33:S:56:ARG:NH2    | 2.27                     | 0.67              |
| 4:3:193:G:H1       | 4:3:209:G:HO2'     | 1.41                     | 0.67              |
| 4:3:2291:U:O4      | 4:3:2292:A:N6      | 2.27                     | 0.67              |
| 9:8:374:CYS:HB2    | 9:8:459:VAL:CG1    | 2.24                     | 0.67              |
| 9:8:658:PRO:CB     | 37:Z:868:PHE:CE2   | 2.77                     | 0.67              |
| 9:8:780:LEU:HD22   | 37:Z:878:MET:HE1   | 1.76                     | 0.67              |
| 7:AA:268:ILE:CD1   | 7:AA:286:ILE:HG22  | 2.22                     | 0.67              |
| 12:AB:239:LYS:HD3  | 12:AB:294:LYS:N    | 2.09                     | 0.67              |
| 12:AB:291:ASN:N    | 12:AB:296:LYS:HB3  | 2.08                     | 0.67              |
| 42:e:101:VAL:HG21  | 42:e:126:VAL:HG21  | 1.75                     | 0.67              |
| 4:3:1187:C:H5''    | 52:p:79:ILE:HD13   | 1.76                     | 0.67              |
| 4:3:2096:U:H3      | 4:3:2238:G:H1      | 1.41                     | 0.67              |
| 9:8:638:ARG:HH21   | 9:8:666:ASN:ND2    | 1.92                     | 0.67              |
| 53:q:36:ASP:HA     | 53:q:54:ARG:HE     | 1.59                     | 0.67              |
| 6:5:289:U:OP1      | 6:5:608:G:N2       | 2.28                     | 0.67              |
| 6:5:1265:U:H4'     | 22:H:42:PRO:HB3    | 1.77                     | 0.67              |
| 9:8:1336:PRO:CG    | 37:Z:406:LYS:HZ3   | 2.07                     | 0.67              |
| 33:S:16:LYS:O      | 33:S:20:ASN:ND2    | 2.27                     | 0.67              |
| 4:3:590:U:OP1      | 45:i:116:ARG:NH2   | 2.27                     | 0.67              |
| 4:3:2736:U:HO2'    | 4:3:2737:G:H8      | 1.40                     | 0.67              |
| 6:5:1245:A:H2'     | 6:5:1246:A:H8      | 1.59                     | 0.67              |
| 10:9:13:LYS:HE2    | 10:9:17:GLU:OE1    | 1.95                     | 0.67              |
| 7:AA:82:LEU:HD13   | 37:Z:598:GLY:HA2   | 1.75                     | 0.67              |
| 4:3:2749:A:H62     | 4:3:2771:G:H21     | 1.41                     | 0.67              |
| 9:8:998:ILE:HG21   | 12:AB:62:MET:HE3   | 1.69                     | 0.67              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 9:8:1102:ILE:HD11  | 37:Z:859:LEU:CA    | 2.25                     | 0.67              |
| 17:C:74:LEU:HD23   | 17:C:77:LEU:HD21   | 1.77                     | 0.67              |
| 37:Z:1069:GLU:HB2  | 37:Z:1095:ARG:NH1  | 2.10                     | 0.67              |
| 54:r:36:LEU:HD21   | 54:r:47:ILE:HG13   | 1.76                     | 0.67              |
| 4:3:1616:G:O2'     | 4:3:1619:A:N3      | 2.28                     | 0.67              |
| 4:3:2455:G:N2      | 4:3:2458:A:OP2     | 2.28                     | 0.67              |
| 12:AB:156:THR:HG23 | 37:Z:77:LYS:HB3    | 1.76                     | 0.67              |
| 51:o:32:ASN:HB3    | 51:o:91:LYS:HZ1    | 1.59                     | 0.67              |
| 4:3:411:U:H3       | 4:3:437:A:H62      | 1.42                     | 0.67              |
| 6:5:1012:A:OP2     | 6:5:1013:C:N4      | 2.28                     | 0.67              |
| 7:6:105:PRO:HG3    | 7:AA:320:GLU:HA    | 0.75                     | 0.67              |
| 9:8:772:GLU:CB     | 37:Z:862:LEU:O     | 2.43                     | 0.67              |
| 9:8:956:ARG:CG     | 7:AA:296:SER:HA    | 2.21                     | 0.67              |
| 42:e:4:ILE:O       | 42:e:72:ASN:ND2    | 2.28                     | 0.67              |
| 50:n:8:ARG:HG2     | 50:n:95:GLY:HA3    | 1.77                     | 0.67              |
| 6:5:460:A:C2       | 6:5:467:G:N1       | 2.55                     | 0.66              |
| 9:8:390:ARG:HD3    | 9:8:496:ASN:O      | 1.95                     | 0.66              |
| 4:3:1023:C:O2'     | 4:3:1036:A:N3      | 2.27                     | 0.66              |
| 4:3:1119:A:C1'     | 35:U:53:VAL:CB     | 2.73                     | 0.66              |
| 6:5:350:G:N2       | 6:5:384:G:O2'      | 2.28                     | 0.66              |
| 12:AB:160:GLY:CA   | 37:Z:79:ARG:HB3    | 2.20                     | 0.66              |
| 19:E:97:LEU:HG     | 19:E:99:SER:H      | 1.60                     | 0.66              |
| 26:L:8:ASP:OD1     | 26:L:9:ILE:N       | 2.27                     | 0.66              |
| 38:a:43:LYS:NZ     | 38:a:62:ASN:O      | 2.29                     | 0.66              |
| 38:a:83:VAL:HB     | 38:a:118:GLY:H     | 1.59                     | 0.66              |
| 39:b:56:THR:HA     | 39:b:78:THR:HA     | 1.77                     | 0.66              |
| 46:j:87:ILE:HA     | 46:j:93:PRO:HA     | 1.78                     | 0.66              |
| 61:y:47:MET:HG3    | 61:y:52:ARG:HB2    | 1.74                     | 0.66              |
| 4:3:857:U:O4       | 4:3:858:A:N6       | 2.28                     | 0.66              |
| 9:8:1305:GLU:OE1   | 9:8:1310:LYS:HE3   | 1.96                     | 0.66              |
| 9:8:1347:GLN:CD    | 37:Z:100:MET:HE2   | 2.21                     | 0.66              |
| 12:AB:165:TYR:HE2  | 12:AB:181:LEU:HD11 | 1.59                     | 0.66              |
| 37:Z:884:LYS:CG    | 37:Z:1029:MET:HG3  | 2.25                     | 0.66              |
| 46:j:80:ASP:OD2    | 51:o:67:ARG:NH2    | 2.29                     | 0.66              |
| 4:3:840:G:H5''     | 47:k:42:ARG:HG3    | 1.77                     | 0.66              |
| 4:3:1092:A:OP2     | 4:3:1124:G:N1      | 2.23                     | 0.66              |
| 4:3:1232:U:H2'     | 4:3:1233:A:H8      | 1.61                     | 0.66              |
| 6:5:423:U:OP1      | 17:C:31:ARG:NH2    | 2.29                     | 0.66              |
| 9:8:945:ARG:HH22   | 7:AA:298:ALA:CB    | 2.07                     | 0.66              |
| 9:8:1349:LEU:CG    | 37:Z:388:LEU:HB2   | 2.25                     | 0.66              |
| 22:H:9:LEU:H       | 22:H:87:ARG:HD2    | 1.61                     | 0.66              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 39:b:185:ASP:O    | 39:b:189:MET:CA   | 2.42                     | 0.66              |
| 6:5:460:A:N1      | 6:5:467:G:O6      | 2.28                     | 0.66              |
| 6:5:786:U:N3      | 6:5:789:A:OP2     | 2.28                     | 0.66              |
| 6:5:871:U:OP1     | 21:G:92:LYS:NZ    | 2.29                     | 0.66              |
| 9:8:952:ASP:CB    | 7:AA:295:LYS:CD   | 2.74                     | 0.66              |
| 9:8:998:ILE:O     | 12:AB:108:LEU:CG  | 2.42                     | 0.66              |
| 9:8:1001:GLU:CA   | 12:AB:109:LYS:HG2 | 2.13                     | 0.66              |
| 9:8:1002:SER:N    | 12:AB:109:LYS:HA  | 2.10                     | 0.66              |
| 9:8:1269:LYS:HZ3  | 37:Z:313:ILE:HA   | 1.61                     | 0.66              |
| 19:E:66:ASN:OD1   | 19:E:67:GLN:NE2   | 2.25                     | 0.66              |
| 40:c:140:THR:HA   | 40:c:143:MET:HE2  | 1.78                     | 0.66              |
| 3:2:14:CYS:HA     | 3:2:27:CYS:HB2    | 1.77                     | 0.66              |
| 4:3:648:G:H22     | 40:c:185:LYS:HG3  | 1.61                     | 0.66              |
| 4:3:2732:A:OP1    | 39:b:117:ARG:NH2  | 2.22                     | 0.66              |
| 9:8:214:ARG:NH2   | 13:AC:22:DA:C6    | 2.63                     | 0.66              |
| 9:8:1338:SER:HB3  | 37:Z:402:ASN:HB3  | 1.78                     | 0.66              |
| 14:AD:12:DC:C5'   | 37:Z:1235:GLN:HB2 | 2.25                     | 0.66              |
| 49:m:42:GLN:HA    | 49:m:45:LEU:HD12  | 1.77                     | 0.66              |
| 52:p:16:TRP:HA    | 52:p:19:GLN:HE22  | 1.60                     | 0.66              |
| 46:j:10:VAL:HG12  | 46:j:12:ASP:H     | 1.59                     | 0.66              |
| 4:3:1141:U:H1'    | 35:U:79:LYS:HG2   | 1.77                     | 0.66              |
| 4:3:1187:C:H2'    | 4:3:1188:C:H6     | 1.61                     | 0.66              |
| 9:8:1338:SER:CB   | 37:Z:402:ASN:HB3  | 2.26                     | 0.66              |
| 37:Z:77:LYS:HE3   | 37:Z:78:TYR:CZ    | 2.31                     | 0.66              |
| 37:Z:1234:PHE:CD1 | 37:Z:1235:GLN:HG2 | 2.31                     | 0.66              |
| 7:6:107:GLU:CD    | 7:AA:319:HIS:CB   | 2.69                     | 0.66              |
| 9:8:1342:LEU:HA   | 37:Z:398:LEU:HD22 | 1.78                     | 0.66              |
| 9:8:1370:ILE:HG22 | 37:Z:94:ILE:CG2   | 2.26                     | 0.66              |
| 12:AB:139:PHE:CE1 | 12:AB:147:ILE:CD1 | 2.79                     | 0.66              |
| 14:AD:12:DC:H2''  | 37:Z:890:TYR:OH   | 1.96                     | 0.66              |
| 38:a:38:LEU:HD11  | 38:a:65:LYS:HB3   | 1.78                     | 0.66              |
| 60:x:12:VAL:HB    | 60:x:27:SER:HB2   | 1.77                     | 0.66              |
| 6:5:1503:U:OP2    | 34:T:43:ARG:NH2   | 2.28                     | 0.66              |
| 7:6:300:ILE:HD12  | 7:6:325:LEU:HD13  | 1.77                     | 0.66              |
| 11:A:59:GLU:O     | 11:A:63:GLN:NE2   | 2.29                     | 0.66              |
| 12:AB:153:ASP:OD2 | 37:Z:75:LYS:CD    | 2.44                     | 0.66              |
| 4:3:2315:G:N1     | 41:d:39:GLY:O     | 2.29                     | 0.65              |
| 9:8:1349:LEU:CA   | 37:Z:368:PHE:CE1  | 2.79                     | 0.65              |
| 4:3:2104:A:H2'    | 4:3:2105:G:C8     | 2.32                     | 0.65              |
| 5:4:29:C:OP1      | 41:d:30:ARG:NH1   | 2.29                     | 0.65              |
| 6:5:673:A:H1'     | 24:J:110:PRO:HB3  | 1.79                     | 0.65              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 6:5:683:G:O2'     | 6:5:700:G:N2       | 2.29                     | 0.65              |
| 7:6:173:ILE:CG2   | 7:AA:324:LYS:HZ2   | 2.06                     | 0.65              |
| 9:8:1306:LEU:CG   | 37:Z:408:VAL:HG11  | 2.25                     | 0.65              |
| 16:B:133:LEU:HB3  | 16:B:137:MET:HE1   | 1.77                     | 0.65              |
| 23:I:12:LEU:HB3   | 23:I:82:LEU:HB2    | 1.77                     | 0.65              |
| 58:v:4:LYS:HG2    | 58:v:11:GLY:HA2    | 1.78                     | 0.65              |
| 4:3:1837:C:H2'    | 4:3:1838:A:H8      | 1.58                     | 0.65              |
| 9:8:1098:SER:HA   | 37:Z:820:ASN:ND2   | 2.12                     | 0.65              |
| 14:AD:10:DG:C4'   | 37:Z:119:PRO:CD    | 2.52                     | 0.65              |
| 49:m:46:ASP:HB2   | 49:m:97:TYR:CD1    | 2.32                     | 0.65              |
| 3:2:31:LYS:NZ     | 4:3:2535:C:O2'     | 2.30                     | 0.65              |
| 4:3:49:C:HO2'     | 4:3:54:A:HO2'      | 1.41                     | 0.65              |
| 4:3:287:G:H22     | 58:v:63:ARG:HH22   | 1.44                     | 0.65              |
| 4:3:1355:C:N3     | 4:3:1681:G:N2      | 2.44                     | 0.65              |
| 4:3:1476:C:H2'    | 4:3:1477:A:H8      | 1.60                     | 0.65              |
| 4:3:2266:C:O2'    | 4:3:2435:C:OP2     | 2.13                     | 0.65              |
| 9:8:772:GLU:C     | 37:Z:862:LEU:H     | 2.02                     | 0.65              |
| 9:8:1307:LEU:O    | 37:Z:406:LYS:HD3   | 1.95                     | 0.65              |
| 39:b:110:VAL:HG21 | 39:b:179:LEU:HD22  | 1.78                     | 0.65              |
| 4:3:620:G:H1      | 47:k:34:ARG:HH21   | 1.44                     | 0.65              |
| 4:3:625:G:H2'     | 4:3:626:A:H8       | 1.62                     | 0.65              |
| 4:3:713:C:H2'     | 4:3:714:G:H8       | 1.61                     | 0.65              |
| 4:3:816:A:OP2     | 38:a:225:ARG:NH2   | 2.30                     | 0.65              |
| 4:3:2070:C:N4     | 4:3:2509:C:O2      | 2.29                     | 0.65              |
| 4:3:2676:G:H2'    | 4:3:2677:A:H8      | 1.61                     | 0.65              |
| 4:3:2828:C:H3'    | 4:3:2829:G:H21     | 1.62                     | 0.65              |
| 4:3:2035:U:O4     | 4:3:2040:A:N7      | 2.29                     | 0.65              |
| 6:5:133:G:H2'     | 6:5:134:G:C8       | 2.32                     | 0.65              |
| 9:8:412:LEU:CD1   | 9:8:471:LEU:CD1    | 2.74                     | 0.65              |
| 9:8:995:PHE:CE1   | 12:AB:38:LEU:CD2   | 2.78                     | 0.65              |
| 12:AB:183:LYS:O   | 12:AB:280:PHE:HA   | 1.96                     | 0.65              |
| 12:AB:291:ASN:ND2 | 16:B:146:LYS:CE    | 2.59                     | 0.65              |
| 31:Q:67:TYR:HE1   | 34:T:5:GLU:HA      | 1.61                     | 0.65              |
| 49:m:117:GLN:HE22 | 49:m:119:THR:HG22  | 1.62                     | 0.65              |
| 4:3:515:A:H1'     | 4:3:517:G:H5'      | 1.78                     | 0.65              |
| 4:3:1414:C:H2'    | 4:3:1415:A:C8      | 2.31                     | 0.65              |
| 4:3:2641:A:O2'    | 39:b:66:GLN:NE2    | 2.29                     | 0.65              |
| 6:5:1225:A:H4'    | 22:H:71:GLY:HA2    | 1.78                     | 0.65              |
| 9:8:956:ARG:O     | 7:AA:296:SER:CB    | 2.44                     | 0.65              |
| 9:8:1307:LEU:HD23 | 37:Z:406:LYS:CB    | 2.27                     | 0.65              |
| 12:AB:289:ILE:C   | 12:AB:300:ASN:HD21 | 2.01                     | 0.65              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 35:U:42:LYS:HE2   | 44:h:114:ALA:CA   | 2.27                     | 0.65              |
| 37:Z:890:TYR:CE1  | 37:Z:894:LYS:CE   | 2.76                     | 0.65              |
| 40:c:158:LEU:HD11 | 40:c:181:LYS:HG3  | 1.78                     | 0.65              |
| 47:k:62:LEU:HD12  | 47:k:63:PRO:HD2   | 1.77                     | 0.65              |
| 6:5:376:G:N2      | 6:5:379:A:OP2     | 2.25                     | 0.65              |
| 9:8:1002:SER:H    | 12:AB:109:LYS:HA  | 1.62                     | 0.65              |
| 9:8:1307:LEU:HD23 | 37:Z:406:LYS:HB2  | 1.79                     | 0.65              |
| 26:L:87:ARG:HG3   | 26:L:97:VAL:HG13  | 1.78                     | 0.65              |
| 32:R:32:LYS:HA    | 32:R:50:ALA:HB3   | 1.79                     | 0.65              |
| 4:3:1081:A:N9     | 35:U:7:LYS:CD     | 2.58                     | 0.65              |
| 4:3:1292:A:H61    | 4:3:2024:C:H42    | 1.44                     | 0.65              |
| 9:8:1345:GLU:CD   | 37:Z:391:ARG:HB3  | 2.21                     | 0.65              |
| 39:b:139:TYR:CG   | 39:b:140:PRO:HD3  | 2.31                     | 0.65              |
| 49:m:70:THR:HG23  | 49:m:72:LEU:H     | 1.62                     | 0.65              |
| 4:3:155:A:H2'     | 4:3:156:A:C8      | 2.32                     | 0.65              |
| 4:3:1067:A:H2     | 4:3:1157:G:H1     | 1.44                     | 0.65              |
| 6:5:1224:C:O2'    | 22:H:72:GLY:O     | 2.14                     | 0.65              |
| 9:8:374:CYS:HB3   | 9:8:459:VAL:CG1   | 2.27                     | 0.65              |
| 9:8:1342:LEU:HB2  | 37:Z:398:LEU:HD23 | 0.65                     | 0.65              |
| 43:f:101:ALA:HA   | 43:f:106:MET:HE2  | 1.79                     | 0.65              |
| 4:3:1729:G:H4'    | 38:a:9:ARG:HG3    | 1.79                     | 0.64              |
| 4:3:2017:G:H5''   | 54:r:42:LYS:HB2   | 1.79                     | 0.64              |
| 4:3:2499:U:H5'    | 4:3:2578:A:H5''   | 1.79                     | 0.64              |
| 6:5:1414:U:OP1    | 33:S:29:LYS:NZ    | 2.29                     | 0.64              |
| 38:a:251:ARG:HH21 | 38:a:254:PRO:HA   | 1.61                     | 0.64              |
| 45:i:73:GLU:HG3   | 45:i:93:ARG:HD2   | 1.79                     | 0.64              |
| 4:3:354:C:O2      | 40:c:174:ASN:ND2  | 2.30                     | 0.64              |
| 9:8:907:ASP:OD2   | 9:8:1099:ARG:NH2  | 2.27                     | 0.64              |
| 9:8:1223:HIS:HB3  | 37:Z:737:PHE:HB2  | 1.79                     | 0.64              |
| 43:f:79:PHE:HB2   | 43:f:142:VAL:HG12 | 1.78                     | 0.64              |
| 55:s:8:LEU:HB3    | 55:s:30:VAL:HG13  | 1.79                     | 0.64              |
| 4:3:1128:G:N2     | 4:3:1134:G:O6     | 2.30                     | 0.64              |
| 4:3:2321:C:O4'    | 41:d:37:ASN:ND2   | 2.31                     | 0.64              |
| 4:3:2592:U:O2'    | 8:7:77:A:N6       | 2.30                     | 0.64              |
| 4:3:2812:U:H1'    | 4:3:2813:A:H2'    | 1.80                     | 0.64              |
| 9:8:649:HIS:NE2   | 37:Z:837:TYR:CZ   | 2.53                     | 0.64              |
| 9:8:999:PHE:HB3   | 12:AB:108:LEU:C   | 2.17                     | 0.64              |
| 41:d:34:ILE:HG13  | 41:d:96:MET:HE3   | 1.78                     | 0.64              |
| 4:3:700:U:H2'     | 4:3:701:A:H8      | 1.61                     | 0.64              |
| 4:3:1807:C:N3     | 4:3:1824:G:N1     | 2.42                     | 0.64              |
| 7:6:174:ASN:C     | 7:AA:324:LYS:HZ3  | 2.00                     | 0.64              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 9:8:1149:LEU:HD11 | 9:8:1181:LEU:HD23  | 1.79                     | 0.64              |
| 9:8:1371:LEU:CG   | 37:Z:94:ILE:CG2    | 2.71                     | 0.64              |
| 12:AB:183:LYS:HB3 | 12:AB:280:PHE:C    | 2.22                     | 0.64              |
| 39:b:48:SER:O     | 39:b:85:ARG:NH1    | 2.29                     | 0.64              |
| 4:3:512:G:N2      | 4:3:515:A:N7       | 2.46                     | 0.64              |
| 4:3:1141:U:H3     | 35:U:79:LYS:CE     | 2.10                     | 0.64              |
| 6:5:1429:G:H2'    | 6:5:1430:G:H8      | 1.63                     | 0.64              |
| 7:6:268:ILE:CD1   | 7:6:286:ILE:HG22   | 2.24                     | 0.64              |
| 9:8:999:PHE:CD2   | 12:AB:108:LEU:CD2  | 2.81                     | 0.64              |
| 10:9:88:MET:HB3   | 37:Z:1212:ILE:HD11 | 1.78                     | 0.64              |
| 50:n:2:LYS:HD2    | 50:n:7:GLN:HB2     | 1.79                     | 0.64              |
| 4:3:1016:A:N6     | 4:3:1171:G:OP2     | 2.31                     | 0.64              |
| 4:3:1086:G:H4'    | 4:3:2760:C:H1'     | 1.80                     | 0.64              |
| 4:3:1511:C:N4     | 4:3:1512:A:N6      | 2.46                     | 0.64              |
| 4:3:1737:G:H2'    | 4:3:1738:G:C8      | 2.33                     | 0.64              |
| 4:3:1920:A:H62    | 6:5:1468:A:H1'     | 1.63                     | 0.64              |
| 4:3:2745:G:H2'    | 4:3:2746:A:C8      | 2.32                     | 0.64              |
| 9:8:444:ILE:CG2   | 9:8:446:PHE:CD1    | 2.80                     | 0.64              |
| 12:AB:215:ASP:C   | 12:AB:217:ARG:HE   | 2.04                     | 0.64              |
| 4:3:2626:A:O2'    | 39:b:158:ARG:NH1   | 2.26                     | 0.64              |
| 6:5:33:A:H61      | 6:5:550:U:H3       | 1.46                     | 0.64              |
| 6:5:213:U:OP1     | 6:5:461:G:N2       | 2.31                     | 0.64              |
| 6:5:316:G:H2'     | 6:5:317:A:C8       | 2.33                     | 0.64              |
| 6:5:736:U:OP1     | 28:N:2:GLN:NE2     | 2.30                     | 0.64              |
| 7:6:276:ARG:HD2   | 12:AB:323:GLU:OE1  | 1.98                     | 0.64              |
| 15:AE:10:TRP:HB3  | 15:AE:133:LEU:HD12 | 1.79                     | 0.64              |
| 55:s:52:PRO:HA    | 55:s:85:LEU:HD13   | 1.77                     | 0.64              |
| 4:3:312:U:H2'     | 4:3:313:G:C8       | 2.32                     | 0.64              |
| 4:3:452:U:H3      | 4:3:2415:A:H61     | 1.46                     | 0.64              |
| 4:3:1081:A:H2     | 35:U:58:ILE:CD1    | 2.11                     | 0.64              |
| 4:3:2697:C:OP2    | 4:3:2699:C:N4      | 2.31                     | 0.64              |
| 6:5:749:G:H1'     | 6:5:751:C:H41      | 1.63                     | 0.64              |
| 6:5:1497:U:H2'    | 6:5:1498:G:H8      | 1.61                     | 0.64              |
| 4:3:1685:G:H4'    | 49:m:36:LYS:HD2    | 1.79                     | 0.64              |
| 6:5:1436:C:H2'    | 6:5:1437:A:C8      | 2.33                     | 0.64              |
| 9:8:1297:TYR:CE2  | 37:Z:501:ARG:O     | 2.51                     | 0.64              |
| 7:AA:82:LEU:HB3   | 37:Z:598:GLY:HA3   | 1.80                     | 0.64              |
| 21:G:19:LEU:HD22  | 21:G:87:VAL:HG11   | 1.79                     | 0.64              |
| 38:a:38:LEU:HD21  | 38:a:65:LYS:HD3    | 1.78                     | 0.64              |
| 43:f:7:GLN:HB2    | 43:f:34:LYS:HG2    | 1.79                     | 0.64              |
| 4:3:1722:U:O2'    | 4:3:1734:A:N7      | 2.30                     | 0.64              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 4:3:2588:U:H2'    | 4:3:2589:G:C4      | 2.33                     | 0.64              |
| 9:8:1297:TYR:HE2  | 37:Z:504:ILE:HB    | 1.63                     | 0.64              |
| 11:A:47:PRO:HB2   | 11:A:49:ARG:HH12   | 1.62                     | 0.64              |
| 22:H:19:VAL:HG12  | 22:H:67:VAL:HG22   | 1.80                     | 0.64              |
| 35:U:40:ILE:HG22  | 35:U:51:ILE:HD11   | 1.79                     | 0.64              |
| 38:a:254:PRO:O    | 38:a:261:ARG:NH1   | 2.31                     | 0.64              |
| 3:2:11:CYS:SG     | 3:2:12:LYS:N       | 2.71                     | 0.63              |
| 4:3:919:C:H2'     | 4:3:920:G:H8       | 1.63                     | 0.63              |
| 4:3:1010:G:OP2    | 53:q:77:LYS:NZ     | 2.31                     | 0.63              |
| 9:8:1102:ILE:HD12 | 37:Z:859:LEU:HA    | 1.80                     | 0.63              |
| 16:B:22:TRP:H     | 27:M:54:PRO:HG3    | 1.63                     | 0.63              |
| 1:0:12:ARG:NH1    | 4:3:500:U:O2'      | 2.31                     | 0.63              |
| 4:3:2145:A:H2'    | 4:3:2146:A:H8      | 1.63                     | 0.63              |
| 6:5:96:G:H5''     | 29:O:21:LYS:HA     | 1.79                     | 0.63              |
| 9:8:269:ASP:OD2   | 9:8:342:ARG:NE     | 2.21                     | 0.63              |
| 9:8:376:ARG:CZ    | 13:AC:20:DG:N7     | 2.61                     | 0.63              |
| 9:8:1298:GLY:HA2  | 37:Z:1266:ILE:HD11 | 1.79                     | 0.63              |
| 12:AB:8:PHE:N     | 12:AB:60:GLY:O     | 2.30                     | 0.63              |
| 37:Z:897:ASP:OD2  | 37:Z:1234:PHE:CD2  | 2.51                     | 0.63              |
| 40:c:144:MET:HE1  | 40:c:147:LEU:HD23  | 1.79                     | 0.63              |
| 45:i:24:ALA:HA    | 45:i:64:GLN:HE21   | 1.63                     | 0.63              |
| 4:3:356:A:OP1     | 40:c:173:SER:OG    | 2.15                     | 0.63              |
| 4:3:892:G:H2'     | 4:3:893:A:H8       | 1.62                     | 0.63              |
| 4:3:1119:A:C8     | 35:U:53:VAL:HG21   | 2.33                     | 0.63              |
| 4:3:1230:U:H2'    | 4:3:1231:G:C8      | 2.33                     | 0.63              |
| 4:3:1491:G:H2'    | 4:3:1492:G:C8      | 2.34                     | 0.63              |
| 4:3:1734:A:H3'    | 4:3:1735:A:H8      | 1.64                     | 0.63              |
| 9:8:341:GLU:OE1   | 9:8:368:SER:OG     | 2.15                     | 0.63              |
| 9:8:356:ARG:HH11  | 15:AE:113:ASN:HB2  | 0.71                     | 0.63              |
| 9:8:1371:LEU:N    | 37:Z:94:ILE:HG23   | 2.13                     | 0.63              |
| 10:9:53:TYR:CE1   | 10:9:57:LEU:HD12   | 2.33                     | 0.63              |
| 37:Z:742:TYR:HE1  | 37:Z:745:LYS:HB3   | 1.64                     | 0.63              |
| 2:1:10:ARG:NH1    | 47:k:59:TYR:O      | 2.31                     | 0.63              |
| 2:1:10:ARG:NH1    | 47:k:62:LEU:O      | 2.32                     | 0.63              |
| 4:3:1872:U:N3     | 4:3:1882:G:N1      | 2.46                     | 0.63              |
| 4:3:2691:C:H41    | 4:3:2735:G:H21     | 1.47                     | 0.63              |
| 4:3:2789:A:H5''   | 4:3:2790:A:H5'     | 1.79                     | 0.63              |
| 9:8:1295:GLU:OE1  | 37:Z:1260:VAL:HG21 | 1.99                     | 0.63              |
| 9:8:1307:LEU:HB3  | 37:Z:406:LYS:CE    | 2.28                     | 0.63              |
| 18:D:68:GLU:H     | 18:D:94:VAL:HG23   | 1.64                     | 0.63              |
| 4:3:552:C:OP1     | 61:y:13:ARG:NH1    | 2.31                     | 0.63              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 4:3:1028:C:OP1    | 52:p:46:TYR:OH    | 2.12                     | 0.63              |
| 4:3:1119:A:C8     | 35:U:53:VAL:CG2   | 2.81                     | 0.63              |
| 5:4:37:A:O2'      | 5:4:44:A:N1       | 2.32                     | 0.63              |
| 6:5:1110:C:H2'    | 6:5:1111:G:H8     | 1.62                     | 0.63              |
| 37:Z:687:VAL:HG11 | 37:Z:802:ARG:NH2  | 2.08                     | 0.63              |
| 37:Z:906:HIS:HB2  | 37:Z:987:ARG:HE   | 1.63                     | 0.63              |
| 4:3:1020:G:H5''   | 4:3:1021:C:H5     | 1.64                     | 0.63              |
| 4:3:1119:A:O4'    | 35:U:53:VAL:HB    | 1.98                     | 0.63              |
| 4:3:2081:U:O2'    | 4:3:2605:G:O2'    | 2.16                     | 0.63              |
| 5:4:58:C:H2'      | 5:4:59:A:H8       | 1.63                     | 0.63              |
| 6:5:1213:A:N6     | 6:5:1275:U:C2     | 2.67                     | 0.63              |
| 9:8:168:GLN:O     | 13:AC:25:DC:C1'   | 2.47                     | 0.63              |
| 45:i:106:ASN:HA   | 45:i:109:LYS:HG2  | 1.81                     | 0.63              |
| 57:u:35:LEU:HD11  | 57:u:55:ARG:HH11  | 1.64                     | 0.63              |
| 4:3:1418:U:H3     | 4:3:1423:A:N6     | 1.97                     | 0.63              |
| 4:3:1702:A:H62    | 4:3:1998:U:H3     | 1.45                     | 0.63              |
| 6:5:265:U:H2'     | 6:5:266:A:H8      | 1.63                     | 0.63              |
| 6:5:311:A:O2'     | 6:5:326:C:O2'     | 2.15                     | 0.63              |
| 6:5:709:A:H2'     | 6:5:710:G:C8      | 2.34                     | 0.63              |
| 7:6:269:GLU:HG3   | 7:6:278:PHE:CE2   | 2.33                     | 0.63              |
| 9:8:363:GLU:HG2   | 9:8:379:ARG:NH1   | 2.13                     | 0.63              |
| 9:8:988:VAL:HG12  | 9:8:992:GLU:OE2   | 1.99                     | 0.63              |
| 9:8:1223:HIS:C    | 37:Z:737:PHE:CD2  | 2.77                     | 0.63              |
| 11:A:170:LYS:HE3  | 12:AB:360:LYS:HD2 | 1.80                     | 0.63              |
| 12:AB:156:THR:CG2 | 37:Z:77:LYS:CB    | 2.73                     | 0.63              |
| 12:AB:183:LYS:CD  | 12:AB:280:PHE:O   | 2.43                     | 0.63              |
| 40:c:71:THR:HG22  | 40:c:73:LYS:H     | 1.64                     | 0.63              |
| 51:o:4:ILE:O      | 51:o:6:LYS:NZ     | 2.32                     | 0.63              |
| 4:3:85:U:H4'      | 56:t:2:GLN:HE22   | 1.63                     | 0.63              |
| 4:3:86:A:OP2      | 4:3:103:G:N2      | 2.31                     | 0.63              |
| 6:5:87:G:H2'      | 6:5:88:A:H8       | 1.63                     | 0.63              |
| 9:8:999:PHE:CZ    | 12:AB:42:TYR:CE2  | 2.86                     | 0.63              |
| 28:N:35:GLN:O     | 28:N:39:HIS:ND1   | 2.32                     | 0.63              |
| 4:3:1166:G:O2'    | 4:3:2032:G:O2'    | 2.15                     | 0.63              |
| 4:3:1446:G:N1     | 4:3:1612:U:OP2    | 2.32                     | 0.63              |
| 4:3:1511:C:N4     | 4:3:1512:A:H62    | 1.96                     | 0.63              |
| 4:3:1748:U:N3     | 4:3:1751:A:N7     | 2.47                     | 0.63              |
| 6:5:732:A:OP1     | 31:Q:91:LYS:NZ    | 2.31                     | 0.63              |
| 9:8:1200:PHE:HE2  | 37:Z:864:ILE:HD13 | 1.62                     | 0.63              |
| 14:AD:12:DC:H5''  | 37:Z:1235:GLN:CB  | 2.29                     | 0.63              |
| 16:B:57:GLU:O     | 16:B:67:VAL:HA    | 1.99                     | 0.63              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 20:F:76:VAL:HG12  | 20:F:85:GLN:HE22   | 1.64                     | 0.63              |
| 22:H:22:THR:O     | 22:H:64:ASP:HB3    | 1.97                     | 0.63              |
| 6:5:403:A:H2'     | 6:5:404:A:C8       | 2.34                     | 0.62              |
| 6:5:500:G:H5''    | 25:K:126:GLN:HA    | 1.81                     | 0.62              |
| 6:5:940:G:N2      | 6:5:1308:G:O2'     | 2.32                     | 0.62              |
| 9:8:205:GLU:O     | 9:8:252:ARG:CZ     | 2.47                     | 0.62              |
| 9:8:614:ASP:H     | 9:8:624:ASN:HD22   | 1.47                     | 0.62              |
| 38:a:113:ASP:HB3  | 38:a:202:VAL:HG23  | 1.81                     | 0.62              |
| 38:a:138:LEU:HD23 | 38:a:141:ILE:HD12  | 1.81                     | 0.62              |
| 4:3:1204:A:N6     | 4:3:1212:C:N3      | 2.46                     | 0.62              |
| 4:3:1323:A:H2'    | 4:3:1324:A:C8      | 2.34                     | 0.62              |
| 4:3:2299:U:H1'    | 4:3:2382:A:H1'     | 1.80                     | 0.62              |
| 6:5:416:U:C2      | 6:5:421:G:C2       | 2.87                     | 0.62              |
| 6:5:518:A:N6      | 6:5:527:G:H21      | 1.93                     | 0.62              |
| 6:5:1261:A:H2'    | 6:5:1262:A:C8      | 2.33                     | 0.62              |
| 9:8:307:LEU:HD12  | 9:8:334:LEU:HD13   | 1.79                     | 0.62              |
| 9:8:649:HIS:CD2   | 37:Z:837:TYR:HE1   | 2.07                     | 0.62              |
| 9:8:1349:LEU:HA   | 37:Z:368:PHE:CG    | 2.30                     | 0.62              |
| 17:C:57:LYS:O     | 17:C:60:MET:HG3    | 1.98                     | 0.62              |
| 25:K:115:LEU:HB3  | 25:K:117:THR:HG22  | 1.81                     | 0.62              |
| 4:3:631:A:H2'     | 4:3:632:A:C8       | 2.33                     | 0.62              |
| 26:L:15:ILE:HG21  | 26:L:39:ILE:HG21   | 1.81                     | 0.62              |
| 4:3:782:U:H3      | 4:3:2021:A:H1'     | 1.64                     | 0.62              |
| 4:3:1367:G:H5''   | 55:s:15:LYS:HD2    | 1.80                     | 0.62              |
| 4:3:2859:U:H2'    | 4:3:2860:A:H8      | 1.64                     | 0.62              |
| 6:5:1302:C:H5''   | 26:L:28:SER:HB3    | 1.82                     | 0.62              |
| 6:5:1448:A:H2'    | 6:5:1449:G:C8      | 2.34                     | 0.62              |
| 9:8:1347:GLN:CB   | 37:Z:100:MET:HE1   | 2.28                     | 0.62              |
| 11:A:146:LYS:O    | 11:A:150:LEU:HB2   | 1.99                     | 0.62              |
| 4:3:614:C:OP1     | 52:p:30:SER:OG     | 2.17                     | 0.62              |
| 4:3:2436:G:H5''   | 4:3:2437:G:H5'     | 1.80                     | 0.62              |
| 4:3:2590:G:N2     | 4:3:2591:G:H22     | 1.96                     | 0.62              |
| 6:5:320:G:N1      | 6:5:323:A:OP2      | 2.29                     | 0.62              |
| 9:8:100:LEU:HD13  | 9:8:591:ILE:CD1    | 2.30                     | 0.62              |
| 9:8:1269:LYS:HD2  | 37:Z:313:ILE:HG21  | 1.77                     | 0.62              |
| 9:8:1306:LEU:HA   | 37:Z:408:VAL:CG1   | 2.27                     | 0.62              |
| 7:AA:283:ARG:NH1  | 12:AB:79:ASP:OD1   | 2.32                     | 0.62              |
| 18:D:192:ILE:O    | 18:D:195:THR:OG1   | 2.15                     | 0.62              |
| 37:Z:19:LYS:HE3   | 37:Z:1248:THR:HG22 | 1.81                     | 0.62              |
| 4:3:1034:A:H5''   | 52:p:83:LYS:HZ3    | 1.64                     | 0.62              |
| 4:3:1043:C:H4'    | 45:i:113:PRO:HD3   | 1.82                     | 0.62              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 4:3:1712:A:O2'    | 4:3:1997:C:O2'     | 2.16                     | 0.62              |
| 4:3:2321:C:H2'    | 4:3:2322:G:C8      | 2.34                     | 0.62              |
| 4:3:2757:A:H1'    | 42:e:66:ILE:HG12   | 1.82                     | 0.62              |
| 5:4:79:U:H2'      | 5:4:80:G:C4        | 2.34                     | 0.62              |
| 6:5:1213:A:N6     | 6:5:1275:U:H3      | 1.96                     | 0.62              |
| 9:8:1100:MET:HB3  | 37:Z:858:PHE:CD2   | 2.34                     | 0.62              |
| 9:8:1285:ARG:HB2  | 14:AD:17:DT:P      | 2.37                     | 0.62              |
| 16:B:153:LYS:NZ   | 16:B:154:VAL:O     | 2.32                     | 0.62              |
| 33:S:66:ARG:HA    | 33:S:69:LYS:HE2    | 1.81                     | 0.62              |
| 4:3:389:C:H2'     | 4:3:390:A:C8       | 2.35                     | 0.62              |
| 5:4:12:U:H2'      | 5:4:13:G:H21       | 1.64                     | 0.62              |
| 5:4:40:U:O2       | 41:d:63:GLN:NE2    | 2.33                     | 0.62              |
| 6:5:831:C:H2'     | 6:5:832:G:C8       | 2.35                     | 0.62              |
| 9:8:227:THR:HG21  | 9:8:254:LEU:HG     | 1.82                     | 0.62              |
| 9:8:342:ARG:HH11  | 9:8:345:LYS:HD3    | 1.63                     | 0.62              |
| 12:AB:220:GLU:HB2 | 12:AB:240:MET:HE1  | 1.81                     | 0.62              |
| 20:F:147:ASN:HB2  | 20:F:150:PHE:HD2   | 1.62                     | 0.62              |
| 41:d:106:VAL:HG11 | 41:d:139:PRO:HD3   | 1.81                     | 0.62              |
| 4:3:201:A:N6      | 4:3:2438:A:O2'     | 2.33                     | 0.62              |
| 4:3:603:G:H1'     | 4:3:1019:A:N1      | 2.14                     | 0.62              |
| 4:3:1306:G:H2'    | 4:3:1307:G:H8      | 1.64                     | 0.62              |
| 4:3:1700:G:O2'    | 46:j:5:MET:O       | 2.16                     | 0.62              |
| 4:3:1999:G:H22    | 4:3:2003:C:H1'     | 1.64                     | 0.62              |
| 4:3:2307:G:H1     | 4:3:2325:U:H3      | 1.45                     | 0.62              |
| 9:8:952:ASP:HB3   | 7:AA:295:LYS:HD3   | 1.82                     | 0.62              |
| 9:8:1336:PRO:CG   | 37:Z:406:LYS:NZ    | 2.63                     | 0.62              |
| 15:AE:149:SER:HB2 | 15:AE:156:VAL:HG23 | 1.82                     | 0.62              |
| 23:I:9:TYR:HB3    | 23:I:85:VAL:HB     | 1.82                     | 0.62              |
| 39:b:10:LYS:HD3   | 39:b:197:ILE:HB    | 1.80                     | 0.62              |
| 53:q:39:LEU:HA    | 53:q:50:LEU:HG     | 1.81                     | 0.62              |
| 56:t:90:LYS:NZ    | 56:t:104:PHE:O     | 2.33                     | 0.62              |
| 4:3:611:A:H2'     | 4:3:2025:C:H5''    | 1.81                     | 0.62              |
| 4:3:1287:C:OP1    | 40:c:73:LYS:NZ     | 2.31                     | 0.62              |
| 4:3:2528:C:H2'    | 4:3:2529:C:C6      | 2.34                     | 0.62              |
| 6:5:670:G:H2'     | 6:5:671:G:C8       | 2.34                     | 0.62              |
| 6:5:1288:C:H2'    | 6:5:1289:U:H6      | 1.64                     | 0.62              |
| 6:5:1330:A:H2'    | 6:5:1331:A:H8      | 1.64                     | 0.62              |
| 9:8:1273:GLN:HE22 | 37:Z:402:ASN:ND2   | 1.94                     | 0.62              |
| 32:R:19:VAL:HG21  | 32:R:44:PHE:HE1    | 1.64                     | 0.62              |
| 33:S:48:TYR:CE1   | 33:S:69:LYS:HD2    | 2.35                     | 0.62              |
| 40:c:54:THR:H     | 40:c:57:GLU:HB2    | 1.63                     | 0.62              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 4:3:163:A:N7      | 4:3:169:U:O4      | 2.32                     | 0.62              |
| 4:3:2090:G:N2     | 4:3:2244:U:O2     | 2.31                     | 0.62              |
| 6:5:474:G:H2'     | 6:5:475:U:C6      | 2.35                     | 0.62              |
| 6:5:1507:U:OP2    | 6:5:1509:A:N6     | 2.33                     | 0.62              |
| 7:6:113:THR:HG22  | 7:6:154:ASN:OD1   | 1.99                     | 0.62              |
| 9:8:90:LYS:NZ     | 9:8:1034:GLU:HB3  | 2.15                     | 0.62              |
| 12:AB:290:TRP:HE1 | 12:AB:293:ASP:CG  | 2.02                     | 0.62              |
| 4:3:2031:C:H2'    | 4:3:2032:G:H8     | 1.65                     | 0.61              |
| 4:3:2644:U:HO2'   | 39:b:47:TYR:HH    | 1.48                     | 0.61              |
| 4:3:2735:G:H2'    | 4:3:2736:U:C6     | 2.35                     | 0.61              |
| 5:4:4:G:O6        | 5:4:105:A:N6      | 2.33                     | 0.61              |
| 6:5:655:G:O6      | 6:5:744:U:O2      | 2.18                     | 0.61              |
| 9:8:998:ILE:C     | 12:AB:108:LEU:HB3 | 2.25                     | 0.61              |
| 9:8:1349:LEU:C    | 37:Z:368:PHE:CE1  | 2.78                     | 0.61              |
| 12:AB:239:LYS:NZ  | 12:AB:294:LYS:CD  | 2.63                     | 0.61              |
| 15:AE:31:LYS:HA   | 15:AE:36:ASP:OD1  | 2.00                     | 0.61              |
| 17:C:78:VAL:HG11  | 17:C:89:LEU:HB3   | 1.82                     | 0.61              |
| 4:3:686:C:H2'     | 4:3:687:G:H8      | 1.65                     | 0.61              |
| 4:3:2195:U:H2'    | 4:3:2196:G:H8     | 1.64                     | 0.61              |
| 6:5:305:A:O2'     | 6:5:605:A:N1      | 2.32                     | 0.61              |
| 6:5:831:C:H2'     | 6:5:832:G:H8      | 1.65                     | 0.61              |
| 9:8:647:ASP:HB3   | 37:Z:835:PHE:CE2  | 2.35                     | 0.61              |
| 9:8:1310:LYS:CA   | 37:Z:409:ASP:HB2  | 2.29                     | 0.61              |
| 9:8:1344:LYS:HG3  | 37:Z:309:ILE:HD11 | 1.66                     | 0.61              |
| 9:8:1371:LEU:N    | 37:Z:94:ILE:CG2   | 2.63                     | 0.61              |
| 11:A:201:LEU:HD12 | 11:A:217:ALA:HB3  | 1.83                     | 0.61              |
| 49:m:60:ARG:HA    | 49:m:63:VAL:HG22  | 1.82                     | 0.61              |
| 52:p:9:THR:O      | 52:p:13:ARG:HG3   | 2.01                     | 0.61              |
| 4:3:31:U:O2'      | 52:p:7:LYS:NZ     | 2.32                     | 0.61              |
| 4:3:1382:A:H62    | 4:3:1405:G:N2     | 1.94                     | 0.61              |
| 4:3:1462:A:O2'    | 4:3:1463:G:O5'    | 2.18                     | 0.61              |
| 4:3:1794:A:OP1    | 38:a:246:ARG:NH2  | 2.33                     | 0.61              |
| 4:3:896:U:H2'     | 4:3:897:A:H8      | 1.64                     | 0.61              |
| 4:3:1476:C:H2'    | 4:3:1477:A:C8     | 2.35                     | 0.61              |
| 4:3:2144:C:H2'    | 4:3:2145:A:H8     | 1.65                     | 0.61              |
| 4:3:2645:U:O4     | 4:3:2784:A:N7     | 2.33                     | 0.61              |
| 6:5:397:C:O3'     | 17:C:73:ARG:NH2   | 2.33                     | 0.61              |
| 9:8:661:THR:O     | 9:8:780:LEU:HD11  | 1.99                     | 0.61              |
| 9:8:952:ASP:HB2   | 7:AA:295:LYS:HD3  | 1.81                     | 0.61              |
| 9:8:998:ILE:CG1   | 12:AB:62:MET:HE1  | 2.30                     | 0.61              |
| 9:8:1095:GLY:O    | 9:8:1099:ARG:HD2  | 2.00                     | 0.61              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 9:8:1345:GLU:O    | 37:Z:388:LEU:HD22 | 2.01                     | 0.61              |
| 15:AE:93:LEU:O    | 37:Z:338:ARG:NH2  | 2.33                     | 0.61              |
| 45:i:47:PHE:HB3   | 52:p:63:ARG:HD3   | 1.83                     | 0.61              |
| 4:3:638:A:C6      | 4:3:661:G:C6      | 2.88                     | 0.61              |
| 4:3:2469:A:N1     | 4:3:2498:G:N2     | 2.48                     | 0.61              |
| 5:4:31:G:O6       | 5:4:48:A:N6       | 2.34                     | 0.61              |
| 7:6:269:GLU:HG3   | 7:6:278:PHE:HE2   | 1.63                     | 0.61              |
| 9:8:952:ASP:HB2   | 7:AA:295:LYS:CE   | 2.27                     | 0.61              |
| 7:AA:293:LEU:HD11 | 7:AA:323:LEU:HD13 | 1.81                     | 0.61              |
| 16:B:153:LYS:HB3  | 16:B:204:TRP:HB2  | 1.82                     | 0.61              |
| 4:3:205:C:OP1     | 58:v:18:ARG:NH2   | 2.30                     | 0.61              |
| 4:3:485:A:H1'     | 52:p:2:ARG:NH1    | 2.15                     | 0.61              |
| 4:3:742:G:O6      | 4:3:759:U:O4      | 2.19                     | 0.61              |
| 6:5:185:G:O2'     | 30:P:67:ARG:NH2   | 2.33                     | 0.61              |
| 6:5:319:U:H3      | 6:5:323:A:N6      | 1.89                     | 0.61              |
| 6:5:394:U:H2'     | 6:5:395:G:H8      | 1.65                     | 0.61              |
| 6:5:838:A:OP2     | 19:E:105:GLN:NE2  | 2.33                     | 0.61              |
| 6:5:870:A:O3'     | 21:G:89:GLN:NE2   | 2.34                     | 0.61              |
| 9:8:1307:LEU:C    | 37:Z:406:LYS:HD2  | 2.26                     | 0.61              |
| 9:8:1349:LEU:CD2  | 37:Z:368:PHE:CB   | 2.70                     | 0.61              |
| 9:8:1351:LEU:HD11 | 37:Z:113:TRP:CE3  | 2.34                     | 0.61              |
| 11:A:32:MET:SD    | 11:A:203:ASN:ND2  | 2.71                     | 0.61              |
| 49:m:34:THR:HB    | 49:m:37:LYS:HG3   | 1.82                     | 0.61              |
| 52:p:108:ILE:HA   | 52:p:111:LYS:HE2  | 1.82                     | 0.61              |
| 56:t:44:ARG:HG3   | 56:t:63:VAL:HB    | 1.83                     | 0.61              |
| 4:3:729:U:H3      | 4:3:803:G:H1      | 1.46                     | 0.61              |
| 4:3:1012:G:H2'    | 4:3:1013:G:H8     | 1.65                     | 0.61              |
| 9:8:796:TYR:HA    | 9:8:883:ASN:HD22  | 1.66                     | 0.61              |
| 9:8:1349:LEU:HG   | 37:Z:388:LEU:HB3  | 1.82                     | 0.61              |
| 7:AA:304:ARG:O    | 12:AB:81:PHE:CZ   | 2.54                     | 0.61              |
| 15:AE:137:ASP:CG  | 37:Z:349:PRO:CG   | 2.69                     | 0.61              |
| 16:B:90:LYS:HD3   | 16:B:93:LYS:HZ1   | 1.66                     | 0.61              |
| 25:K:120:VAL:HG23 | 25:K:132:ALA:HB2  | 1.82                     | 0.61              |
| 48:l:54:ILE:O     | 48:l:58:LEU:HB2   | 2.01                     | 0.61              |
| 54:r:115:GLN:HA   | 54:r:118:ILE:HD12 | 1.81                     | 0.61              |
| 4:3:869:U:H2'     | 4:3:870:A:C8      | 2.35                     | 0.61              |
| 4:3:2057:C:H2'    | 4:3:2058:G:C4     | 2.36                     | 0.61              |
| 6:5:1115:G:N2     | 6:5:1116:U:O4     | 2.33                     | 0.61              |
| 9:8:30:GLN:HG3    | 9:8:676:PHE:CE1   | 2.36                     | 0.61              |
| 16:B:38:GLU:HA    | 16:B:41:ARG:HG3   | 1.83                     | 0.61              |
| 23:I:27:THR:HG21  | 23:I:102:VAL:HG21 | 1.81                     | 0.61              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 4:3:26:G:N2       | 54:r:78:GLN:OE1   | 2.34                     | 0.61              |
| 4:3:1702:A:N7     | 4:3:1998:U:O4     | 2.34                     | 0.61              |
| 4:3:2093:U:H2'    | 4:3:2094:A:C8     | 2.36                     | 0.61              |
| 4:3:2855:A:N3     | 49:m:58:ASN:ND2   | 2.47                     | 0.61              |
| 5:4:12:U:OP2      | 5:4:68:C:O2'      | 2.19                     | 0.61              |
| 9:8:1310:LYS:CG   | 37:Z:409:ASP:HB2  | 2.30                     | 0.61              |
| 11:A:96:VAL:HA    | 11:A:229:MET:HE1  | 1.81                     | 0.61              |
| 12:AB:182:SER:HB3 | 12:AB:280:PHE:CD1 | 2.36                     | 0.61              |
| 25:K:50:VAL:HG21  | 25:K:87:LEU:HD13  | 1.82                     | 0.61              |
| 5:4:16:G:O6       | 5:4:63:U:O2       | 2.18                     | 0.61              |
| 6:5:893:C:H3'     | 6:5:894:A:C8      | 2.36                     | 0.61              |
| 9:8:288:ARG:HB3   | 9:8:298:ARG:HH22  | 1.66                     | 0.61              |
| 9:8:1356:ILE:O    | 37:Z:15:ILE:HG23  | 2.01                     | 0.61              |
| 37:Z:1069:GLU:OE2 | 37:Z:1095:ARG:NH1 | 2.26                     | 0.61              |
| 48:l:34:LEU:HD11  | 48:l:129:TRP:HB2  | 1.83                     | 0.61              |
| 4:3:869:U:O4      | 4:3:980:C:N4      | 2.34                     | 0.60              |
| 6:5:70:A:H2'      | 6:5:71:A:C8       | 2.36                     | 0.60              |
| 6:5:358:G:OP1     | 25:K:44:ARG:NH1   | 2.34                     | 0.60              |
| 6:5:576:A:O2'     | 6:5:725:A:N3      | 2.33                     | 0.60              |
| 6:5:1241:G:N1     | 6:5:1245:A:N6     | 2.49                     | 0.60              |
| 15:AE:108:TRP:HZ3 | 15:AE:130:PRO:HB3 | 1.64                     | 0.60              |
| 4:3:204:U:O4      | 4:3:254:G:N2      | 2.26                     | 0.60              |
| 4:3:2385:A:H1'    | 50:n:110:ARG:HH22 | 1.65                     | 0.60              |
| 6:5:94:A:N7       | 6:5:320:G:N2      | 2.47                     | 0.60              |
| 6:5:1166:A:OP2    | 16:B:3:GLN:NE2    | 2.35                     | 0.60              |
| 10:9:73:ARG:NH1   | 37:Z:1132:VAL:O   | 2.28                     | 0.60              |
| 46:j:98:ILE:HG12  | 46:j:114:ILE:HG23 | 1.82                     | 0.60              |
| 48:l:39:GLY:N     | 48:l:99:GLN:OE1   | 2.35                     | 0.60              |
| 4:3:2274:A:N6     | 4:3:2281:A:OP2    | 2.34                     | 0.60              |
| 6:5:659:U:H3      | 6:5:740:G:H1      | 1.48                     | 0.60              |
| 9:8:1102:ILE:HD11 | 37:Z:859:LEU:HA   | 1.82                     | 0.60              |
| 9:8:1212:MET:SD   | 37:Z:737:PHE:HZ   | 2.23                     | 0.60              |
| 9:8:1366:ASN:ND2  | 37:Z:100:MET:CB   | 2.58                     | 0.60              |
| 50:n:34:LYS:HD3   | 50:n:102:ILE:HD11 | 1.83                     | 0.60              |
| 2:1:9:LYS:NZ      | 4:3:253:C:O2      | 2.32                     | 0.60              |
| 4:3:672:G:H4'     | 4:3:674:G:H4'     | 1.84                     | 0.60              |
| 4:3:1141:U:C1'    | 35:U:79:LYS:HG2   | 2.27                     | 0.60              |
| 6:5:565:G:N7      | 25:K:12:ARG:NH1   | 2.45                     | 0.60              |
| 6:5:1112:U:O2     | 6:5:1128:G:N2     | 2.28                     | 0.60              |
| 9:8:634:GLY:CA    | 13:AC:24:DT:H72   | 2.27                     | 0.60              |
| 9:8:863:LEU:CD1   | 9:8:878:ASP:OD2   | 2.49                     | 0.60              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 11:A:121:LYS:HE3   | 12:AB:329:ASN:HB2 | 1.83                     | 0.60              |
| 13:AC:16:DG:C5'    | 15:AE:16:SER:HB2  | 2.31                     | 0.60              |
| 15:AE:65:SER:OG    | 15:AE:67:LYS:HG3  | 2.01                     | 0.60              |
| 21:G:97:ILE:HG23   | 21:G:99:ARG:HH22  | 1.66                     | 0.60              |
| 25:K:27:ASN:OD1    | 25:K:36:THR:OG1   | 2.20                     | 0.60              |
| 56:t:31:ARG:HG3    | 56:t:33:GLN:HG2   | 1.83                     | 0.60              |
| 4:3:1619:A:H2'     | 4:3:1620:A:C8     | 2.36                     | 0.60              |
| 4:3:2822:C:H2'     | 4:3:2823:A:C8     | 2.36                     | 0.60              |
| 4:3:2829:G:N2      | 4:3:2829:G:OP2    | 2.31                     | 0.60              |
| 6:5:1003:G:O6      | 6:5:1018:U:C4     | 2.54                     | 0.60              |
| 6:5:1200:G:H2'     | 26:L:103:ARG:HH22 | 1.64                     | 0.60              |
| 6:5:1241:G:N1      | 6:5:1245:A:C6     | 2.69                     | 0.60              |
| 9:8:956:ARG:C      | 7:AA:296:SER:CB   | 2.74                     | 0.60              |
| 12:AB:291:ASN:HD22 | 16:B:146:LYS:NZ   | 1.88                     | 0.60              |
| 17:C:99:ASN:HA     | 17:C:110:ARG:HG2  | 1.81                     | 0.60              |
| 17:C:139:GLY:N     | 17:C:178:TYR:O    | 2.34                     | 0.60              |
| 25:K:60:SER:O      | 25:K:63:ARG:NH1   | 2.35                     | 0.60              |
| 37:Z:880:ASP:OD2   | 37:Z:1030:ARG:HD2 | 2.00                     | 0.60              |
| 39:b:117:ARG:HD2   | 39:b:169:TYR:HD2  | 1.65                     | 0.60              |
| 61:y:27:LEU:HD12   | 61:y:28:SER:H     | 1.67                     | 0.60              |
| 4:3:2032:G:H2'     | 4:3:2033:G:H8     | 1.67                     | 0.60              |
| 4:3:2754:U:O2      | 4:3:2766:A:N6     | 2.33                     | 0.60              |
| 6:5:983:G:H21      | 6:5:1012:A:H8     | 1.49                     | 0.60              |
| 9:8:65:ARG:HB3     | 9:8:562:ASP:OD1   | 2.01                     | 0.60              |
| 9:8:271:GLU:OE2    | 9:8:342:ARG:NH1   | 2.34                     | 0.60              |
| 12:AB:291:ASN:HD21 | 16:B:146:LYS:CE   | 2.14                     | 0.60              |
| 22:H:12:ARG:O      | 22:H:15:SER:HB2   | 2.02                     | 0.60              |
| 36:X:6:ILE:HD11    | 36:Y:23:ALA:CB    | 2.27                     | 0.60              |
| 39:b:180:ARG:NH1   | 39:b:218:LYS:O    | 2.31                     | 0.60              |
| 48:l:75:THR:HG22   | 48:l:90:PRO:HG3   | 1.84                     | 0.60              |
| 4:3:33:C:O2'       | 4:3:1268:U:OP1    | 2.17                     | 0.60              |
| 4:3:2133:A:N6      | 4:3:2180:U:OP2    | 2.35                     | 0.60              |
| 6:5:1115:G:H4'     | 23:I:43:LYS:HD2   | 1.82                     | 0.60              |
| 7:6:107:GLU:CD     | 7:AA:319:HIS:HB2  | 2.25                     | 0.60              |
| 9:8:997:ALA:HB1    | 12:AB:8:PHE:HD1   | 1.66                     | 0.60              |
| 38:a:125:GLU:OE1   | 43:f:89:TYR:OH    | 2.19                     | 0.60              |
| 41:d:104:ILE:HG22  | 41:d:108:LEU:HD12 | 1.83                     | 0.60              |
| 45:i:98:LYS:HA     | 45:i:98:LYS:HE3   | 1.84                     | 0.60              |
| 4:3:764:G:N2       | 38:a:12:SER:O     | 2.34                     | 0.60              |
| 4:3:1081:A:N6      | 35:U:4:LYS:O      | 2.35                     | 0.60              |
| 4:3:1764:U:C2      | 4:3:1769:A:C6     | 2.89                     | 0.60              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 4:3:2720:C:OP1     | 4:3:2722:G:O2'    | 2.18                     | 0.60              |
| 9:8:264:PHE:CZ     | 9:8:342:ARG:HG2   | 2.34                     | 0.60              |
| 4:3:2292:A:O2'     | 4:3:2296:A:N1     | 2.32                     | 0.60              |
| 5:4:11:A:OP2       | 57:u:90:GLN:NE2   | 2.34                     | 0.60              |
| 7:6:107:GLU:OE2    | 7:AA:319:HIS:CB   | 2.49                     | 0.60              |
| 9:8:131:THR:HG21   | 9:8:600:ILE:CD1   | 2.32                     | 0.60              |
| 9:8:1135:LEU:HD23  | 9:8:1146:LEU:HD22 | 1.83                     | 0.60              |
| 9:8:1325:VAL:HG13  | 37:Z:464:ILE:CG2  | 2.14                     | 0.60              |
| 38:a:213:ILE:HG23  | 38:a:222:ARG:HH22 | 1.67                     | 0.60              |
| 4:3:142:A:O2'      | 4:3:1436:C:O2'    | 2.18                     | 0.60              |
| 4:3:1208:A:H2'     | 4:3:1209:U:H4'    | 1.83                     | 0.60              |
| 6:5:65:G:H5''      | 6:5:378:A:H61     | 1.67                     | 0.60              |
| 6:5:68:C:H2'       | 6:5:69:G:C8       | 2.36                     | 0.60              |
| 6:5:195:U:H2'      | 6:5:196:G:C8      | 2.37                     | 0.60              |
| 6:5:689:U:O4       | 24:J:21:ASN:ND2   | 2.32                     | 0.60              |
| 8:7:53:A:H4'       | 48:l:6:ARG:HH12   | 1.67                     | 0.60              |
| 14:AD:11:DT:C4'    | 37:Z:1236:ASP:OD1 | 2.50                     | 0.60              |
| 15:AE:94:GLY:C     | 37:Z:338:ARG:NH2  | 2.60                     | 0.60              |
| 4:3:95:G:H2'       | 4:3:96:A:C8       | 2.37                     | 0.59              |
| 4:3:559:C:O2'      | 4:3:589:A:OP1     | 2.19                     | 0.59              |
| 4:3:918:G:N2       | 4:3:932:U:O2'     | 2.27                     | 0.59              |
| 4:3:1093:U:H3      | 4:3:1115:G:H1     | 1.50                     | 0.59              |
| 4:3:1261:U:H2'     | 4:3:1262:G:C8     | 2.37                     | 0.59              |
| 4:3:2092:U:H3      | 4:3:2242:G:H1     | 1.50                     | 0.59              |
| 4:3:2376:C:H2'     | 4:3:2377:A:H8     | 1.67                     | 0.59              |
| 4:3:2603:G:N2      | 4:3:2606:A:OP2    | 2.35                     | 0.59              |
| 6:5:215:C:N4       | 6:5:216:G:O6      | 2.35                     | 0.59              |
| 37:Z:884:LYS:HZ3   | 37:Z:1028:THR:HA  | 1.66                     | 0.59              |
| 38:a:190:ARG:NH1   | 38:a:191:LYS:O    | 2.35                     | 0.59              |
| 45:i:117:LEU:O     | 45:i:121:TRP:N    | 2.34                     | 0.59              |
| 9:8:175:ARG:CZ     | 13:AC:26:DT:C6    | 2.83                     | 0.59              |
| 9:8:1223:HIS:O     | 37:Z:737:PHE:HD2  | 1.84                     | 0.59              |
| 9:8:1297:TYR:CZ    | 37:Z:501:ARG:O    | 2.56                     | 0.59              |
| 9:8:1310:LYS:HD3   | 37:Z:409:ASP:C    | 2.20                     | 0.59              |
| 9:8:1347:GLN:CD    | 37:Z:100:MET:CE   | 2.75                     | 0.59              |
| 12:AB:219:LEU:HD23 | 12:AB:240:MET:SD  | 2.42                     | 0.59              |
| 15:AE:108:TRP:NE1  | 15:AE:112:ARG:NH2 | 2.50                     | 0.59              |
| 35:U:161:LYS:HE3   | 36:Y:17:ILE:HD11  | 1.84                     | 0.59              |
| 37:Z:669:LYS:HE3   | 37:Z:670:PHE:CE2  | 2.37                     | 0.59              |
| 40:c:32:GLN:NE2    | 40:c:36:ASP:OD2   | 2.35                     | 0.59              |
| 4:3:746:G:H2'      | 4:3:747:A:H8      | 1.67                     | 0.59              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 4:3:869:U:H2'     | 4:3:870:A:H8      | 1.67                     | 0.59              |
| 4:3:1414:C:H2'    | 4:3:1415:A:H8     | 1.66                     | 0.59              |
| 4:3:1418:U:N3     | 4:3:1423:A:N6     | 2.50                     | 0.59              |
| 4:3:1436:C:H2'    | 4:3:1437:A:H8     | 1.67                     | 0.59              |
| 4:3:1588:A:H2'    | 4:3:1589:A:C8     | 2.37                     | 0.59              |
| 4:3:2604:U:O2'    | 4:3:2605:G:OP1    | 2.20                     | 0.59              |
| 6:5:435:U:H4'     | 17:C:119:HIS:HB3  | 1.83                     | 0.59              |
| 6:5:941:A:H2'     | 6:5:942:G:C8      | 2.38                     | 0.59              |
| 9:8:71:LYS:HE3    | 9:8:101:GLU:OE2   | 2.02                     | 0.59              |
| 9:8:539:ILE:HG22  | 9:8:543:LEU:HD12  | 1.85                     | 0.59              |
| 9:8:647:ASP:CB    | 37:Z:835:PHE:CE2  | 2.85                     | 0.59              |
| 9:8:794:LYS:O     | 9:8:891:GLN:NE2   | 2.33                     | 0.59              |
| 9:8:863:LEU:CD1   | 9:8:878:ASP:CG    | 2.76                     | 0.59              |
| 9:8:1336:PRO:HG2  | 37:Z:406:LYS:HZ3  | 1.66                     | 0.59              |
| 12:AB:153:ASP:OD2 | 37:Z:75:LYS:CE    | 2.48                     | 0.59              |
| 19:E:49:ILE:HG23  | 19:E:50:LYS:H     | 1.67                     | 0.59              |
| 23:I:61:PRO:HA    | 27:M:41:ARG:HH12  | 1.67                     | 0.59              |
| 27:M:6:LEU:HD13   | 27:M:23:ARG:HD3   | 1.83                     | 0.59              |
| 53:q:95:VAL:HG13  | 53:q:96:ARG:HG3   | 1.85                     | 0.59              |
| 4:3:1142:G:HO2'   | 35:U:78:GLY:HA2   | 1.68                     | 0.59              |
| 4:3:1298:A:H62    | 4:3:2019:G:H21    | 1.49                     | 0.59              |
| 4:3:1305:G:H2'    | 4:3:1306:G:C8     | 2.36                     | 0.59              |
| 4:3:1495:A:OP2    | 4:3:1548:A:N6     | 2.35                     | 0.59              |
| 6:5:893:C:H3'     | 6:5:894:A:H8      | 1.67                     | 0.59              |
| 17:C:64:TYR:CZ    | 17:C:93:LEU:HB3   | 2.36                     | 0.59              |
| 38:a:269:ASN:O    | 38:a:272:LYS:NZ   | 2.35                     | 0.59              |
| 40:c:128:VAL:HG13 | 40:c:132:LEU:HD21 | 1.84                     | 0.59              |
| 4:3:2812:U:H5'    | 4:3:2895:A:C8     | 2.38                     | 0.59              |
| 6:5:48:C:N4       | 6:5:356:G:O6      | 2.35                     | 0.59              |
| 6:5:677:C:H2'     | 6:5:678:A:H8      | 1.68                     | 0.59              |
| 6:5:1130:G:H2'    | 6:5:1131:A:H8     | 1.67                     | 0.59              |
| 9:8:1330:PHE:CZ   | 37:Z:542:LEU:HD13 | 2.38                     | 0.59              |
| 14:AD:14:DG:C4'   | 37:Z:890:TYR:N    | 2.65                     | 0.59              |
| 15:AE:124:SER:HB3 | 37:Z:142:VAL:CG1  | 2.25                     | 0.59              |
| 35:U:149:LYS:NZ   | 36:V:29:GLY:O     | 2.35                     | 0.59              |
| 38:a:61:ARG:HH21  | 38:a:64:ARG:HE    | 1.49                     | 0.59              |
| 43:f:81:LEU:HD21  | 43:f:90:GLY:HA3   | 1.85                     | 0.59              |
| 4:3:8:A:H2'       | 4:3:9:G:C8        | 2.37                     | 0.59              |
| 4:3:28:G:O6       | 4:3:29:G:N2       | 2.36                     | 0.59              |
| 4:3:2253:U:H5''   | 4:3:2254:G:H5'    | 1.84                     | 0.59              |
| 6:5:1407:A:H5''   | 51:o:110:LYS:HG3  | 1.83                     | 0.59              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 9:8:169:LEU:HD11  | 9:8:187:LEU:CD1   | 2.32                     | 0.59              |
| 9:8:170:LYS:HZ2   | 13:AC:25:DC:H5'   | 1.68                     | 0.59              |
| 9:8:1336:PRO:HG2  | 37:Z:406:LYS:NZ   | 2.17                     | 0.59              |
| 9:8:1342:LEU:HD13 | 37:Z:392:LEU:HD23 | 1.71                     | 0.59              |
| 7:AA:175:SER:OG   | 7:AA:178:ILE:HD12 | 2.02                     | 0.59              |
| 12:AB:5:SER:HB2   | 12:AB:61:LEU:HD23 | 1.82                     | 0.59              |
| 14:AD:13:DA:OP1   | 37:Z:890:TYR:HE2  | 1.84                     | 0.59              |
| 20:F:41:ILE:HD12  | 20:F:116:LEU:HD21 | 1.85                     | 0.59              |
| 40:c:7:ILE:HD11   | 40:c:126:HIS:HB2  | 1.84                     | 0.59              |
| 40:c:172:THR:HA   | 40:c:178:VAL:HG23 | 1.83                     | 0.59              |
| 4:3:53:G:H21      | 4:3:119:A:H62     | 1.48                     | 0.59              |
| 4:3:1142:G:O2'    | 35:U:78:GLY:N     | 2.36                     | 0.59              |
| 6:5:1225:A:H2'    | 6:5:1226:A:C8     | 2.38                     | 0.59              |
| 9:8:100:LEU:HD13  | 9:8:591:ILE:HD11  | 1.85                     | 0.59              |
| 9:8:1001:GLU:H    | 12:AB:109:LYS:CG  | 2.03                     | 0.59              |
| 9:8:1307:LEU:HB3  | 37:Z:406:LYS:CD   | 2.32                     | 0.59              |
| 20:F:149:ALA:HB3  | 24:J:49:ARG:NH1   | 2.18                     | 0.59              |
| 50:n:54:SER:O     | 50:n:80:LYS:NZ    | 2.36                     | 0.59              |
| 3:2:24:ARG:NH1    | 4:3:2750:A:OP2    | 2.32                     | 0.59              |
| 4:3:593:C:O2'     | 52:p:47:ARG:NH2   | 2.35                     | 0.59              |
| 4:3:872:C:N4      | 4:3:978:G:O6      | 2.35                     | 0.59              |
| 4:3:2704:U:H2'    | 4:3:2705:G:H8     | 1.68                     | 0.59              |
| 6:5:727:G:O2'     | 6:5:811:A:N6      | 2.35                     | 0.59              |
| 6:5:934:G:H4'     | 20:F:101:ARG:HH22 | 1.68                     | 0.59              |
| 6:5:1397:G:H2'    | 6:5:1398:G:H8     | 1.66                     | 0.59              |
| 7:AA:304:ARG:NH1  | 12:AB:48:TYR:CE2  | 2.67                     | 0.59              |
| 12:AB:136:MET:O   | 12:AB:140:ILE:HB  | 2.02                     | 0.59              |
| 26:L:107:ARG:HG3  | 26:L:110:LYS:HB2  | 1.84                     | 0.59              |
| 40:c:116:TRP:HZ2  | 40:c:186:VAL:HG21 | 1.67                     | 0.59              |
| 2:1:21:ARG:NH1    | 2:1:22:LYS:O      | 2.36                     | 0.59              |
| 2:1:36:LYS:HG3    | 2:1:40:HIS:CE1    | 2.38                     | 0.59              |
| 4:3:615:G:H2'     | 4:3:616:G:H8      | 1.67                     | 0.59              |
| 4:3:734:A:H62     | 4:3:768:G:H21     | 1.51                     | 0.59              |
| 4:3:2031:C:H2'    | 4:3:2032:G:C8     | 2.38                     | 0.59              |
| 6:5:433:C:H2'     | 6:5:434:U:C6      | 2.38                     | 0.59              |
| 6:5:448:A:N6      | 6:5:478:G:OP2     | 2.36                     | 0.59              |
| 6:5:621:C:O2      | 29:O:5:ARG:NH2    | 2.36                     | 0.59              |
| 6:5:810:U:OP2     | 6:5:813:A:N6      | 2.36                     | 0.59              |
| 6:5:1062:C:H2'    | 6:5:1063:G:H8     | 1.68                     | 0.59              |
| 6:5:1344:C:OP1    | 22:H:116:LYS:N    | 2.28                     | 0.59              |
| 9:8:44:PHE:HA     | 9:8:48:ASP:HB2    | 1.85                     | 0.59              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 9:8:89:SER:HA      | 9:8:146:GLY:HA3   | 1.85                     | 0.59              |
| 12:AB:196:VAL:HG21 | 12:AB:217:ARG:NE  | 2.16                     | 0.59              |
| 17:C:145:LYS:HD3   | 17:C:147:LYS:HE2  | 1.85                     | 0.59              |
| 59:w:16:VAL:HG21   | 59:w:67:GLU:HB3   | 1.85                     | 0.59              |
| 4:3:788:G:H2'      | 4:3:789:A:H8      | 1.68                     | 0.59              |
| 4:3:1103:G:O2'     | 4:3:1131:A:N3     | 2.36                     | 0.59              |
| 29:O:5:ARG:HB2     | 29:O:8:TYR:HB3    | 1.85                     | 0.59              |
| 4:3:1081:A:C2      | 35:U:7:LYS:HD3    | 2.34                     | 0.58              |
| 4:3:1345:G:H2'     | 4:3:1346:G:H8     | 1.67                     | 0.58              |
| 6:5:573:G:H4'      | 6:5:574:C:H5''    | 1.85                     | 0.58              |
| 6:5:823:C:O2       | 21:G:24:ASN:ND2   | 2.33                     | 0.58              |
| 14:AD:14:DG:H4'    | 37:Z:889:GLY:C    | 2.28                     | 0.58              |
| 19:E:5:ILE:HG12    | 19:E:62:PHE:HE1   | 1.68                     | 0.58              |
| 20:F:24:ARG:NH2    | 20:F:96:ILE:HD12  | 2.17                     | 0.58              |
| 22:H:120:LEU:HD13  | 22:H:124:ARG:HA   | 1.85                     | 0.58              |
| 51:o:53:LEU:HB3    | 51:o:101:ILE:O    | 2.03                     | 0.58              |
| 4:3:784:A:N7       | 4:3:1652:A:N6     | 2.52                     | 0.58              |
| 4:3:1332:A:N1      | 4:3:1659:C:N4     | 2.50                     | 0.58              |
| 4:3:1833:G:O2'     | 4:3:1978:U:OP2    | 2.21                     | 0.58              |
| 6:5:1384:A:H2'     | 6:5:1385:A:H8     | 1.67                     | 0.58              |
| 6:5:1406:U:H3      | 6:5:1444:G:H1     | 1.49                     | 0.58              |
| 11:A:61:GLN:NE2    | 11:A:216:PRO:O    | 2.34                     | 0.58              |
| 12:AB:239:LYS:CD   | 12:AB:294:LYS:H   | 2.16                     | 0.58              |
| 19:E:4:ASN:HB2     | 19:E:88:ILE:HB    | 1.85                     | 0.58              |
| 40:c:112:LEU:O     | 40:c:116:TRP:HD1  | 1.86                     | 0.58              |
| 49:m:81:HIS:CE1    | 49:m:85:LYS:HD3   | 2.38                     | 0.58              |
| 61:y:12:ARG:HA     | 61:y:15:LYS:HG2   | 1.83                     | 0.58              |
| 4:3:192:U:O4       | 4:3:212:G:O6      | 2.21                     | 0.58              |
| 4:3:2299:U:O4      | 4:3:2349:G:O6     | 2.20                     | 0.58              |
| 4:3:2700:C:H2'     | 4:3:2701:A:H8     | 1.68                     | 0.58              |
| 6:5:164:C:OP2      | 33:S:53:ARG:NH1   | 2.33                     | 0.58              |
| 6:5:287:U:N3       | 6:5:306:G:C6      | 2.71                     | 0.58              |
| 6:5:369:A:H61      | 6:5:387:G:H1'     | 1.69                     | 0.58              |
| 6:5:663:G:O6       | 6:5:737:U:O2      | 2.21                     | 0.58              |
| 9:8:644:ASP:O      | 37:Z:835:PHE:CZ   | 2.57                     | 0.58              |
| 9:8:1223:HIS:O     | 37:Z:737:PHE:CD2  | 2.56                     | 0.58              |
| 10:9:68:ARG:HH21   | 37:Z:1207:MET:HB2 | 1.65                     | 0.58              |
| 16:B:90:LYS:HA     | 16:B:93:LYS:HZ3   | 1.67                     | 0.58              |
| 37:Z:770:ASP:OD2   | 37:Z:847:LYS:NZ   | 2.36                     | 0.58              |
| 2:1:35:THR:HA      | 2:1:38:LYS:HB2    | 1.84                     | 0.58              |
| 3:2:10:ILE:HD12    | 3:2:32:HIS:HA     | 1.84                     | 0.58              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 4:3:499:G:N2      | 4:3:502:A:OP2     | 2.33                     | 0.58              |
| 4:3:2655:U:H2'    | 4:3:2656:G:C8     | 2.38                     | 0.58              |
| 6:5:1068:G:N2     | 6:5:1071:A:OP2    | 2.36                     | 0.58              |
| 6:5:1326:C:H2'    | 6:5:1327:G:C8     | 2.38                     | 0.58              |
| 7:6:105:PRO:HB3   | 7:AA:320:GLU:CA   | 2.34                     | 0.58              |
| 9:8:171:LEU:HD13  | 9:8:212:LEU:CD2   | 2.33                     | 0.58              |
| 9:8:585:LEU:CD2   | 9:8:590:LEU:HD21  | 2.34                     | 0.58              |
| 9:8:1269:LYS:CB   | 37:Z:313:ILE:CD1  | 2.80                     | 0.58              |
| 9:8:1349:LEU:CD2  | 37:Z:368:PHE:HB3  | 2.34                     | 0.58              |
| 11:A:21:ALA:HB2   | 11:A:65:LEU:HD23  | 1.85                     | 0.58              |
| 20:F:24:ARG:HH22  | 20:F:96:ILE:HD12  | 1.69                     | 0.58              |
| 41:d:42:ASP:OD1   | 41:d:43:ALA:N     | 2.37                     | 0.58              |
| 4:3:489:A:N3      | 4:3:493:A:O2'     | 2.36                     | 0.58              |
| 6:5:680:G:O6      | 6:5:705:A:N6      | 2.36                     | 0.58              |
| 6:5:1089:C:OP2    | 11:A:158:ARG:NH2  | 2.37                     | 0.58              |
| 6:5:1208:G:O2'    | 6:5:1340:G:OP1    | 2.22                     | 0.58              |
| 6:5:1245:A:HO2'   | 6:5:1287:G:HO2'   | 1.52                     | 0.58              |
| 9:8:659:ILE:O     | 9:8:780:LEU:CD1   | 2.51                     | 0.58              |
| 9:8:1297:TYR:CE2  | 37:Z:504:ILE:O    | 2.56                     | 0.58              |
| 9:8:1310:LYS:HB3  | 37:Z:409:ASP:CA   | 2.23                     | 0.58              |
| 12:AB:183:LYS:CG  | 12:AB:281:ASN:HB3 | 2.33                     | 0.58              |
| 37:Z:884:LYS:NZ   | 37:Z:1028:THR:HA  | 2.19                     | 0.58              |
| 4:3:947:A:H62     | 48:l:12:PRO:HA    | 1.69                     | 0.58              |
| 4:3:1301:G:H22    | 4:3:1649:C:H42    | 1.51                     | 0.58              |
| 4:3:1909:C:H5''   | 38:a:249:VAL:HG11 | 1.86                     | 0.58              |
| 4:3:2032:G:H2'    | 4:3:2033:G:C8     | 2.39                     | 0.58              |
| 4:3:2294:A:H1'    | 4:3:2295:A:C5     | 2.38                     | 0.58              |
| 6:5:540:U:OP1     | 17:C:9:LYS:NZ     | 2.31                     | 0.58              |
| 6:5:704:U:H2'     | 6:5:705:A:C8      | 2.38                     | 0.58              |
| 7:AA:35:VAL:HG21  | 7:AA:207:ASP:HB3  | 1.85                     | 0.58              |
| 7:AA:304:ARG:NH1  | 12:AB:48:TYR:CE1  | 2.70                     | 0.58              |
| 14:AD:12:DC:C4'   | 37:Z:1235:GLN:OE1 | 2.51                     | 0.58              |
| 16:B:50:ASN:O     | 16:B:52:GLN:NE2   | 2.36                     | 0.58              |
| 37:Z:100:MET:SD   | 37:Z:306:PRO:HD3  | 2.43                     | 0.58              |
| 37:Z:429:ILE:HD11 | 37:Z:491:VAL:HG21 | 1.86                     | 0.58              |
| 4:3:70:G:N2       | 4:3:76:A:O4'      | 2.35                     | 0.58              |
| 4:3:247:U:C2      | 4:3:259:A:N7      | 2.71                     | 0.58              |
| 4:3:529:G:H4'     | 54:r:6:LYS:HB2    | 1.86                     | 0.58              |
| 4:3:1172:G:H21    | 45:i:111:MET:HA   | 1.68                     | 0.58              |
| 4:3:2814:A:H2'    | 4:3:2815:G:O4'    | 2.04                     | 0.58              |
| 6:5:22:G:H2'      | 6:5:23:G:C8       | 2.38                     | 0.58              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 6:5:519:G:N7       | 25:K:63:ARG:NH2   | 2.51                     | 0.58              |
| 6:5:834:G:H2'      | 6:5:835:G:C8      | 2.39                     | 0.58              |
| 6:5:1141:U:HO2'    | 6:5:1142:G:H8     | 1.49                     | 0.58              |
| 6:5:1329:G:H2'     | 6:5:1330:A:H8     | 1.69                     | 0.58              |
| 9:8:1100:MET:HB3   | 37:Z:858:PHE:CE2  | 2.39                     | 0.58              |
| 9:8:1102:ILE:CD1   | 37:Z:859:LEU:CA   | 2.82                     | 0.58              |
| 11:A:93:LYS:NZ     | 11:A:109:THR:O    | 2.36                     | 0.58              |
| 12:AB:135:VAL:HG22 | 12:AB:169:LEU:O   | 2.04                     | 0.58              |
| 21:G:97:ILE:HG23   | 21:G:99:ARG:NH2   | 2.17                     | 0.58              |
| 37:Z:1216:PHE:CE1  | 37:Z:1224:LYS:NZ  | 2.70                     | 0.58              |
| 4:3:61:U:O4        | 4:3:70:G:O6       | 2.20                     | 0.58              |
| 4:3:1316:U:O2'     | 4:3:1681:G:N2     | 2.35                     | 0.58              |
| 4:3:2794:U:H5''    | 39:b:72:LYS:HD2   | 1.86                     | 0.58              |
| 6:5:715:A:H5''     | 6:5:716:C:H5      | 1.69                     | 0.58              |
| 7:6:107:GLU:OE1    | 7:AA:315:ILE:HG22 | 2.04                     | 0.58              |
| 9:8:182:TYR:CD1    | 9:8:514:ILE:HG22  | 2.39                     | 0.58              |
| 9:8:999:PHE:CG     | 12:AB:108:LEU:CD2 | 2.87                     | 0.58              |
| 9:8:1102:ILE:HD11  | 37:Z:858:PHE:O    | 2.02                     | 0.58              |
| 42:e:57:ARG:HG3    | 42:e:68:HIS:HD2   | 1.69                     | 0.58              |
| 61:y:27:LEU:HD11   | 61:y:36:LYS:HE3   | 1.84                     | 0.58              |
| 4:3:333:A:H2'      | 4:3:334:A:C4      | 2.38                     | 0.58              |
| 6:5:373:A:H2'      | 6:5:374:G:H8      | 1.69                     | 0.58              |
| 6:5:473:A:O2'      | 6:5:474:G:O4'     | 2.14                     | 0.58              |
| 6:5:585:G:N1       | 6:5:751:C:OP2     | 2.37                     | 0.58              |
| 6:5:885:U:H2'      | 6:5:886:A:H8      | 1.67                     | 0.58              |
| 6:5:1388:A:H2      | 6:5:1462:G:H22    | 1.52                     | 0.58              |
| 9:8:636:ILE:HD13   | 9:8:645:ILE:HG21  | 1.85                     | 0.58              |
| 9:8:1001:GLU:CB    | 12:AB:109:LYS:HB3 | 2.31                     | 0.58              |
| 9:8:1269:LYS:HD2   | 37:Z:313:ILE:CD1  | 2.34                     | 0.58              |
| 14:AD:10:DG:H4'    | 37:Z:118:LEU:O    | 2.04                     | 0.58              |
| 20:F:11:VAL:HG23   | 20:F:20:THR:HB    | 1.85                     | 0.58              |
| 40:c:128:VAL:HG21  | 40:c:198:LEU:HB2  | 1.86                     | 0.58              |
| 58:v:52:THR:HA     | 58:v:55:LEU:HD12  | 1.86                     | 0.58              |
| 4:3:590:U:H2'      | 4:3:591:G:C8      | 2.38                     | 0.58              |
| 4:3:713:C:H2'      | 4:3:714:G:C8      | 2.38                     | 0.58              |
| 4:3:1294:G:N1      | 4:3:2021:A:OP2    | 2.35                     | 0.58              |
| 4:3:2290:G:HO2'    | 62:z:2:ALA:N      | 2.02                     | 0.58              |
| 4:3:2481:U:OP1     | 4:3:2537:G:N2     | 2.34                     | 0.58              |
| 8:7:63:U:H2'       | 8:7:64:G:C8       | 2.39                     | 0.58              |
| 9:8:628:ILE:CD1    | 9:8:673:LEU:HD12  | 2.22                     | 0.58              |
| 9:8:829:ASN:O      | 9:8:848:LYS:NZ    | 2.37                     | 0.58              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 9:8:999:PHE:N     | 12:AB:108:LEU:HB3  | 2.18                     | 0.58              |
| 14:AD:12:DC:C5'   | 37:Z:1235:GLN:OE1  | 2.52                     | 0.58              |
| 4:3:697:U:H2'     | 4:3:698:A:H8       | 1.68                     | 0.57              |
| 4:3:1081:A:C2'    | 35:U:7:LYS:HZ2     | 2.17                     | 0.57              |
| 4:3:1445:U:H2'    | 4:3:1446:G:O4'     | 2.04                     | 0.57              |
| 4:3:2847:C:H2'    | 4:3:2848:A:H8      | 1.69                     | 0.57              |
| 6:5:1241:G:C2     | 6:5:1245:A:C6      | 2.92                     | 0.57              |
| 6:5:1343:G:O3'    | 22:H:115:ARG:NH1   | 2.36                     | 0.57              |
| 9:8:68:ILE:HD12   | 9:8:554:LEU:HD21   | 1.85                     | 0.57              |
| 24:J:81:GLY:O     | 24:J:86:LYS:NZ     | 2.26                     | 0.57              |
| 29:O:48:VAL:HG23  | 29:O:52:TRP:CZ3    | 2.39                     | 0.57              |
| 37:Z:876:LYS:CG   | 37:Z:1030:ARG:HH11 | 1.77                     | 0.57              |
| 40:c:152:LEU:HD22 | 40:c:155:LYS:HG3   | 1.86                     | 0.57              |
| 45:i:144:ASN:OD1  | 45:i:145:TRP:N     | 2.37                     | 0.57              |
| 4:3:1019:A:O2'    | 4:3:1020:G:O4'     | 2.20                     | 0.57              |
| 4:3:1093:U:O2     | 4:3:1115:G:N2      | 2.37                     | 0.57              |
| 4:3:1191:A:OP1    | 52:p:53:LYS:NZ     | 2.33                     | 0.57              |
| 4:3:1768:G:O6     | 4:3:1769:A:N6      | 2.37                     | 0.57              |
| 4:3:2447:A:N6     | 8:7:77:A:OP2       | 2.37                     | 0.57              |
| 6:5:416:U:N3      | 6:5:421:G:N1       | 2.52                     | 0.57              |
| 6:5:661:G:N2      | 6:5:738:A:N1       | 2.42                     | 0.57              |
| 6:5:966:A:O2'     | 6:5:1340:G:O2'     | 2.16                     | 0.57              |
| 9:8:376:ARG:NH2   | 13:AC:20:DG:C8     | 2.55                     | 0.57              |
| 9:8:1342:LEU:N    | 37:Z:398:LEU:CD2   | 2.67                     | 0.57              |
| 11:A:91:TYR:HE1   | 11:A:226:CYS:HB3   | 1.69                     | 0.57              |
| 13:AC:25:DC:H3'   | 13:AC:26:DT:C5'    | 2.33                     | 0.57              |
| 49:m:42:GLN:NE2   | 49:m:100:VAL:HG11  | 2.19                     | 0.57              |
| 57:u:84:GLN:NE2   | 57:u:85:LYS:O      | 2.36                     | 0.57              |
| 58:v:27:ARG:NH1   | 58:v:28:LYS:O      | 2.37                     | 0.57              |
| 4:3:640:U:O4      | 4:3:658:G:O6       | 2.22                     | 0.57              |
| 4:3:799:A:H5''    | 38:a:217:GLY:HA2   | 1.87                     | 0.57              |
| 4:3:839:A:OP2     | 47:k:43:LYS:NZ     | 2.37                     | 0.57              |
| 4:3:1286:G:N2     | 40:c:83:HIS:O      | 2.35                     | 0.57              |
| 4:3:2021:A:H2'    | 4:3:2022:A:C4      | 2.39                     | 0.57              |
| 4:3:2552:G:H2'    | 4:3:2553:G:C8      | 2.38                     | 0.57              |
| 6:5:1329:G:H2'    | 6:5:1330:A:C8      | 2.40                     | 0.57              |
| 9:8:851:ARG:NH1   | 9:8:855:ASN:OD1    | 2.38                     | 0.57              |
| 9:8:1297:TYR:HB3  | 37:Z:554:LEU:HD21  | 1.86                     | 0.57              |
| 9:8:1342:LEU:HD11 | 37:Z:392:LEU:CD2   | 1.85                     | 0.57              |
| 7:AA:163:PHE:CZ   | 37:Z:606:ALA:HB2   | 2.39                     | 0.57              |
| 21:G:60:LEU:HB2   | 21:G:69:ILE:HG13   | 1.84                     | 0.57              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 27:M:14:PRO:HG3   | 27:M:20:ALA:HB2   | 1.86                     | 0.57              |
| 35:U:40:ILE:CG2   | 35:U:51:ILE:HD11  | 2.33                     | 0.57              |
| 46:j:59:ARG:O     | 46:j:94:ARG:NH1   | 2.31                     | 0.57              |
| 49:m:46:ASP:HA    | 49:m:49:ILE:HD12  | 1.85                     | 0.57              |
| 4:3:247:U:O2      | 4:3:259:A:N7      | 2.37                     | 0.57              |
| 4:3:633:G:O6      | 4:3:692:U:O4      | 2.21                     | 0.57              |
| 4:3:740:A:O2'     | 38:a:9:ARG:NH2    | 2.37                     | 0.57              |
| 4:3:1032:A:O5'    | 52:p:91:ARG:NH2   | 2.36                     | 0.57              |
| 4:3:1702:A:N6     | 4:3:1998:U:H3     | 2.03                     | 0.57              |
| 4:3:1837:C:H2'    | 4:3:1838:A:C8     | 2.38                     | 0.57              |
| 4:3:2781:C:H2'    | 4:3:2782:A:H8     | 1.68                     | 0.57              |
| 6:5:779:A:N6      | 6:5:797:G:N2      | 2.38                     | 0.57              |
| 6:5:1214:A:H62    | 6:5:1273:A:H62    | 1.51                     | 0.57              |
| 9:8:1310:LYS:HA   | 37:Z:409:ASP:CG   | 2.29                     | 0.57              |
| 9:8:1369:SER:OG   | 37:Z:95:VAL:HG12  | 2.04                     | 0.57              |
| 51:o:34:ALA:HB3   | 51:o:87:SER:HB2   | 1.85                     | 0.57              |
| 52:p:13:ARG:O     | 52:p:17:LEU:HD23  | 2.04                     | 0.57              |
| 4:3:286:A:O2'     | 4:3:288:A:N7      | 2.34                     | 0.57              |
| 4:3:522:C:H2'     | 4:3:523:A:C8      | 2.39                     | 0.57              |
| 4:3:2676:G:H2'    | 4:3:2677:A:C8     | 2.38                     | 0.57              |
| 6:5:359:A:N1      | 25:K:40:SER:OG    | 2.38                     | 0.57              |
| 6:5:732:A:H2'     | 6:5:733:A:C8      | 2.37                     | 0.57              |
| 6:5:1326:C:H2'    | 6:5:1327:G:H8     | 1.69                     | 0.57              |
| 11:A:35:ARG:HE    | 11:A:37:TRP:HE1   | 1.52                     | 0.57              |
| 7:AA:141:TYR:OH   | 7:AA:144:SER:HB2  | 2.03                     | 0.57              |
| 37:Z:584:THR:HG21 | 37:Z:691:PHE:CD2  | 2.39                     | 0.57              |
| 49:m:32:GLU:N     | 49:m:32:GLU:OE2   | 2.34                     | 0.57              |
| 4:3:159:G:O6      | 4:3:174:A:N6      | 2.38                     | 0.57              |
| 4:3:752:C:H3'     | 4:3:753:A:H8      | 1.68                     | 0.57              |
| 4:3:1316:U:H5     | 4:3:1354:U:H3     | 1.52                     | 0.57              |
| 4:3:2154:A:H2'    | 4:3:2155:G:C8     | 2.39                     | 0.57              |
| 9:8:1307:LEU:CA   | 37:Z:406:LYS:CD   | 2.64                     | 0.57              |
| 9:8:1307:LEU:HD22 | 37:Z:406:LYS:CG   | 2.24                     | 0.57              |
| 7:AA:82:LEU:HB3   | 37:Z:598:GLY:CA   | 2.35                     | 0.57              |
| 18:D:69:ARG:HE    | 18:D:172:LEU:HD21 | 1.69                     | 0.57              |
| 21:G:106:LEU:HB2  | 21:G:110:GLY:HA2  | 1.87                     | 0.57              |
| 23:I:24:LEU:O     | 23:I:28:THR:HG23  | 2.04                     | 0.57              |
| 25:K:42:LEU:HD23  | 25:K:94:LEU:HD21  | 1.87                     | 0.57              |
| 25:K:56:LYS:HG3   | 25:K:58:PRO:HD2   | 1.86                     | 0.57              |
| 29:O:77:VAL:HG23  | 29:O:80:LYS:HE3   | 1.85                     | 0.57              |
| 40:c:130:GLN:HA   | 40:c:133:PHE:CE1  | 2.39                     | 0.57              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 4:3:1207:U:O2     | 4:3:1208:A:N6     | 2.36                     | 0.57              |
| 4:3:1391:U:O2'    | 4:3:1816:A:N3     | 2.34                     | 0.57              |
| 4:3:2141:A:OP2    | 4:3:2164:G:N2     | 2.38                     | 0.57              |
| 6:5:558:U:H4'     | 6:5:559:U:H3'     | 1.86                     | 0.57              |
| 6:5:1389:U:H2'    | 6:5:1390:G:H8     | 1.69                     | 0.57              |
| 9:8:177:ARG:NH1   | 9:8:221:ALA:H     | 2.03                     | 0.57              |
| 9:8:1342:LEU:CD1  | 37:Z:398:LEU:HD23 | 2.35                     | 0.57              |
| 25:K:92:VAL:HG22  | 25:K:115:LEU:HD21 | 1.85                     | 0.57              |
| 37:Z:781:TRP:CD2  | 37:Z:853:PRO:HG3  | 2.40                     | 0.57              |
| 46:j:104:ARG:HH12 | 51:o:37:LEU:HD13  | 1.68                     | 0.57              |
| 4:3:90:G:H2'      | 4:3:91:G:C8       | 2.39                     | 0.57              |
| 4:3:657:A:OP2     | 47:k:105:SER:OG   | 2.20                     | 0.57              |
| 4:3:846:U:H2'     | 47:k:22:ARG:HA    | 1.86                     | 0.57              |
| 4:3:1081:A:H2     | 35:U:58:ILE:HD13  | 1.69                     | 0.57              |
| 4:3:1248:A:H2'    | 4:3:1249:A:C8     | 2.39                     | 0.57              |
| 4:3:2745:G:H2'    | 4:3:2746:A:H8     | 1.69                     | 0.57              |
| 6:5:927:C:OP2     | 20:F:2:ARG:N      | 2.37                     | 0.57              |
| 9:8:1122:LEU:HD21 | 9:8:1149:LEU:CD2  | 2.35                     | 0.57              |
| 11:A:67:THR:HA    | 11:A:70:ASN:HD21  | 1.70                     | 0.57              |
| 32:R:36:ARG:HA    | 32:R:72:GLY:HA3   | 1.87                     | 0.57              |
| 48:l:39:GLY:CA    | 48:l:97:VAL:O     | 2.52                     | 0.57              |
| 4:3:1754:U:H2'    | 4:3:1755:A:H8     | 1.69                     | 0.57              |
| 4:3:2381:G:H2'    | 4:3:2382:A:H8     | 1.70                     | 0.57              |
| 5:4:104:C:H2'     | 5:4:105:A:C8      | 2.40                     | 0.57              |
| 6:5:146:A:H2'     | 6:5:147:A:C4      | 2.39                     | 0.57              |
| 6:5:262:G:OP1     | 6:5:262:G:N2      | 2.38                     | 0.57              |
| 6:5:509:C:O2      | 17:C:38:HIS:NE2   | 2.38                     | 0.57              |
| 6:5:768:G:O6      | 6:5:806:A:N6      | 2.38                     | 0.57              |
| 11:A:147:LYS:HB3  | 11:A:151:MET:HE1  | 1.87                     | 0.57              |
| 17:C:63:MET:HE2   | 17:C:63:MET:HA    | 1.87                     | 0.57              |
| 30:P:20:LYS:HB2   | 30:P:48:HIS:HB2   | 1.86                     | 0.57              |
| 37:Z:488:ASP:C    | 37:Z:551:ARG:HH21 | 2.12                     | 0.57              |
| 38:a:185:LEU:HD23 | 38:a:186:SER:N    | 2.20                     | 0.57              |
| 4:3:552:C:H5''    | 61:y:13:ARG:HH12  | 1.70                     | 0.57              |
| 4:3:1289:G:H2'    | 4:3:1290:G:C8     | 2.40                     | 0.57              |
| 4:3:2484:A:H2     | 4:3:2489:G:H1     | 1.53                     | 0.57              |
| 6:5:60:A:H3'      | 6:5:327:G:H22     | 1.70                     | 0.57              |
| 6:5:170:A:H61     | 6:5:195:U:H3      | 1.53                     | 0.57              |
| 6:5:664:A:H2'     | 6:5:665:G:C8      | 2.40                     | 0.57              |
| 6:5:833:G:O6      | 6:5:844:U:O4      | 2.22                     | 0.57              |
| 9:8:945:ARG:HH12  | 7:AA:298:ALA:HB1  | 1.68                     | 0.57              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 9:8:956:ARG:O     | 7:AA:296:SER:HB2   | 2.04                     | 0.57              |
| 9:8:999:PHE:CZ    | 12:AB:42:TYR:HE2   | 2.23                     | 0.57              |
| 9:8:1306:LEU:HD22 | 37:Z:408:VAL:HG11  | 1.87                     | 0.57              |
| 12:AB:49:VAL:HG21 | 12:AB:81:PHE:HB3   | 1.87                     | 0.57              |
| 17:C:155:LYS:O    | 17:C:158:SER:OG    | 2.19                     | 0.57              |
| 32:R:29:ARG:HH11  | 32:R:47:ASN:HB3    | 1.69                     | 0.57              |
| 48:l:41:TRP:HB3   | 48:l:94:VAL:HG11   | 1.87                     | 0.57              |
| 4:3:312:U:H2'     | 4:3:313:G:H8       | 1.68                     | 0.56              |
| 4:3:1180:U:H2'    | 4:3:1181:A:C8      | 2.40                     | 0.56              |
| 6:5:145:G:N2      | 6:5:148:A:OP2      | 2.36                     | 0.56              |
| 6:5:372:G:H2'     | 6:5:373:A:H8       | 1.69                     | 0.56              |
| 6:5:672:A:H61     | 6:5:712:A:H61      | 1.51                     | 0.56              |
| 6:5:1051:U:H2'    | 6:5:1052:G:H8      | 1.70                     | 0.56              |
| 9:8:381:ARG:NH2   | 9:8:551:GLU:OE2    | 2.38                     | 0.56              |
| 18:D:116:LYS:HE3  | 18:D:120:LYS:HZ1   | 1.69                     | 0.56              |
| 38:a:262:HIS:ND1  | 38:a:263:MET:SD    | 2.78                     | 0.56              |
| 54:r:81:SER:HG    | 54:r:97:THR:HG1    | 1.52                     | 0.56              |
| 4:3:29:G:OP1      | 4:3:1289:G:O2'     | 2.22                     | 0.56              |
| 4:3:164:A:H3'     | 4:3:165:U:H2'      | 1.88                     | 0.56              |
| 4:3:1141:U:H2'    | 4:3:1142:G:H8      | 1.70                     | 0.56              |
| 7:6:296:SER:HA    | 7:6:326:ARG:O      | 2.04                     | 0.56              |
| 9:8:356:ARG:HD2   | 15:AE:113:ASN:HD22 | 1.70                     | 0.56              |
| 9:8:998:ILE:CG2   | 12:AB:108:LEU:HD11 | 2.15                     | 0.56              |
| 9:8:1344:LYS:CB   | 37:Z:309:ILE:HD13  | 2.34                     | 0.56              |
| 31:Q:81:MET:O     | 31:Q:85:HIS:ND1    | 2.37                     | 0.56              |
| 32:R:41:PHE:CG    | 32:R:42:PRO:HD2    | 2.40                     | 0.56              |
| 45:i:3:LYS:N      | 53:q:12:TYR:OH     | 2.38                     | 0.56              |
| 48:l:44:ALA:O     | 48:l:47:ILE:N      | 2.38                     | 0.56              |
| 2:1:10:ARG:HD3    | 47:k:64:LYS:HA     | 1.88                     | 0.56              |
| 3:2:36:GLN:OE1    | 4:3:1159:C:O2'     | 2.22                     | 0.56              |
| 4:3:26:G:H2'      | 4:3:27:U:C6        | 2.40                     | 0.56              |
| 4:3:154:U:H2'     | 4:3:155:A:C8       | 2.40                     | 0.56              |
| 4:3:1764:U:H5'    | 4:3:1765:G:H5''    | 1.87                     | 0.56              |
| 4:3:2332:U:O4     | 4:3:2339:G:O6      | 2.24                     | 0.56              |
| 4:3:2577:G:H2'    | 4:3:2578:A:C8      | 2.41                     | 0.56              |
| 6:5:18:U:H5''     | 18:D:74:LYS:HE2    | 1.87                     | 0.56              |
| 6:5:145:G:N1      | 6:5:149:G:N7       | 2.54                     | 0.56              |
| 6:5:354:U:H2'     | 6:5:355:A:H8       | 1.70                     | 0.56              |
| 6:5:556:G:OP2     | 6:5:557:A:O2'      | 2.23                     | 0.56              |
| 6:5:680:G:H21     | 24:J:33:ASN:HA     | 1.71                     | 0.56              |
| 6:5:1197:G:OP2    | 6:5:1296:C:N4      | 2.39                     | 0.56              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 7:6:107:GLU:H     | 7:AA:319:HIS:CG   | 2.22                     | 0.56              |
| 7:6:240:VAL:HG21  | 7:AA:233:ILE:HD12 | 1.86                     | 0.56              |
| 9:8:638:ARG:HH21  | 9:8:666:ASN:HD21  | 1.53                     | 0.56              |
| 9:8:644:ASP:O     | 37:Z:835:PHE:HE1  | 1.87                     | 0.56              |
| 9:8:779:ALA:HB3   | 37:Z:867:TYR:OH   | 2.01                     | 0.56              |
| 9:8:997:ALA:CB    | 12:AB:8:PHE:CD1   | 2.81                     | 0.56              |
| 9:8:998:ILE:CB    | 12:AB:62:MET:CE   | 2.81                     | 0.56              |
| 9:8:1269:LYS:CE   | 37:Z:313:ILE:CG2  | 2.58                     | 0.56              |
| 9:8:1325:VAL:HG13 | 37:Z:443:ILE:HG21 | 1.87                     | 0.56              |
| 9:8:1352:SER:CB   | 37:Z:31:TRP:CZ2   | 2.64                     | 0.56              |
| 11:A:192:ASN:O    | 11:A:195:ARG:NH1  | 2.39                     | 0.56              |
| 7:AA:268:ILE:HD12 | 7:AA:286:ILE:O    | 2.05                     | 0.56              |
| 14:AD:14:DG:C2    | 37:Z:885:THR:HG22 | 2.40                     | 0.56              |
| 37:Z:586:GLU:HG2  | 37:Z:639:THR:HG21 | 1.88                     | 0.56              |
| 37:Z:775:LYS:HE3  | 37:Z:845:ILE:CD1  | 2.32                     | 0.56              |
| 38:a:147:VAL:HG22 | 38:a:200:VAL:HG12 | 1.86                     | 0.56              |
| 62:z:23:LYS:NZ    | 62:z:28:ASN:O     | 2.39                     | 0.56              |
| 4:3:711:A:HO2'    | 4:3:2450:C:HO2'   | 1.53                     | 0.56              |
| 4:3:1796:A:OP2    | 38:a:229:ARG:NH1  | 2.38                     | 0.56              |
| 4:3:2663:G:N1     | 4:3:2673:A:OP2    | 2.32                     | 0.56              |
| 9:8:952:ASP:HB2   | 7:AA:295:LYS:CD   | 2.34                     | 0.56              |
| 7:AA:113:THR:HG22 | 7:AA:154:ASN:OD1  | 2.05                     | 0.56              |
| 36:W:17:ILE:HG13  | 36:X:14:ILE:HD11  | 1.88                     | 0.56              |
| 37:Z:587:ARG:NH1  | 37:Z:803:ASP:OD2  | 2.39                     | 0.56              |
| 37:Z:897:ASP:OD2  | 37:Z:1234:PHE:HD2 | 1.87                     | 0.56              |
| 39:b:143:PHE:HD2  | 39:b:145:GLY:H    | 1.52                     | 0.56              |
| 42:e:105:THR:HG21 | 42:e:117:LYS:HE3  | 1.85                     | 0.56              |
| 48:l:64:MET:N     | 48:l:64:MET:SD    | 2.79                     | 0.56              |
| 4:3:164:A:H62     | 4:3:168:A:H61     | 1.53                     | 0.56              |
| 4:3:1081:A:N6     | 35:U:8:ALA:N      | 2.50                     | 0.56              |
| 4:3:2521:A:H2'    | 4:3:2522:U:C6     | 2.41                     | 0.56              |
| 4:3:2580:A:OP2    | 39:b:151:ARG:N    | 2.28                     | 0.56              |
| 4:3:2684:G:H2'    | 4:3:2685:A:C8     | 2.41                     | 0.56              |
| 4:3:2798:A:H5''   | 4:3:2799:U:C6     | 2.40                     | 0.56              |
| 6:5:207:C:H3'     | 6:5:208:A:C8      | 2.41                     | 0.56              |
| 6:5:748:U:H2'     | 6:5:749:G:O4'     | 2.05                     | 0.56              |
| 6:5:1193:U:H2'    | 6:5:1194:A:C8     | 2.40                     | 0.56              |
| 6:5:1202:A:OP2    | 26:L:110:LYS:NZ   | 2.32                     | 0.56              |
| 6:5:1288:C:H2'    | 6:5:1289:U:C6     | 2.40                     | 0.56              |
| 6:5:1393:A:N6     | 6:5:1457:G:O2'    | 2.39                     | 0.56              |
| 7:6:15:GLN:NE2    | 9:8:1160:ARG:HG2  | 2.21                     | 0.56              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 9:8:692:ILE:HD11  | 9:8:753:ILE:HB    | 1.87                     | 0.56              |
| 9:8:972:GLU:CD    | 9:8:1015:HIS:HD1  | 2.13                     | 0.56              |
| 12:AB:176:MET:HE1 | 12:AB:187:LEU:CD1 | 2.35                     | 0.56              |
| 13:AC:17:DT:C5'   | 15:AE:118:THR:CG2 | 2.76                     | 0.56              |
| 47:k:31:THR:HG21  | 47:k:36:GLN:HE22  | 1.70                     | 0.56              |
| 4:3:78:C:OP1      | 59:w:49:ARG:NH1   | 2.38                     | 0.56              |
| 4:3:410:G:H4'     | 4:3:411:U:O5'     | 2.04                     | 0.56              |
| 4:3:500:U:O2'     | 4:3:501:G:OP1     | 2.23                     | 0.56              |
| 6:5:641:U:H2'     | 6:5:642:A:H8      | 1.71                     | 0.56              |
| 6:5:1287:G:H2'    | 6:5:1288:C:H6     | 1.71                     | 0.56              |
| 7:6:46:LEU:HD23   | 7:6:50:ILE:HD11   | 1.87                     | 0.56              |
| 9:8:390:ARG:HD2   | 9:8:496:ASN:O     | 2.05                     | 0.56              |
| 9:8:450:ILE:HD11  | 9:8:505:ILE:HD12  | 1.86                     | 0.56              |
| 11:A:130:LEU:HD12 | 11:A:159:LEU:HD22 | 1.86                     | 0.56              |
| 12:AB:143:VAL:C   | 12:AB:145:GLN:CG  | 2.43                     | 0.56              |
| 12:AB:290:TRP:CE2 | 12:AB:296:LYS:CD  | 2.89                     | 0.56              |
| 23:I:53:GLU:HB2   | 23:I:73:LYS:HB3   | 1.86                     | 0.56              |
| 42:e:30:PRO:HG2   | 42:e:31:LEU:HD12  | 1.88                     | 0.56              |
| 48:l:4:PRO:HG3    | 48:l:69:PHE:HE2   | 1.71                     | 0.56              |
| 49:m:106:ARG:HG2  | 49:m:108:GLY:H    | 1.71                     | 0.56              |
| 55:s:74:LEU:O     | 55:s:76:LYS:NZ    | 2.37                     | 0.56              |
| 4:3:1543:U:H2'    | 4:3:1544:G:H8     | 1.68                     | 0.56              |
| 4:3:1853:G:H2'    | 4:3:1854:A:C4     | 2.41                     | 0.56              |
| 4:3:2716:U:H2'    | 4:3:2717:G:H8     | 1.70                     | 0.56              |
| 5:4:11:A:H1'      | 5:4:13:G:H2'      | 1.86                     | 0.56              |
| 6:5:621:C:H2'     | 6:5:622:A:H8      | 1.70                     | 0.56              |
| 6:5:1224:C:N4     | 6:5:1262:A:OP2    | 2.33                     | 0.56              |
| 8:7:18:C:H4'      | 8:7:19:G:H5''     | 1.87                     | 0.56              |
| 9:8:211:ILE:HD13  | 9:8:229:LEU:HD22  | 1.88                     | 0.56              |
| 9:8:761:VAL:HG13  | 37:Z:864:ILE:HD11 | 1.88                     | 0.56              |
| 10:9:78:PHE:CZ    | 37:Z:1095:ARG:NH1 | 2.74                     | 0.56              |
| 15:AE:38:GLU:OE2  | 15:AE:104:SER:OG  | 2.23                     | 0.56              |
| 43:f:104:LYS:HB2  | 43:f:106:MET:HE1  | 1.85                     | 0.56              |
| 4:3:2088:U:O4     | 4:3:2247:G:O6     | 2.22                     | 0.56              |
| 4:3:2556:C:OP1    | 46:j:29:ARG:NH2   | 2.39                     | 0.56              |
| 4:3:2781:C:H2'    | 4:3:2782:A:C8     | 2.41                     | 0.56              |
| 4:3:2826:G:O2'    | 4:3:2828:C:OP2    | 2.22                     | 0.56              |
| 7:6:163:PHE:HB2   | 9:8:917:LYS:HE2   | 1.87                     | 0.56              |
| 8:7:67:C:H2'      | 8:7:68:G:H8       | 1.71                     | 0.56              |
| 9:8:394:SER:HA    | 9:8:489:ILE:CD1   | 2.34                     | 0.56              |
| 9:8:998:ILE:C     | 12:AB:6:ASN:HD22  | 2.09                     | 0.56              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 7:AA:305:ASN:HB3  | 12:AB:80:ASP:HB3   | 1.87                     | 0.56              |
| 16:B:11:ARG:HH22  | 16:B:183:ALA:HB3   | 1.70                     | 0.56              |
| 26:L:34:LEU:HD21  | 26:L:41:PRO:HD3    | 1.86                     | 0.56              |
| 35:U:135:LEU:CD1  | 36:V:14:ILE:HG23   | 2.36                     | 0.56              |
| 37:Z:876:LYS:CG   | 37:Z:1030:ARG:HH12 | 1.86                     | 0.56              |
| 46:j:88:LYS:HB3   | 46:j:94:ARG:HG2    | 1.88                     | 0.56              |
| 4:3:220:A:H2'     | 4:3:221:A:H8       | 1.69                     | 0.56              |
| 4:3:1016:A:C2     | 4:3:1171:G:H4'     | 2.41                     | 0.56              |
| 4:3:1245:G:O3'    | 52:p:7:LYS:NZ      | 2.38                     | 0.56              |
| 4:3:2323:U:O2     | 41:d:125:ARG:NH1   | 2.38                     | 0.56              |
| 6:5:880:G:H1      | 6:5:905:U:H3       | 1.53                     | 0.56              |
| 6:5:1051:U:H5''   | 23:I:59:ARG:HB3    | 1.88                     | 0.56              |
| 9:8:245:LYS:NZ    | 9:8:472:ASP:OD2    | 2.39                     | 0.56              |
| 9:8:640:ASP:OD1   | 13:AC:26:DT:H5'    | 2.05                     | 0.56              |
| 9:8:715:ALA:HB2   | 9:8:750:ILE:HD13   | 1.88                     | 0.56              |
| 20:F:115:MET:HA   | 20:F:118:LYS:HG2   | 1.86                     | 0.56              |
| 4:3:1326:C:H2'    | 4:3:1327:G:C8      | 2.41                     | 0.56              |
| 4:3:2094:A:H2'    | 4:3:2095:A:C8      | 2.40                     | 0.56              |
| 4:3:2175:U:C2     | 4:3:2179:A:N7      | 2.74                     | 0.56              |
| 4:3:2706:U:H2'    | 4:3:2707:A:C8      | 2.40                     | 0.56              |
| 6:5:145:G:O2'     | 6:5:147:A:N6       | 2.39                     | 0.56              |
| 9:8:571:ASN:HB3   | 9:8:577:ILE:HD11   | 1.87                     | 0.56              |
| 9:8:1340:LYS:NZ   | 9:8:1370:ILE:CG1   | 2.69                     | 0.56              |
| 15:AE:17:VAL:HG12 | 15:AE:18:LYS:H     | 1.71                     | 0.56              |
| 18:D:188:PRO:O    | 18:D:192:ILE:HG12  | 2.06                     | 0.56              |
| 22:H:116:LYS:HE2  | 22:H:123:ALA:HA    | 1.86                     | 0.56              |
| 37:Z:501:ARG:CZ   | 37:Z:563:LEU:HD21  | 2.35                     | 0.56              |
| 47:k:77:TRP:CZ3   | 47:k:111:PRO:HB2   | 2.41                     | 0.56              |
| 4:3:517:G:H1      | 4:3:544:U:H3       | 1.52                     | 0.55              |
| 4:3:1141:U:C2'    | 35:U:79:LYS:HA     | 2.35                     | 0.55              |
| 4:3:1159:C:H3'    | 4:3:1160:G:C8      | 2.41                     | 0.55              |
| 4:3:1784:U:H2'    | 4:3:1785:U:C6      | 2.41                     | 0.55              |
| 4:3:2335:A:H2'    | 4:3:2336:A:C8      | 2.41                     | 0.55              |
| 4:3:2409:U:H3     | 4:3:2423:G:H1      | 1.52                     | 0.55              |
| 4:3:2750:A:H2'    | 4:3:2751:C:C6      | 2.41                     | 0.55              |
| 4:3:2802:C:H41    | 4:3:2807:G:H4'     | 1.70                     | 0.55              |
| 6:5:711:G:H2'     | 6:5:712:A:C8       | 2.35                     | 0.55              |
| 6:5:1226:A:H2'    | 6:5:1227:A:C8      | 2.42                     | 0.55              |
| 6:5:1281:U:O3'    | 26:L:109:ARG:NH1   | 2.39                     | 0.55              |
| 9:8:648:VAL:O     | 37:Z:835:PHE:HE2   | 1.89                     | 0.55              |
| 9:8:998:ILE:HA    | 12:AB:108:LEU:HD13 | 1.86                     | 0.55              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 16:B:11:ARG:HD3   | 16:B:181:LEU:HA   | 1.88                     | 0.55              |
| 30:P:48:HIS:CE1   | 30:P:69:LEU:HD11  | 2.41                     | 0.55              |
| 32:R:81:LYS:NZ    | 32:R:84:THR:O     | 2.31                     | 0.55              |
| 48:l:15:VAL:HG11  | 48:l:96:VAL:HG11  | 1.87                     | 0.55              |
| 4:3:892:G:H2'     | 4:3:893:A:C8      | 2.41                     | 0.55              |
| 4:3:2769:G:H2'    | 4:3:2770:U:C6     | 2.41                     | 0.55              |
| 5:4:11:A:N6       | 5:4:67:G:O2'      | 2.39                     | 0.55              |
| 7:6:190:HIS:CE1   | 9:8:1083:ASP:O    | 2.56                     | 0.55              |
| 9:8:419:LEU:HD21  | 9:8:422:LYS:HG3   | 1.88                     | 0.55              |
| 9:8:1306:LEU:HD23 | 37:Z:408:VAL:CG1  | 2.32                     | 0.55              |
| 12:AB:8:PHE:O     | 12:AB:60:GLY:CA   | 2.54                     | 0.55              |
| 12:AB:154:ILE:O   | 37:Z:77:LYS:HB3   | 2.06                     | 0.55              |
| 12:AB:239:LYS:HZ3 | 12:AB:294:LYS:HB2 | 1.69                     | 0.55              |
| 14:AD:17:DT:C4'   | 37:Z:413:ARG:HH11 | 1.98                     | 0.55              |
| 37:Z:607:TYR:CE2  | 37:Z:614:LEU:HG   | 2.41                     | 0.55              |
| 38:a:4:LYS:NZ     | 38:a:5:LYS:O      | 2.35                     | 0.55              |
| 51:o:92:ARG:HD3   | 51:o:115:LYS:CE   | 2.32                     | 0.55              |
| 56:t:29:PRO:O     | 56:t:32:GLN:NE2   | 2.39                     | 0.55              |
| 3:2:7:VAL:HG12    | 3:2:34:GLN:HG3    | 1.87                     | 0.55              |
| 4:3:697:U:H2'     | 4:3:698:A:C8      | 2.41                     | 0.55              |
| 4:3:902:U:N3      | 4:3:941:C:OP2     | 2.39                     | 0.55              |
| 4:3:1261:U:H2'    | 4:3:1262:G:H8     | 1.71                     | 0.55              |
| 4:3:1645:C:H2'    | 4:3:1646:G:C8     | 2.42                     | 0.55              |
| 6:5:416:U:N3      | 6:5:421:G:C6      | 2.74                     | 0.55              |
| 6:5:576:A:H2'     | 6:5:577:G:H8      | 1.71                     | 0.55              |
| 6:5:1138:U:H2'    | 6:5:1139:A:H8     | 1.72                     | 0.55              |
| 6:5:1213:A:N7     | 6:5:1275:U:O4     | 2.39                     | 0.55              |
| 9:8:115:LYS:HG2   | 9:8:126:ASP:OD1   | 2.06                     | 0.55              |
| 9:8:953:ALA:O     | 7:AA:326:ARG:NE   | 2.24                     | 0.55              |
| 9:8:994:LEU:HD12  | 12:AB:12:LEU:HD13 | 1.87                     | 0.55              |
| 11:A:22:LYS:HB3   | 11:A:25:GLU:HB3   | 1.88                     | 0.55              |
| 7:AA:85:LYS:HD3   | 37:Z:602:GLU:CD   | 2.29                     | 0.55              |
| 16:B:186:ASP:OD1  | 16:B:187:TYR:N    | 2.39                     | 0.55              |
| 29:O:12:ARG:HH22  | 29:O:23:ASP:HB2   | 1.71                     | 0.55              |
| 30:P:50:GLU:OE1   | 30:P:76:ARG:NH1   | 2.39                     | 0.55              |
| 39:b:6:ILE:HG22   | 39:b:207:ILE:HB   | 1.87                     | 0.55              |
| 52:p:12:ARG:HA    | 52:p:15:LYS:HG2   | 1.88                     | 0.55              |
| 54:r:71:VAL:HA    | 54:r:107:LEU:HD13 | 1.88                     | 0.55              |
| 4:3:1942:G:N2     | 4:3:1971:G:O5'    | 2.38                     | 0.55              |
| 4:3:2514:U:OP2    | 4:3:2584:G:N1     | 2.37                     | 0.55              |
| 5:4:60:C:H2'      | 5:4:61:A:H8       | 1.70                     | 0.55              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 6:5:412:G:H2'    | 6:5:413:G:H8      | 1.71                     | 0.55              |
| 6:5:461:G:O6     | 6:5:462:G:N2      | 2.39                     | 0.55              |
| 6:5:1330:A:H2'   | 6:5:1331:A:C8     | 2.40                     | 0.55              |
| 9:8:649:HIS:HD2  | 37:Z:837:TYR:CZ   | 1.91                     | 0.55              |
| 10:9:55:ASP:OD1  | 37:Z:913:LYS:NZ   | 2.30                     | 0.55              |
| 12:AB:183:LYS:CE | 12:AB:281:ASN:HB3 | 2.37                     | 0.55              |
| 25:K:80:ILE:HG12 | 25:K:112:ARG:HH11 | 1.71                     | 0.55              |
| 39:b:125:ARG:HD2 | 39:b:126:TRP:NE1  | 2.21                     | 0.55              |
| 40:c:24:LEU:HD21 | 40:c:208:GLU:HA   | 1.88                     | 0.55              |
| 52:p:91:ARG:HD3  | 53:q:11:GLN:HB3   | 1.88                     | 0.55              |
| 4:3:61:U:O2      | 4:3:70:G:N2       | 2.38                     | 0.55              |
| 4:3:254:G:H2'    | 4:3:255:A:C8      | 2.41                     | 0.55              |
| 4:3:432:G:H5'    | 58:v:13:LEU:HB2   | 1.87                     | 0.55              |
| 4:3:1963:U:H2'   | 4:3:1964:C:H5'    | 1.87                     | 0.55              |
| 4:3:2080:C:H5''  | 38:a:236:ASN:HB2  | 1.88                     | 0.55              |
| 4:3:2176:G:N1    | 4:3:2179:A:OP2    | 2.39                     | 0.55              |
| 6:5:172:C:O2'    | 33:S:73:VAL:HG11  | 2.07                     | 0.55              |
| 6:5:1397:G:H2'   | 6:5:1398:G:C8     | 2.41                     | 0.55              |
| 17:C:139:GLY:H   | 17:C:179:VAL:HA   | 1.71                     | 0.55              |
| 25:K:48:THR:HA   | 25:K:90:HIS:CE1   | 2.42                     | 0.55              |
| 48:l:2:LEU:HB3   | 48:l:69:PHE:HE1   | 1.72                     | 0.55              |
| 51:o:21:TYR:CE2  | 51:o:23:PRO:HG3   | 2.42                     | 0.55              |
| 4:3:611:A:OP1    | 4:3:1285:U:O2'    | 2.25                     | 0.55              |
| 4:3:1382:A:N6    | 4:3:1405:G:H21    | 2.00                     | 0.55              |
| 4:3:1549:U:H3'   | 4:3:1550:G:H8     | 1.71                     | 0.55              |
| 4:3:2828:C:H3'   | 4:3:2829:G:N2     | 2.21                     | 0.55              |
| 6:5:536:U:H2'    | 6:5:537:A:C8      | 2.42                     | 0.55              |
| 6:5:1102:A:N6    | 16:B:179:SER:OG   | 2.39                     | 0.55              |
| 9:8:1000:PRO:HD2 | 12:AB:6:ASN:ND2   | 2.10                     | 0.55              |
| 12:AB:43:LYS:HA  | 12:AB:48:TYR:O    | 2.06                     | 0.55              |
| 14:AD:14:DG:C5'  | 37:Z:890:TYR:CA   | 2.84                     | 0.55              |
| 27:M:42:LEU:O    | 27:M:45:ARG:N     | 2.36                     | 0.55              |
| 29:O:10:THR:HA   | 29:O:35:PRO:HD2   | 1.89                     | 0.55              |
| 38:a:243:GLY:HA3 | 38:a:247:SER:HB3  | 1.89                     | 0.55              |
| 54:r:1:MET:N     | 54:r:113:GLU:OE1  | 2.39                     | 0.55              |
| 4:3:552:C:OP2    | 61:y:10:LYS:NZ    | 2.37                     | 0.55              |
| 4:3:886:U:H3     | 4:3:964:A:H61     | 1.52                     | 0.55              |
| 4:3:939:U:H2'    | 4:3:940:A:H8      | 1.71                     | 0.55              |
| 4:3:1529:U:H2'   | 4:3:1530:G:C8     | 2.41                     | 0.55              |
| 6:5:257:U:OP2    | 33:S:67:ARG:NH2   | 2.40                     | 0.55              |
| 9:8:943:ILE:HD13 | 9:8:1043:ILE:CD1  | 2.37                     | 0.55              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 9:8:952:ASP:HB3   | 7:AA:295:LYS:CD    | 2.37                     | 0.55              |
| 12:AB:45:HIS:CB   | 12:AB:115:LEU:HD21 | 2.36                     | 0.55              |
| 17:C:10:ARG:HD3   | 17:C:62:TYR:CE2    | 2.41                     | 0.55              |
| 24:J:70:MET:HB2   | 24:J:72:MET:HE1    | 1.89                     | 0.55              |
| 34:T:20:ARG:O     | 34:T:23:LEU:HG     | 2.06                     | 0.55              |
| 40:c:166:THR:O    | 40:c:170:GLN:HB2   | 2.06                     | 0.55              |
| 4:3:764:G:N2      | 38:a:12:SER:OG     | 2.38                     | 0.55              |
| 4:3:2832:G:H2'    | 4:3:2833:A:H8      | 1.70                     | 0.55              |
| 6:5:295:G:H2'     | 6:5:296:A:C4       | 2.42                     | 0.55              |
| 6:5:748:U:H3'     | 6:5:749:G:C8       | 2.42                     | 0.55              |
| 9:8:1136:SER:HB2  | 9:8:1143:GLN:OE1   | 2.07                     | 0.55              |
| 9:8:1347:GLN:HB3  | 37:Z:100:MET:CE    | 2.31                     | 0.55              |
| 10:9:9:ILE:HG13   | 10:9:55:ASP:HB3    | 1.87                     | 0.55              |
| 40:c:140:THR:O    | 40:c:144:MET:N     | 2.36                     | 0.55              |
| 41:d:14:LYS:HB2   | 41:d:18:LYS:NZ     | 2.21                     | 0.55              |
| 43:f:64:LEU:HD23  | 43:f:67:LYS:HZ1    | 1.72                     | 0.55              |
| 43:f:122:GLY:N    | 43:f:142:VAL:O     | 2.39                     | 0.55              |
| 53:q:28:PRO:HD2   | 53:q:31:LYS:HE3    | 1.88                     | 0.55              |
| 4:3:116:C:O2'     | 4:3:128:A:O2'      | 2.21                     | 0.55              |
| 4:3:945:U:O2'     | 48:l:71:HIS:NE2    | 2.40                     | 0.55              |
| 4:3:1249:A:N3     | 54:r:128:ARG:NH2   | 2.55                     | 0.55              |
| 6:5:149:G:H2'     | 6:5:150:A:C8       | 2.42                     | 0.55              |
| 6:5:265:U:H2'     | 6:5:266:A:C8       | 2.42                     | 0.55              |
| 6:5:540:U:O2'     | 17:C:13:ARG:NH1    | 2.40                     | 0.55              |
| 9:8:1371:LEU:HD23 | 37:Z:94:ILE:CG2    | 2.29                     | 0.55              |
| 12:AB:139:PHE:CZ  | 12:AB:147:ILE:CG1  | 2.90                     | 0.55              |
| 4:3:477:U:H2'     | 4:3:478:G:C8       | 2.42                     | 0.55              |
| 4:3:941:C:H2'     | 4:3:942:A:C8       | 2.42                     | 0.55              |
| 4:3:1805:U:H3'    | 38:a:282:ARG:HH22  | 1.72                     | 0.55              |
| 4:3:1923:A:N6     | 6:5:1383:A:O2'     | 2.40                     | 0.55              |
| 4:3:2054:C:H2'    | 4:3:2055:A:H8      | 1.71                     | 0.55              |
| 4:3:2691:C:OP1    | 51:o:56:ARG:NH1    | 2.39                     | 0.55              |
| 5:4:58:C:H2'      | 5:4:59:A:C8        | 2.41                     | 0.55              |
| 6:5:14:U:H3       | 6:5:909:A:H62      | 1.54                     | 0.55              |
| 6:5:144:U:O2      | 6:5:149:G:O6       | 2.25                     | 0.55              |
| 6:5:375:C:H2'     | 6:5:376:G:C8       | 2.42                     | 0.55              |
| 6:5:536:U:H2'     | 6:5:537:A:H8       | 1.72                     | 0.55              |
| 9:8:148:GLU:OE2   | 9:8:615:HIS:CE1    | 2.60                     | 0.55              |
| 9:8:709:GLU:HG3   | 9:8:714:ILE:CD1    | 2.37                     | 0.55              |
| 9:8:907:ASP:CG    | 9:8:1099:ARG:HH22  | 2.15                     | 0.55              |
| 12:AB:196:VAL:CG1 | 12:AB:217:ARG:HH22 | 2.19                     | 0.55              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 55:s:13:THR:H      | 55:s:16:VAL:HB    | 1.71                     | 0.55              |
| 4:3:139:G:H2'      | 4:3:140:G:C8      | 2.43                     | 0.54              |
| 4:3:226:A:C6       | 4:3:236:G:C2      | 2.95                     | 0.54              |
| 4:3:358:A:N6       | 4:3:372:G:N2      | 2.50                     | 0.54              |
| 4:3:425:U:H4'      | 4:3:426:U:OP2     | 2.06                     | 0.54              |
| 4:3:1027:U:O4      | 4:3:1198:G:O6     | 2.25                     | 0.54              |
| 4:3:1203:G:H2'     | 4:3:1204:A:H8     | 1.71                     | 0.54              |
| 7:6:107:GLU:OE2    | 7:AA:319:HIS:HB2  | 2.07                     | 0.54              |
| 7:6:268:ILE:HD12   | 7:6:286:ILE:O     | 2.07                     | 0.54              |
| 9:8:169:LEU:HD23   | 13:AC:25:DC:C2    | 2.42                     | 0.54              |
| 9:8:953:ALA:CA     | 7:AA:294:SER:O    | 2.53                     | 0.54              |
| 9:8:1350:ALA:HB3   | 37:Z:368:PHE:CE2  | 2.42                     | 0.54              |
| 12:AB:153:ASP:OD1  | 37:Z:77:LYS:CD    | 2.55                     | 0.54              |
| 12:AB:291:ASN:HD22 | 16:B:146:LYS:HZ3  | 1.39                     | 0.54              |
| 37:Z:434:ILE:HD12  | 37:Z:511:ILE:HG12 | 1.88                     | 0.54              |
| 4:3:799:A:N3       | 38:a:220:ARG:NH1  | 2.55                     | 0.54              |
| 4:3:1978:U:H1'     | 38:a:248:PRO:HB3  | 1.89                     | 0.54              |
| 4:3:2382:A:H2'     | 4:3:2383:G:C8     | 2.42                     | 0.54              |
| 6:5:684:A:N1       | 6:5:697:G:O2'     | 2.36                     | 0.54              |
| 7:6:161:ARG:NH2    | 7:AA:31:GLU:OE1   | 2.37                     | 0.54              |
| 9:8:307:LEU:CD1    | 9:8:334:LEU:HD13  | 2.36                     | 0.54              |
| 9:8:814:LEU:HD21   | 9:8:858:TYR:CE2   | 2.41                     | 0.54              |
| 9:8:1345:GLU:C     | 37:Z:388:LEU:HD22 | 2.31                     | 0.54              |
| 9:8:1369:SER:OG    | 37:Z:95:VAL:HA    | 2.06                     | 0.54              |
| 37:Z:192:ILE:O     | 37:Z:195:ARG:HG3  | 2.07                     | 0.54              |
| 41:d:4:LEU:HD22    | 41:d:101:GLU:HB2  | 1.90                     | 0.54              |
| 46:j:8:LEU:O       | 46:j:18:GLN:NE2   | 2.40                     | 0.54              |
| 4:3:51:A:N7        | 4:3:121:U:C4      | 2.76                     | 0.54              |
| 4:3:389:C:H2'      | 4:3:390:A:H8      | 1.71                     | 0.54              |
| 4:3:1253:G:N7      | 53:q:67:LYS:NZ    | 2.47                     | 0.54              |
| 4:3:1450:G:H1      | 4:3:1610:U:H3     | 1.55                     | 0.54              |
| 4:3:2259:G:H2'     | 4:3:2260:G:H8     | 1.72                     | 0.54              |
| 4:3:2393:C:H2'     | 4:3:2394:A:C8     | 2.42                     | 0.54              |
| 4:3:2591:G:H2'     | 4:3:2592:U:C6     | 2.43                     | 0.54              |
| 6:5:951:U:H3       | 6:5:1200:G:H1     | 1.55                     | 0.54              |
| 6:5:1054:C:OP2     | 6:5:1055:G:O2'    | 2.23                     | 0.54              |
| 9:8:94:ILE:HG23    | 9:8:135:LEU:CD1   | 2.28                     | 0.54              |
| 9:8:998:ILE:C      | 12:AB:108:LEU:CB  | 2.81                     | 0.54              |
| 9:8:1094:LEU:CD2   | 37:Z:809:MET:SD   | 2.87                     | 0.54              |
| 17:C:91:ARG:HG3    | 17:C:182:PRO:HD2  | 1.89                     | 0.54              |
| 35:U:90:VAL:HG21   | 36:V:14:ILE:HG21  | 1.89                     | 0.54              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 35:U:116:ARG:HG3  | 35:U:118:PHE:CE2   | 2.42                     | 0.54              |
| 4:3:2493:G:OP2    | 48:l:45:ARG:NH2    | 2.40                     | 0.54              |
| 6:5:136:U:H3      | 6:5:157:A:H62      | 1.56                     | 0.54              |
| 6:5:319:U:O2'     | 33:S:17:ARG:NH2    | 2.40                     | 0.54              |
| 6:5:957:C:H2'     | 6:5:958:G:C8       | 2.43                     | 0.54              |
| 6:5:1003:G:C6     | 6:5:1018:U:N3      | 2.76                     | 0.54              |
| 6:5:1241:G:C2     | 6:5:1245:A:N1      | 2.75                     | 0.54              |
| 7:6:35:VAL:HG21   | 7:6:207:ASP:CB     | 2.38                     | 0.54              |
| 7:6:233:ILE:HD12  | 7:AA:240:VAL:HG21  | 1.88                     | 0.54              |
| 4:3:370:C:H2'     | 4:3:371:C:C6       | 2.43                     | 0.54              |
| 5:4:55:A:H4'      | 41:d:27:GLN:NE2    | 2.21                     | 0.54              |
| 6:5:541:C:H2'     | 6:5:542:G:H8       | 1.72                     | 0.54              |
| 6:5:1384:A:H2'    | 6:5:1385:A:C8      | 2.42                     | 0.54              |
| 9:8:999:PHE:HZ    | 12:AB:42:TYR:HE2   | 1.53                     | 0.54              |
| 9:8:1000:PRO:HD3  | 12:AB:6:ASN:ND2    | 2.23                     | 0.54              |
| 9:8:1235:LEU:HD21 | 7:AA:44:ARG:HH12   | 1.72                     | 0.54              |
| 9:8:1297:TYR:CG   | 37:Z:554:LEU:CD2   | 2.90                     | 0.54              |
| 11:A:117:LEU:N    | 11:A:190:GLU:OE1   | 2.41                     | 0.54              |
| 14:AD:11:DT:O3'   | 37:Z:1236:ASP:OD1  | 2.24                     | 0.54              |
| 15:AE:140:ASN:OD1 | 15:AE:150:VAL:HG21 | 2.07                     | 0.54              |
| 2:1:11:PHE:HE2    | 47:k:59:TYR:HB3    | 1.72                     | 0.54              |
| 4:3:401:G:O2'     | 4:3:402:A:OP1      | 2.25                     | 0.54              |
| 4:3:1416:G:H2'    | 4:3:1417:G:C8      | 2.42                     | 0.54              |
| 4:3:2417:G:H2'    | 4:3:2418:G:C8      | 2.43                     | 0.54              |
| 4:3:2704:U:H2'    | 4:3:2705:G:C8      | 2.41                     | 0.54              |
| 6:5:448:A:H62     | 6:5:478:G:H5'      | 1.71                     | 0.54              |
| 9:8:403:ILE:HD12  | 9:8:427:LEU:HD13   | 1.88                     | 0.54              |
| 9:8:906:GLU:OE2   | 37:Z:530:ASP:HB3   | 2.07                     | 0.54              |
| 9:8:1344:LYS:CD   | 37:Z:306:PRO:HD3   | 2.14                     | 0.54              |
| 14:AD:14:DG:C5'   | 37:Z:890:TYR:CB    | 2.67                     | 0.54              |
| 25:K:19:SER:HB3   | 25:K:25:HIS:HE2    | 1.71                     | 0.54              |
| 33:S:10:ARG:HD3   | 33:S:13:GLN:HE21   | 1.71                     | 0.54              |
| 38:a:64:ARG:NH1   | 38:a:90:PRO:O      | 2.41                     | 0.54              |
| 38:a:69:ILE:HG23  | 38:a:109:ILE:HA    | 1.89                     | 0.54              |
| 50:n:87:THR:OG1   | 50:n:113:GLY:O     | 2.25                     | 0.54              |
| 4:3:408:G:O2'     | 4:3:460:G:OP1      | 2.24                     | 0.54              |
| 4:3:714:G:H2'     | 4:3:715:G:H8       | 1.73                     | 0.54              |
| 4:3:802:U:H2'     | 4:3:803:G:H8       | 1.72                     | 0.54              |
| 4:3:1717:C:H2'    | 4:3:1718:C:C6      | 2.43                     | 0.54              |
| 4:3:2294:A:N6     | 62:z:21:THR:OG1    | 2.39                     | 0.54              |
| 4:3:2682:A:H4'    | 46:j:30:LYS:HD3    | 1.88                     | 0.54              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 6:5:612:G:H1      | 6:5:624:U:H3      | 1.56                     | 0.54              |
| 9:8:1289:MET:SD   | 14:AD:15:DA:C1'   | 2.96                     | 0.54              |
| 12:AB:157:ASN:OD1 | 12:AB:163:LYS:HB2 | 2.07                     | 0.54              |
| 19:E:23:GLU:HA    | 19:E:26:GLN:HG2   | 1.88                     | 0.54              |
| 21:G:15:VAL:O     | 21:G:19:LEU:HG    | 2.07                     | 0.54              |
| 45:i:133:HIS:CE1  | 45:i:136:GLU:HG3  | 2.43                     | 0.54              |
| 47:k:126:PHE:HB2  | 47:k:146:VAL:HG22 | 1.90                     | 0.54              |
| 4:3:1046:A:H5''   | 52:p:65:ASN:ND2   | 2.23                     | 0.54              |
| 4:3:1807:C:N4     | 4:3:1824:G:N2     | 2.26                     | 0.54              |
| 4:3:1845:C:H4'    | 4:3:1846:A:H5'    | 1.90                     | 0.54              |
| 4:3:2840:U:H2'    | 4:3:2841:A:C8     | 2.43                     | 0.54              |
| 5:4:3:U:H2'       | 5:4:4:G:H8        | 1.73                     | 0.54              |
| 6:5:1109:U:OP2    | 22:H:11:ARG:NH1   | 2.36                     | 0.54              |
| 6:5:1302:C:H2'    | 6:5:1303:A:C8     | 2.43                     | 0.54              |
| 9:8:398:ARG:NH2   | 9:8:494:ASP:OD2   | 2.40                     | 0.54              |
| 9:8:1370:ILE:HD12 | 37:Z:94:ILE:CG1   | 2.35                     | 0.54              |
| 12:AB:183:LYS:HB3 | 12:AB:280:PHE:CA  | 2.38                     | 0.54              |
| 15:AE:78:ASP:OD2  | 15:AE:81:ARG:NH2  | 2.37                     | 0.54              |
| 33:S:14:ASN:OD1   | 33:S:15:ILE:HD12  | 2.07                     | 0.54              |
| 37:Z:162:PHE:CE1  | 37:Z:163:LYS:HE3  | 2.43                     | 0.54              |
| 39:b:122:ALA:N    | 39:b:166:SER:OG   | 2.40                     | 0.54              |
| 4:3:30:A:H2'      | 4:3:31:U:C6       | 2.43                     | 0.54              |
| 4:3:59:C:H2'      | 4:3:60:G:C8       | 2.43                     | 0.54              |
| 4:3:96:A:H2'      | 4:3:97:A:C8       | 2.43                     | 0.54              |
| 4:3:700:U:H2'     | 4:3:701:A:C8      | 2.42                     | 0.54              |
| 6:5:372:G:H2'     | 6:5:373:A:C8      | 2.42                     | 0.54              |
| 11:A:32:MET:O     | 11:A:53:ASN:ND2   | 2.32                     | 0.54              |
| 11:A:202:CYS:HG   | 11:A:206:THR:HG1  | 1.46                     | 0.54              |
| 17:C:34:ILE:HD11  | 17:C:39:GLY:HA3   | 1.88                     | 0.54              |
| 28:N:46:ASP:O     | 28:N:49:SER:OG    | 2.24                     | 0.54              |
| 39:b:161:LYS:NZ   | 45:i:82:GLN:HG3   | 2.23                     | 0.54              |
| 51:o:57:GLY:HA3   | 51:o:62:GLU:HG2   | 1.90                     | 0.54              |
| 4:3:494:G:HO2'    | 4:3:505:G:H1      | 1.56                     | 0.54              |
| 4:3:732:G:H2'     | 4:3:733:C:C6      | 2.43                     | 0.54              |
| 4:3:1081:A:C2     | 35:U:58:ILE:CD1   | 2.91                     | 0.54              |
| 4:3:2025:C:H2'    | 4:3:2026:A:H8     | 1.73                     | 0.54              |
| 4:3:2695:U:O4     | 4:3:2730:G:O6     | 2.25                     | 0.54              |
| 4:3:2826:G:OP1    | 39:b:118:GLY:N    | 2.41                     | 0.54              |
| 6:5:1225:A:H2     | 6:5:1345:G:H1'    | 1.72                     | 0.54              |
| 7:6:283:ARG:CZ    | 12:AB:313:LEU:O   | 2.56                     | 0.54              |
| 8:7:23:G:H2'      | 8:7:24:A:H8       | 1.73                     | 0.54              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 9:8:1273:GLN:CD   | 37:Z:402:ASN:ND2  | 2.64                     | 0.54              |
| 18:D:142:GLY:O    | 18:D:148:ARG:HA   | 2.08                     | 0.54              |
| 29:O:12:ARG:HH12  | 29:O:23:ASP:C     | 2.16                     | 0.54              |
| 38:a:97:SER:HB3   | 38:a:111:SER:HB3  | 1.89                     | 0.54              |
| 41:d:29:PRO:HD2   | 41:d:169:LEU:HD11 | 1.89                     | 0.54              |
| 47:k:67:ASN:ND2   | 47:k:69:ARG:O     | 2.40                     | 0.54              |
| 4:3:241:C:H2'     | 4:3:242:G:H8      | 1.72                     | 0.53              |
| 4:3:452:U:H3      | 4:3:2415:A:N6     | 2.04                     | 0.53              |
| 4:3:2822:C:H2'    | 4:3:2823:A:H8     | 1.73                     | 0.53              |
| 6:5:510:U:H2'     | 6:5:511:A:H8      | 1.72                     | 0.53              |
| 13:AC:17:DT:H5''  | 15:AE:118:THR:CG2 | 2.09                     | 0.53              |
| 40:c:127:LEU:HD12 | 40:c:199:VAL:HG23 | 1.89                     | 0.53              |
| 53:q:32:GLU:OE2   | 53:q:56:VAL:HG12  | 2.08                     | 0.53              |
| 4:3:17:G:O6       | 4:3:560:U:O2      | 2.26                     | 0.53              |
| 4:3:144:C:H2'     | 4:3:145:A:C8      | 2.43                     | 0.53              |
| 4:3:725:G:O2'     | 38:a:47:ARG:NH2   | 2.42                     | 0.53              |
| 4:3:1754:U:H2'    | 4:3:1755:A:C8     | 2.43                     | 0.53              |
| 4:3:2031:C:H5''   | 39:b:158:ARG:HD3  | 1.91                     | 0.53              |
| 4:3:2631:G:O5'    | 4:3:2830:A:O2'    | 2.26                     | 0.53              |
| 6:5:369:A:H2'     | 6:5:370:A:H8      | 1.74                     | 0.53              |
| 6:5:939:G:N2      | 6:5:1313:A:OP2    | 2.41                     | 0.53              |
| 7:6:34:PHE:HE2    | 7:AA:49:CYS:SG    | 2.30                     | 0.53              |
| 7:6:108:ARG:NH2   | 7:AA:316:LYS:HE2  | 2.23                     | 0.53              |
| 9:8:627:ARG:HD3   | 9:8:670:ILE:CG2   | 2.39                     | 0.53              |
| 9:8:825:LYS:HE3   | 9:8:835:GLU:OE2   | 2.08                     | 0.53              |
| 9:8:1269:LYS:HZ2  | 37:Z:313:ILE:HG22 | 1.72                     | 0.53              |
| 9:8:1310:LYS:CB   | 37:Z:409:ASP:HB2  | 2.39                     | 0.53              |
| 9:8:1370:ILE:HD12 | 37:Z:94:ILE:HG12  | 1.91                     | 0.53              |
| 10:9:78:PHE:CZ    | 37:Z:1095:ARG:NH2 | 2.75                     | 0.53              |
| 16:B:123:LEU:O    | 16:B:127:ILE:HG12 | 2.07                     | 0.53              |
| 39:b:13:MET:HA    | 39:b:27:THR:HA    | 1.90                     | 0.53              |
| 45:i:26:LEU:HB3   | 45:i:31:LEU:HD23  | 1.89                     | 0.53              |
| 4:3:523:A:C6      | 4:3:529:G:N1      | 2.76                     | 0.53              |
| 4:3:1142:G:C3'    | 35:U:78:GLY:N     | 2.43                     | 0.53              |
| 4:3:2206:A:H1'    | 43:f:30:LEU:HD21  | 1.90                     | 0.53              |
| 4:3:2697:C:H5'    | 4:3:2876:G:H22    | 1.73                     | 0.53              |
| 6:5:448:A:H3'     | 29:O:38:LYS:HE3   | 1.90                     | 0.53              |
| 7:6:271:LEU:HD22  | 7:6:321:LEU:HD11  | 1.89                     | 0.53              |
| 9:8:479:ASN:HB3   | 9:8:481:ASP:OD1   | 2.08                     | 0.53              |
| 28:N:6:ASN:HA     | 28:N:9:ILE:HG12   | 1.91                     | 0.53              |
| 45:i:42:LYS:HE3   | 52:p:62:LEU:HD11  | 1.89                     | 0.53              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 2:1:20:LYS:NZ    | 4:3:666:G:H5''    | 2.22                     | 0.53              |
| 4:3:999:U:O2'    | 4:3:2258:G:O6     | 2.26                     | 0.53              |
| 4:3:2350:C:H2'   | 4:3:2351:U:C6     | 2.44                     | 0.53              |
| 4:3:2587:U:H2'   | 4:3:2588:U:C6     | 2.43                     | 0.53              |
| 4:3:2706:U:H2'   | 4:3:2707:A:H8     | 1.74                     | 0.53              |
| 4:3:2857:C:H2'   | 4:3:2858:A:C8     | 2.44                     | 0.53              |
| 6:5:169:G:N2     | 6:5:219:A:O2'     | 2.41                     | 0.53              |
| 8:7:19:G:H4'     | 8:7:20:G:OP1      | 2.08                     | 0.53              |
| 8:7:67:C:H2'     | 8:7:68:G:C8       | 2.43                     | 0.53              |
| 17:C:143:ARG:NH2 | 17:C:144:LEU:O    | 2.41                     | 0.53              |
| 24:J:85:GLY:O    | 24:J:88:THR:OG1   | 2.17                     | 0.53              |
| 32:R:25:GLN:O    | 32:R:26:GLU:HG3   | 2.08                     | 0.53              |
| 37:Z:586:GLU:HG2 | 37:Z:639:THR:CG2  | 2.38                     | 0.53              |
| 46:j:77:LEU:HD13 | 51:o:77:LYS:HB2   | 1.89                     | 0.53              |
| 51:o:32:ASN:HA   | 51:o:49:THR:HA    | 1.90                     | 0.53              |
| 2:1:37:GLN:NE2   | 4:3:2371:U:OP2    | 2.40                     | 0.53              |
| 4:3:269:A:N6     | 4:3:315:A:O4'     | 2.42                     | 0.53              |
| 4:3:740:A:OP2    | 4:3:761:G:N2      | 2.42                     | 0.53              |
| 4:3:1079:U:O2'   | 4:3:1146:A:N1     | 2.41                     | 0.53              |
| 4:3:1184:U:H2'   | 4:3:1185:U:C6     | 2.43                     | 0.53              |
| 4:3:1224:G:N7    | 47:k:16:LYS:NZ    | 2.56                     | 0.53              |
| 4:3:1633:C:H2'   | 4:3:1634:A:C8     | 2.44                     | 0.53              |
| 4:3:2126:A:O2'   | 4:3:2127:G:H5'    | 2.08                     | 0.53              |
| 4:3:2195:U:H2'   | 4:3:2196:G:C8     | 2.43                     | 0.53              |
| 4:3:2351:U:O2'   | 4:3:2381:G:O2'    | 2.23                     | 0.53              |
| 4:3:2694:A:H2'   | 4:3:2695:U:H6     | 1.74                     | 0.53              |
| 4:3:2798:A:N1    | 4:3:2897:G:C6     | 2.77                     | 0.53              |
| 4:3:2885:U:H2'   | 4:3:2886:A:H8     | 1.74                     | 0.53              |
| 6:5:219:A:H2'    | 6:5:220:U:O4'     | 2.09                     | 0.53              |
| 6:5:1113:U:H2'   | 6:5:1114:A:C8     | 2.43                     | 0.53              |
| 9:8:1212:MET:SD  | 37:Z:737:PHE:CZ   | 3.02                     | 0.53              |
| 9:8:1310:LYS:O   | 37:Z:409:ASP:N    | 2.42                     | 0.53              |
| 17:C:94:GLU:HG3  | 17:C:187:LEU:HD13 | 1.91                     | 0.53              |
| 26:L:55:ALA:O    | 26:L:58:ASN:HB2   | 2.08                     | 0.53              |
| 33:S:35:PHE:CE1  | 33:S:44:LEU:HB2   | 2.42                     | 0.53              |
| 47:k:75:GLN:OE1  | 47:k:77:TRP:NE1   | 2.42                     | 0.53              |
| 4:3:163:A:H2'    | 4:3:164:A:C8      | 2.44                     | 0.53              |
| 4:3:974:C:N4     | 4:3:975:G:O6      | 2.42                     | 0.53              |
| 4:3:982:G:H2'    | 4:3:983:A:C8      | 2.44                     | 0.53              |
| 4:3:1119:A:C8    | 35:U:53:VAL:HG23  | 2.44                     | 0.53              |
| 4:3:1463:G:H2'   | 4:3:1464:G:H8     | 1.73                     | 0.53              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 4:3:2018:U:H2'    | 4:3:2019:G:O4'     | 2.09                     | 0.53              |
| 6:5:331:C:H2'     | 6:5:332:A:H8       | 1.74                     | 0.53              |
| 6:5:681:U:H2'     | 6:5:682:G:C8       | 2.44                     | 0.53              |
| 6:5:1345:G:H2'    | 6:5:1346:G:H8      | 1.73                     | 0.53              |
| 9:8:1160:ARG:HD2  | 9:8:1176:ASP:OD1   | 2.08                     | 0.53              |
| 9:8:1348:GLY:O    | 37:Z:388:LEU:CD1   | 2.52                     | 0.53              |
| 7:AA:86:GLN:CD    | 37:Z:599:THR:CG2   | 2.81                     | 0.53              |
| 12:AB:239:LYS:CD  | 12:AB:294:LYS:N    | 2.70                     | 0.53              |
| 37:Z:21:SER:HB3   | 37:Z:1248:THR:HG23 | 1.89                     | 0.53              |
| 47:k:131:VAL:HG22 | 47:k:148:LEU:HD11  | 1.90                     | 0.53              |
| 4:3:223:A:N6      | 4:3:464:A:OP2      | 2.40                     | 0.53              |
| 4:3:2102:U:H5''   | 43:f:12:LEU:HD21   | 1.90                     | 0.53              |
| 6:5:881:G:N1      | 6:5:905:U:C2       | 2.77                     | 0.53              |
| 8:7:29:C:H2'      | 8:7:30:G:H8        | 1.74                     | 0.53              |
| 9:8:30:GLN:HG3    | 9:8:676:PHE:HE1    | 1.73                     | 0.53              |
| 12:AB:239:LYS:HE2 | 12:AB:294:LYS:HG3  | 1.89                     | 0.53              |
| 15:AE:137:ASP:CB  | 37:Z:349:PRO:HG3   | 2.38                     | 0.53              |
| 19:E:13:LEU:HB3   | 19:E:17:GLN:HE21   | 1.73                     | 0.53              |
| 19:E:22:ASN:O     | 19:E:26:GLN:NE2    | 2.41                     | 0.53              |
| 37:Z:488:ASP:C    | 37:Z:551:ARG:NH2   | 2.65                     | 0.53              |
| 46:j:2:VAL:HG23   | 46:j:33:ALA:HB3    | 1.89                     | 0.53              |
| 53:q:27:ALA:HB1   | 53:q:31:LYS:HZ1    | 1.73                     | 0.53              |
| 54:r:136:LYS:O    | 54:r:139:ARG:NH2   | 2.40                     | 0.53              |
| 4:3:733:C:H5''    | 4:3:734:A:H5'      | 1.91                     | 0.53              |
| 4:3:1012:G:H2'    | 4:3:1013:G:C8      | 2.44                     | 0.53              |
| 4:3:2285:G:H5''   | 48:l:11:LYS:HD2    | 1.91                     | 0.53              |
| 5:4:104:C:H2'     | 5:4:105:A:H8       | 1.72                     | 0.53              |
| 6:5:742:C:H2'     | 6:5:743:A:H8       | 1.74                     | 0.53              |
| 6:5:836:C:H2'     | 6:5:837:G:C4       | 2.44                     | 0.53              |
| 9:8:406:LYS:HE3   | 9:8:518:ILE:HG12   | 1.90                     | 0.53              |
| 12:AB:49:VAL:CG2  | 12:AB:81:PHE:HB3   | 2.38                     | 0.53              |
| 18:D:177:ASP:N    | 18:D:177:ASP:OD1   | 2.42                     | 0.53              |
| 25:K:67:LYS:HD3   | 25:K:77:LEU:HD23   | 1.91                     | 0.53              |
| 29:O:31:GLY:HA3   | 29:O:43:LYS:O      | 2.08                     | 0.53              |
| 37:Z:488:ASP:CB   | 37:Z:551:ARG:NH2   | 2.70                     | 0.53              |
| 37:Z:1233:SER:OG  | 37:Z:1257:LYS:HE2  | 2.09                     | 0.53              |
| 51:o:32:ASN:HD21  | 51:o:47:ASN:HB3    | 1.74                     | 0.53              |
| 4:3:129:U:H2'     | 4:3:130:C:C6       | 2.44                     | 0.53              |
| 4:3:155:A:H2'     | 4:3:156:A:H8       | 1.74                     | 0.53              |
| 4:3:313:G:N2      | 4:3:394:C:C2       | 2.75                     | 0.53              |
| 4:3:499:G:N2      | 4:3:501:G:H3'      | 2.24                     | 0.53              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 4:3:1081:A:O3'    | 35:U:57:ASN:ND2   | 2.42                     | 0.53              |
| 4:3:1262:G:H2'    | 4:3:1263:G:H8     | 1.74                     | 0.53              |
| 4:3:1370:A:N6     | 4:3:1636:U:O2     | 2.41                     | 0.53              |
| 4:3:2098:U:O2'    | 58:v:34:GLN:NE2   | 2.41                     | 0.53              |
| 4:3:2383:G:N2     | 4:3:2386:A:OP2    | 2.23                     | 0.53              |
| 4:3:2494:C:H2'    | 4:3:2495:A:H8     | 1.73                     | 0.53              |
| 6:5:650:A:C5      | 21:G:67:LYS:HG2   | 2.44                     | 0.53              |
| 6:5:1156:G:H4'    | 6:5:1157:G:H5'    | 1.89                     | 0.53              |
| 6:5:1350:A:H4'    | 20:F:28:VAL:HG12  | 1.91                     | 0.53              |
| 7:6:223:ASP:OD1   | 7:AA:243:ASN:ND2  | 2.41                     | 0.53              |
| 9:8:170:LYS:HZ2   | 13:AC:25:DC:C5'   | 2.21                     | 0.53              |
| 15:AE:124:SER:CB  | 37:Z:142:VAL:CG1  | 2.82                     | 0.53              |
| 17:C:166:PHE:CD2  | 17:C:167:VAL:HG13 | 2.44                     | 0.53              |
| 20:F:91:PRO:O     | 20:F:95:LYS:HG3   | 2.09                     | 0.53              |
| 25:K:69:ARG:HD2   | 25:K:70:LEU:O     | 2.09                     | 0.53              |
| 27:M:10:GLN:NE2   | 27:M:21:TYR:O     | 2.42                     | 0.53              |
| 37:Z:64:LYS:HD2   | 37:Z:67:GLU:OE2   | 2.09                     | 0.53              |
| 42:e:92:LEU:N     | 42:e:132:THR:O    | 2.39                     | 0.53              |
| 45:i:106:ASN:HA   | 45:i:109:LYS:HE2  | 1.91                     | 0.53              |
| 4:3:1034:A:OP1    | 52:p:83:LYS:NZ    | 2.42                     | 0.53              |
| 4:3:1764:U:O4     | 4:3:1769:A:N7     | 2.42                     | 0.53              |
| 4:3:2855:A:H3'    | 4:3:2856:G:H8     | 1.73                     | 0.53              |
| 4:3:2885:U:H2'    | 4:3:2886:A:C8     | 2.44                     | 0.53              |
| 6:5:7:U:O2'       | 6:5:294:A:N3      | 2.42                     | 0.53              |
| 6:5:407:A:N6      | 6:5:426:U:O5'     | 2.41                     | 0.53              |
| 6:5:612:G:N2      | 6:5:624:U:O2      | 2.40                     | 0.53              |
| 6:5:1436:C:H2'    | 6:5:1437:A:H8     | 1.71                     | 0.53              |
| 8:7:54:G:N1       | 8:7:63:U:N3       | 2.57                     | 0.53              |
| 19:E:5:ILE:HG12   | 19:E:62:PHE:CE1   | 2.44                     | 0.53              |
| 20:F:21:LEU:O     | 20:F:24:ARG:HG2   | 2.09                     | 0.53              |
| 23:I:21:SER:O     | 23:I:25:ASP:N     | 2.35                     | 0.53              |
| 48:l:31:GLU:H     | 48:l:107:ALA:HB2  | 1.74                     | 0.53              |
| 4:3:73:A:H4'      | 4:3:74:U:H3'      | 1.91                     | 0.52              |
| 4:3:686:C:H2'     | 4:3:687:G:C8      | 2.44                     | 0.52              |
| 4:3:1119:A:C1'    | 35:U:53:VAL:CG2   | 2.87                     | 0.52              |
| 5:4:95:G:H2'      | 5:4:96:G:H8       | 1.74                     | 0.52              |
| 6:5:320:G:H5'     | 33:S:17:ARG:HH22  | 1.73                     | 0.52              |
| 6:5:412:G:H2'     | 6:5:413:G:C8      | 2.44                     | 0.52              |
| 6:5:879:G:H2'     | 6:5:880:G:H8      | 1.74                     | 0.52              |
| 9:8:634:GLY:CA    | 13:AC:24:DT:C7    | 2.69                     | 0.52              |
| 9:8:1081:LEU:HD21 | 9:8:1243:LEU:HD21 | 1.91                     | 0.52              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 9:8:1325:VAL:HG11 | 37:Z:464:ILE:CG2  | 2.15                     | 0.52              |
| 12:AB:291:ASN:N   | 12:AB:296:LYS:CG  | 2.42                     | 0.52              |
| 24:J:100:ILE:HG12 | 24:J:103:ILE:HD11 | 1.91                     | 0.52              |
| 25:K:76:VAL:HG21  | 25:K:108:TYR:HE1  | 1.74                     | 0.52              |
| 37:Z:983:ILE:HG21 | 37:Z:1139:ARG:HD3 | 1.91                     | 0.52              |
| 45:i:67:LEU:HB2   | 45:i:72:LYS:HG3   | 1.92                     | 0.52              |
| 4:3:57:G:H2'      | 4:3:58:A:C8       | 2.45                     | 0.52              |
| 4:3:355:A:O2'     | 4:3:374:A:N3      | 2.41                     | 0.52              |
| 4:3:599:U:OP1     | 53:q:78:HIS:NE2   | 2.42                     | 0.52              |
| 4:3:762:A:OP2     | 4:3:1459:A:O2'    | 2.25                     | 0.52              |
| 4:3:1187:C:H5'    | 52:p:79:ILE:HG21  | 1.90                     | 0.52              |
| 4:3:1262:G:H1'    | 54:r:128:ARG:HG2  | 1.90                     | 0.52              |
| 4:3:1872:U:O4     | 4:3:1882:G:O6     | 2.27                     | 0.52              |
| 4:3:2743:U:H2'    | 4:3:2744:A:C8     | 2.45                     | 0.52              |
| 6:5:36:G:H2'      | 6:5:37:C:C6       | 2.43                     | 0.52              |
| 6:5:47:G:O2'      | 6:5:361:U:H1'     | 2.09                     | 0.52              |
| 6:5:675:U:H2'     | 6:5:676:U:H6      | 1.73                     | 0.52              |
| 6:5:1267:G:H2'    | 6:5:1268:G:H8     | 1.74                     | 0.52              |
| 6:5:1287:G:H2'    | 6:5:1288:C:C6     | 2.44                     | 0.52              |
| 9:8:76:THR:HG22   | 9:8:125:VAL:HG21  | 1.91                     | 0.52              |
| 9:8:1002:SER:N    | 12:AB:109:LYS:CA  | 2.72                     | 0.52              |
| 9:8:1344:LYS:HG2  | 37:Z:309:ILE:CD1  | 2.28                     | 0.52              |
| 7:AA:300:ILE:HD12 | 7:AA:325:LEU:HD13 | 1.90                     | 0.52              |
| 28:N:21:SER:OG    | 28:N:23:GLN:OE1   | 2.27                     | 0.52              |
| 35:U:135:LEU:HD11 | 36:V:14:ILE:HG23  | 1.91                     | 0.52              |
| 37:Z:335:ARG:NH1  | 37:Z:359:LEU:HD13 | 2.24                     | 0.52              |
| 37:Z:427:VAL:HG21 | 37:Z:493:LEU:CD1  | 2.32                     | 0.52              |
| 48:l:115:ILE:O    | 48:l:119:THR:HG23 | 2.08                     | 0.52              |
| 50:n:11:ARG:NH1   | 50:n:95:GLY:O     | 2.42                     | 0.52              |
| 4:3:300:G:H2'     | 4:3:301:G:C8      | 2.44                     | 0.52              |
| 4:3:869:U:O2'     | 4:3:2366:A:H1'    | 2.09                     | 0.52              |
| 4:3:1142:G:H4'    | 35:U:78:GLY:H     | 1.01                     | 0.52              |
| 4:3:1649:C:OP2    | 4:3:1651:C:N4     | 2.43                     | 0.52              |
| 4:3:2372:C:H4'    | 57:u:72:THR:HG21  | 1.91                     | 0.52              |
| 6:5:560:U:O2      | 25:K:13:LYS:N     | 2.42                     | 0.52              |
| 6:5:923:G:O2'     | 6:5:1508:C:OP1    | 2.26                     | 0.52              |
| 6:5:1114:A:N6     | 6:5:1127:A:H61    | 2.07                     | 0.52              |
| 7:6:141:TYR:OH    | 7:6:144:SER:HB2   | 2.08                     | 0.52              |
| 9:8:648:VAL:O     | 37:Z:835:PHE:CE2  | 2.63                     | 0.52              |
| 9:8:1001:GLU:HB2  | 12:AB:109:LYS:CB  | 1.70                     | 0.52              |
| 7:AA:85:LYS:NZ    | 37:Z:602:GLU:OE1  | 2.37                     | 0.52              |

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| Atom-1           | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|--------------------|--------------------------|-------------------|
| 16:B:89:THR:HA   | 16:B:92:ILE:HG12   | 1.90                     | 0.52              |
| 22:H:23:PRO:HB3  | 22:H:62:ASN:O      | 2.09                     | 0.52              |
| 22:H:93:ASN:ND2  | 22:H:95:GLU:OE2    | 2.42                     | 0.52              |
| 23:I:25:ASP:O    | 23:I:29:LYS:HG2    | 2.10                     | 0.52              |
| 24:J:73:ALA:O    | 24:J:99:SER:OG     | 2.27                     | 0.52              |
| 50:n:7:GLN:HG3   | 50:n:11:ARG:NH2    | 2.20                     | 0.52              |
| 54:r:115:GLN:CD  | 54:r:115:GLN:H     | 2.17                     | 0.52              |
| 4:3:220:A:H2'    | 4:3:221:A:C8       | 2.44                     | 0.52              |
| 4:3:567:U:H4'    | 4:3:568:G:C8       | 2.44                     | 0.52              |
| 4:3:935:U:H2'    | 4:3:936:G:C8       | 2.45                     | 0.52              |
| 4:3:1280:G:P     | 47:k:22:ARG:HE     | 2.33                     | 0.52              |
| 4:3:2083:U:O5'   | 4:3:2246:G:N2      | 2.42                     | 0.52              |
| 6:5:311:A:HO2'   | 6:5:326:C:HO2'     | 1.53                     | 0.52              |
| 6:5:610:C:H2'    | 6:5:611:A:H8       | 1.74                     | 0.52              |
| 6:5:621:C:H2'    | 6:5:622:A:C8       | 2.45                     | 0.52              |
| 6:5:909:A:H2'    | 6:5:911:G:H5''     | 1.90                     | 0.52              |
| 6:5:941:A:OP2    | 26:L:113:ARG:NH1   | 2.42                     | 0.52              |
| 6:5:944:A:O2'    | 6:5:966:A:N6       | 2.42                     | 0.52              |
| 6:5:1039:G:H5''  | 27:M:2:ALA:HA      | 1.91                     | 0.52              |
| 6:5:1178:C:H2'   | 6:5:1179:A:C8      | 2.44                     | 0.52              |
| 7:6:283:ARG:NH2  | 12:AB:313:LEU:O    | 2.41                     | 0.52              |
| 9:8:374:CYS:HB2  | 9:8:459:VAL:HG13   | 1.92                     | 0.52              |
| 9:8:659:ILE:O    | 9:8:780:LEU:HD13   | 2.09                     | 0.52              |
| 9:8:1093:PRO:HB2 | 37:Z:734:VAL:CG2   | 2.27                     | 0.52              |
| 9:8:1269:LYS:HB2 | 37:Z:313:ILE:HD13  | 1.87                     | 0.52              |
| 9:8:1338:SER:O   | 37:Z:398:LEU:HD21  | 2.09                     | 0.52              |
| 11:A:120:PHE:O   | 11:A:124:SER:N     | 2.36                     | 0.52              |
| 12:AB:40:GLN:OE1 | 12:AB:122:LEU:HD21 | 2.08                     | 0.52              |
| 18:D:191:MET:O   | 18:D:195:THR:HG23  | 2.09                     | 0.52              |
| 19:E:153:LYS:HA  | 21:G:56:ASN:HD21   | 1.74                     | 0.52              |
| 23:I:28:THR:CG2  | 23:I:78:ARG:HG2    | 2.39                     | 0.52              |
| 38:a:136:MET:HE2 | 38:a:140:PHE:HB2   | 1.92                     | 0.52              |
| 40:c:194:ALA:C   | 40:c:196:ALA:H     | 2.16                     | 0.52              |
| 48:l:3:GLN:OE1   | 48:l:4:PRO:HD2     | 2.10                     | 0.52              |
| 53:q:28:PRO:O    | 53:q:31:LYS:NZ     | 2.41                     | 0.52              |
| 4:3:513:A:O2'    | 4:3:514:A:OP1      | 2.27                     | 0.52              |
| 4:3:670:G:H2'    | 4:3:671:C:C6       | 2.45                     | 0.52              |
| 4:3:723:U:H2'    | 4:3:724:A:H8       | 1.74                     | 0.52              |
| 4:3:893:A:H2'    | 4:3:894:G:C8       | 2.44                     | 0.52              |
| 4:3:894:G:H21    | 4:3:2276:A:H3'     | 1.75                     | 0.52              |
| 6:5:939:G:N1     | 6:5:1312:G:OP2     | 2.34                     | 0.52              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 6:5:1266:U:OP2    | 20:F:40:ARG:NH2   | 2.42                     | 0.52              |
| 8:7:2:G:N2        | 8:7:74:A:N7       | 2.58                     | 0.52              |
| 9:8:216:ALA:CB    | 13:AC:20:DG:N7    | 2.72                     | 0.52              |
| 9:8:667:ILE:HD11  | 37:Z:875:ARG:HG3  | 1.92                     | 0.52              |
| 18:D:139:GLU:OE1  | 18:D:152:LYS:HB2  | 2.09                     | 0.52              |
| 22:H:49:ASP:OD1   | 22:H:50:MET:N     | 2.41                     | 0.52              |
| 27:M:47:LEU:HD12  | 27:M:52:ALA:HB2   | 1.91                     | 0.52              |
| 48:l:77:LYS:HG3   | 48:l:81:VAL:HG11  | 1.91                     | 0.52              |
| 59:w:15:LEU:HD22  | 59:w:58:LEU:HD21  | 1.90                     | 0.52              |
| 4:3:21:U:OP1      | 52:p:28:HIS:NE2   | 2.43                     | 0.52              |
| 4:3:86:A:N6       | 4:3:101:C:O4'     | 2.42                     | 0.52              |
| 4:3:316:C:O2'     | 4:3:392:A:N1      | 2.38                     | 0.52              |
| 4:3:347:C:H2'     | 4:3:348:A:C8      | 2.44                     | 0.52              |
| 4:3:379:A:N3      | 4:3:381:A:N6      | 2.58                     | 0.52              |
| 4:3:1106:G:O2'    | 4:3:1124:G:OP2    | 2.28                     | 0.52              |
| 4:3:2409:U:O4     | 4:3:2423:G:O6     | 2.27                     | 0.52              |
| 4:3:2609:C:H2'    | 4:3:2611:G:C8     | 2.44                     | 0.52              |
| 4:3:2646:G:O2'    | 4:3:2647:A:N7     | 2.41                     | 0.52              |
| 6:5:34:A:H2'      | 6:5:35:C:C6       | 2.45                     | 0.52              |
| 6:5:675:U:H2'     | 6:5:676:U:C6      | 2.44                     | 0.52              |
| 6:5:1176:A:H4'    | 6:5:1177:U:H5''   | 1.91                     | 0.52              |
| 6:5:1203:A:OP2    | 26:L:107:ARG:NH2  | 2.41                     | 0.52              |
| 6:5:1312:G:H2'    | 6:5:1313:A:C4     | 2.44                     | 0.52              |
| 12:AB:43:LYS:HG3  | 12:AB:49:VAL:HA   | 1.91                     | 0.52              |
| 33:S:25:LYS:O     | 33:S:28:LEU:HG    | 2.10                     | 0.52              |
| 45:i:78:TYR:HB3   | 45:i:87:ILE:HD12  | 1.91                     | 0.52              |
| 47:k:48:ARG:HG2   | 47:k:50:GLY:H     | 1.74                     | 0.52              |
| 57:u:62:GLY:N     | 57:u:95:VAL:O     | 2.42                     | 0.52              |
| 4:3:274:A:OP2     | 4:3:294:G:N1      | 2.42                     | 0.52              |
| 4:3:1862:A:N6     | 4:3:1863:G:O6     | 2.43                     | 0.52              |
| 6:5:250:G:H2'     | 6:5:251:G:H8      | 1.74                     | 0.52              |
| 6:5:306:G:H2'     | 6:5:307:C:C6      | 2.45                     | 0.52              |
| 6:5:561:A:H2'     | 6:5:565:G:C8      | 2.45                     | 0.52              |
| 6:5:599:G:O6      | 6:5:634:U:O2      | 2.28                     | 0.52              |
| 6:5:655:G:C6      | 6:5:746:A:C6      | 2.98                     | 0.52              |
| 6:5:1219:C:H2'    | 6:5:1220:A:C8     | 2.44                     | 0.52              |
| 8:7:7:U:H3        | 8:7:68:G:H1       | 1.57                     | 0.52              |
| 12:AB:239:LYS:HZ1 | 12:AB:294:LYS:HD2 | 1.72                     | 0.52              |
| 19:E:97:LEU:HD23  | 19:E:100:ILE:HB   | 1.92                     | 0.52              |
| 40:c:57:GLU:OE1   | 40:c:94:LYS:NZ    | 2.43                     | 0.52              |
| 48:l:44:ALA:HA    | 48:l:47:ILE:HD12  | 1.91                     | 0.52              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 4:3:453:U:H2'     | 4:3:454:G:C8       | 2.45                     | 0.52              |
| 4:3:2353:G:H1'    | 4:3:2389:A:H2'     | 1.90                     | 0.52              |
| 5:4:95:G:H2'      | 5:4:96:G:C8        | 2.45                     | 0.52              |
| 6:5:519:G:C6      | 6:5:527:G:N1       | 2.78                     | 0.52              |
| 6:5:649:U:O4      | 6:5:749:G:O2'      | 2.21                     | 0.52              |
| 6:5:724:G:N2      | 6:5:727:G:OP2      | 2.37                     | 0.52              |
| 8:7:68:G:H2'      | 8:7:69:A:H8        | 1.75                     | 0.52              |
| 9:8:945:ARG:HH22  | 7:AA:298:ALA:HB1   | 1.75                     | 0.52              |
| 9:8:1118:ALA:HB1  | 9:8:1191:LEU:O     | 2.09                     | 0.52              |
| 9:8:1371:LEU:HB2  | 37:Z:95:VAL:CG1    | 2.39                     | 0.52              |
| 12:AB:156:THR:O   | 37:Z:76:ILE:HD13   | 2.10                     | 0.52              |
| 12:AB:224:ASN:OD1 | 12:AB:230:ILE:HG22 | 2.10                     | 0.52              |
| 18:D:67:GLU:HG2   | 18:D:97:ARG:HH11   | 1.75                     | 0.52              |
| 20:F:124:ILE:O    | 20:F:127:SER:OG    | 2.27                     | 0.52              |
| 24:J:22:ASN:OD1   | 24:J:23:THR:N      | 2.43                     | 0.52              |
| 39:b:165:MET:HE3  | 39:b:166:SER:H     | 1.75                     | 0.52              |
| 56:t:24:VAL:HA    | 56:t:36:VAL:HG22   | 1.92                     | 0.52              |
| 4:3:134:U:H2'     | 4:3:135:A:C8       | 2.45                     | 0.52              |
| 4:3:2376:C:H2'    | 4:3:2377:A:C8      | 2.45                     | 0.52              |
| 6:5:1112:U:O4     | 6:5:1128:G:O6      | 2.28                     | 0.52              |
| 6:5:1139:A:H2'    | 6:5:1140:A:H8      | 1.75                     | 0.52              |
| 9:8:1344:LYS:CB   | 37:Z:309:ILE:CD1   | 2.87                     | 0.52              |
| 9:8:1344:LYS:HB2  | 37:Z:309:ILE:HG21  | 1.92                     | 0.52              |
| 12:AB:139:PHE:CD1 | 12:AB:147:ILE:HD12 | 2.45                     | 0.52              |
| 21:G:26:ARG:HG3   | 21:G:84:ILE:HG23   | 1.92                     | 0.52              |
| 32:R:19:VAL:HG21  | 32:R:44:PHE:CE1    | 2.45                     | 0.52              |
| 37:Z:393:LYS:HE3  | 37:Z:1238:LYS:HB2  | 1.92                     | 0.52              |
| 58:v:57:THR:O     | 58:v:61:HIS:ND1    | 2.42                     | 0.52              |
| 4:3:1846:A:H1'    | 4:3:1934:A:C8      | 2.45                     | 0.52              |
| 4:3:2700:C:H2'    | 4:3:2701:A:C8      | 2.45                     | 0.52              |
| 5:4:103:C:H2'     | 5:4:104:C:C6       | 2.45                     | 0.52              |
| 9:8:1292:TRP:CZ2  | 37:Z:893:ARG:HG3   | 2.45                     | 0.52              |
| 9:8:1325:VAL:HG12 | 37:Z:464:ILE:CD1   | 2.34                     | 0.52              |
| 9:8:1348:GLY:O    | 37:Z:388:LEU:HD12  | 2.08                     | 0.52              |
| 11:A:90:ASP:OD1   | 11:A:91:TYR:N      | 2.43                     | 0.52              |
| 7:AA:35:VAL:HG21  | 7:AA:207:ASP:CB    | 2.40                     | 0.52              |
| 14:AD:17:DT:C5'   | 37:Z:413:ARG:NH1   | 2.72                     | 0.52              |
| 15:AE:55:PHE:CB   | 15:AE:62:LEU:HD12  | 2.37                     | 0.52              |
| 18:D:162:ALA:HB1  | 18:D:166:ILE:HG22  | 1.92                     | 0.52              |
| 19:E:25:GLN:O     | 19:E:28:THR:OG1    | 2.24                     | 0.52              |
| 20:F:107:ALA:HA   | 20:F:122:GLU:CD    | 2.35                     | 0.52              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 52:p:65:ASN:OD1   | 52:p:75:TYR:HB2    | 2.11                     | 0.52              |
| 2:1:36:LYS:O      | 2:1:39:ARG:HD3     | 2.10                     | 0.51              |
| 4:3:142:A:H2      | 4:3:1628:G:H21     | 1.58                     | 0.51              |
| 4:3:454:G:H2'     | 4:3:455:G:C8       | 2.37                     | 0.51              |
| 4:3:616:G:OP1     | 52:p:13:ARG:NH2    | 2.43                     | 0.51              |
| 4:3:669:A:O2'     | 4:3:2412:A:OP1     | 2.24                     | 0.51              |
| 4:3:808:U:H4'     | 38:a:51:GLY:HA3    | 1.92                     | 0.51              |
| 4:3:1691:U:H4'    | 39:b:139:TYR:HD2   | 1.75                     | 0.51              |
| 6:5:63:U:O2'      | 6:5:375:C:O2       | 2.28                     | 0.51              |
| 6:5:713:A:H1'     | 24:J:113:GLY:HA2   | 1.92                     | 0.51              |
| 6:5:736:U:O2'     | 28:N:39:HIS:HD2    | 1.93                     | 0.51              |
| 6:5:753:C:OP2     | 28:N:62:ARG:NH2    | 2.41                     | 0.51              |
| 6:5:1031:A:H2'    | 6:5:1032:G:C8      | 2.45                     | 0.51              |
| 8:7:2:G:O6        | 8:7:73:C:N4        | 2.42                     | 0.51              |
| 9:8:618:PRO:HA    | 9:8:814:LEU:CD1    | 2.39                     | 0.51              |
| 9:8:1003:VAL:HG13 | 12:AB:116:ILE:HD12 | 1.92                     | 0.51              |
| 9:8:1285:ARG:NH2  | 37:Z:401:HIS:ND1   | 2.57                     | 0.51              |
| 10:9:5:TYR:OH     | 10:9:48:LEU:HA     | 2.09                     | 0.51              |
| 11:A:72:VAL:HA    | 11:A:75:VAL:HG12   | 1.92                     | 0.51              |
| 32:R:22:MET:O     | 32:R:27:LYS:N      | 2.35                     | 0.51              |
| 40:c:26:ALA:N     | 40:c:117:SER:OG    | 2.42                     | 0.51              |
| 55:s:36:SER:OG    | 55:s:37:LYS:N      | 2.43                     | 0.51              |
| 62:z:35:ASN:HB3   | 62:z:46:VAL:HG22   | 1.92                     | 0.51              |
| 4:3:1088:A:N1     | 35:U:79:LYS:CE     | 2.67                     | 0.51              |
| 4:3:1364:A:OP1    | 55:s:66:ARG:NH1    | 2.43                     | 0.51              |
| 4:3:1511:C:H2'    | 4:3:1512:A:C8      | 2.45                     | 0.51              |
| 4:3:2104:A:H2'    | 4:3:2105:G:H8      | 1.75                     | 0.51              |
| 6:5:65:G:H4'      | 6:5:66:A:H3'       | 1.91                     | 0.51              |
| 6:5:250:G:H2'     | 6:5:251:G:C8       | 2.44                     | 0.51              |
| 6:5:251:G:H5''    | 30:P:20:LYS:HE2    | 1.91                     | 0.51              |
| 6:5:519:G:C6      | 6:5:527:G:C2       | 2.97                     | 0.51              |
| 6:5:537:A:H2'     | 6:5:538:G:C8       | 2.45                     | 0.51              |
| 6:5:1003:G:N1     | 6:5:1018:U:N3      | 2.58                     | 0.51              |
| 6:5:1248:U:H2'    | 6:5:1249:G:O4'     | 2.09                     | 0.51              |
| 7:6:111:LEU:HD21  | 7:6:156:TYR:CE1    | 2.44                     | 0.51              |
| 9:8:956:ARG:HG2   | 7:AA:327:SER:C     | 2.35                     | 0.51              |
| 9:8:1371:LEU:HB2  | 37:Z:95:VAL:HG12   | 1.92                     | 0.51              |
| 10:9:68:ARG:NH2   | 37:Z:1207:MET:HB2  | 2.25                     | 0.51              |
| 28:N:70:ASN:OD1   | 28:N:71:ASP:N      | 2.44                     | 0.51              |
| 33:S:50:GLN:HA    | 33:S:53:ARG:HD2    | 1.91                     | 0.51              |
| 37:Z:884:LYS:HE2  | 37:Z:1029:MET:HG3  | 1.91                     | 0.51              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 38:a:147:VAL:HA   | 38:a:200:VAL:HA   | 1.91                     | 0.51              |
| 51:o:67:ARG:HE    | 51:o:74:PRO:HB2   | 1.73                     | 0.51              |
| 4:3:299:A:H2'     | 4:3:300:G:C8      | 2.45                     | 0.51              |
| 4:3:632:A:H2'     | 4:3:633:G:H8      | 1.76                     | 0.51              |
| 4:3:680:A:H2'     | 4:3:682:A:N7      | 2.24                     | 0.51              |
| 4:3:815:G:H21     | 4:3:818:A:H61     | 1.56                     | 0.51              |
| 4:3:1029:A:OP1    | 52:p:49:ARG:NE    | 2.42                     | 0.51              |
| 4:3:1292:A:OP1    | 54:r:99:ARG:NH1   | 2.44                     | 0.51              |
| 4:3:2269:C:H2'    | 4:3:2270:U:H6     | 1.74                     | 0.51              |
| 6:5:190:A:H2'     | 6:5:191:A:O4'     | 2.10                     | 0.51              |
| 8:7:55:U:O2       | 8:7:59:A:N7       | 2.43                     | 0.51              |
| 9:8:998:ILE:CB    | 12:AB:62:MET:HE1  | 2.40                     | 0.51              |
| 12:AB:239:LYS:HD2 | 12:AB:293:ASP:CA  | 2.39                     | 0.51              |
| 37:Z:19:LYS:HE3   | 37:Z:1248:THR:CG2 | 2.40                     | 0.51              |
| 4:3:163:A:N6      | 4:3:169:U:H3      | 2.00                     | 0.51              |
| 4:3:300:G:H2'     | 4:3:301:G:H8      | 1.76                     | 0.51              |
| 4:3:1119:A:C5     | 35:U:53:VAL:HG21  | 2.39                     | 0.51              |
| 4:3:1475:C:H1'    | 4:3:1577:A:H2     | 1.76                     | 0.51              |
| 4:3:1543:U:H2'    | 4:3:1544:G:C8     | 2.45                     | 0.51              |
| 4:3:2659:U:H2'    | 4:3:2660:C:C6     | 2.45                     | 0.51              |
| 4:3:2892:U:H2'    | 4:3:2893:C:H6     | 1.75                     | 0.51              |
| 6:5:662:G:H1'     | 6:5:730:G:H5'     | 1.92                     | 0.51              |
| 6:5:832:G:H2'     | 6:5:833:G:H8      | 1.76                     | 0.51              |
| 7:6:163:PHE:CB    | 9:8:917:LYS:HE2   | 2.41                     | 0.51              |
| 9:8:356:ARG:HH12  | 15:AE:113:ASN:H   | 1.59                     | 0.51              |
| 9:8:999:PHE:CZ    | 12:AB:42:TYR:CZ   | 2.98                     | 0.51              |
| 19:E:71:ASP:N     | 19:E:71:ASP:OD1   | 2.43                     | 0.51              |
| 37:Z:47:LEU:HD21  | 37:Z:320:PHE:HZ   | 1.75                     | 0.51              |
| 50:n:28:VAL:HG13  | 50:n:89:VAL:HG12  | 1.91                     | 0.51              |
| 60:x:16:CYS:HB3   | 60:x:21:ASN:HB3   | 1.91                     | 0.51              |
| 4:3:674:G:H2'     | 4:3:675:U:H6      | 1.74                     | 0.51              |
| 4:3:784:A:H61     | 4:3:788:G:H21     | 1.57                     | 0.51              |
| 4:3:1816:A:H2'    | 4:3:1817:A:C8     | 2.46                     | 0.51              |
| 4:3:1917:G:H2'    | 4:3:1918:U:C6     | 2.45                     | 0.51              |
| 4:3:2249:A:H2'    | 4:3:2250:G:C8     | 2.45                     | 0.51              |
| 4:3:2339:G:H2'    | 4:3:2340:U:O4'    | 2.11                     | 0.51              |
| 4:3:2668:A:O2'    | 4:3:2669:G:H8     | 1.93                     | 0.51              |
| 4:3:2843:G:O6     | 4:3:2882:U:O2     | 2.27                     | 0.51              |
| 5:4:38:U:H1'      | 5:4:43:A:H62      | 1.74                     | 0.51              |
| 6:5:331:C:H2'     | 6:5:332:A:C8      | 2.46                     | 0.51              |
| 6:5:842:C:H2'     | 6:5:843:C:C6      | 2.45                     | 0.51              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 6:5:1065:G:H2'    | 6:5:1066:U:H6      | 1.76                     | 0.51              |
| 6:5:1417:U:H2'    | 6:5:1418:G:H8      | 1.75                     | 0.51              |
| 12:AB:290:TRP:CE2 | 12:AB:296:LYS:CE   | 2.94                     | 0.51              |
| 16:B:11:ARG:NH1   | 16:B:177:PRO:O     | 2.43                     | 0.51              |
| 16:B:42:ASN:O     | 16:B:46:VAL:HG22   | 2.10                     | 0.51              |
| 38:a:136:MET:HA   | 38:a:197:ARG:HH21  | 1.76                     | 0.51              |
| 39:b:161:LYS:HZ1  | 45:i:82:GLN:HG3    | 1.75                     | 0.51              |
| 59:w:51:LEU:O     | 59:w:55:LEU:HD23   | 2.11                     | 0.51              |
| 4:3:793:C:H2'     | 4:3:794:G:H8       | 1.76                     | 0.51              |
| 4:3:990:G:N2      | 4:3:999:U:O2       | 2.29                     | 0.51              |
| 4:3:1088:A:H2     | 35:U:79:LYS:CE     | 2.07                     | 0.51              |
| 4:3:2311:G:N3     | 41:d:129:THR:HG21  | 2.25                     | 0.51              |
| 6:5:1483:C:H2'    | 6:5:1484:C:H6      | 1.75                     | 0.51              |
| 9:8:649:HIS:HD2   | 37:Z:837:TYR:CE1   | 2.07                     | 0.51              |
| 9:8:1368:VAL:O    | 37:Z:98:GLU:HB3    | 2.07                     | 0.51              |
| 9:8:1370:ILE:CG2  | 37:Z:94:ILE:CG2    | 2.89                     | 0.51              |
| 7:AA:205:ILE:HD13 | 37:Z:513:ASP:OD2   | 2.10                     | 0.51              |
| 12:AB:139:PHE:CZ  | 12:AB:147:ILE:HG13 | 2.43                     | 0.51              |
| 37:Z:753:ASP:OD2  | 37:Z:855:LYS:NZ    | 2.43                     | 0.51              |
| 38:a:131:LYS:HD2  | 38:a:132:PRO:HD2   | 1.92                     | 0.51              |
| 60:x:13:SER:HA    | 60:x:24:THR:HB     | 1.91                     | 0.51              |
| 4:3:67:C:O2'      | 4:3:492:C:N3       | 2.35                     | 0.51              |
| 4:3:1032:A:H2'    | 4:3:1033:A:H8      | 1.75                     | 0.51              |
| 4:3:1201:A:H2'    | 4:3:1202:A:H8      | 1.74                     | 0.51              |
| 4:3:1662:G:H2'    | 4:3:1663:G:H8      | 1.75                     | 0.51              |
| 4:3:2145:A:H2'    | 4:3:2146:A:C8      | 2.44                     | 0.51              |
| 4:3:2744:A:H2'    | 4:3:2745:G:H8      | 1.74                     | 0.51              |
| 5:4:59:A:O2'      | 5:4:60:C:OP1       | 2.28                     | 0.51              |
| 6:5:1201:C:H4'    | 32:R:81:LYS:HD3    | 1.91                     | 0.51              |
| 9:8:570:ILE:CG2   | 9:8:574:GLY:HA2    | 2.41                     | 0.51              |
| 9:8:648:VAL:HG12  | 37:Z:872:TYR:CE1   | 2.46                     | 0.51              |
| 7:AA:35:VAL:CG1   | 7:AA:195:VAL:HG22  | 2.40                     | 0.51              |
| 12:AB:183:LYS:HB3 | 12:AB:280:PHE:O    | 2.09                     | 0.51              |
| 14:AD:14:DG:N2    | 37:Z:497:PRO:HG3   | 2.26                     | 0.51              |
| 23:I:45:PRO:HB3   | 23:I:78:ARG:HD2    | 1.93                     | 0.51              |
| 26:L:54:VAL:O     | 26:L:58:ASN:N      | 2.41                     | 0.51              |
| 31:Q:43:PHE:HB2   | 31:Q:82:HIS:ND1    | 2.26                     | 0.51              |
| 37:Z:67:GLU:HG2   | 37:Z:74:LYS:HG2    | 1.92                     | 0.51              |
| 38:a:229:ARG:HH21 | 38:a:232:ALA:HB2   | 1.74                     | 0.51              |
| 47:k:93:ILE:HD13  | 47:k:126:PHE:HE1   | 1.75                     | 0.51              |
| 51:o:48:PHE:HE2   | 51:o:66:VAL:HG13   | 1.74                     | 0.51              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 54:r:124:LEU:O   | 54:r:127:LYS:HG2  | 2.10                     | 0.51              |
| 4:3:192:U:O2     | 4:3:212:G:N2      | 2.36                     | 0.51              |
| 4:3:1305:G:C6    | 4:3:1322:A:C6     | 2.99                     | 0.51              |
| 4:3:1315:A:N6    | 49:m:109:ASP:OD2  | 2.38                     | 0.51              |
| 4:3:1455:A:H2    | 38:a:35:LYS:HD3   | 1.75                     | 0.51              |
| 4:3:1756:A:H2'   | 4:3:1757:G:C8     | 2.46                     | 0.51              |
| 4:3:2892:U:H2'   | 4:3:2893:C:C6     | 2.45                     | 0.51              |
| 6:5:318:C:H2'    | 6:5:319:U:C6      | 2.46                     | 0.51              |
| 6:5:1065:G:H2'   | 6:5:1066:U:C6     | 2.45                     | 0.51              |
| 6:5:1222:U:H2'   | 6:5:1223:A:H8     | 1.74                     | 0.51              |
| 7:6:73:MET:HE3   | 7:6:143:PHE:CD2   | 2.46                     | 0.51              |
| 9:8:1225:LYS:NZ  | 37:Z:738:ASP:CG   | 2.66                     | 0.51              |
| 31:Q:57:LEU:O    | 31:Q:61:LYS:HG2   | 2.10                     | 0.51              |
| 37:Z:342:ILE:CD1 | 37:Z:356:GLU:HG3  | 2.40                     | 0.51              |
| 39:b:117:ARG:HD2 | 39:b:169:TYR:CD2  | 2.46                     | 0.51              |
| 42:e:118:GLU:OE2 | 42:e:154:TRP:NE1  | 2.38                     | 0.51              |
| 45:i:3:LYS:N     | 53:q:12:TYR:HH    | 2.08                     | 0.51              |
| 49:m:28:TYR:OH   | 49:m:71:ASN:OD1   | 2.26                     | 0.51              |
| 62:z:8:ARG:HD3   | 62:z:17:ILE:HG23  | 1.93                     | 0.51              |
| 4:3:715:G:OP2    | 4:3:811:G:N1      | 2.44                     | 0.51              |
| 4:3:1347:A:H2'   | 4:3:1348:C:C6     | 2.46                     | 0.51              |
| 4:3:2097:A:N6    | 4:3:2238:G:O6     | 2.44                     | 0.51              |
| 4:3:2321:C:H5'   | 41:d:88:LYS:HE2   | 1.93                     | 0.51              |
| 4:3:2555:U:H2'   | 4:3:2556:C:C6     | 2.46                     | 0.51              |
| 4:3:2622:A:O4'   | 61:y:2:ALA:N      | 2.44                     | 0.51              |
| 4:3:2744:A:H2'   | 4:3:2745:G:C8     | 2.46                     | 0.51              |
| 4:3:2841:A:H2'   | 4:3:2842:G:H8     | 1.76                     | 0.51              |
| 5:4:76:A:C6      | 5:4:77:G:C6       | 2.99                     | 0.51              |
| 6:5:510:U:H2'    | 6:5:511:A:C8      | 2.45                     | 0.51              |
| 6:5:554:C:H2'    | 6:5:555:G:C8      | 2.45                     | 0.51              |
| 6:5:1124:U:H4'   | 22:H:18:LYS:HD2   | 1.93                     | 0.51              |
| 6:5:1230:G:N7    | 6:5:1254:A:N6     | 2.59                     | 0.51              |
| 6:5:1359:C:H2'   | 6:5:1360:G:C8     | 2.45                     | 0.51              |
| 7:6:31:GLU:OE1   | 7:AA:161:ARG:NH2  | 2.43                     | 0.51              |
| 8:7:23:G:H2'     | 8:7:24:A:C8       | 2.46                     | 0.51              |
| 8:7:63:U:H2'     | 8:7:64:G:H8       | 1.73                     | 0.51              |
| 9:8:450:ILE:CD1  | 9:8:505:ILE:HD12  | 2.40                     | 0.51              |
| 11:A:133:LEU:HB3 | 11:A:156:ILE:HD11 | 1.92                     | 0.51              |
| 18:D:167:ARG:HA  | 18:D:170:ILE:HG22 | 1.93                     | 0.51              |
| 18:D:176:SER:OG  | 18:D:177:ASP:OD1  | 2.28                     | 0.51              |
| 23:I:28:THR:HG22 | 23:I:78:ARG:HG2   | 1.93                     | 0.51              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 33:S:53:ARG:HA    | 33:S:56:ARG:HH22  | 1.76                     | 0.51              |
| 41:d:33:LYS:HD3   | 41:d:92:ARG:HH11  | 1.76                     | 0.51              |
| 45:i:101:ASP:HB2  | 45:i:127:VAL:HG13 | 1.93                     | 0.51              |
| 4:3:522:C:H2'     | 4:3:523:A:H8      | 1.76                     | 0.51              |
| 4:3:960:A:H2'     | 4:3:961:U:C6      | 2.45                     | 0.51              |
| 4:3:966:U:H2'     | 4:3:967:U:C6      | 2.46                     | 0.51              |
| 4:3:1024:A:N1     | 4:3:1025:G:N2     | 2.59                     | 0.51              |
| 4:3:1866:G:N1     | 4:3:1891:A:N7     | 2.59                     | 0.51              |
| 9:8:953:ALA:C     | 7:AA:326:ARG:HD3  | 2.35                     | 0.51              |
| 9:8:1346:LEU:HD23 | 37:Z:392:LEU:CD1  | 2.33                     | 0.51              |
| 11:A:32:MET:HE3   | 11:A:33:VAL:HG22  | 1.93                     | 0.51              |
| 7:AA:269:GLU:HG3  | 7:AA:278:PHE:HE2  | 1.75                     | 0.51              |
| 12:AB:159:ASP:OD1 | 37:Z:79:ARG:NH2   | 2.44                     | 0.51              |
| 20:F:63:ARG:NE    | 20:F:127:SER:O    | 2.44                     | 0.51              |
| 33:S:53:ARG:HA    | 33:S:56:ARG:NH2   | 2.25                     | 0.51              |
| 37:Z:742:TYR:CE1  | 37:Z:745:LYS:HB3  | 2.45                     | 0.51              |
| 39:b:63:ASN:HB3   | 39:b:66:GLN:OE1   | 2.11                     | 0.51              |
| 40:c:116:TRP:CZ2  | 40:c:186:VAL:HG21 | 2.46                     | 0.51              |
| 4:3:118:G:OP2     | 4:3:120:A:O2'     | 2.25                     | 0.50              |
| 4:3:148:U:H2'     | 4:3:149:A:C8      | 2.47                     | 0.50              |
| 4:3:192:U:H5''    | 58:v:14:TYR:CD1   | 2.46                     | 0.50              |
| 4:3:385:U:H2'     | 4:3:386:U:C6      | 2.46                     | 0.50              |
| 4:3:606:G:O6      | 4:3:2036:G:O2'    | 2.24                     | 0.50              |
| 4:3:1164:A:O2'    | 4:3:2523:C:O2'    | 2.19                     | 0.50              |
| 4:3:2478:G:O6     | 4:3:2489:G:N2     | 2.43                     | 0.50              |
| 4:3:2845:U:H2'    | 4:3:2846:A:H8     | 1.75                     | 0.50              |
| 5:4:3:U:OP1       | 5:4:59:A:O2'      | 2.29                     | 0.50              |
| 6:5:500:G:H2'     | 6:5:501:A:C8      | 2.46                     | 0.50              |
| 6:5:590:G:H2'     | 6:5:591:A:H8      | 1.76                     | 0.50              |
| 6:5:603:U:O2      | 6:5:630:G:N2      | 2.37                     | 0.50              |
| 6:5:650:A:N6      | 21:G:66:THR:O     | 2.44                     | 0.50              |
| 6:5:1156:G:H1'    | 6:5:1157:G:C4     | 2.46                     | 0.50              |
| 6:5:1331:A:H61    | 6:5:1340:G:H1     | 0.64                     | 0.50              |
| 7:6:243:ASN:ND2   | 7:AA:223:ASP:OD1  | 2.44                     | 0.50              |
| 9:8:913:GLU:CD    | 9:8:917:LYS:HE3   | 2.36                     | 0.50              |
| 9:8:1352:SER:HG   | 37:Z:31:TRP:HZ2   | 0.53                     | 0.50              |
| 10:9:5:TYR:HE2    | 10:9:48:LEU:CD2   | 2.15                     | 0.50              |
| 11:A:88:LYS:HB2   | 11:A:92:VAL:HG12  | 1.93                     | 0.50              |
| 11:A:89:ASN:OD1   | 11:A:90:ASP:N     | 2.40                     | 0.50              |
| 7:AA:129:CYS:SG   | 7:AA:135:VAL:HG23 | 2.50                     | 0.50              |
| 50:n:8:ARG:NH1    | 50:n:9:ARG:HE     | 2.09                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 51:o:92:ARG:HB3    | 51:o:115:LYS:HD2   | 1.93                     | 0.50              |
| 54:r:9:ARG:H       | 54:r:102:ASN:HA    | 1.76                     | 0.50              |
| 62:z:5:ARG:HB2     | 62:z:22:PHE:HB3    | 1.93                     | 0.50              |
| 4:3:1224:G:H2'     | 4:3:1225:A:C8      | 2.47                     | 0.50              |
| 4:3:1290:G:H2'     | 4:3:1291:C:C6      | 2.46                     | 0.50              |
| 4:3:1691:U:H2'     | 4:3:1692:A:C8      | 2.47                     | 0.50              |
| 4:3:2312:G:H1      | 4:3:2320:U:H3      | 1.57                     | 0.50              |
| 4:3:2561:G:N2      | 4:3:2591:G:H21     | 2.09                     | 0.50              |
| 6:5:58:G:H2'       | 6:5:59:C:C6        | 2.46                     | 0.50              |
| 6:5:283:U:H2'      | 6:5:284:A:C8       | 2.47                     | 0.50              |
| 6:5:435:U:O2'      | 6:5:437:U:O4       | 2.29                     | 0.50              |
| 6:5:441:U:H2'      | 6:5:442:G:C8       | 2.46                     | 0.50              |
| 9:8:101:GLU:HG2    | 9:8:110:ILE:HG23   | 1.93                     | 0.50              |
| 9:8:1262:ARG:HD2   | 9:8:1281:ASN:O     | 2.12                     | 0.50              |
| 7:AA:173:ILE:HD12  | 7:AA:180:ALA:HB2   | 1.92                     | 0.50              |
| 12:AB:183:LYS:HD3  | 12:AB:245:GLY:HA2  | 1.86                     | 0.50              |
| 12:AB:291:ASN:HB3  | 12:AB:296:LYS:HG2  | 1.93                     | 0.50              |
| 37:Z:1253:LEU:HD13 | 37:Z:1262:ILE:HD13 | 1.91                     | 0.50              |
| 4:3:325:G:H1       | 4:3:383:U:H3       | 1.58                     | 0.50              |
| 4:3:673:A:OP1      | 47:k:117:HIS:HB2   | 2.11                     | 0.50              |
| 4:3:725:G:H4'      | 38:a:225:ARG:HH22  | 1.77                     | 0.50              |
| 4:3:1073:A:H2'     | 4:3:1074:A:C8      | 2.46                     | 0.50              |
| 4:3:1196:U:H2'     | 4:3:1197:G:C8      | 2.47                     | 0.50              |
| 4:3:1834:U:H2'     | 4:3:1835:G:O4'     | 2.12                     | 0.50              |
| 4:3:2093:U:H2'     | 4:3:2094:A:H8      | 1.73                     | 0.50              |
| 4:3:2144:C:H2'     | 4:3:2145:A:C8      | 2.44                     | 0.50              |
| 4:3:2235:A:H5''    | 38:a:271:LYS:HE3   | 1.93                     | 0.50              |
| 6:5:506:U:O2       | 6:5:507:A:N6       | 2.45                     | 0.50              |
| 6:5:830:U:H3       | 6:5:847:G:H1       | 1.59                     | 0.50              |
| 6:5:1096:A:H2'     | 6:5:1097:G:H8      | 1.76                     | 0.50              |
| 6:5:1175:C:OP1     | 6:5:1176:A:O2'     | 2.24                     | 0.50              |
| 9:8:770:PHE:HB3    | 9:8:773:ASN:HD22   | 1.76                     | 0.50              |
| 9:8:774:ASP:O      | 37:Z:867:TYR:HE2   | 1.94                     | 0.50              |
| 9:8:807:LYS:HE3    | 9:8:811:ASP:OD2    | 2.11                     | 0.50              |
| 10:9:58:GLU:HG2    | 37:Z:1213:ASN:ND2  | 2.19                     | 0.50              |
| 7:AA:269:GLU:HG3   | 7:AA:278:PHE:CE2   | 2.47                     | 0.50              |
| 15:AE:74:TRP:CZ2   | 15:AE:84:LYS:HD2   | 2.47                     | 0.50              |
| 37:Z:167:ASP:O     | 37:Z:173:SER:HA    | 2.11                     | 0.50              |
| 37:Z:1043:LEU:HD21 | 37:Z:1122:GLY:HA2  | 1.93                     | 0.50              |
| 54:r:49:LYS:HA     | 54:r:52:ASN:HD21   | 1.75                     | 0.50              |
| 4:3:14:U:O4        | 4:3:2634:C:O2'     | 2.30                     | 0.50              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 4:3:130:C:H2'     | 4:3:131:C:C6       | 2.47                     | 0.50              |
| 4:3:1081:A:C8     | 35:U:7:LYS:CD      | 2.89                     | 0.50              |
| 4:3:1176:U:H4'    | 4:3:1177:A:O4'     | 2.12                     | 0.50              |
| 4:3:1820:U:O2'    | 4:3:1821:G:OP1     | 2.25                     | 0.50              |
| 4:3:2072:C:H2'    | 4:3:2073:C:H6      | 1.76                     | 0.50              |
| 4:3:2743:U:H2'    | 4:3:2744:A:H8      | 1.77                     | 0.50              |
| 6:5:57:U:N3       | 6:5:58:G:O6        | 2.44                     | 0.50              |
| 6:5:442:G:H2'     | 6:5:443:G:C8       | 2.47                     | 0.50              |
| 6:5:1222:U:H2'    | 6:5:1223:A:C8      | 2.46                     | 0.50              |
| 9:8:381:ARG:HH22  | 9:8:551:GLU:CD     | 2.20                     | 0.50              |
| 12:AB:139:PHE:CG  | 12:AB:147:ILE:HD12 | 2.46                     | 0.50              |
| 51:o:54:ARG:HG3   | 51:o:100:TYR:CE1   | 2.45                     | 0.50              |
| 4:3:609:U:H2'     | 4:3:610:G:C8       | 2.47                     | 0.50              |
| 4:3:904:C:H42     | 4:3:949:C:H1'      | 1.77                     | 0.50              |
| 4:3:918:G:H22     | 4:3:932:U:HO2'     | 1.53                     | 0.50              |
| 4:3:1104:A:H5''   | 4:3:1105:A:C8      | 2.47                     | 0.50              |
| 4:3:1187:C:C5'    | 52:p:79:ILE:HG21   | 2.42                     | 0.50              |
| 4:3:1451:A:H2'    | 4:3:1452:G:H8      | 1.76                     | 0.50              |
| 4:3:1609:U:H2'    | 4:3:1610:U:C6      | 2.47                     | 0.50              |
| 4:3:2017:G:H2'    | 4:3:2018:U:C6      | 2.46                     | 0.50              |
| 4:3:2297:G:N2     | 4:3:2354:A:OP1     | 2.44                     | 0.50              |
| 4:3:2352:U:H2'    | 62:z:34:LEU:HD22   | 1.92                     | 0.50              |
| 4:3:2602:C:N4     | 4:3:2603:G:O6      | 2.44                     | 0.50              |
| 4:3:2843:G:H2'    | 4:3:2844:U:C6      | 2.47                     | 0.50              |
| 6:5:318:C:H2'     | 6:5:319:U:H6       | 1.75                     | 0.50              |
| 9:8:1370:ILE:HD13 | 37:Z:94:ILE:CG1    | 2.35                     | 0.50              |
| 7:AA:111:LEU:HD21 | 7:AA:156:TYR:CE1   | 2.46                     | 0.50              |
| 12:AB:55:ILE:HG12 | 12:AB:62:MET:HG3   | 1.92                     | 0.50              |
| 12:AB:135:VAL:CB  | 12:AB:171:THR:OG1  | 2.55                     | 0.50              |
| 18:D:181:LYS:NZ   | 18:D:182:ASN:O     | 2.40                     | 0.50              |
| 24:J:119:ARG:HB2  | 34:T:34:TYR:HB2    | 1.93                     | 0.50              |
| 36:X:23:ALA:CB    | 36:Y:6:ILE:HD11    | 2.35                     | 0.50              |
| 37:Z:33:GLU:HG3   | 37:Z:99:ARG:HE     | 1.76                     | 0.50              |
| 38:a:213:ILE:HD13 | 38:a:222:ARG:HH12  | 1.77                     | 0.50              |
| 40:c:145:GLN:NE2  | 40:c:145:GLN:O     | 2.45                     | 0.50              |
| 59:w:55:LEU:O     | 59:w:59:THR:HG23   | 2.11                     | 0.50              |
| 4:3:590:U:H2'     | 4:3:591:G:H8       | 1.77                     | 0.50              |
| 4:3:663:A:N3      | 4:3:672:G:N2       | 2.59                     | 0.50              |
| 4:3:1222:A:H2'    | 4:3:1223:C:C6      | 2.47                     | 0.50              |
| 4:3:1260:U:O2'    | 54:r:132:GLN:OE1   | 2.26                     | 0.50              |
| 4:3:2061:A:N6     | 4:3:2585:A:H61     | 1.93                     | 0.50              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 4:3:2213:A:H2'    | 4:3:2214:A:C8      | 2.47                     | 0.50              |
| 4:3:2301:C:H2'    | 4:3:2302:C:C6      | 2.46                     | 0.50              |
| 4:3:2494:C:H2'    | 4:3:2495:A:C8      | 2.47                     | 0.50              |
| 6:5:631:C:H2'     | 6:5:632:A:C8       | 2.46                     | 0.50              |
| 6:5:649:U:H1'     | 6:5:650:A:C8       | 2.47                     | 0.50              |
| 6:5:671:G:H2'     | 6:5:672:A:H8       | 1.77                     | 0.50              |
| 6:5:882:U:H3'     | 6:5:883:A:H8       | 1.76                     | 0.50              |
| 6:5:937:G:H1      | 6:5:1315:U:H3      | 1.60                     | 0.50              |
| 6:5:1147:U:H2'    | 6:5:1148:U:C6      | 2.47                     | 0.50              |
| 6:5:1219:C:H2'    | 6:5:1220:A:H8      | 1.76                     | 0.50              |
| 6:5:1353:C:H5''   | 20:F:5:ARG:HH12    | 1.77                     | 0.50              |
| 9:8:37:GLN:HG3    | 9:8:150:PHE:CZ     | 2.46                     | 0.50              |
| 9:8:94:ILE:CG2    | 9:8:135:LEU:CD1    | 2.87                     | 0.50              |
| 11:A:29:HIS:CD2   | 11:A:56:PHE:HB2    | 2.45                     | 0.50              |
| 11:A:181:PRO:HB3  | 11:A:188:VAL:HG11  | 1.92                     | 0.50              |
| 7:AA:271:LEU:HD22 | 7:AA:321:LEU:HD11  | 1.94                     | 0.50              |
| 25:K:94:LEU:HD22  | 25:K:111:VAL:HB    | 1.94                     | 0.50              |
| 27:M:3:LYS:HG3    | 27:M:4:LYS:HD3     | 1.93                     | 0.50              |
| 37:Z:1118:LYS:HE2 | 37:Z:1124:ILE:HG13 | 1.93                     | 0.50              |
| 39:b:30:TYR:OH    | 39:b:32:GLU:OE2    | 2.23                     | 0.50              |
| 41:d:14:LYS:HB2   | 41:d:18:LYS:HZ3    | 1.77                     | 0.50              |
| 62:z:32:LEU:HD21  | 62:z:34:LEU:HD12   | 1.93                     | 0.50              |
| 4:3:482:G:H5'     | 52:p:2:ARG:NH2     | 2.27                     | 0.50              |
| 4:3:1416:G:H2'    | 4:3:1417:G:H8      | 1.77                     | 0.50              |
| 4:3:1461:A:H2'    | 4:3:1462:A:C8      | 2.47                     | 0.50              |
| 4:3:1838:A:H2'    | 4:3:1839:C:C6      | 2.46                     | 0.50              |
| 4:3:2794:U:H2'    | 4:3:2795:C:C6      | 2.47                     | 0.50              |
| 4:3:2799:U:N3     | 4:3:2810:A:N6      | 2.60                     | 0.50              |
| 6:5:319:U:O3'     | 33:S:17:ARG:NH2    | 2.44                     | 0.50              |
| 6:5:385:A:H3'     | 6:5:386:U:C6       | 2.46                     | 0.50              |
| 6:5:441:U:H2'     | 6:5:442:G:H8       | 1.76                     | 0.50              |
| 6:5:1497:U:OP1    | 24:J:121:ARG:NH2   | 2.29                     | 0.50              |
| 7:6:49:CYS:SG     | 7:AA:34:PHE:HE2    | 2.34                     | 0.50              |
| 9:8:1349:LEU:HD22 | 37:Z:368:PHE:HB3   | 1.94                     | 0.50              |
| 10:9:64:TYR:CZ    | 37:Z:1210:ILE:CD1  | 2.95                     | 0.50              |
| 14:AD:14:DG:O4'   | 37:Z:889:GLY:HA3   | 2.11                     | 0.50              |
| 28:N:20:GLY:HA2   | 28:N:25:GLN:HE22   | 1.77                     | 0.50              |
| 29:O:14:VAL:HA    | 29:O:30:ILE:HD13   | 1.93                     | 0.50              |
| 38:a:56:ARG:NH1   | 38:a:228:VAL:O     | 2.45                     | 0.50              |
| 4:3:322:A:H2'     | 4:3:323:A:C8       | 2.47                     | 0.50              |
| 4:3:859:G:H21     | 4:3:2366:A:N6      | 2.09                     | 0.50              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 4:3:1028:C:H2'    | 4:3:1029:A:H8     | 1.77                     | 0.50              |
| 4:3:1306:G:H2'    | 4:3:1307:G:C8     | 2.46                     | 0.50              |
| 4:3:1437:A:H2'    | 4:3:1438:G:C8     | 2.47                     | 0.50              |
| 4:3:1934:A:H2'    | 4:3:1935:A:C8     | 2.46                     | 0.50              |
| 4:3:2100:G:N7     | 4:3:2233:A:H2'    | 2.26                     | 0.50              |
| 4:3:2412:A:O3'    | 47:k:69:ARG:NH2   | 2.44                     | 0.50              |
| 4:3:2635:G:O2'    | 4:3:2789:A:N1     | 2.36                     | 0.50              |
| 4:3:2849:G:H2'    | 4:3:2850:G:C8     | 2.47                     | 0.50              |
| 5:4:31:G:N2       | 5:4:34:U:O4       | 2.45                     | 0.50              |
| 6:5:714:C:H4'     | 24:J:112:ASN:OD1  | 2.12                     | 0.50              |
| 6:5:843:C:H2'     | 6:5:844:U:H6      | 1.77                     | 0.50              |
| 8:7:36:A:H2'      | 8:7:37:A:C8       | 2.47                     | 0.50              |
| 9:8:709:GLU:HG3   | 9:8:714:ILE:HD11  | 1.94                     | 0.50              |
| 7:AA:85:LYS:CD    | 37:Z:602:GLU:OE1  | 2.56                     | 0.50              |
| 17:C:72:ARG:HH12  | 17:C:202:ARG:HH21 | 1.59                     | 0.50              |
| 31:Q:58:GLU:O     | 31:Q:62:ARG:HG3   | 2.12                     | 0.50              |
| 37:Z:310:ARG:HD2  | 37:Z:326:ASN:OD1  | 2.12                     | 0.50              |
| 46:j:43:VAL:HG13  | 46:j:54:LYS:HA    | 1.94                     | 0.50              |
| 46:j:50:GLY:O     | 46:j:53:LYS:NZ    | 2.41                     | 0.50              |
| 54:r:124:LEU:O    | 54:r:128:ARG:HG3  | 2.12                     | 0.50              |
| 3:2:15:LYS:NZ     | 3:2:16:ILE:O      | 2.37                     | 0.50              |
| 4:3:200:A:H61     | 4:3:866:G:H21     | 1.60                     | 0.50              |
| 4:3:655:G:H3'     | 4:3:656:G:H21     | 1.77                     | 0.50              |
| 4:3:866:G:O2'     | 47:k:39:GLN:OE1   | 2.22                     | 0.50              |
| 4:3:984:C:H2'     | 4:3:985:A:H8      | 1.76                     | 0.50              |
| 4:3:1511:C:H42    | 4:3:1512:A:N6     | 2.10                     | 0.50              |
| 4:3:1730:C:H4'    | 38:a:11:ASN:OD1   | 2.12                     | 0.50              |
| 4:3:2405:G:N2     | 4:3:2427:U:O2     | 2.36                     | 0.50              |
| 4:3:2575:G:H2'    | 4:3:2576:A:C8     | 2.47                     | 0.50              |
| 6:5:91:C:H2'      | 6:5:92:G:C8       | 2.47                     | 0.50              |
| 6:5:442:G:H2'     | 6:5:443:G:H8      | 1.77                     | 0.50              |
| 6:5:654:U:O2'     | 28:N:25:GLN:NE2   | 2.43                     | 0.50              |
| 6:5:1051:U:H2'    | 6:5:1052:G:C8     | 2.47                     | 0.50              |
| 9:8:998:ILE:C     | 12:AB:108:LEU:CD1 | 2.52                     | 0.50              |
| 9:8:1018:ASP:O    | 9:8:1049:GLN:HG2  | 2.11                     | 0.50              |
| 12:AB:290:TRP:NE1 | 12:AB:296:LYS:HD2 | 2.27                     | 0.50              |
| 14:AD:23:DC:C6    | 37:Z:380:LYS:HB2  | 2.40                     | 0.50              |
| 20:F:132:ALA:O    | 20:F:135:LYS:NZ   | 2.45                     | 0.50              |
| 38:a:252:ASP:N    | 38:a:252:ASP:OD1  | 2.44                     | 0.50              |
| 47:k:13:ARG:HD2   | 47:k:13:ARG:O     | 2.12                     | 0.50              |
| 56:t:9:LYS:HB2    | 56:t:79:GLN:HE21  | 1.77                     | 0.50              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 4:3:199:A:H61     | 4:3:202:C:H3'     | 1.76                     | 0.49              |
| 4:3:694:U:H2'     | 4:3:695:G:H8      | 1.77                     | 0.49              |
| 4:3:815:G:O2'     | 4:3:817:A:N7      | 2.45                     | 0.49              |
| 4:3:945:U:OP1     | 48:l:22:LYS:HG3   | 2.12                     | 0.49              |
| 4:3:1081:A:H61    | 35:U:7:LYS:C      | 2.00                     | 0.49              |
| 4:3:1959:A:N3     | 46:j:22:ILE:HD11  | 2.27                     | 0.49              |
| 4:3:2268:C:H2'    | 4:3:2269:C:C6     | 2.47                     | 0.49              |
| 4:3:2331:G:O2'    | 4:3:2332:U:H5'    | 2.12                     | 0.49              |
| 6:5:601:U:H2'     | 6:5:602:G:C8      | 2.47                     | 0.49              |
| 6:5:679:U:H2'     | 6:5:680:G:H8      | 1.77                     | 0.49              |
| 6:5:704:U:H2'     | 6:5:705:A:H8      | 1.77                     | 0.49              |
| 6:5:1098:C:OP1    | 16:B:176:MET:N    | 2.39                     | 0.49              |
| 9:8:933:CYS:SG    | 9:8:941:GLU:O     | 2.70                     | 0.49              |
| 12:AB:183:LYS:NZ  | 12:AB:245:GLY:C   | 2.68                     | 0.49              |
| 24:J:119:ARG:HH12 | 34:T:36:LEU:HD13  | 1.76                     | 0.49              |
| 39:b:185:ASP:HB3  | 39:b:190:LEU:H    | 1.76                     | 0.49              |
| 49:m:102:LYS:HG2  | 61:y:48:TYR:HE1   | 1.77                     | 0.49              |
| 50:n:8:ARG:HH12   | 50:n:9:ARG:HE     | 1.60                     | 0.49              |
| 2:1:26:THR:HG22   | 2:1:41:LEU:HD22   | 1.94                     | 0.49              |
| 4:3:133:G:H2'     | 4:3:134:U:H6      | 1.77                     | 0.49              |
| 4:3:352:C:H2'     | 4:3:353:G:C8      | 2.47                     | 0.49              |
| 4:3:511:U:H4'     | 4:3:545:C:H5''    | 1.94                     | 0.49              |
| 4:3:769:A:H3'     | 4:3:770:A:H8      | 1.76                     | 0.49              |
| 4:3:931:G:H2'     | 4:3:932:U:H4'     | 1.94                     | 0.49              |
| 4:3:1009:A:H5'    | 4:3:1219:U:H1'    | 1.94                     | 0.49              |
| 4:3:1119:A:C2     | 35:U:29:TYR:OH    | 2.64                     | 0.49              |
| 4:3:1176:U:O2     | 4:3:1177:A:N6     | 2.45                     | 0.49              |
| 4:3:1246:U:H2'    | 4:3:1247:C:C6     | 2.48                     | 0.49              |
| 4:3:1436:C:H2'    | 4:3:1437:A:C8     | 2.47                     | 0.49              |
| 4:3:1710:A:H2'    | 4:3:1711:A:O4'    | 2.13                     | 0.49              |
| 4:3:1784:U:H2'    | 4:3:1785:U:H6     | 1.77                     | 0.49              |
| 4:3:2477:A:H2'    | 4:3:2478:G:O4'    | 2.12                     | 0.49              |
| 6:5:1052:G:O6     | 6:5:1172:A:N6     | 2.45                     | 0.49              |
| 8:7:12:C:N4       | 8:7:25:G:O6       | 2.43                     | 0.49              |
| 8:7:38:G:H3'      | 8:7:39:A:H8       | 1.76                     | 0.49              |
| 8:7:76:C:H3'      | 8:7:77:A:H8       | 1.77                     | 0.49              |
| 9:8:162:TYR:HA    | 9:8:522:ASP:OD2   | 2.12                     | 0.49              |
| 9:8:636:ILE:CD1   | 9:8:645:ILE:HG21  | 2.42                     | 0.49              |
| 9:8:661:THR:HG21  | 37:Z:875:ARG:CZ   | 2.42                     | 0.49              |
| 9:8:997:ALA:HB3   | 12:AB:8:PHE:CE1   | 2.45                     | 0.49              |
| 9:8:1003:VAL:CG1  | 12:AB:116:ILE:CD1 | 2.89                     | 0.49              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 17:C:145:LYS:HG2  | 17:C:147:LYS:H     | 1.76                     | 0.49              |
| 20:F:35:LYS:O     | 20:F:38:ALA:N      | 2.46                     | 0.49              |
| 27:M:24:CYS:HB2   | 27:M:40:CYS:H      | 1.77                     | 0.49              |
| 37:Z:595:ILE:HD12 | 37:Z:612:VAL:HG22  | 1.93                     | 0.49              |
| 40:c:4:LEU:HB3    | 40:c:20:LEU:HD21   | 1.93                     | 0.49              |
| 48:l:24:ASN:OD1   | 48:l:67:ARG:NH1    | 2.44                     | 0.49              |
| 53:q:68:VAL:H     | 53:q:86:ARG:HH11   | 1.59                     | 0.49              |
| 54:r:12:ILE:HD11  | 54:r:46:LEU:HD13   | 1.93                     | 0.49              |
| 4:3:343:A:H1'     | 4:3:363:G:C2       | 2.47                     | 0.49              |
| 4:3:572:G:N2      | 4:3:590:U:O4       | 2.45                     | 0.49              |
| 4:3:987:U:H2'     | 4:3:988:G:C8       | 2.47                     | 0.49              |
| 4:3:1292:A:N6     | 4:3:2024:C:H42     | 2.10                     | 0.49              |
| 4:3:2694:A:H2'    | 4:3:2695:U:C6      | 2.47                     | 0.49              |
| 4:3:2736:U:O2'    | 4:3:2737:G:H8      | 1.95                     | 0.49              |
| 6:5:85:U:O2       | 6:5:86:A:N6        | 2.42                     | 0.49              |
| 6:5:357:G:H2'     | 6:5:358:G:O4'      | 2.13                     | 0.49              |
| 6:5:1303:A:OP1    | 26:L:27:LEU:N      | 2.29                     | 0.49              |
| 9:8:614:ASP:HA    | 9:8:854:GLN:NE2    | 2.27                     | 0.49              |
| 9:8:863:LEU:HD11  | 9:8:878:ASP:OD2    | 2.12                     | 0.49              |
| 9:8:1289:MET:HG3  | 14:AD:15:DA:H5''   | 1.94                     | 0.49              |
| 7:AA:170:ARG:HH22 | 37:Z:679:ARG:HH12  | 1.59                     | 0.49              |
| 12:AB:290:TRP:CD1 | 12:AB:293:ASP:N    | 2.81                     | 0.49              |
| 16:B:13:GLY:O     | 27:M:57:LYS:NZ     | 2.46                     | 0.49              |
| 37:Z:113:TRP:CD1  | 37:Z:1238:LYS:HE3  | 2.47                     | 0.49              |
| 47:k:94:ASN:HD21  | 47:k:96:ALA:HB3    | 1.77                     | 0.49              |
| 51:o:67:ARG:NH1   | 51:o:76:GLU:OE1    | 2.45                     | 0.49              |
| 53:q:57:CYS:HA    | 53:q:94:VAL:HA     | 1.94                     | 0.49              |
| 4:3:772:C:N4      | 4:3:773:G:O6       | 2.46                     | 0.49              |
| 4:3:986:G:H2'     | 4:3:987:U:H6       | 1.77                     | 0.49              |
| 4:3:1378:C:N4     | 4:3:1379:C:N4      | 2.60                     | 0.49              |
| 4:3:1480:A:O2'    | 4:3:2710:G:O6      | 2.21                     | 0.49              |
| 4:3:2378:G:H2'    | 4:3:2379:G:C8      | 2.47                     | 0.49              |
| 5:4:27:A:O2'      | 5:4:56:A:N1        | 2.41                     | 0.49              |
| 6:5:818:A:H2'     | 6:5:819:G:C8       | 2.46                     | 0.49              |
| 8:7:70:G:H2'      | 8:7:71:A:C8        | 2.47                     | 0.49              |
| 12:AB:196:VAL:CG2 | 12:AB:217:ARG:CZ   | 2.87                     | 0.49              |
| 15:AE:74:TRP:CZ3  | 15:AE:84:LYS:HB2   | 2.48                     | 0.49              |
| 15:AE:108:TRP:CZ3 | 15:AE:120:ILE:HD12 | 2.47                     | 0.49              |
| 24:J:53:PRO:HB2   | 24:J:88:THR:HG21   | 1.94                     | 0.49              |
| 27:M:23:ARG:O     | 27:M:25:GLN:NE2    | 2.45                     | 0.49              |
| 38:a:113:ASP:OD1  | 38:a:114:GLY:N     | 2.46                     | 0.49              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 4:3:116:C:H2'     | 4:3:117:C:H6      | 1.76                     | 0.49              |
| 4:3:155:A:C6      | 4:3:178:A:N1      | 2.80                     | 0.49              |
| 4:3:485:A:H1'     | 52:p:2:ARG:HH12   | 1.76                     | 0.49              |
| 4:3:768:G:H3'     | 4:3:796:A:H61     | 1.78                     | 0.49              |
| 4:3:1080:A:H5''   | 4:3:1082:A:O4'    | 2.12                     | 0.49              |
| 4:3:2039:G:H1'    | 39:b:154:ALA:H    | 1.76                     | 0.49              |
| 4:3:2100:G:H2'    | 4:3:2101:A:H8     | 1.78                     | 0.49              |
| 6:5:259:A:C8      | 6:5:260:C:H5      | 2.29                     | 0.49              |
| 6:5:308:C:H2'     | 6:5:309:A:C8      | 2.47                     | 0.49              |
| 6:5:1377:C:H2'    | 6:5:1378:C:O4'    | 2.13                     | 0.49              |
| 6:5:1408:A:N7     | 6:5:1443:A:N6     | 2.60                     | 0.49              |
| 9:8:161:ILE:HG13  | 9:8:393:VAL:HG22  | 1.95                     | 0.49              |
| 9:8:1305:GLU:OE1  | 37:Z:542:LEU:HG   | 2.11                     | 0.49              |
| 25:K:40:SER:OG    | 25:K:42:LEU:O     | 2.30                     | 0.49              |
| 34:T:22:SER:HA    | 34:T:25:ILE:HG12  | 1.95                     | 0.49              |
| 37:Z:906:HIS:HD2  | 37:Z:987:ARG:NH2  | 2.10                     | 0.49              |
| 38:a:112:PRO:HD2  | 38:a:115:ILE:HD13 | 1.93                     | 0.49              |
| 4:3:202:C:O2'     | 4:3:203:A:H5'     | 2.12                     | 0.49              |
| 4:3:410:G:O5'     | 58:v:60:LYS:NZ    | 2.36                     | 0.49              |
| 4:3:606:G:N2      | 4:3:2038:A:OP1    | 2.40                     | 0.49              |
| 4:3:1190:A:O3'    | 52:p:54:ARG:NH2   | 2.42                     | 0.49              |
| 4:3:1389:G:H2'    | 4:3:1390:C:H6     | 1.77                     | 0.49              |
| 4:3:1393:A:O3'    | 58:v:4:LYS:NZ     | 2.46                     | 0.49              |
| 4:3:1833:G:H2'    | 4:3:1834:U:C6     | 2.47                     | 0.49              |
| 4:3:2123:A:N7     | 4:3:2169:G:O2'    | 2.46                     | 0.49              |
| 4:3:2332:U:N3     | 4:3:2339:G:N1     | 2.45                     | 0.49              |
| 6:5:249:U:H3      | 6:5:269:A:N6      | 2.08                     | 0.49              |
| 6:5:939:G:N2      | 6:5:1312:G:H3'    | 2.28                     | 0.49              |
| 6:5:966:A:HO2'    | 6:5:1340:G:HO2'   | 1.55                     | 0.49              |
| 6:5:977:U:H5'     | 6:5:978:A:C8      | 2.48                     | 0.49              |
| 6:5:1138:U:H2'    | 6:5:1139:A:C8     | 2.48                     | 0.49              |
| 6:5:1323:A:H3'    | 6:5:1324:A:H8     | 1.78                     | 0.49              |
| 9:8:141:VAL:HG11  | 9:8:613:LEU:CD2   | 2.39                     | 0.49              |
| 9:8:950:VAL:HB    | 9:8:955:LYS:HE3   | 1.95                     | 0.49              |
| 9:8:1289:MET:CG   | 14:AD:15:DA:C4'   | 2.54                     | 0.49              |
| 9:8:1342:LEU:H    | 37:Z:398:LEU:HD21 | 1.77                     | 0.49              |
| 9:8:1344:LYS:HB2  | 37:Z:309:ILE:HD13 | 1.95                     | 0.49              |
| 11:A:38:ASN:OD1   | 11:A:40:LYS:HG2   | 2.13                     | 0.49              |
| 15:AE:108:TRP:CZ3 | 15:AE:130:PRO:HG3 | 2.48                     | 0.49              |
| 34:T:27:ARG:O     | 34:T:31:ARG:NH1   | 2.46                     | 0.49              |
| 52:p:73:MET:HE1   | 52:p:78:PHE:HB2   | 1.94                     | 0.49              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 54:r:77:ASN:HB2   | 54:r:102:ASN:HB2  | 1.94                     | 0.49              |
| 4:3:1282:G:H21    | 52:p:32:LYS:HA    | 1.77                     | 0.49              |
| 4:3:1982:G:H2'    | 4:3:1983:U:O4'    | 2.13                     | 0.49              |
| 4:3:2118:U:C2     | 4:3:2125:U:H4'    | 2.48                     | 0.49              |
| 4:3:2599:C:H2'    | 4:3:2600:G:C8     | 2.47                     | 0.49              |
| 6:5:141:A:H2'     | 6:5:142:G:H8      | 1.77                     | 0.49              |
| 6:5:293:G:N2      | 6:5:295:G:OP1     | 2.46                     | 0.49              |
| 6:5:432:U:H2'     | 6:5:433:C:H6      | 1.78                     | 0.49              |
| 6:5:823:C:O2'     | 21:G:21:LYS:NZ    | 2.30                     | 0.49              |
| 6:5:1123:G:OP1    | 22:H:20:TYR:OH    | 2.29                     | 0.49              |
| 6:5:1135:U:O4'    | 6:5:1157:G:N2     | 2.46                     | 0.49              |
| 6:5:1183:C:H2'    | 6:5:1184:C:H6     | 1.78                     | 0.49              |
| 6:5:1197:G:OP1    | 6:5:1295:U:O2'    | 2.26                     | 0.49              |
| 6:5:1214:A:H62    | 6:5:1273:A:N6     | 2.09                     | 0.49              |
| 6:5:1425:A:H2'    | 6:5:1427:U:H3     | 1.78                     | 0.49              |
| 9:8:1307:LEU:CD2  | 37:Z:406:LYS:CD   | 2.90                     | 0.49              |
| 10:9:53:TYR:CE1   | 10:9:57:LEU:CD1   | 2.95                     | 0.49              |
| 16:B:92:ILE:HA    | 16:B:95:ILE:HG22  | 1.95                     | 0.49              |
| 19:E:101:ASN:C    | 19:E:103:LYS:H    | 2.21                     | 0.49              |
| 37:Z:821:PHE:HB3  | 37:Z:825:PHE:CZ   | 2.48                     | 0.49              |
| 40:c:127:LEU:HD21 | 40:c:201:LYS:HB3  | 1.95                     | 0.49              |
| 62:z:8:ARG:HD3    | 62:z:17:ILE:HD12  | 1.95                     | 0.49              |
| 4:3:81:C:H2'      | 4:3:82:G:H8       | 1.77                     | 0.49              |
| 4:3:178:A:H2'     | 4:3:179:A:C8      | 2.48                     | 0.49              |
| 4:3:241:C:H2'     | 4:3:242:G:C8      | 2.48                     | 0.49              |
| 4:3:1389:G:H2'    | 4:3:1390:C:C6     | 2.47                     | 0.49              |
| 4:3:2331:G:H22    | 4:3:2340:U:H2'    | 1.78                     | 0.49              |
| 4:3:2580:A:H5''   | 4:3:2582:G:H4'    | 1.94                     | 0.49              |
| 4:3:2644:U:H2'    | 4:3:2645:U:C6     | 2.47                     | 0.49              |
| 4:3:2840:U:H2'    | 4:3:2841:A:H8     | 1.77                     | 0.49              |
| 6:5:885:U:H2'     | 6:5:886:A:C8      | 2.48                     | 0.49              |
| 6:5:1213:A:OP1    | 6:5:1310:C:N4     | 2.45                     | 0.49              |
| 6:5:1245:A:H2'    | 6:5:1246:A:C8     | 2.45                     | 0.49              |
| 6:5:1316:C:H4'    | 22:H:129:PHE:HB3  | 1.93                     | 0.49              |
| 7:6:44:ARG:NH1    | 9:8:1077:ASP:OD1  | 2.46                     | 0.49              |
| 9:8:166:LYS:HE3   | 9:8:178:VAL:HG11  | 1.94                     | 0.49              |
| 9:8:171:LEU:HD12  | 9:8:195:LEU:HD12  | 1.94                     | 0.49              |
| 9:8:1297:TYR:CD1  | 37:Z:554:LEU:HD23 | 2.47                     | 0.49              |
| 12:AB:5:SER:CB    | 12:AB:61:LEU:HD21 | 2.39                     | 0.49              |
| 16:B:8:ASN:OD1    | 16:B:9:GLY:N      | 2.44                     | 0.49              |
| 19:E:13:LEU:HD12  | 19:E:17:GLN:HE22  | 1.77                     | 0.49              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 20:F:110:ARG:HH11 | 20:F:122:GLU:HG3  | 1.78                     | 0.49              |
| 38:a:20:ILE:HB    | 38:a:22:TYR:CZ    | 2.48                     | 0.49              |
| 45:i:72:LYS:HA    | 45:i:92:GLY:HA3   | 1.95                     | 0.49              |
| 47:k:95:ARG:NH1   | 47:k:110:LEU:O    | 2.46                     | 0.49              |
| 4:3:24:U:H2'      | 4:3:25:G:C8       | 2.47                     | 0.49              |
| 4:3:474:U:H2'     | 4:3:475:A:C8      | 2.47                     | 0.49              |
| 4:3:1116:U:H2'    | 4:3:1117:U:C6     | 2.48                     | 0.49              |
| 4:3:2078:A:H2'    | 4:3:2079:G:C8     | 2.48                     | 0.49              |
| 4:3:2832:G:H2'    | 4:3:2833:A:C8     | 2.47                     | 0.49              |
| 6:5:223:G:H2'     | 6:5:224:A:H8      | 1.76                     | 0.49              |
| 6:5:483:U:H2'     | 6:5:484:A:C8      | 2.47                     | 0.49              |
| 6:5:1016:A:H2'    | 6:5:1017:A:C8     | 2.48                     | 0.49              |
| 6:5:1348:G:H4'    | 20:F:30:MET:HE3   | 1.94                     | 0.49              |
| 9:8:171:LEU:CD1   | 9:8:212:LEU:CD2   | 2.91                     | 0.49              |
| 7:AA:86:GLN:CD    | 37:Z:599:THR:HG21 | 2.38                     | 0.49              |
| 14:AD:10:DG:H5''  | 37:Z:118:LEU:CB   | 2.42                     | 0.49              |
| 18:D:185:ARG:HE   | 18:D:186:ASN:H    | 1.61                     | 0.49              |
| 20:F:21:LEU:O     | 20:F:25:ILE:HG12  | 2.13                     | 0.49              |
| 22:H:86:VAL:HA    | 22:H:89:LEU:HG    | 1.94                     | 0.49              |
| 23:I:89:ALA:O     | 23:I:93:LEU:HG    | 2.12                     | 0.49              |
| 24:J:14:ILE:HG23  | 24:J:77:LEU:HA    | 1.94                     | 0.49              |
| 25:K:121:GLU:C    | 25:K:123:ARG:N    | 2.71                     | 0.49              |
| 35:U:22:ALA:HB3   | 35:U:86:VAL:O     | 2.12                     | 0.49              |
| 37:Z:47:LEU:HD21  | 37:Z:320:PHE:CZ   | 2.47                     | 0.49              |
| 37:Z:835:PHE:HB2  | 37:Z:837:TYR:CZ   | 2.47                     | 0.49              |
| 42:e:94:GLY:HA2   | 42:e:163:LYS:HE2  | 1.95                     | 0.49              |
| 45:i:91:SER:N     | 45:i:94:ASP:OD2   | 2.43                     | 0.49              |
| 49:m:18:VAL:O     | 49:m:22:VAL:HG13  | 2.12                     | 0.49              |
| 55:s:35:ALA:O     | 55:s:79:LYS:NZ    | 2.45                     | 0.49              |
| 4:3:615:G:H2'     | 4:3:616:G:C8      | 2.48                     | 0.49              |
| 4:3:1201:A:H2'    | 4:3:1202:A:C8     | 2.47                     | 0.49              |
| 4:3:1648:A:OP1    | 4:3:1651:C:N4     | 2.45                     | 0.49              |
| 4:3:1803:U:H2'    | 4:3:1804:A:C8     | 2.48                     | 0.49              |
| 4:3:2134:G:H2'    | 4:3:2135:C:C6     | 2.48                     | 0.49              |
| 4:3:2301:C:H2'    | 4:3:2302:C:H6     | 1.78                     | 0.49              |
| 4:3:2561:G:H21    | 4:3:2590:G:H21    | 1.61                     | 0.49              |
| 5:4:47:C:P        | 50:n:101:ARG:HE   | 2.36                     | 0.49              |
| 6:5:673:A:H2'     | 6:5:674:U:H6      | 1.77                     | 0.49              |
| 6:5:775:G:H1'     | 24:J:114:CYS:SG   | 2.53                     | 0.49              |
| 6:5:822:A:H2'     | 6:5:823:C:C6      | 2.48                     | 0.49              |
| 6:5:885:U:C2      | 6:5:901:A:N7      | 2.80                     | 0.49              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 6:5:1214:A:H1'    | 6:5:1216:G:C5     | 2.48                     | 0.49              |
| 6:5:1297:G:H2'    | 6:5:1298:U:O4'    | 2.13                     | 0.49              |
| 7:6:35:VAL:HG21   | 7:6:207:ASP:HB3   | 1.95                     | 0.49              |
| 7:6:274:THR:HG23  | 7:6:313:GLU:OE1   | 2.13                     | 0.49              |
| 9:8:1213:ASP:OD1  | 9:8:1219:PRO:HD2  | 2.13                     | 0.49              |
| 11:A:120:PHE:HA   | 11:A:123:LEU:HB2  | 1.93                     | 0.49              |
| 16:B:14:ILE:HG12  | 16:B:181:LEU:HD21 | 1.94                     | 0.49              |
| 21:G:11:HIS:HB3   | 21:G:17:ASP:OD1   | 2.12                     | 0.49              |
| 23:I:73:LYS:NZ    | 23:I:75:ARG:HE    | 2.11                     | 0.49              |
| 23:I:78:ARG:HD3   | 23:I:79:LEU:N     | 2.28                     | 0.49              |
| 25:K:115:LEU:HG   | 25:K:116:ASP:H    | 1.77                     | 0.49              |
| 37:Z:520:HIS:NE2  | 37:Z:717:GLU:OE1  | 2.46                     | 0.49              |
| 39:b:109:ASP:HB3  | 39:b:208:ARG:HE   | 1.78                     | 0.49              |
| 40:c:164:LEU:HD21 | 40:c:182:HIS:HD2  | 1.78                     | 0.49              |
| 54:r:86:ILE:HD12  | 54:r:87:PRO:HD2   | 1.95                     | 0.49              |
| 4:3:15:A:N6       | 4:3:561:A:OP2     | 2.37                     | 0.48              |
| 4:3:53:G:N2       | 4:3:119:A:H62     | 2.09                     | 0.48              |
| 4:3:161:U:H2'     | 4:3:162:G:O4'     | 2.13                     | 0.48              |
| 4:3:329:G:O6      | 4:3:377:U:O4      | 2.30                     | 0.48              |
| 4:3:352:C:H2'     | 4:3:353:G:H8      | 1.78                     | 0.48              |
| 4:3:597:C:O2'     | 4:3:1283:A:N1     | 2.41                     | 0.48              |
| 4:3:853:G:N1      | 4:3:1219:U:OP2    | 2.39                     | 0.48              |
| 4:3:891:G:H2'     | 4:3:892:G:C8      | 2.48                     | 0.48              |
| 4:3:1504:G:H1     | 4:3:1539:U:H3     | 1.60                     | 0.48              |
| 4:3:2063:G:H2'    | 4:3:2064:G:C8     | 2.48                     | 0.48              |
| 4:3:2324:A:H2'    | 4:3:2325:U:C6     | 2.48                     | 0.48              |
| 4:3:2406:U:H2'    | 4:3:2407:G:C8     | 2.48                     | 0.48              |
| 6:5:733:A:H2'     | 6:5:734:A:C8      | 2.48                     | 0.48              |
| 6:5:833:G:N2      | 6:5:844:U:O2      | 2.30                     | 0.48              |
| 6:5:858:A:H2'     | 6:5:859:A:C8      | 2.47                     | 0.48              |
| 6:5:1156:G:H1'    | 6:5:1157:G:C5     | 2.47                     | 0.48              |
| 9:8:65:ARG:HA     | 9:8:105:SER:OG    | 2.12                     | 0.48              |
| 9:8:169:LEU:CD2   | 13:AC:25:DC:N3    | 2.71                     | 0.48              |
| 9:8:475:VAL:HG13  | 9:8:516:SER:HB3   | 1.95                     | 0.48              |
| 9:8:649:HIS:CG    | 37:Z:837:TYR:OH   | 2.56                     | 0.48              |
| 9:8:1051:ARG:HH11 | 9:8:1254:MET:HE3  | 1.78                     | 0.48              |
| 34:T:20:ARG:O     | 34:T:23:LEU:N     | 2.46                     | 0.48              |
| 39:b:165:MET:HE3  | 39:b:166:SER:N    | 2.28                     | 0.48              |
| 46:j:18:GLN:HB3   | 46:j:45:ASP:HB2   | 1.95                     | 0.48              |
| 47:k:90:LEU:HD21  | 47:k:97:SER:HB2   | 1.94                     | 0.48              |
| 53:q:4:ILE:HB     | 53:q:39:LEU:O     | 2.13                     | 0.48              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 53:q:47:ALA:HB3  | 53:q:48:PRO:HD3   | 1.94                     | 0.48              |
| 4:3:740:A:H2'    | 4:3:741:A:O4'     | 2.13                     | 0.48              |
| 4:3:849:C:H2'    | 4:3:850:G:C8      | 2.42                     | 0.48              |
| 4:3:1653:C:N4    | 4:3:1654:G:O6     | 2.45                     | 0.48              |
| 4:3:2315:G:N2    | 4:3:2319:A:O2'    | 2.44                     | 0.48              |
| 4:3:2547:C:H2'   | 4:3:2548:G:C8     | 2.48                     | 0.48              |
| 5:4:61:A:H2'     | 5:4:62:G:C8       | 2.48                     | 0.48              |
| 6:5:34:A:H4'     | 6:5:360:A:N3      | 2.28                     | 0.48              |
| 6:5:905:U:H2'    | 6:5:906:C:C6      | 2.48                     | 0.48              |
| 6:5:927:C:H42    | 6:5:1360:G:H1     | 1.59                     | 0.48              |
| 6:5:1013:C:H2'   | 6:5:1014:A:N9     | 2.28                     | 0.48              |
| 6:5:1088:C:OP1   | 11:A:158:ARG:NH1  | 2.46                     | 0.48              |
| 6:5:1182:C:C4    | 6:5:1183:C:N4     | 2.80                     | 0.48              |
| 6:5:1255:A:H3'   | 6:5:1256:U:H6     | 1.77                     | 0.48              |
| 9:8:168:GLN:HG3  | 9:8:524:ILE:HD13  | 1.95                     | 0.48              |
| 20:F:131:GLY:HA2 | 20:F:134:ILE:HB   | 1.94                     | 0.48              |
| 21:G:36:ILE:HA   | 21:G:69:ILE:HG22  | 1.94                     | 0.48              |
| 25:K:86:ASN:HD22 | 25:K:118:VAL:N    | 2.10                     | 0.48              |
| 37:Z:490:PRO:HD2 | 37:Z:547:VAL:HG13 | 1.95                     | 0.48              |
| 41:d:29:PRO:HB3  | 41:d:160:THR:HG23 | 1.94                     | 0.48              |
| 41:d:57:LEU:HD23 | 41:d:65:PRO:HB3   | 1.95                     | 0.48              |
| 45:i:109:LYS:HB3 | 45:i:122:ILE:HD12 | 1.95                     | 0.48              |
| 51:o:54:ARG:NH2  | 51:o:65:ILE:HG13  | 2.28                     | 0.48              |
| 1:0:9:LYS:HG3    | 1:0:10:LEU:HD22   | 1.94                     | 0.48              |
| 4:3:112:A:O2'    | 4:3:113:U:O4'     | 2.26                     | 0.48              |
| 4:3:189:U:H2'    | 4:3:190:G:C8      | 2.49                     | 0.48              |
| 4:3:650:G:H1     | 40:c:185:LYS:HD2  | 1.78                     | 0.48              |
| 4:3:694:U:H2'    | 4:3:695:G:C8      | 2.48                     | 0.48              |
| 4:3:1797:C:H5'   | 38:a:226:PRO:HB3  | 1.94                     | 0.48              |
| 4:3:2001:C:H2'   | 4:3:2002:U:C6     | 2.48                     | 0.48              |
| 4:3:2325:U:H2'   | 4:3:2326:G:O4'    | 2.13                     | 0.48              |
| 4:3:2843:G:O6    | 4:3:2881:A:N6     | 2.47                     | 0.48              |
| 6:5:372:G:O2'    | 6:5:373:A:H5'     | 2.13                     | 0.48              |
| 6:5:405:C:H2'    | 6:5:406:G:O4'     | 2.14                     | 0.48              |
| 6:5:1216:G:H2'   | 6:5:1217:G:H8     | 1.78                     | 0.48              |
| 6:5:1425:A:O2'   | 6:5:1428:A:N6     | 2.46                     | 0.48              |
| 9:8:211:ILE:HD13 | 9:8:229:LEU:CD2   | 2.44                     | 0.48              |
| 9:8:648:VAL:HB   | 37:Z:872:TYR:HD1  | 1.77                     | 0.48              |
| 9:8:999:PHE:HZ   | 12:AB:42:TYR:CE2  | 2.28                     | 0.48              |
| 19:E:17:GLN:O    | 19:E:20:GLN:HG2   | 2.14                     | 0.48              |
| 36:V:8:SER:OG    | 36:V:12:MET:HE3   | 2.12                     | 0.48              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 38:a:146:GLN:HG3  | 38:a:169:ARG:HD3  | 1.94                     | 0.48              |
| 39:b:11:VAL:HG23  | 39:b:28:VAL:HG23  | 1.94                     | 0.48              |
| 39:b:33:PRO:HG3   | 39:b:97:THR:HG22  | 1.95                     | 0.48              |
| 40:c:201:LYS:HA   | 40:c:204:LEU:HG   | 1.94                     | 0.48              |
| 46:j:29:ARG:O     | 46:j:31:ARG:NH1   | 2.43                     | 0.48              |
| 48:l:37:THR:O     | 48:l:99:GLN:NE2   | 2.45                     | 0.48              |
| 54:r:133:GLN:HB3  | 54:r:137:MET:HE1  | 1.95                     | 0.48              |
| 59:w:30:ARG:HH22  | 59:w:44:ILE:HG12  | 1.78                     | 0.48              |
| 4:3:224:G:H1      | 4:3:463:U:H3'     | 1.78                     | 0.48              |
| 4:3:404:C:H2'     | 4:3:405:C:C6      | 2.48                     | 0.48              |
| 4:3:530:G:H5''    | 54:r:4:PHE:CE2    | 2.48                     | 0.48              |
| 4:3:650:G:O6      | 40:c:185:LYS:NZ   | 2.45                     | 0.48              |
| 4:3:720:A:H5''    | 4:3:809:A:H62     | 1.78                     | 0.48              |
| 4:3:845:U:C5      | 47:k:30:LYS:HD3   | 2.49                     | 0.48              |
| 4:3:1227:C:H2'    | 4:3:1228:G:H8     | 1.77                     | 0.48              |
| 4:3:1588:A:O2'    | 4:3:1589:A:O4'    | 2.22                     | 0.48              |
| 4:3:2000:U:H5''   | 39:b:133:LEU:HD12 | 1.96                     | 0.48              |
| 6:5:1321:G:C8     | 22:H:111:ARG:HG2  | 2.49                     | 0.48              |
| 6:5:1402:U:H2'    | 6:5:1403:A:C8     | 2.49                     | 0.48              |
| 6:5:1493:A:H2'    | 6:5:1494:A:C4     | 2.49                     | 0.48              |
| 7:6:105:PRO:HB3   | 7:AA:320:GLU:C    | 2.38                     | 0.48              |
| 7:6:231:ILE:HG22  | 7:AA:34:PHE:HZ    | 1.78                     | 0.48              |
| 9:8:363:GLU:HG2   | 9:8:379:ARG:CZ    | 2.44                     | 0.48              |
| 9:8:1350:ALA:HB3  | 37:Z:368:PHE:CZ   | 2.48                     | 0.48              |
| 7:AA:266:LYS:HG2  | 7:AA:270:GLU:OE2  | 2.12                     | 0.48              |
| 16:B:59:GLU:HG3   | 23:I:100:VAL:HG22 | 1.94                     | 0.48              |
| 23:I:18:SER:HB2   | 23:I:102:VAL:HG12 | 1.94                     | 0.48              |
| 32:R:22:MET:HG3   | 32:R:27:LYS:HD2   | 1.95                     | 0.48              |
| 37:Z:112:ILE:HD12 | 37:Z:365:ASP:HB3  | 1.96                     | 0.48              |
| 38:a:125:GLU:HG3  | 38:a:137:PRO:HG2  | 1.95                     | 0.48              |
| 38:a:183:GLN:NE2  | 38:a:188:GLU:O    | 2.46                     | 0.48              |
| 40:c:6:LEU:HG     | 40:c:14:GLU:HG3   | 1.95                     | 0.48              |
| 55:s:4:THR:HG21   | 55:s:47:VAL:HB    | 1.96                     | 0.48              |
| 55:s:8:LEU:HG     | 55:s:9:LYS:HG3    | 1.95                     | 0.48              |
| 4:3:173:C:H2'     | 4:3:174:A:C8      | 2.48                     | 0.48              |
| 4:3:337:U:H2'     | 4:3:338:G:C8      | 2.49                     | 0.48              |
| 4:3:568:G:H2'     | 4:3:569:U:C6      | 2.49                     | 0.48              |
| 4:3:762:A:H2'     | 4:3:763:G:C8      | 2.48                     | 0.48              |
| 4:3:1005:G:H2'    | 4:3:1006:U:C6     | 2.49                     | 0.48              |
| 4:3:1354:U:HO2'   | 4:3:2017:G:HO2'   | 1.56                     | 0.48              |
| 4:3:1545:A:H2'    | 4:3:1546:U:C6     | 2.49                     | 0.48              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 4:3:1736:G:H2'    | 4:3:1737:G:H5''   | 1.94                     | 0.48              |
| 4:3:1801:U:O2     | 4:3:1832:G:N2     | 2.30                     | 0.48              |
| 4:3:2527:U:O2'    | 4:3:2529:C:OP2    | 2.30                     | 0.48              |
| 6:5:285:G:H2'     | 6:5:286:C:C6      | 2.49                     | 0.48              |
| 6:5:368:C:N4      | 6:5:384:G:OP2     | 2.35                     | 0.48              |
| 6:5:560:U:OP1     | 6:5:564:G:N2      | 2.47                     | 0.48              |
| 9:8:1371:LEU:CD1  | 37:Z:95:VAL:CB    | 2.78                     | 0.48              |
| 18:D:111:VAL:O    | 18:D:115:ILE:HG12 | 2.12                     | 0.48              |
| 19:E:14:SER:H     | 19:E:17:GLN:HE21  | 1.59                     | 0.48              |
| 37:Z:312:ILE:HG12 | 37:Z:322:THR:HG22 | 1.94                     | 0.48              |
| 37:Z:827:MET:HE2  | 37:Z:829:GLY:HA2  | 1.95                     | 0.48              |
| 39:b:70:PHE:O     | 39:b:74:ASN:N     | 2.46                     | 0.48              |
| 39:b:139:TYR:CD2  | 39:b:140:PRO:HD3  | 2.49                     | 0.48              |
| 4:3:638:A:C6      | 4:3:661:G:N1      | 2.82                     | 0.48              |
| 4:3:863:U:H4'     | 4:3:866:G:N1      | 2.29                     | 0.48              |
| 4:3:1182:U:H2'    | 4:3:1183:A:C8     | 2.48                     | 0.48              |
| 4:3:2090:G:O6     | 4:3:2244:U:O4     | 2.31                     | 0.48              |
| 4:3:2495:A:H2'    | 4:3:2496:G:C8     | 2.48                     | 0.48              |
| 4:3:2825:A:H2'    | 4:3:2826:G:O4'    | 2.13                     | 0.48              |
| 6:5:640:C:H2'     | 6:5:641:U:C6      | 2.49                     | 0.48              |
| 6:5:912:G:H2'     | 6:5:913:A:C8      | 2.47                     | 0.48              |
| 6:5:999:C:O2      | 6:5:1000:A:O2'    | 2.29                     | 0.48              |
| 6:5:1146:A:H2'    | 6:5:1147:U:C6     | 2.49                     | 0.48              |
| 6:5:1376:G:H2'    | 6:5:1377:C:C6     | 2.48                     | 0.48              |
| 9:8:219:GLU:CG    | 13:AC:21:DC:N4    | 2.67                     | 0.48              |
| 9:8:824:VAL:HG11  | 9:8:827:VAL:CG2   | 2.44                     | 0.48              |
| 9:8:1291:VAL:HG21 | 37:Z:405:GLY:HA2  | 1.94                     | 0.48              |
| 9:8:1371:LEU:CB   | 37:Z:95:VAL:CG1   | 2.91                     | 0.48              |
| 20:F:38:ALA:O     | 20:F:42:LEU:HD23  | 2.14                     | 0.48              |
| 22:H:108:ARG:NH1  | 22:H:110:LYS:HB3  | 2.29                     | 0.48              |
| 28:N:26:VAL:O     | 28:N:30:THR:HG23  | 2.14                     | 0.48              |
| 35:U:141:SER:O    | 35:U:148:ARG:NH2  | 2.46                     | 0.48              |
| 37:Z:488:ASP:CA   | 37:Z:551:ARG:HH21 | 2.26                     | 0.48              |
| 37:Z:806:ILE:HA   | 37:Z:809:MET:HE3  | 1.96                     | 0.48              |
| 38:a:183:GLN:OE1  | 38:a:189:THR:OG1  | 2.31                     | 0.48              |
| 46:j:6:THR:H      | 46:j:21:ILE:HG22  | 1.77                     | 0.48              |
| 55:s:3:VAL:HG13   | 55:s:5:ASN:H      | 1.77                     | 0.48              |
| 58:v:34:GLN:NE2   | 58:v:55:LEU:HD11  | 2.27                     | 0.48              |
| 4:3:669:A:N3      | 4:3:2411:C:H4'    | 2.29                     | 0.48              |
| 4:3:696:U:H2'     | 4:3:697:U:C6      | 2.48                     | 0.48              |
| 4:3:1552:C:H2'    | 4:3:1553:G:O4'    | 2.14                     | 0.48              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 4:3:1600:A:N3     | 38:a:62:ASN:ND2   | 2.61                     | 0.48              |
| 4:3:1987:C:H3'    | 4:3:1988:A:H5''   | 1.95                     | 0.48              |
| 4:3:2267:G:H2'    | 4:3:2268:C:C6     | 2.49                     | 0.48              |
| 4:3:2324:A:H2'    | 4:3:2325:U:H6     | 1.78                     | 0.48              |
| 4:3:2764:U:H1'    | 4:3:2765:A:H5''   | 1.95                     | 0.48              |
| 6:5:317:A:H2      | 6:5:328:G:H1      | 1.57                     | 0.48              |
| 6:5:643:U:H2'     | 6:5:644:U:C6      | 2.49                     | 0.48              |
| 6:5:672:A:N6      | 6:5:712:A:H61     | 2.12                     | 0.48              |
| 6:5:741:C:H2'     | 6:5:742:C:C6      | 2.49                     | 0.48              |
| 6:5:946:G:H2'     | 6:5:947:U:C6      | 2.49                     | 0.48              |
| 6:5:980:C:H2'     | 6:5:981:U:C6      | 2.49                     | 0.48              |
| 19:E:88:ILE:HG23  | 19:E:92:ARG:HE    | 1.79                     | 0.48              |
| 26:L:15:ILE:HD13  | 26:L:39:ILE:HD13  | 1.96                     | 0.48              |
| 31:Q:64:LEU:HD23  | 31:Q:65:SER:O     | 2.14                     | 0.48              |
| 37:Z:986:GLU:HA   | 37:Z:1192:HIS:CE1 | 2.48                     | 0.48              |
| 4:3:139:G:O6      | 4:3:145:A:N6      | 2.47                     | 0.48              |
| 4:3:450:C:O2'     | 4:3:1871:U:O2     | 2.32                     | 0.48              |
| 4:3:1073:A:H2'    | 4:3:1074:A:H8     | 1.78                     | 0.48              |
| 4:3:1119:A:N1     | 35:U:29:TYR:HE2   | 2.03                     | 0.48              |
| 4:3:1142:G:P      | 35:U:56:ASN:CG    | 2.96                     | 0.48              |
| 4:3:1775:G:H2'    | 4:3:1776:G:C8     | 2.49                     | 0.48              |
| 4:3:2644:U:OP1    | 39:b:83:GLU:HB2   | 2.14                     | 0.48              |
| 4:3:2695:U:H2'    | 4:3:2696:G:O4'    | 2.14                     | 0.48              |
| 4:3:2738:U:H2'    | 4:3:2739:C:C6     | 2.49                     | 0.48              |
| 4:3:2825:A:H5''   | 39:b:116:GLY:HA3  | 1.95                     | 0.48              |
| 6:5:1179:A:H2'    | 6:5:1180:U:O4'    | 2.13                     | 0.48              |
| 7:6:1:MET:HG3     | 7:AA:51:PRO:HG3   | 1.96                     | 0.48              |
| 7:6:318:VAL:HG12  | 7:6:323:LEU:O     | 2.13                     | 0.48              |
| 9:8:169:LEU:HD11  | 9:8:187:LEU:HD12  | 1.95                     | 0.48              |
| 9:8:563:GLY:HA2   | 9:8:566:ARG:HG3   | 1.94                     | 0.48              |
| 9:8:1105:ILE:HG21 | 37:Z:736:VAL:HG23 | 1.82                     | 0.48              |
| 9:8:1126:CYS:SG   | 9:8:1153:LEU:HD23 | 2.54                     | 0.48              |
| 12:AB:48:TYR:HB3  | 12:AB:51:VAL:CG2  | 2.43                     | 0.48              |
| 39:b:35:GLN:HG2   | 39:b:75:LEU:HD23  | 1.96                     | 0.48              |
| 43:f:10:SER:HG    | 43:f:14:LYS:HZ3   | 1.54                     | 0.48              |
| 56:t:70:PHE:O     | 56:t:74:LEU:HD23  | 2.14                     | 0.48              |
| 4:3:34:C:N4       | 4:3:510:G:O6      | 2.47                     | 0.48              |
| 4:3:511:U:H3'     | 4:3:512:G:C8      | 2.48                     | 0.48              |
| 4:3:563:A:N1      | 45:i:119:ARG:NH1  | 2.62                     | 0.48              |
| 4:3:568:G:H2'     | 4:3:569:U:H6      | 1.79                     | 0.48              |
| 4:3:576:A:H2'     | 4:3:577:C:O4'     | 2.14                     | 0.48              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 4:3:595:U:C4     | 4:3:605:A:N7      | 2.82                     | 0.48              |
| 4:3:771:C:H2'    | 4:3:772:C:C6      | 2.49                     | 0.48              |
| 4:3:1203:G:H2'   | 4:3:1204:A:C8     | 2.49                     | 0.48              |
| 4:3:1287:C:H2'   | 4:3:1288:C:C6     | 2.48                     | 0.48              |
| 4:3:1374:U:N3    | 4:3:1375:G:N7     | 2.61                     | 0.48              |
| 4:3:1406:A:O2'   | 4:3:1408:G:OP2    | 2.32                     | 0.48              |
| 4:3:1735:A:OP1   | 4:3:1770:A:N6     | 2.47                     | 0.48              |
| 4:3:1872:U:C4    | 4:3:1882:G:O6     | 2.67                     | 0.48              |
| 4:3:2338:G:H21   | 57:u:56:GLY:HA2   | 1.78                     | 0.48              |
| 4:3:2464:C:N4    | 4:3:2465:U:O4     | 2.46                     | 0.48              |
| 4:3:2665:A:H1'   | 4:3:2673:A:H61    | 1.78                     | 0.48              |
| 4:3:2859:U:H2'   | 4:3:2860:A:C8     | 2.46                     | 0.48              |
| 6:5:85:U:O2'     | 6:5:86:A:N7       | 2.35                     | 0.48              |
| 6:5:1142:G:H2'   | 6:5:1144:A:OP2    | 2.14                     | 0.48              |
| 6:5:1290:G:N1    | 6:5:1293:A:OP2    | 2.44                     | 0.48              |
| 6:5:1297:G:O2'   | 6:5:1336:C:H1'    | 2.13                     | 0.48              |
| 7:6:49:CYS:SG    | 7:AA:34:PHE:CE2   | 3.07                     | 0.48              |
| 7:6:276:ARG:CD   | 12:AB:323:GLU:OE1 | 2.61                     | 0.48              |
| 9:8:653:TYR:CE1  | 9:8:737:ARG:NH2   | 2.82                     | 0.48              |
| 9:8:1288:GLU:OE2 | 37:Z:893:ARG:NH1  | 2.47                     | 0.48              |
| 9:8:1305:GLU:CD  | 37:Z:542:LEU:HD12 | 2.39                     | 0.48              |
| 9:8:1340:LYS:NZ  | 9:8:1370:ILE:HG13 | 2.29                     | 0.48              |
| 9:8:1349:LEU:C   | 37:Z:368:PHE:CZ   | 2.92                     | 0.48              |
| 10:9:57:LEU:CD2  | 37:Z:1211:ALA:O   | 2.61                     | 0.48              |
| 20:F:119:ILE:HA  | 20:F:122:GLU:OE1  | 2.12                     | 0.48              |
| 25:K:7:LEU:HB3   | 30:P:35:TYR:CZ    | 2.49                     | 0.48              |
| 36:W:14:ILE:HD11 | 36:X:17:ILE:CG1   | 2.22                     | 0.48              |
| 40:c:168:LEU:HB3 | 40:c:180:VAL:HG21 | 1.96                     | 0.48              |
| 41:d:57:LEU:HA   | 41:d:60:ILE:HG22  | 1.96                     | 0.48              |
| 46:j:78:LYS:HB2  | 51:o:76:GLU:HG3   | 1.96                     | 0.48              |
| 51:o:94:GLY:HA2  | 51:o:115:LYS:HA   | 1.96                     | 0.48              |
| 61:y:27:LEU:HD11 | 61:y:36:LYS:HB3   | 1.95                     | 0.48              |
| 4:3:133:G:H2'    | 4:3:134:U:C6      | 2.48                     | 0.48              |
| 4:3:279:U:H2'    | 4:3:280:A:C8      | 2.49                     | 0.48              |
| 4:3:336:C:H2'    | 4:3:337:U:C6      | 2.49                     | 0.48              |
| 4:3:674:G:H2'    | 4:3:675:U:C6      | 2.49                     | 0.48              |
| 4:3:759:U:H2'    | 4:3:760:G:O4'     | 2.13                     | 0.48              |
| 4:3:863:U:O2'    | 4:3:866:G:O6      | 2.30                     | 0.48              |
| 4:3:1229:U:H2'   | 4:3:1230:U:C6     | 2.49                     | 0.48              |
| 4:3:1305:G:H2'   | 4:3:1306:G:H8     | 1.79                     | 0.48              |
| 4:3:1608:C:H2'   | 4:3:1609:U:C6     | 2.49                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 4:3:2146:A:H2'     | 4:3:2147:G:C8      | 2.49                     | 0.48              |
| 4:3:2190:G:H2'     | 4:3:2191:G:C8      | 2.49                     | 0.48              |
| 4:3:2311:G:O2'     | 41:d:129:THR:OG1   | 2.22                     | 0.48              |
| 4:3:2795:C:H1'     | 39:b:65:PRO:HB3    | 1.95                     | 0.48              |
| 6:5:149:G:H2'      | 6:5:150:A:H8       | 1.79                     | 0.48              |
| 6:5:386:U:H2'      | 6:5:387:G:C8       | 2.49                     | 0.48              |
| 7:6:175:SER:OG     | 7:6:178:ILE:HD12   | 2.13                     | 0.48              |
| 9:8:998:ILE:CB     | 12:AB:108:LEU:HD13 | 2.44                     | 0.48              |
| 14:AD:14:DG:H5'    | 37:Z:890:TYR:N     | 2.29                     | 0.48              |
| 37:Z:192:ILE:HA    | 37:Z:200:TYR:CE2   | 2.48                     | 0.48              |
| 39:b:110:VAL:CG2   | 39:b:179:LEU:HD22  | 2.44                     | 0.48              |
| 4:3:610:G:H2'      | 4:3:611:A:C8       | 2.49                     | 0.47              |
| 4:3:652:U:H2'      | 4:3:653:G:H8       | 1.79                     | 0.47              |
| 4:3:987:U:H2'      | 4:3:988:G:H8       | 1.79                     | 0.47              |
| 4:3:1115:G:H1'     | 44:h:126:GLY:HA3   | 1.95                     | 0.47              |
| 4:3:2071:C:H2'     | 4:3:2072:C:H6      | 1.79                     | 0.47              |
| 4:3:2197:U:H2'     | 4:3:2198:G:C8      | 2.49                     | 0.47              |
| 4:3:2391:G:H2'     | 4:3:2392:U:C6      | 2.49                     | 0.47              |
| 4:3:2776:U:O4      | 4:3:2777:A:N6      | 2.47                     | 0.47              |
| 4:3:2781:C:O2'     | 39:b:172:GLU:OE2   | 2.32                     | 0.47              |
| 4:3:2852:G:H1'     | 4:3:2872:A:H61     | 1.79                     | 0.47              |
| 6:5:399:C:H4'      | 17:C:131:THR:HG22  | 1.96                     | 0.47              |
| 6:5:509:C:H4'      | 17:C:38:HIS:HB3    | 1.94                     | 0.47              |
| 7:6:129:CYS:SG     | 7:6:135:VAL:HG23   | 2.53                     | 0.47              |
| 8:7:38:G:H3'       | 8:7:39:A:C8        | 2.49                     | 0.47              |
| 9:8:785:MET:CE     | 9:8:1064:GLY:HA2   | 2.44                     | 0.47              |
| 9:8:1051:ARG:HH11  | 9:8:1254:MET:CE    | 2.27                     | 0.47              |
| 11:A:179:ASP:OD1   | 11:A:179:ASP:N     | 2.47                     | 0.47              |
| 14:AD:10:DG:C5'    | 37:Z:118:LEU:HB3   | 2.44                     | 0.47              |
| 14:AD:11:DT:H2'    | 14:AD:12:DC:C6     | 2.49                     | 0.47              |
| 19:E:7:LEU:HD21    | 19:E:72:PHE:HZ     | 1.79                     | 0.47              |
| 19:E:106:GLN:O     | 19:E:110:GLN:N     | 2.44                     | 0.47              |
| 20:F:65:VAL:HA     | 20:F:68:VAL:HG22   | 1.96                     | 0.47              |
| 33:S:29:LYS:HA     | 33:S:32:VAL:HG22   | 1.96                     | 0.47              |
| 35:U:49:SER:OG     | 35:U:86:VAL:HA     | 2.14                     | 0.47              |
| 37:Z:1176:THR:HG21 | 37:Z:1212:ILE:CD1  | 2.44                     | 0.47              |
| 40:c:112:LEU:C     | 40:c:116:TRP:HD1   | 2.22                     | 0.47              |
| 46:j:8:LEU:H       | 46:j:8:LEU:HD23    | 1.79                     | 0.47              |
| 53:q:69:ASN:HD21   | 53:q:82:LYS:HE3    | 1.79                     | 0.47              |
| 54:r:7:GLN:NE2     | 54:r:10:VAL:HB     | 2.29                     | 0.47              |
| 4:3:50:G:H22       | 4:3:179:A:H2'      | 1.79                     | 0.47              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 4:3:59:C:H2'     | 4:3:60:G:H8       | 1.79                     | 0.47              |
| 4:3:144:C:H2'    | 4:3:145:A:H8      | 1.79                     | 0.47              |
| 4:3:246:G:N2     | 4:3:259:A:OP2     | 2.47                     | 0.47              |
| 4:3:406:C:H2'    | 4:3:407:U:C6      | 2.49                     | 0.47              |
| 4:3:518:A:O2'    | 4:3:532:A:N1      | 2.47                     | 0.47              |
| 4:3:580:U:OP1    | 4:3:1249:A:O2'    | 2.21                     | 0.47              |
| 4:3:696:U:H2'    | 4:3:697:U:H6      | 1.78                     | 0.47              |
| 4:3:913:U:H2'    | 4:3:914:G:O4'     | 2.14                     | 0.47              |
| 4:3:1076:U:O2    | 4:3:1149:G:N2     | 2.44                     | 0.47              |
| 4:3:1187:C:H2'   | 4:3:1188:C:C6     | 2.44                     | 0.47              |
| 4:3:1319:C:H2'   | 4:3:1320:C:C6     | 2.49                     | 0.47              |
| 4:3:1511:C:C4    | 4:3:1512:A:N6     | 2.82                     | 0.47              |
| 4:3:1951:A:H61   | 4:3:2565:G:H1'    | 1.79                     | 0.47              |
| 4:3:2106:G:H22   | 4:3:2198:G:H1     | 1.62                     | 0.47              |
| 4:3:2200:U:H2'   | 4:3:2201:G:H8     | 1.79                     | 0.47              |
| 4:3:2623:U:H2'   | 4:3:2624:C:C6     | 2.49                     | 0.47              |
| 4:3:2799:U:O4    | 4:3:2895:A:N1     | 2.45                     | 0.47              |
| 6:5:26:C:H2'     | 6:5:27:A:C8       | 2.49                     | 0.47              |
| 6:5:109:G:N2     | 6:5:233:C:O2      | 2.35                     | 0.47              |
| 6:5:335:C:H2'    | 6:5:336:U:H6      | 1.78                     | 0.47              |
| 6:5:706:U:H2'    | 6:5:707:G:C8      | 2.49                     | 0.47              |
| 6:5:1241:G:C6    | 6:5:1245:A:N6     | 2.82                     | 0.47              |
| 7:6:35:VAL:HG13  | 7:6:209:LEU:HB2   | 1.96                     | 0.47              |
| 8:7:70:G:H2'     | 8:7:71:A:H8       | 1.79                     | 0.47              |
| 9:8:998:ILE:HG21 | 12:AB:108:LEU:CD2 | 2.18                     | 0.47              |
| 9:8:1342:LEU:N   | 37:Z:398:LEU:HD21 | 2.27                     | 0.47              |
| 20:F:149:ALA:HB3 | 24:J:49:ARG:HH12  | 1.77                     | 0.47              |
| 53:q:68:VAL:N    | 53:q:86:ARG:HH11  | 2.12                     | 0.47              |
| 59:w:26:LEU:HD13 | 59:w:48:ARG:HH12  | 1.78                     | 0.47              |
| 4:3:134:U:H2'    | 4:3:135:A:H8      | 1.79                     | 0.47              |
| 4:3:210:U:H2'    | 4:3:211:A:H8      | 1.78                     | 0.47              |
| 4:3:445:C:H2'    | 4:3:446:A:C8      | 2.50                     | 0.47              |
| 4:3:461:C:H2'    | 4:3:462:C:C6      | 2.49                     | 0.47              |
| 4:3:993:A:N6     | 4:3:995:A:N1      | 2.62                     | 0.47              |
| 4:3:1376:G:O6    | 4:3:1377:A:N6     | 2.48                     | 0.47              |
| 4:3:1463:G:H2'   | 4:3:1464:G:C8     | 2.49                     | 0.47              |
| 4:3:2043:C:H2'   | 4:3:2044:C:C6     | 2.50                     | 0.47              |
| 4:3:2071:C:H2'   | 4:3:2072:C:C6     | 2.49                     | 0.47              |
| 4:3:2413:G:O2'   | 4:3:2419:A:N6     | 2.47                     | 0.47              |
| 4:3:2577:G:H2'   | 4:3:2578:A:H8     | 1.78                     | 0.47              |
| 5:4:3:U:H2'      | 5:4:4:G:C8        | 2.49                     | 0.47              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 6:5:9:A:H62      | 17:C:201:LYS:HB3  | 1.78                     | 0.47              |
| 6:5:838:A:C8     | 19:E:109:LEU:HD13 | 2.49                     | 0.47              |
| 6:5:1010:A:H2'   | 6:5:1011:A:C8     | 2.48                     | 0.47              |
| 7:6:239:ILE:HG23 | 7:AA:225:PHE:CE1  | 2.49                     | 0.47              |
| 8:7:16:G:N2      | 8:7:22:A:N3       | 2.62                     | 0.47              |
| 9:8:419:LEU:HD21 | 9:8:422:LYS:CG    | 2.44                     | 0.47              |
| 9:8:1200:PHE:CZ  | 37:Z:864:ILE:HA   | 2.49                     | 0.47              |
| 9:8:1284:GLN:OE1 | 14:AD:17:DT:H5''  | 2.14                     | 0.47              |
| 9:8:1370:ILE:HB  | 37:Z:94:ILE:CG2   | 2.44                     | 0.47              |
| 11:A:41:MET:HE3  | 11:A:208:PRO:HD3  | 1.96                     | 0.47              |
| 11:A:68:ALA:O    | 11:A:72:VAL:HG13  | 2.13                     | 0.47              |
| 14:AD:14:DG:C4'  | 37:Z:889:GLY:C    | 2.88                     | 0.47              |
| 16:B:76:PHE:O    | 16:B:84:ASN:ND2   | 2.47                     | 0.47              |
| 35:U:86:VAL:HG11 | 35:U:89:ILE:HD12  | 1.97                     | 0.47              |
| 37:Z:663:GLU:HB3 | 37:Z:702:LEU:HD11 | 1.95                     | 0.47              |
| 37:Z:745:LYS:NZ  | 37:Z:860:GLU:OE2  | 2.46                     | 0.47              |
| 37:Z:986:GLU:HA  | 37:Z:1192:HIS:HE1 | 1.80                     | 0.47              |
| 47:k:36:GLN:HG3  | 47:k:37:LYS:HG2   | 1.96                     | 0.47              |
| 4:3:319:G:O6     | 4:3:390:A:N6      | 2.47                     | 0.47              |
| 4:3:432:G:OP2    | 58:v:10:ARG:NH1   | 2.47                     | 0.47              |
| 4:3:569:U:H2'    | 4:3:570:C:C6      | 2.49                     | 0.47              |
| 4:3:587:U:H2'    | 4:3:588:G:O4'     | 2.14                     | 0.47              |
| 4:3:650:G:H2'    | 4:3:651:A:C8      | 2.49                     | 0.47              |
| 4:3:768:G:H2'    | 4:3:769:A:H5''    | 1.95                     | 0.47              |
| 4:3:917:G:N2     | 4:3:935:U:O2      | 2.47                     | 0.47              |
| 4:3:941:C:H2'    | 4:3:942:A:H8      | 1.78                     | 0.47              |
| 4:3:1400:U:H2'   | 4:3:1401:A:H8     | 1.79                     | 0.47              |
| 4:3:1470:C:H2'   | 4:3:1471:A:C8     | 2.49                     | 0.47              |
| 4:3:1471:A:N6    | 4:3:1582:G:O6     | 2.47                     | 0.47              |
| 4:3:1544:G:H2'   | 4:3:1545:A:H8     | 1.79                     | 0.47              |
| 4:3:2388:C:H2'   | 4:3:2389:A:C8     | 2.49                     | 0.47              |
| 4:3:2420:A:H2'   | 4:3:2421:U:O4'    | 2.14                     | 0.47              |
| 4:3:2683:G:H2'   | 4:3:2684:G:C8     | 2.49                     | 0.47              |
| 6:5:671:G:H2'    | 6:5:672:A:C8      | 2.48                     | 0.47              |
| 6:5:1207:U:H5''  | 22:H:128:GLN:HB3  | 1.97                     | 0.47              |
| 6:5:1266:U:H2'   | 6:5:1267:G:C8     | 2.49                     | 0.47              |
| 9:8:717:ILE:HG22 | 9:8:754:ASP:HB2   | 1.96                     | 0.47              |
| 11:A:66:GLN:O    | 11:A:70:ASN:ND2   | 2.47                     | 0.47              |
| 15:AE:9:GLN:OE1  | 15:AE:132:PRO:HG3 | 2.13                     | 0.47              |
| 21:G:9:LYS:HA    | 21:G:36:ILE:HD11  | 1.96                     | 0.47              |
| 21:G:91:SER:OG   | 21:G:137:ILE:O    | 2.25                     | 0.47              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 30:P:13:VAL:HG13  | 30:P:57:ASP:HA    | 1.95                     | 0.47              |
| 31:Q:43:PHE:HB2   | 31:Q:82:HIS:CG    | 2.50                     | 0.47              |
| 39:b:38:GLY:HA2   | 39:b:92:MET:HE1   | 1.96                     | 0.47              |
| 40:c:128:VAL:O    | 40:c:200:GLU:HA   | 2.14                     | 0.47              |
| 43:f:58:TYR:O     | 43:f:62:LYS:HG2   | 2.15                     | 0.47              |
| 46:j:63:VAL:HB    | 46:j:102:VAL:HG23 | 1.97                     | 0.47              |
| 47:k:36:GLN:OE1   | 47:k:37:LYS:HE3   | 2.14                     | 0.47              |
| 47:k:110:LEU:HD12 | 47:k:111:PRO:HD2  | 1.96                     | 0.47              |
| 4:3:421:A:N6      | 4:3:423:C:H2'     | 2.30                     | 0.47              |
| 4:3:860:C:H4'     | 4:3:2436:G:C5     | 2.50                     | 0.47              |
| 4:3:1070:U:H2'    | 4:3:1071:G:H8     | 1.78                     | 0.47              |
| 4:3:1143:U:N3     | 4:3:1144:C:N4     | 2.61                     | 0.47              |
| 4:3:1264:U:H2'    | 4:3:1265:G:O4'    | 2.13                     | 0.47              |
| 4:3:1298:A:H2'    | 4:3:1299:A:O4'    | 2.15                     | 0.47              |
| 4:3:2223:C:H2'    | 4:3:2224:A:C8     | 2.41                     | 0.47              |
| 4:3:2558:G:H2'    | 4:3:2559:C:H6     | 1.80                     | 0.47              |
| 4:3:2799:U:H3'    | 4:3:2896:G:N2     | 2.30                     | 0.47              |
| 4:3:2843:G:H2'    | 4:3:2844:U:H6     | 1.79                     | 0.47              |
| 6:5:33:A:H2'      | 6:5:34:A:C8       | 2.48                     | 0.47              |
| 6:5:253:G:O6      | 6:5:265:U:O4      | 2.32                     | 0.47              |
| 6:5:337:C:H2'     | 6:5:338:C:C6      | 2.49                     | 0.47              |
| 8:7:57:C:H3'      | 8:7:58:G:C8       | 2.49                     | 0.47              |
| 9:8:999:PHE:HB3   | 9:8:1002:SER:OG   | 2.14                     | 0.47              |
| 9:8:1001:GLU:C    | 12:AB:109:LYS:HB3 | 2.40                     | 0.47              |
| 7:AA:57:ALA:HB2   | 7:AA:173:ILE:HD11 | 1.97                     | 0.47              |
| 14:AD:14:DG:N7    | 37:Z:886:ALA:CA   | 2.71                     | 0.47              |
| 30:P:68:PRO:HA    | 30:P:74:ARG:HA    | 1.96                     | 0.47              |
| 32:R:20:ILE:O     | 32:R:24:LYS:HG2   | 2.15                     | 0.47              |
| 37:Z:670:PHE:CE1  | 37:Z:688:LEU:HD11 | 2.50                     | 0.47              |
| 37:Z:1228:PHE:CE1 | 37:Z:1251:ASP:HB2 | 2.50                     | 0.47              |
| 39:b:15:GLN:OE1   | 39:b:23:ARG:NH2   | 2.42                     | 0.47              |
| 39:b:160:PHE:H    | 39:b:163:LYS:HE2  | 1.80                     | 0.47              |
| 48:l:24:ASN:O     | 48:l:102:VAL:N    | 2.47                     | 0.47              |
| 4:3:499:G:H22     | 4:3:501:G:H3'     | 1.79                     | 0.47              |
| 4:3:730:G:H1      | 4:3:802:U:H3      | 1.61                     | 0.47              |
| 6:5:302:A:H3'     | 6:5:303:A:H8      | 1.78                     | 0.47              |
| 6:5:309:A:H2'     | 6:5:310:C:C6      | 2.50                     | 0.47              |
| 6:5:416:U:C2      | 6:5:421:G:N1      | 2.83                     | 0.47              |
| 6:5:432:U:H2'     | 6:5:433:C:C6      | 2.49                     | 0.47              |
| 9:8:773:ASN:OD1   | 37:Z:861:GLY:N    | 2.47                     | 0.47              |
| 11:A:91:TYR:CE1   | 11:A:226:CYS:HB3  | 2.50                     | 0.47              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 13:AC:15:DT:C3'  | 15:AE:95:ARG:NH2 | 2.76                     | 0.47              |
| 16:B:56:VAL:HG12 | 16:B:69:VAL:HG12 | 1.97                     | 0.47              |
| 32:R:15:LEU:HD23 | 32:R:15:LEU:H    | 1.79                     | 0.47              |
| 51:o:11:ASP:O    | 51:o:15:GLN:HG3  | 2.14                     | 0.47              |
| 53:q:46:GLY:H    | 53:q:50:LEU:HD23 | 1.79                     | 0.47              |
| 59:w:25:GLU:HA   | 59:w:28:GLU:HG3  | 1.97                     | 0.47              |
| 4:3:20:C:H2'     | 4:3:21:U:C6      | 2.49                     | 0.47              |
| 4:3:34:C:N4      | 4:3:483:A:OP2    | 2.48                     | 0.47              |
| 4:3:117:C:H2'    | 4:3:118:G:O4'    | 2.13                     | 0.47              |
| 4:3:411:U:O4     | 4:3:437:A:N7     | 2.48                     | 0.47              |
| 4:3:486:G:N1     | 4:3:490:A:OP1    | 2.45                     | 0.47              |
| 4:3:597:C:H2'    | 4:3:598:G:C8     | 2.50                     | 0.47              |
| 4:3:767:C:H2'    | 4:3:768:G:O4'    | 2.14                     | 0.47              |
| 4:3:986:G:H2'    | 4:3:987:U:C6     | 2.50                     | 0.47              |
| 4:3:991:G:H21    | 48:l:83:MET:HE2  | 1.78                     | 0.47              |
| 4:3:1071:G:O6    | 4:3:1154:U:O4    | 2.31                     | 0.47              |
| 4:3:1142:G:C2'   | 35:U:78:GLY:N    | 2.77                     | 0.47              |
| 4:3:1221:G:H2'   | 4:3:1222:A:C8    | 2.49                     | 0.47              |
| 4:3:1546:U:H3'   | 4:3:1547:G:C8    | 2.49                     | 0.47              |
| 4:3:1698:A:N3    | 4:3:1698:A:H2'   | 2.29                     | 0.47              |
| 4:3:1764:U:N3    | 4:3:1769:A:C5    | 2.82                     | 0.47              |
| 4:3:2259:G:H2'   | 4:3:2260:G:C8    | 2.49                     | 0.47              |
| 4:3:2394:A:H4'   | 57:u:70:ASP:HA   | 1.97                     | 0.47              |
| 4:3:2409:U:N3    | 4:3:2423:G:N1    | 2.54                     | 0.47              |
| 4:3:2418:G:H2'   | 4:3:2419:A:C8    | 2.50                     | 0.47              |
| 4:3:2476:A:H2'   | 4:3:2484:A:C6    | 2.50                     | 0.47              |
| 4:3:2534:G:O6    | 4:3:2545:U:O4    | 2.32                     | 0.47              |
| 4:3:2645:U:H2'   | 4:3:2646:G:O4'   | 2.15                     | 0.47              |
| 4:3:2677:A:H2'   | 4:3:2678:A:C8    | 2.49                     | 0.47              |
| 6:5:361:U:H5''   | 6:5:362:U:H5'    | 1.96                     | 0.47              |
| 6:5:381:C:H2'    | 6:5:382:U:C6     | 2.49                     | 0.47              |
| 6:5:701:A:H2'    | 6:5:702:U:C6     | 2.50                     | 0.47              |
| 6:5:718:A:H4'    | 6:5:719:G:C4     | 2.50                     | 0.47              |
| 6:5:737:U:H2'    | 6:5:738:A:C8     | 2.50                     | 0.47              |
| 6:5:740:G:C2     | 6:5:741:C:C5     | 3.03                     | 0.47              |
| 6:5:744:U:H4'    | 6:5:745:U:H5     | 1.79                     | 0.47              |
| 6:5:749:G:H1'    | 6:5:751:C:N4     | 2.28                     | 0.47              |
| 6:5:781:A:H2'    | 6:5:782:G:H8     | 1.80                     | 0.47              |
| 9:8:147:ILE:HG21 | 9:8:612:PHE:CE1  | 2.50                     | 0.47              |
| 9:8:723:ILE:CG2  | 9:8:727:ASN:HA   | 2.45                     | 0.47              |
| 9:8:829:ASN:O    | 9:8:848:LYS:HE2  | 2.03                     | 0.47              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 9:8:1157:ILE:HG12 | 9:8:1172:LEU:HD11 | 1.96                     | 0.47              |
| 9:8:1297:TYR:CE2  | 37:Z:504:ILE:HB   | 2.47                     | 0.47              |
| 9:8:1348:GLY:C    | 37:Z:368:PHE:CE1  | 2.88                     | 0.47              |
| 10:9:51:ARG:NH2   | 37:Z:986:GLU:OE2  | 2.47                     | 0.47              |
| 12:AB:215:ASP:CA  | 12:AB:217:ARG:HE  | 2.27                     | 0.47              |
| 12:AB:290:TRP:CG  | 12:AB:296:LYS:CD  | 2.92                     | 0.47              |
| 13:AC:17:DT:C2'   | 13:AC:18:DG:C8    | 2.92                     | 0.47              |
| 14:AD:14:DG:H4'   | 37:Z:890:TYR:N    | 2.30                     | 0.47              |
| 15:AE:128:ALA:HA  | 37:Z:169:ALA:HB1  | 1.96                     | 0.47              |
| 16:B:41:ARG:HD2   | 16:B:42:ASN:N     | 2.29                     | 0.47              |
| 16:B:194:THR:HG23 | 16:B:196:TYR:H    | 1.79                     | 0.47              |
| 19:E:107:LEU:O    | 19:E:110:GLN:HB2  | 2.15                     | 0.47              |
| 20:F:102:TRP:HD1  | 20:F:136:LYS:HZ2  | 1.58                     | 0.47              |
| 23:I:27:THR:O     | 23:I:31:ILE:HG12  | 2.14                     | 0.47              |
| 24:J:17:SER:CB    | 24:J:80:LYS:HE3   | 2.41                     | 0.47              |
| 26:L:42:ASP:HB3   | 26:L:45:VAL:HB    | 1.97                     | 0.47              |
| 27:M:23:ARG:NH1   | 27:M:30:ALA:HB2   | 2.30                     | 0.47              |
| 39:b:1:MET:N      | 39:b:88:THR:H     | 2.11                     | 0.47              |
| 40:c:40:VAL:HG12  | 40:c:101:LEU:HD13 | 1.96                     | 0.47              |
| 40:c:74:ALA:O     | 40:c:76:GLN:NE2   | 2.48                     | 0.47              |
| 43:f:47:ARG:NH2   | 43:f:51:LEU:HB2   | 2.28                     | 0.47              |
| 45:i:118:SER:HA   | 45:i:121:TRP:HB2  | 1.95                     | 0.47              |
| 46:j:85:VAL:HG13  | 46:j:87:ILE:HD11  | 1.96                     | 0.47              |
| 52:p:91:ARG:HE    | 52:p:93:VAL:HG12  | 1.79                     | 0.47              |
| 53:q:34:GLN:O     | 53:q:34:GLN:HG2   | 2.15                     | 0.47              |
| 59:w:22:LEU:HA    | 59:w:25:GLU:HG3   | 1.95                     | 0.47              |
| 1:0:34:ARG:NH2    | 1:0:41:GLN:O      | 2.41                     | 0.47              |
| 4:3:29:G:O2'      | 4:3:30:A:N7       | 2.40                     | 0.47              |
| 4:3:333:A:C6      | 4:3:356:A:C4      | 3.03                     | 0.47              |
| 4:3:450:C:H2'     | 4:3:451:A:H8      | 1.79                     | 0.47              |
| 4:3:652:U:H2'     | 4:3:653:G:C8      | 2.50                     | 0.47              |
| 4:3:1180:U:H2'    | 4:3:1181:A:H8     | 1.79                     | 0.47              |
| 4:3:1400:U:H2'    | 4:3:1401:A:C8     | 2.50                     | 0.47              |
| 4:3:1767:A:H2'    | 4:3:1768:G:C8     | 2.49                     | 0.47              |
| 4:3:1871:U:H3     | 4:3:1885:G:H1     | 1.62                     | 0.47              |
| 4:3:2496:G:O2'    | 4:3:2497:U:H5'    | 2.15                     | 0.47              |
| 4:3:2547:C:H2'    | 4:3:2548:G:H8     | 1.79                     | 0.47              |
| 6:5:144:U:N3      | 6:5:145:G:N7      | 2.62                     | 0.47              |
| 6:5:373:A:H2'     | 6:5:374:G:C8      | 2.47                     | 0.47              |
| 6:5:706:U:H2'     | 6:5:707:G:H8      | 1.80                     | 0.47              |
| 7:6:34:PHE:CE2    | 7:AA:49:CYS:SG    | 3.03                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 9:8:1344:LYS:C     | 37:Z:305:ILE:CG2   | 2.77                     | 0.47              |
| 22:H:56:LEU:HD13   | 22:H:103:LYS:HG3   | 1.95                     | 0.47              |
| 26:L:11:ASN:OD1    | 26:L:12:GLN:HG2    | 2.15                     | 0.47              |
| 37:Z:500:HIS:CE1   | 37:Z:502:LEU:HB2   | 2.50                     | 0.47              |
| 38:a:98:LEU:HB2    | 38:a:108:TYR:CE1   | 2.49                     | 0.47              |
| 50:n:15:ILE:O      | 50:n:19:ILE:HG12   | 2.15                     | 0.47              |
| 51:o:53:LEU:HD11   | 51:o:104:MET:HE2   | 1.97                     | 0.47              |
| 53:q:4:ILE:HG13    | 53:q:40:MET:HE3    | 1.95                     | 0.47              |
| 3:2:29:THR:HB      | 3:2:32:HIS:CG      | 2.50                     | 0.47              |
| 4:3:359:G:H2'      | 4:3:360:G:C8       | 2.50                     | 0.47              |
| 4:3:762:A:H2'      | 4:3:763:G:N9       | 2.30                     | 0.47              |
| 4:3:1000:U:H1'     | 4:3:2281:A:C2      | 2.50                     | 0.47              |
| 4:3:1141:U:O2'     | 35:U:78:GLY:O      | 2.17                     | 0.47              |
| 4:3:1761:C:H2'     | 4:3:1762:A:C8      | 2.50                     | 0.47              |
| 4:3:2627:U:H5''    | 39:b:161:LYS:HE2   | 1.97                     | 0.47              |
| 4:3:2678:A:H2'     | 4:3:2679:G:C8      | 2.50                     | 0.47              |
| 4:3:2823:A:C2      | 4:3:2832:G:C2      | 3.03                     | 0.47              |
| 4:3:2844:U:H2'     | 4:3:2845:U:C6      | 2.50                     | 0.47              |
| 6:5:38:U:H2'       | 6:5:39:G:H8        | 1.80                     | 0.47              |
| 6:5:61:A:N6        | 6:5:92:G:O2'       | 2.48                     | 0.47              |
| 6:5:408:U:H4'      | 6:5:409:G:H5'      | 1.97                     | 0.47              |
| 6:5:590:G:H2'      | 6:5:591:A:C8       | 2.50                     | 0.47              |
| 9:8:90:LYS:CE      | 9:8:1034:GLU:O     | 2.63                     | 0.47              |
| 9:8:627:ARG:HD3    | 9:8:670:ILE:HG21   | 1.97                     | 0.47              |
| 12:AB:266:LEU:HD23 | 12:AB:273:ILE:HG21 | 1.96                     | 0.47              |
| 17:C:50:TYR:CE2    | 17:C:54:LEU:HD11   | 2.49                     | 0.47              |
| 22:H:47:ILE:O      | 22:H:50:MET:HE3    | 2.15                     | 0.47              |
| 30:P:44:LYS:HD3    | 30:P:46:GLN:OE1    | 2.14                     | 0.47              |
| 39:b:58:GLU:HG2    | 39:b:60:LYS:H      | 1.79                     | 0.47              |
| 53:q:74:ILE:HG22   | 53:q:77:LYS:HG3    | 1.97                     | 0.47              |
| 56:t:1:MET:HB2     | 56:t:100:LYS:HE2   | 1.97                     | 0.47              |
| 4:3:567:U:H5''     | 52:p:27:ARG:NH2    | 2.29                     | 0.47              |
| 4:3:629:G:N2       | 4:3:696:U:O2       | 2.38                     | 0.47              |
| 4:3:1019:A:H2'     | 4:3:1020:G:C4      | 2.50                     | 0.47              |
| 4:3:1589:A:H2'     | 4:3:1590:U:C6      | 2.49                     | 0.47              |
| 4:3:2002:U:OP2     | 4:3:2003:C:O2'     | 2.25                     | 0.47              |
| 4:3:2076:G:H2'     | 4:3:2077:A:C8      | 2.50                     | 0.47              |
| 4:3:2629:G:H2'     | 4:3:2630:U:O4'     | 2.15                     | 0.47              |
| 4:3:2845:U:H2'     | 4:3:2846:A:C8      | 2.49                     | 0.47              |
| 4:3:2861:G:N2      | 4:3:2863:G:OP2     | 2.47                     | 0.47              |
| 6:5:117:U:O2'      | 6:5:258:A:O2'      | 2.26                     | 0.47              |

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| Atom-1           | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|--------------------|--------------------------|-------------------|
| 6:5:732:A:H1'    | 31:Q:95:TYR:CE2    | 2.50                     | 0.47              |
| 6:5:881:G:C2     | 6:5:905:U:C2       | 3.03                     | 0.47              |
| 6:5:919:C:H2'    | 6:5:920:G:C8       | 2.50                     | 0.47              |
| 6:5:931:C:C2     | 6:5:932:A:C8       | 3.02                     | 0.47              |
| 9:8:525:ASP:HA   | 9:8:530:LYS:HE3    | 1.96                     | 0.47              |
| 9:8:1288:GLU:OE1 | 37:Z:893:ARG:CZ    | 2.62                     | 0.47              |
| 14:AD:10:DG:H5'' | 37:Z:118:LEU:HB3   | 1.96                     | 0.47              |
| 15:AE:14:PRO:HD3 | 15:AE:121:VAL:HG23 | 1.96                     | 0.47              |
| 16:B:90:LYS:HA   | 16:B:93:LYS:NZ     | 2.30                     | 0.47              |
| 19:E:17:GLN:HA   | 19:E:20:GLN:HG2    | 1.96                     | 0.47              |
| 19:E:59:ARG:HH12 | 31:Q:54:ILE:HB     | 1.79                     | 0.47              |
| 37:Z:992:CYS:SG  | 37:Z:995:CYS:SG    | 3.13                     | 0.47              |
| 41:d:35:VAL:HG12 | 41:d:155:THR:HG22  | 1.96                     | 0.47              |
| 43:f:12:LEU:HB2  | 43:f:14:LYS:NZ     | 2.29                     | 0.47              |
| 45:i:115:ASN:OD1 | 45:i:116:ARG:N     | 2.48                     | 0.47              |
| 54:r:28:LYS:NZ   | 54:r:67:ASP:O      | 2.42                     | 0.47              |
| 59:w:39:ASP:O    | 59:w:40:LYS:HE2    | 2.15                     | 0.47              |
| 4:3:997:G:N2     | 4:3:2037:A:OP1     | 2.48                     | 0.46              |
| 4:3:1016:A:H2'   | 4:3:1017:A:C4      | 2.50                     | 0.46              |
| 4:3:1842:G:H2'   | 4:3:1843:C:H6      | 1.80                     | 0.46              |
| 4:3:1928:G:H2'   | 4:3:1929:G:C8      | 2.50                     | 0.46              |
| 4:3:1953:U:H2'   | 4:3:1954:C:O4'     | 2.15                     | 0.46              |
| 4:3:2313:U:H3    | 41:d:150:ARG:HB2   | 1.80                     | 0.46              |
| 4:3:2506:C:O2'   | 4:3:2507:C:OP1     | 2.26                     | 0.46              |
| 5:4:56:A:C4      | 5:4:57:G:C8        | 3.03                     | 0.46              |
| 6:5:146:A:N1     | 6:5:340:A:O2'      | 2.36                     | 0.46              |
| 6:5:337:C:H2'    | 6:5:338:C:H6       | 1.81                     | 0.46              |
| 6:5:511:A:H2'    | 6:5:512:U:C6       | 2.50                     | 0.46              |
| 6:5:822:A:H2'    | 6:5:823:C:H6       | 1.81                     | 0.46              |
| 6:5:1139:A:H2'   | 6:5:1140:A:C8      | 2.50                     | 0.46              |
| 6:5:1343:G:H5'   | 22:H:116:LYS:HB3   | 1.96                     | 0.46              |
| 6:5:1362:G:H2'   | 6:5:1363:U:C6      | 2.50                     | 0.46              |
| 9:8:1242:SER:HB2 | 37:Z:735:SER:HB2   | 1.97                     | 0.46              |
| 11:A:70:ASN:HA   | 11:A:73:LYS:NZ     | 2.30                     | 0.46              |
| 30:P:30:PHE:CZ   | 30:P:41:ARG:HD3    | 2.50                     | 0.46              |
| 41:d:117:LEU:H   | 41:d:176:PRO:HB2   | 1.79                     | 0.46              |
| 41:d:135:GLN:HA  | 41:d:152:PHE:CZ    | 2.50                     | 0.46              |
| 51:o:31:VAL:HG13 | 51:o:90:LEU:HA     | 1.96                     | 0.46              |
| 2:1:43:LYS:NZ    | 4:3:2358:U:O5'     | 2.47                     | 0.46              |
| 4:3:20:C:O2'     | 4:3:587:U:H5''     | 2.15                     | 0.46              |
| 4:3:35:U:H3      | 4:3:483:A:H62      | 1.63                     | 0.46              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 4:3:141:A:H3'     | 4:3:142:A:C8      | 2.50                     | 0.46              |
| 4:3:381:A:H2'     | 4:3:382:U:C6      | 2.50                     | 0.46              |
| 4:3:448:A:H62     | 4:3:2420:A:H1'    | 1.80                     | 0.46              |
| 4:3:615:G:H5''    | 52:p:13:ARG:NH2   | 2.31                     | 0.46              |
| 4:3:1089:A:C1'    | 35:U:30:THR:HG22  | 2.45                     | 0.46              |
| 4:3:1141:U:H2'    | 4:3:1142:G:C8     | 2.48                     | 0.46              |
| 4:3:1281:A:OP1    | 52:p:9:THR:OG1    | 2.33                     | 0.46              |
| 4:3:1475:C:H1'    | 4:3:1577:A:C2     | 2.50                     | 0.46              |
| 4:3:1604:A:H2'    | 4:3:1605:A:O4'    | 2.15                     | 0.46              |
| 4:3:1833:G:H2'    | 4:3:1834:U:H6     | 1.79                     | 0.46              |
| 4:3:2085:C:H2'    | 4:3:2086:U:C6     | 2.50                     | 0.46              |
| 4:3:2189:U:H2'    | 4:3:2190:G:C8     | 2.40                     | 0.46              |
| 5:4:47:C:OP1      | 50:n:101:ARG:NE   | 2.41                     | 0.46              |
| 6:5:929:C:N3      | 6:5:932:A:N6      | 2.63                     | 0.46              |
| 6:5:1269:U:H2'    | 6:5:1270:C:C6     | 2.51                     | 0.46              |
| 6:5:1347:U:H2'    | 6:5:1348:G:O4'    | 2.16                     | 0.46              |
| 6:5:1389:U:H2'    | 6:5:1390:G:C8     | 2.50                     | 0.46              |
| 9:8:356:ARG:NH1   | 15:AE:110:ILE:O   | 2.41                     | 0.46              |
| 9:8:413:HIS:CE1   | 9:8:419:LEU:HD12  | 2.50                     | 0.46              |
| 9:8:905:TYR:CE1   | 9:8:906:GLU:HG3   | 2.50                     | 0.46              |
| 9:8:1345:GLU:O    | 37:Z:388:LEU:HB3  | 2.14                     | 0.46              |
| 12:AB:153:ASP:OD1 | 37:Z:77:LYS:HD3   | 2.15                     | 0.46              |
| 19:E:150:GLN:HB2  | 21:G:57:PHE:CE1   | 2.50                     | 0.46              |
| 20:F:78:ARG:HE    | 20:F:83:ASN:HA    | 1.81                     | 0.46              |
| 20:F:110:ARG:HG2  | 20:F:111:HIS:N    | 2.30                     | 0.46              |
| 38:a:6:ILE:HD11   | 38:a:19:VAL:HG22  | 1.98                     | 0.46              |
| 39:b:180:ARG:HE   | 39:b:220:ILE:HD12 | 1.79                     | 0.46              |
| 58:v:62:ASN:O     | 58:v:63:ARG:NE    | 2.48                     | 0.46              |
| 4:3:558:C:H5''    | 4:3:575:C:O2'     | 2.16                     | 0.46              |
| 4:3:616:G:H2'     | 4:3:617:C:C6      | 2.50                     | 0.46              |
| 4:3:801:U:H2'     | 4:3:802:U:C6      | 2.50                     | 0.46              |
| 4:3:1032:A:H2'    | 4:3:1033:A:C8     | 2.50                     | 0.46              |
| 4:3:1065:G:O6     | 4:3:1160:G:N2     | 2.49                     | 0.46              |
| 4:3:1186:A:H2'    | 4:3:1187:C:O4'    | 2.15                     | 0.46              |
| 4:3:1460:G:H2'    | 4:3:1461:A:C8     | 2.50                     | 0.46              |
| 4:3:1477:A:N6     | 4:3:1489:G:O6     | 2.48                     | 0.46              |
| 4:3:1819:G:H2'    | 4:3:1820:U:H6     | 1.79                     | 0.46              |
| 4:3:2200:U:H2'    | 4:3:2201:G:C8     | 2.51                     | 0.46              |
| 4:3:2609:C:H2'    | 4:3:2611:G:H8     | 1.79                     | 0.46              |
| 6:5:253:G:C6      | 6:5:266:A:C6      | 3.03                     | 0.46              |
| 6:5:330:C:H2'     | 6:5:331:C:C6      | 2.49                     | 0.46              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 6:5:526:C:H4'     | 6:5:533:A:C6      | 2.51                     | 0.46              |
| 6:5:911:G:H2'     | 6:5:912:G:H8      | 1.79                     | 0.46              |
| 6:5:1011:A:H2'    | 6:5:1012:A:N3     | 2.31                     | 0.46              |
| 7:6:1:MET:HE3     | 7:AA:51:PRO:HD3   | 1.98                     | 0.46              |
| 9:8:363:GLU:CG    | 9:8:379:ARG:NH1   | 2.78                     | 0.46              |
| 9:8:374:CYS:HB3   | 9:8:459:VAL:HG11  | 1.92                     | 0.46              |
| 9:8:567:GLY:HA2   | 15:AE:31:LYS:HE2  | 1.91                     | 0.46              |
| 9:8:673:LEU:CD2   | 9:8:677:ALA:HB3   | 2.42                     | 0.46              |
| 7:AA:35:VAL:HG13  | 7:AA:209:LEU:HB2  | 1.97                     | 0.46              |
| 12:AB:67:LEU:HD23 | 12:AB:103:ARG:HG2 | 1.97                     | 0.46              |
| 15:AE:94:GLY:O    | 15:AE:95:ARG:HG3  | 2.15                     | 0.46              |
| 23:I:54:VAL:HG21  | 27:M:61:TRP:HH2   | 1.81                     | 0.46              |
| 28:N:64:LEU:O     | 28:N:68:LYS:HG2   | 2.16                     | 0.46              |
| 37:Z:501:ARG:HG2  | 37:Z:563:LEU:HD11 | 1.97                     | 0.46              |
| 37:Z:828:ARG:NH1  | 37:Z:870:SER:CB   | 2.76                     | 0.46              |
| 45:i:52:ASP:OD1   | 45:i:121:TRP:NE1  | 2.48                     | 0.46              |
| 61:y:28:SER:N     | 61:y:37:LYS:O     | 2.42                     | 0.46              |
| 4:3:86:A:H2       | 4:3:104:A:C5      | 2.33                     | 0.46              |
| 4:3:383:U:H2'     | 4:3:384:G:H8      | 1.79                     | 0.46              |
| 4:3:746:G:H2'     | 4:3:747:A:C8      | 2.49                     | 0.46              |
| 4:3:1158:C:H2'    | 4:3:1159:C:C6     | 2.50                     | 0.46              |
| 4:3:1654:G:H2'    | 4:3:1655:U:C6     | 2.50                     | 0.46              |
| 4:3:1870:G:H4'    | 4:3:2419:A:H4'    | 1.96                     | 0.46              |
| 4:3:2299:U:H2'    | 4:3:2300:A:C8     | 2.50                     | 0.46              |
| 4:3:2503:G:H2'    | 4:3:2504:C:C6     | 2.50                     | 0.46              |
| 4:3:2533:A:H2'    | 4:3:2534:G:H8     | 1.79                     | 0.46              |
| 4:3:2687:A:H2'    | 4:3:2688:C:C6     | 2.50                     | 0.46              |
| 4:3:2708:G:H2'    | 4:3:2709:C:C6     | 2.51                     | 0.46              |
| 4:3:2823:A:O2'    | 4:3:2825:A:N7     | 2.35                     | 0.46              |
| 6:5:366:C:H2'     | 6:5:367:A:C8      | 2.50                     | 0.46              |
| 6:5:460:A:N1      | 6:5:467:G:C6      | 2.84                     | 0.46              |
| 6:5:736:U:H2'     | 6:5:737:U:O4'     | 2.15                     | 0.46              |
| 6:5:950:C:H2'     | 6:5:951:U:C2      | 2.50                     | 0.46              |
| 6:5:1126:U:H2'    | 6:5:1127:A:C8     | 2.49                     | 0.46              |
| 6:5:1406:U:H2'    | 6:5:1407:A:C8     | 2.50                     | 0.46              |
| 9:8:1082:GLU:OE1  | 9:8:1227:LYS:HD3  | 2.14                     | 0.46              |
| 9:8:1310:LYS:HB3  | 37:Z:408:VAL:CA   | 2.46                     | 0.46              |
| 12:AB:289:ILE:N   | 12:AB:300:ASN:ND2 | 2.64                     | 0.46              |
| 15:AE:77:LEU:CD1  | 15:AE:83:LEU:HB2  | 2.44                     | 0.46              |
| 16:B:33:TRP:HB3   | 16:B:60:ARG:NH2   | 2.31                     | 0.46              |
| 27:M:33:VAL:HA    | 27:M:40:CYS:HA    | 1.98                     | 0.46              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 37:Z:831:MET:HE3  | 37:Z:854:ILE:HD12  | 1.97                     | 0.46              |
| 37:Z:1033:HIS:ND1 | 37:Z:1041:ASN:HB3  | 2.31                     | 0.46              |
| 39:b:27:THR:HG21  | 39:b:197:ILE:HG12  | 1.98                     | 0.46              |
| 41:d:15:GLU:O     | 41:d:19:SER:OG     | 2.17                     | 0.46              |
| 42:e:149:THR:O    | 42:e:152:ARG:HG2   | 2.15                     | 0.46              |
| 53:q:6:VAL:HA     | 53:q:11:GLN:HA     | 1.98                     | 0.46              |
| 54:r:6:LYS:HD3    | 54:r:104:VAL:HB    | 1.97                     | 0.46              |
| 54:r:28:LYS:HG2   | 54:r:30:ALA:H      | 1.80                     | 0.46              |
| 59:w:4:ALA:HA     | 59:w:7:LEU:HD23    | 1.96                     | 0.46              |
| 4:3:61:U:O2'      | 4:3:76:A:OP2       | 2.33                     | 0.46              |
| 4:3:78:C:H1'      | 59:w:56:THR:HG21   | 1.97                     | 0.46              |
| 4:3:252:G:O5'     | 4:3:253:C:H5''     | 2.16                     | 0.46              |
| 4:3:464:A:H2'     | 4:3:464:A:N3       | 2.31                     | 0.46              |
| 4:3:793:C:H2'     | 4:3:794:G:C8       | 2.50                     | 0.46              |
| 4:3:1219:U:H2'    | 4:3:1220:A:O4'     | 2.16                     | 0.46              |
| 4:3:1641:A:H4'    | 4:3:1642:G:C8      | 2.51                     | 0.46              |
| 4:3:2213:A:H2'    | 4:3:2214:A:H8      | 1.80                     | 0.46              |
| 4:3:2684:G:H2'    | 4:3:2685:A:H8      | 1.79                     | 0.46              |
| 6:5:1319:U:O2'    | 6:5:1352:A:N6      | 2.46                     | 0.46              |
| 9:8:176:LYS:HD3   | 14:AD:7:DT:H2''    | 1.97                     | 0.46              |
| 9:8:1001:GLU:CA   | 12:AB:109:LYS:CG   | 2.53                     | 0.46              |
| 12:AB:123:PHE:CZ  | 12:AB:127:ILE:HD11 | 2.51                     | 0.46              |
| 13:AC:19:DT:H2''  | 13:AC:21:DC:C4'    | 2.37                     | 0.46              |
| 14:AD:23:DC:H2''  | 14:AD:24:DA:C8     | 2.51                     | 0.46              |
| 22:H:56:LEU:HD23  | 22:H:56:LEU:H      | 1.80                     | 0.46              |
| 29:O:32:HIS:O     | 29:O:42:CYS:HA     | 2.16                     | 0.46              |
| 38:a:83:VAL:HA    | 38:a:99:ILE:HG13   | 1.97                     | 0.46              |
| 41:d:5:LYS:HB2    | 41:d:97:TRP:CD1    | 2.50                     | 0.46              |
| 47:k:56:THR:O     | 47:k:61:ARG:NH2    | 2.49                     | 0.46              |
| 51:o:48:PHE:CE1   | 51:o:68:LYS:HB2    | 2.51                     | 0.46              |
| 4:3:568:G:P       | 52:p:24:PHE:H      | 2.38                     | 0.46              |
| 4:3:755:C:H2'     | 4:3:756:A:C8       | 2.51                     | 0.46              |
| 4:3:831:U:H2'     | 4:3:832:C:C6       | 2.51                     | 0.46              |
| 4:3:886:U:H3      | 4:3:964:A:N6       | 2.13                     | 0.46              |
| 4:3:1095:U:H1'    | 4:3:1097:G:OP2     | 2.15                     | 0.46              |
| 4:3:1345:G:H2'    | 4:3:1346:G:C8      | 2.49                     | 0.46              |
| 4:3:1380:U:H1'    | 4:3:1604:A:H2      | 1.81                     | 0.46              |
| 4:3:1709:C:H3'    | 4:3:1710:A:H8      | 1.81                     | 0.46              |
| 4:3:1999:G:N2     | 4:3:2003:C:H1'     | 2.30                     | 0.46              |
| 4:3:2034:G:H2'    | 4:3:2035:U:C6      | 2.50                     | 0.46              |
| 4:3:2094:A:H2'    | 4:3:2095:A:H8      | 1.77                     | 0.46              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 5:4:74:G:H2'      | 5:4:75:U:C6       | 2.50                     | 0.46              |
| 6:5:45:A:H2'      | 6:5:46:U:C6       | 2.51                     | 0.46              |
| 6:5:703:A:H2'     | 6:5:704:U:C6      | 2.50                     | 0.46              |
| 6:5:797:G:N2      | 6:5:798:U:O4      | 2.48                     | 0.46              |
| 6:5:823:C:H2'     | 6:5:824:U:C6      | 2.51                     | 0.46              |
| 9:8:1200:PHE:CD1  | 37:Z:862:LEU:O    | 2.69                     | 0.46              |
| 9:8:1289:MET:CG   | 14:AD:15:DA:C5'   | 2.89                     | 0.46              |
| 9:8:1345:GLU:CD   | 37:Z:391:ARG:HB2  | 2.29                     | 0.46              |
| 17:C:164:SER:HB2  | 17:C:167:VAL:HG22 | 1.97                     | 0.46              |
| 43:f:73:GLU:OE2   | 43:f:139:LYS:NZ   | 2.49                     | 0.46              |
| 45:i:38:LEU:HD23  | 45:i:57:LEU:HD22  | 1.96                     | 0.46              |
| 58:v:16:ASN:HD21  | 58:v:25:THR:H     | 1.63                     | 0.46              |
| 4:3:186:A:N1      | 4:3:219:G:C6      | 2.83                     | 0.46              |
| 4:3:224:G:N1      | 4:3:464:A:OP2     | 2.48                     | 0.46              |
| 4:3:317:U:H2'     | 4:3:318:U:C6      | 2.50                     | 0.46              |
| 4:3:1392:G:H3'    | 58:v:2:ALA:HB1    | 1.97                     | 0.46              |
| 4:3:1702:A:H5'    | 46:j:5:MET:HE2    | 1.97                     | 0.46              |
| 4:3:1730:C:H2'    | 4:3:1731:G:O4'    | 2.15                     | 0.46              |
| 4:3:1872:U:N3     | 4:3:1882:G:C6     | 2.84                     | 0.46              |
| 4:3:1941:C:H2'    | 4:3:1942:G:C8     | 2.50                     | 0.46              |
| 4:3:2066:A:OP1    | 40:c:72:GLY:N     | 2.49                     | 0.46              |
| 4:3:2497:U:H2'    | 4:3:2498:G:C4     | 2.51                     | 0.46              |
| 4:3:2530:U:H1'    | 4:3:2572:A:H2     | 1.81                     | 0.46              |
| 6:5:37:C:H5''     | 25:K:133:LYS:HA   | 1.98                     | 0.46              |
| 6:5:280:G:H2'     | 6:5:281:U:C6      | 2.51                     | 0.46              |
| 6:5:402:G:N3      | 17:C:115:GLN:NE2  | 2.63                     | 0.46              |
| 6:5:664:A:OP1     | 6:5:729:C:O2'     | 2.26                     | 0.46              |
| 6:5:1325:U:H2'    | 6:5:1326:C:C6     | 2.51                     | 0.46              |
| 6:5:1383:A:H2'    | 6:5:1384:A:C8     | 2.51                     | 0.46              |
| 6:5:1429:G:H2'    | 6:5:1430:G:C8     | 2.48                     | 0.46              |
| 9:8:179:GLN:NE2   | 9:8:212:LEU:HD13  | 2.30                     | 0.46              |
| 9:8:1305:GLU:OE2  | 37:Z:542:LEU:HB2  | 2.15                     | 0.46              |
| 12:AB:175:TYR:HB2 | 12:AB:207:TRP:CB  | 2.44                     | 0.46              |
| 12:AB:288:VAL:CG2 | 12:AB:297:PHE:CD2 | 2.65                     | 0.46              |
| 15:AE:131:THR:HB  | 37:Z:351:ILE:CD1  | 2.46                     | 0.46              |
| 17:C:57:LYS:HA    | 17:C:60:MET:HG3   | 1.98                     | 0.46              |
| 24:J:17:SER:OG    | 24:J:24:ILE:HB    | 2.15                     | 0.46              |
| 24:J:63:VAL:HA    | 24:J:66:THR:HG22  | 1.97                     | 0.46              |
| 29:O:48:VAL:O     | 29:O:51:GLU:HB3   | 2.16                     | 0.46              |
| 37:Z:125:SER:HB2  | 37:Z:130:ILE:O    | 2.15                     | 0.46              |
| 38:a:234:ASN:C    | 38:a:241:GLY:HA3  | 2.41                     | 0.46              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 41:d:121:SER:HB3 | 41:d:128:TYR:CZ   | 2.51                     | 0.46              |
| 50:n:46:PHE:C    | 50:n:48:GLN:H     | 2.22                     | 0.46              |
| 52:p:87:ILE:H    | 52:p:87:ILE:HD12  | 1.80                     | 0.46              |
| 54:r:34:ASN:OD1  | 54:r:35:ILE:N     | 2.45                     | 0.46              |
| 4:3:173:C:H2'    | 4:3:174:A:H8      | 1.80                     | 0.46              |
| 4:3:214:C:H2'    | 4:3:215:A:C8      | 2.51                     | 0.46              |
| 4:3:1634:A:N6    | 4:3:1635:G:O6     | 2.49                     | 0.46              |
| 4:3:2171:A:H5''  | 4:3:2180:U:O2'    | 2.16                     | 0.46              |
| 4:3:2570:U:N3    | 4:3:2574:A:N6     | 2.48                     | 0.46              |
| 6:5:874:C:H5''   | 25:K:9:ARG:NH1    | 2.31                     | 0.46              |
| 6:5:911:G:H2'    | 6:5:912:G:C8      | 2.50                     | 0.46              |
| 6:5:1106:U:O2'   | 6:5:1107:U:H5'    | 2.15                     | 0.46              |
| 6:5:1183:C:H2'   | 6:5:1184:C:C6     | 2.51                     | 0.46              |
| 6:5:1294:U:H1'   | 32:R:73:GLU:HB2   | 1.98                     | 0.46              |
| 9:8:90:LYS:HZ1   | 9:8:1034:GLU:HB3  | 1.79                     | 0.46              |
| 11:A:112:TRP:HZ2 | 11:A:117:LEU:HG   | 1.80                     | 0.46              |
| 7:AA:35:VAL:HG11 | 7:AA:195:VAL:HG22 | 1.97                     | 0.46              |
| 28:N:21:SER:O    | 28:N:24:VAL:HG22  | 2.16                     | 0.46              |
| 37:Z:134:GLU:HB3 | 37:Z:165:VAL:HG21 | 1.98                     | 0.46              |
| 39:b:111:SER:OG  | 39:b:206:LEU:HB2  | 2.16                     | 0.46              |
| 40:c:162:ASN:N   | 40:c:200:GLU:OE2  | 2.49                     | 0.46              |
| 46:j:65:THR:O    | 46:j:79:PHE:HB2   | 2.15                     | 0.46              |
| 48:l:4:PRO:HG3   | 48:l:69:PHE:CE2   | 2.50                     | 0.46              |
| 4:3:448:A:H3'    | 4:3:449:C:C6      | 2.51                     | 0.46              |
| 4:3:756:A:H2'    | 4:3:757:A:H8      | 1.80                     | 0.46              |
| 4:3:845:U:OP2    | 47:k:30:LYS:HE2   | 2.16                     | 0.46              |
| 4:3:858:A:H2'    | 4:3:859:G:H8      | 1.80                     | 0.46              |
| 4:3:1010:G:H1'   | 4:3:1025:G:N2     | 2.31                     | 0.46              |
| 4:3:1042:C:H2'   | 4:3:1043:C:C6     | 2.51                     | 0.46              |
| 4:3:1289:G:H2'   | 4:3:1290:G:H8     | 1.78                     | 0.46              |
| 4:3:1371:G:N3    | 4:3:1371:G:H2'    | 2.31                     | 0.46              |
| 4:3:1777:G:O6    | 4:3:1990:C:N4     | 2.49                     | 0.46              |
| 4:3:1819:G:H2'   | 4:3:1820:U:C6     | 2.51                     | 0.46              |
| 4:3:2110:U:H2'   | 4:3:2111:U:O2     | 2.16                     | 0.46              |
| 4:3:2467:A:H2'   | 4:3:2468:U:O4'    | 2.16                     | 0.46              |
| 4:3:2823:A:N1    | 4:3:2832:G:C6     | 2.84                     | 0.46              |
| 4:3:2856:G:H2'   | 4:3:2857:C:H6     | 1.80                     | 0.46              |
| 4:3:2866:A:H2'   | 4:3:2867:U:C6     | 2.51                     | 0.46              |
| 6:5:319:U:H4'    | 33:S:17:ARG:HD3   | 1.98                     | 0.46              |
| 6:5:1066:U:H2'   | 6:5:1067:C:C6     | 2.51                     | 0.46              |
| 6:5:1184:C:H2'   | 6:5:1185:C:C6     | 2.51                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 6:5:1446:A:H2'     | 6:5:1447:U:C6      | 2.51                     | 0.46              |
| 8:7:2:G:N2         | 8:7:73:C:C2        | 2.78                     | 0.46              |
| 9:8:219:GLU:HG3    | 13:AC:21:DC:H41    | 1.72                     | 0.46              |
| 9:8:1269:LYS:HE3   | 37:Z:313:ILE:HG23  | 1.82                     | 0.46              |
| 7:AA:67:PHE:CE1    | 37:Z:596:ILE:CD1   | 2.99                     | 0.46              |
| 7:AA:163:PHE:HB3   | 37:Z:609:ALA:CB    | 2.46                     | 0.46              |
| 12:AB:298:LEU:HA   | 12:AB:349:THR:HG21 | 1.97                     | 0.46              |
| 23:I:16:LEU:HD21   | 23:I:78:ARG:HG3    | 1.97                     | 0.46              |
| 23:I:62:HIS:CD2    | 23:I:63:VAL:HG23   | 2.51                     | 0.46              |
| 37:Z:460:ILE:HG22  | 37:Z:470:MET:HE1   | 1.97                     | 0.46              |
| 37:Z:501:ARG:HG2   | 37:Z:563:LEU:CD1   | 2.46                     | 0.46              |
| 46:j:17:LYS:HE3    | 46:j:45:ASP:HB3    | 1.97                     | 0.46              |
| 52:p:91:ARG:HH21   | 52:p:93:VAL:HG11   | 1.81                     | 0.46              |
| 53:q:5:VAL:HG22    | 53:q:38:VAL:HG23   | 1.97                     | 0.46              |
| 53:q:37:LYS:HB2    | 53:q:37:LYS:HE3    | 1.75                     | 0.46              |
| 54:r:129:VAL:O     | 54:r:133:GLN:HG3   | 2.16                     | 0.46              |
| 4:3:498:C:N4       | 4:3:499:G:O6       | 2.49                     | 0.46              |
| 4:3:1081:A:C2      | 35:U:7:LYS:CD      | 2.97                     | 0.46              |
| 4:3:1798:A:C2      | 4:3:1836:A:H4'     | 2.51                     | 0.46              |
| 4:3:2591:G:O2'     | 4:3:2592:U:O4'     | 2.18                     | 0.46              |
| 4:3:2651:G:H2'     | 4:3:2652:U:O4'     | 2.16                     | 0.46              |
| 6:5:72:A:H2'       | 6:5:73:G:C8        | 2.50                     | 0.46              |
| 6:5:290:G:OP1      | 6:5:608:G:O2'      | 2.33                     | 0.46              |
| 6:5:406:G:O6       | 6:5:426:U:O2'      | 2.20                     | 0.46              |
| 6:5:1010:A:H5''    | 32:R:14:HIS:ND1    | 2.31                     | 0.46              |
| 6:5:1261:A:N3      | 6:5:1327:G:O2'     | 2.32                     | 0.46              |
| 11:A:202:CYS:SG    | 11:A:206:THR:OG1   | 2.62                     | 0.46              |
| 12:AB:183:LYS:CD   | 12:AB:281:ASN:HB3  | 2.46                     | 0.46              |
| 12:AB:249:LYS:HB2  | 12:AB:297:PHE:HE1  | 1.72                     | 0.46              |
| 15:AE:131:THR:HB   | 37:Z:351:ILE:HD11  | 1.97                     | 0.46              |
| 21:G:56:ASN:HB2    | 21:G:73:ASN:ND2    | 2.23                     | 0.46              |
| 30:P:7:LYS:HZ2     | 30:P:65:GLU:H      | 1.63                     | 0.46              |
| 33:S:40:ASN:OD1    | 33:S:43:ASN:ND2    | 2.49                     | 0.46              |
| 37:Z:1079:THR:HG22 | 37:Z:1084:GLN:HG2  | 1.97                     | 0.46              |
| 38:a:125:GLU:HB2   | 43:f:89:TYR:HE1    | 1.81                     | 0.46              |
| 38:a:191:LYS:HB2   | 38:a:277:LEU:HD12  | 1.98                     | 0.46              |
| 39:b:120:THR:HG21  | 39:b:169:TYR:HB2   | 1.98                     | 0.46              |
| 40:c:130:GLN:HA    | 40:c:133:PHE:CD1   | 2.51                     | 0.46              |
| 52:p:107:LEU:O     | 52:p:111:LYS:HG3   | 2.16                     | 0.46              |
| 4:3:8:A:H2'        | 4:3:9:G:H8         | 1.78                     | 0.45              |
| 4:3:704:G:N3       | 4:3:704:G:H2'      | 2.31                     | 0.45              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 4:3:715:G:H2'    | 4:3:716:G:H8     | 1.81                     | 0.45              |
| 4:3:990:G:H2'    | 4:3:991:G:C8     | 2.51                     | 0.45              |
| 4:3:1453:U:H3'   | 4:3:1454:G:C8    | 2.51                     | 0.45              |
| 4:3:1688:A:H62   | 4:3:2012:A:H2    | 1.63                     | 0.45              |
| 4:3:2106:G:H2'   | 4:3:2107:A:H8    | 1.81                     | 0.45              |
| 4:3:2381:G:H2'   | 4:3:2382:A:C8    | 2.50                     | 0.45              |
| 4:3:2496:G:H2'   | 4:3:2497:U:C6    | 2.51                     | 0.45              |
| 5:4:78:C:H3'     | 5:4:79:U:C2      | 2.51                     | 0.45              |
| 6:5:236:C:H2'    | 6:5:237:A:C8     | 2.51                     | 0.45              |
| 6:5:416:U:O2     | 6:5:421:G:C2     | 2.68                     | 0.45              |
| 6:5:649:U:H1'    | 6:5:650:A:H8     | 1.80                     | 0.45              |
| 6:5:732:A:H1'    | 31:Q:95:TYR:CD2  | 2.51                     | 0.45              |
| 6:5:922:G:H1     | 6:5:1365:U:H3    | 1.65                     | 0.45              |
| 9:8:659:ILE:O    | 9:8:780:LEU:HD12 | 2.15                     | 0.45              |
| 32:R:22:MET:HE1  | 32:R:31:ILE:HD13 | 1.98                     | 0.45              |
| 58:v:18:ARG:HB3  | 58:v:22:LYS:HA   | 1.98                     | 0.45              |
| 61:y:43:CYS:SG   | 61:y:46:GLY:N    | 2.90                     | 0.45              |
| 4:3:341:G:N1     | 4:3:344:A:OP2    | 2.35                     | 0.45              |
| 4:3:851:U:H2'    | 4:3:852:C:C6     | 2.51                     | 0.45              |
| 4:3:1372:U:H4'   | 4:3:1412:A:C5    | 2.51                     | 0.45              |
| 4:3:1505:G:H2'   | 4:3:1506:U:C6    | 2.51                     | 0.45              |
| 4:3:1842:G:H2'   | 4:3:1843:C:C6    | 2.51                     | 0.45              |
| 4:3:1848:U:C2    | 4:3:1849:G:C8    | 3.04                     | 0.45              |
| 4:3:1954:C:H2'   | 4:3:1955:G:H8    | 1.79                     | 0.45              |
| 4:3:2483:C:H42   | 4:3:2537:G:N2    | 2.14                     | 0.45              |
| 4:3:2568:G:H2'   | 4:3:2569:A:C8    | 2.51                     | 0.45              |
| 4:3:2582:G:H2'   | 4:3:2583:U:C6    | 2.51                     | 0.45              |
| 4:3:2681:G:H2'   | 4:3:2682:A:C8    | 2.51                     | 0.45              |
| 4:3:2731:U:OP1   | 39:b:115:LYS:NZ  | 2.37                     | 0.45              |
| 5:4:93:U:H2'     | 5:4:94:A:C8      | 2.50                     | 0.45              |
| 6:5:224:A:H2'    | 6:5:225:U:C6     | 2.51                     | 0.45              |
| 6:5:264:C:H2'    | 6:5:265:U:C6     | 2.50                     | 0.45              |
| 6:5:1047:U:H2'   | 6:5:1048:G:H8    | 1.81                     | 0.45              |
| 6:5:1223:A:H2'   | 6:5:1224:C:C6    | 2.51                     | 0.45              |
| 6:5:1294:U:N3    | 6:5:1295:U:O4    | 2.49                     | 0.45              |
| 6:5:1320:A:H2'   | 20:F:9:ARG:HE    | 1.80                     | 0.45              |
| 6:5:1360:G:H2'   | 6:5:1361:G:C8    | 2.51                     | 0.45              |
| 6:5:1379:C:H2'   | 6:5:1380:G:C8    | 2.51                     | 0.45              |
| 9:8:723:ILE:HG22 | 9:8:727:ASN:HA   | 1.98                     | 0.45              |
| 16:B:18:TRP:CD1  | 27:M:54:PRO:HA   | 2.50                     | 0.45              |
| 23:I:86:ASN:O    | 23:I:89:ALA:N    | 2.46                     | 0.45              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 4:3:774:A:H1'    | 4:3:775:C:H5     | 1.81                     | 0.45              |
| 4:3:1091:G:N1    | 4:3:1137:C:OP2   | 2.48                     | 0.45              |
| 4:3:1127:C:H2'   | 4:3:1128:G:O4'   | 2.16                     | 0.45              |
| 4:3:1292:A:OP2   | 54:r:99:ARG:NH2  | 2.49                     | 0.45              |
| 4:3:1390:C:H2'   | 4:3:1391:U:H6    | 1.81                     | 0.45              |
| 4:3:1457:A:H2'   | 4:3:1458:A:C8    | 2.51                     | 0.45              |
| 4:3:1661:A:H2'   | 4:3:1662:G:C8    | 2.43                     | 0.45              |
| 4:3:1872:U:O2    | 4:3:1882:G:N2    | 2.49                     | 0.45              |
| 4:3:1955:G:C2'   | 4:3:1956:G:H5'   | 2.46                     | 0.45              |
| 4:3:2275:A:N6    | 4:3:2280:U:C2    | 2.84                     | 0.45              |
| 4:3:2277:A:C4    | 4:3:2278:G:C8    | 3.05                     | 0.45              |
| 4:3:2330:A:H3'   | 4:3:2331:G:H8    | 1.82                     | 0.45              |
| 4:3:2524:U:H2'   | 4:3:2525:C:C6    | 2.52                     | 0.45              |
| 4:3:2701:A:H2'   | 4:3:2702:G:H8    | 1.80                     | 0.45              |
| 4:3:2835:G:O3'   | 4:3:2838:G:N2    | 2.50                     | 0.45              |
| 6:5:255:G:OP2    | 33:S:71:ARG:HD3  | 2.15                     | 0.45              |
| 6:5:1116:U:O2'   | 6:5:1117:U:O5'   | 2.26                     | 0.45              |
| 6:5:1361:G:H2'   | 6:5:1362:G:H8    | 1.81                     | 0.45              |
| 9:8:30:GLN:CG    | 9:8:676:PHE:HE1  | 2.29                     | 0.45              |
| 9:8:395:ARG:O    | 9:8:401:GLU:HG3  | 2.17                     | 0.45              |
| 9:8:1283:GLY:O   | 37:Z:407:ARG:NH1 | 2.50                     | 0.45              |
| 9:8:1292:TRP:CH2 | 37:Z:893:ARG:HG3 | 2.51                     | 0.45              |
| 9:8:1310:LYS:HA  | 37:Z:409:ASP:OD2 | 2.17                     | 0.45              |
| 12:AB:239:LYS:NZ | 12:AB:294:LYS:CB | 2.60                     | 0.45              |
| 18:D:108:ALA:HB3 | 18:D:114:ALA:HB2 | 1.98                     | 0.45              |
| 20:F:22:VAL:O    | 20:F:26:ILE:HG12 | 2.17                     | 0.45              |
| 26:L:19:LEU:HD12 | 26:L:25:ILE:HG21 | 1.97                     | 0.45              |
| 30:P:20:LYS:HD2  | 30:P:48:HIS:HB2  | 1.98                     | 0.45              |
| 30:P:25:GLN:OE1  | 30:P:42:HIS:HB2  | 2.16                     | 0.45              |
| 31:Q:81:MET:HA   | 31:Q:84:ARG:NH2  | 2.31                     | 0.45              |
| 46:j:30:LYS:O    | 46:j:31:ARG:HG2  | 2.16                     | 0.45              |
| 50:n:2:LYS:HD3   | 50:n:2:LYS:HA    | 1.74                     | 0.45              |
| 55:s:53:LEU:HD11 | 55:s:86:PRO:HA   | 1.98                     | 0.45              |
| 57:u:38:LYS:N    | 57:u:51:ILE:O    | 2.44                     | 0.45              |
| 4:3:77:G:OP1     | 59:w:49:ARG:NH2  | 2.50                     | 0.45              |
| 4:3:780:G:O2'    | 4:3:783:G:H1'    | 2.16                     | 0.45              |
| 4:3:794:G:H2'    | 4:3:795:G:H8     | 1.81                     | 0.45              |
| 4:3:897:A:H62    | 4:3:953:G:H21    | 1.63                     | 0.45              |
| 4:3:1061:A:H2'   | 4:3:1062:A:H8    | 1.81                     | 0.45              |
| 4:3:1070:U:H5''  | 42:e:62:LYS:HE2  | 1.98                     | 0.45              |
| 4:3:1108:A:H2'   | 4:3:1109:G:O4'   | 2.17                     | 0.45              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 4:3:1167:U:C5     | 45:i:78:TYR:HB2   | 2.51                     | 0.45              |
| 4:3:1390:C:H2'    | 4:3:1391:U:C6     | 2.51                     | 0.45              |
| 4:3:1709:C:H3'    | 4:3:1710:A:C8     | 2.51                     | 0.45              |
| 4:3:1813:C:OP1    | 38:a:258:TRP:NE1  | 2.49                     | 0.45              |
| 4:3:1826:A:H1'    | 4:3:1828:A:C5     | 2.52                     | 0.45              |
| 4:3:2078:A:H2'    | 4:3:2079:G:H8     | 1.81                     | 0.45              |
| 4:3:2269:C:H2'    | 4:3:2270:U:C6     | 2.51                     | 0.45              |
| 4:3:2656:G:H2'    | 4:3:2657:C:C6     | 2.52                     | 0.45              |
| 4:3:2699:C:H2'    | 4:3:2700:C:H6     | 1.81                     | 0.45              |
| 5:4:57:G:C5       | 5:4:58:C:C5       | 3.05                     | 0.45              |
| 5:4:105:A:H2'     | 5:4:106:A:C8      | 2.51                     | 0.45              |
| 6:5:238:U:H2'     | 6:5:280:G:H22     | 1.82                     | 0.45              |
| 6:5:394:U:H2'     | 6:5:395:G:C8      | 2.48                     | 0.45              |
| 6:5:473:A:H2'     | 6:5:474:G:C8      | 2.52                     | 0.45              |
| 6:5:503:G:H2'     | 6:5:504:A:C8      | 2.50                     | 0.45              |
| 6:5:875:G:OP1     | 25:K:9:ARG:NH1    | 2.50                     | 0.45              |
| 6:5:879:G:H2'     | 6:5:880:G:C8      | 2.51                     | 0.45              |
| 6:5:934:G:O2'     | 20:F:101:ARG:NH1  | 2.47                     | 0.45              |
| 6:5:1003:G:C6     | 6:5:1018:U:C4     | 3.04                     | 0.45              |
| 9:8:408:LEU:HD13  | 9:8:427:LEU:HD21  | 1.97                     | 0.45              |
| 9:8:1370:ILE:HB   | 37:Z:94:ILE:HG12  | 1.05                     | 0.45              |
| 12:AB:139:PHE:CD2 | 12:AB:147:ILE:CD1 | 2.99                     | 0.45              |
| 17:C:144:LEU:HB3  | 17:C:174:PHE:HB3  | 1.98                     | 0.45              |
| 21:G:118:THR:OG1  | 21:G:119:SER:N    | 2.49                     | 0.45              |
| 29:O:58:LYS:HB3   | 29:O:64:ARG:NH1   | 2.31                     | 0.45              |
| 45:i:18:TRP:NE1   | 45:i:138:GLN:HE21 | 2.14                     | 0.45              |
| 45:i:108:VAL:O    | 45:i:112:LEU:HD23 | 2.15                     | 0.45              |
| 49:m:106:ARG:HB2  | 49:m:113:MET:HE1  | 1.98                     | 0.45              |
| 53:q:27:ALA:HB1   | 53:q:31:LYS:NZ    | 2.31                     | 0.45              |
| 53:q:81:LYS:HD3   | 53:q:81:LYS:HA    | 1.69                     | 0.45              |
| 58:v:39:LYS:HB3   | 58:v:64:LEU:HD12  | 1.98                     | 0.45              |
| 4:3:84:G:H2'      | 4:3:85:U:C6       | 2.52                     | 0.45              |
| 4:3:109:G:H1'     | 4:3:380:A:H61     | 1.80                     | 0.45              |
| 4:3:625:G:H2'     | 4:3:626:A:C8      | 2.47                     | 0.45              |
| 4:3:719:G:C6      | 4:3:809:A:H1'     | 2.51                     | 0.45              |
| 4:3:843:G:H2'     | 4:3:844:G:C8      | 2.51                     | 0.45              |
| 4:3:892:G:H4'     | 57:u:83:TYR:CD2   | 2.52                     | 0.45              |
| 4:3:1039:G:H2'    | 4:3:1040:U:C6     | 2.52                     | 0.45              |
| 4:3:1243:A:H2'    | 4:3:1244:A:O4'    | 2.17                     | 0.45              |
| 4:3:1544:G:C2     | 4:3:1545:A:C5     | 3.05                     | 0.45              |
| 4:3:1830:G:OP1    | 38:a:58:GLN:NE2   | 2.49                     | 0.45              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 4:3:2268:C:H2'    | 4:3:2269:C:H6     | 1.81                     | 0.45              |
| 4:3:2322:G:H2'    | 4:3:2323:U:C6     | 2.51                     | 0.45              |
| 4:3:2472:G:H2'    | 4:3:2473:C:H6     | 1.82                     | 0.45              |
| 4:3:2515:C:H2'    | 4:3:2516:G:O4'    | 2.17                     | 0.45              |
| 4:3:2604:U:HO2'   | 4:3:2605:G:P      | 2.39                     | 0.45              |
| 6:5:137:A:H3'     | 6:5:138:A:H8      | 1.81                     | 0.45              |
| 6:5:446:A:H2'     | 6:5:447:G:O4'     | 2.16                     | 0.45              |
| 6:5:538:G:H2'     | 6:5:539:G:C8      | 2.51                     | 0.45              |
| 7:6:44:ARG:NH1    | 9:8:1232:ARG:HA   | 2.32                     | 0.45              |
| 9:8:1307:LEU:C    | 37:Z:406:LYS:CD   | 2.89                     | 0.45              |
| 11:A:102:ARG:HE   | 11:A:103:VAL:HG13 | 1.81                     | 0.45              |
| 7:AA:283:ARG:NH2  | 12:AB:82:LEU:CD1  | 2.79                     | 0.45              |
| 12:AB:183:LYS:HB3 | 12:AB:280:PHE:HA  | 1.99                     | 0.45              |
| 13:AC:29:DC:C5'   | 37:Z:1057:VAL:CG2 | 2.81                     | 0.45              |
| 17:C:89:LEU:HA    | 17:C:92:VAL:HG22  | 1.98                     | 0.45              |
| 18:D:80:THR:OG1   | 18:D:81:LYS:N     | 2.49                     | 0.45              |
| 31:Q:93:ALA:O     | 31:Q:97:ALA:N     | 2.49                     | 0.45              |
| 32:R:15:LEU:HA    | 32:R:18:LYS:NZ    | 2.32                     | 0.45              |
| 38:a:146:GLN:O    | 38:a:201:GLY:N    | 2.39                     | 0.45              |
| 39:b:35:GLN:HE22  | 39:b:76:LYS:HB2   | 1.81                     | 0.45              |
| 4:3:342:G:N2      | 4:3:513:A:OP1     | 2.46                     | 0.45              |
| 4:3:477:U:H2'     | 4:3:478:G:H8      | 1.82                     | 0.45              |
| 4:3:491:A:H2      | 4:3:509:G:H5'     | 1.81                     | 0.45              |
| 4:3:975:G:H2'     | 4:3:976:C:C6      | 2.51                     | 0.45              |
| 4:3:1171:G:H2'    | 4:3:1172:G:H8     | 1.82                     | 0.45              |
| 4:3:1202:A:H2'    | 4:3:1203:G:C8     | 2.52                     | 0.45              |
| 4:3:1468:U:H2'    | 4:3:1469:C:O4'    | 2.16                     | 0.45              |
| 4:3:1544:G:H2'    | 4:3:1545:A:C8     | 2.51                     | 0.45              |
| 4:3:1557:G:H21    | 4:3:1573:A:H62    | 1.65                     | 0.45              |
| 4:3:1758:C:H2'    | 4:3:1759:C:C6     | 2.52                     | 0.45              |
| 4:3:2054:C:H2'    | 4:3:2055:A:C8     | 2.51                     | 0.45              |
| 4:3:2106:G:N2     | 4:3:2198:G:H1     | 2.15                     | 0.45              |
| 4:3:2157:A:H2'    | 4:3:2158:C:C6     | 2.51                     | 0.45              |
| 4:3:2269:C:H1'    | 4:3:2396:A:H1'    | 1.99                     | 0.45              |
| 4:3:2395:U:H1'    | 57:u:55:ARG:HG2   | 1.99                     | 0.45              |
| 4:3:2712:C:C2     | 4:3:2713:A:C8     | 3.04                     | 0.45              |
| 6:5:106:C:H41     | 6:5:231:U:H3'     | 1.82                     | 0.45              |
| 6:5:403:A:H2'     | 6:5:404:A:H8      | 1.79                     | 0.45              |
| 6:5:403:A:H4'     | 17:C:112:SER:HA   | 1.99                     | 0.45              |
| 6:5:462:G:O2'     | 6:5:463:U:O4'     | 2.14                     | 0.45              |
| 6:5:660:A:H61     | 6:5:739:G:H1      | 1.64                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 6:5:742:C:H5''     | 6:5:845:C:O2'      | 2.16                     | 0.45              |
| 6:5:1203:A:OP1     | 26:L:107:ARG:NH1   | 2.39                     | 0.45              |
| 6:5:1414:U:P       | 33:S:29:LYS:HZ1    | 2.35                     | 0.45              |
| 9:8:661:THR:HG21   | 37:Z:875:ARG:NE    | 2.31                     | 0.45              |
| 9:8:1342:LEU:N     | 37:Z:398:LEU:HD22  | 2.29                     | 0.45              |
| 9:8:1352:SER:HG    | 37:Z:31:TRP:CH2    | 1.73                     | 0.45              |
| 7:AA:283:ARG:HH12  | 12:AB:79:ASP:CG    | 2.25                     | 0.45              |
| 17:C:7:ILE:HG13    | 17:C:8:PHE:CD1     | 2.52                     | 0.45              |
| 25:K:113:GLY:HA2   | 25:K:119:GLY:HA2   | 1.99                     | 0.45              |
| 37:Z:1126:ILE:HG23 | 37:Z:1138:VAL:HG13 | 1.99                     | 0.45              |
| 46:j:1:MET:HE1     | 46:j:32:TYR:HB3    | 1.97                     | 0.45              |
| 48:l:109:ILE:O     | 48:l:114:MET:HE2   | 2.16                     | 0.45              |
| 51:o:107:ARG:HD3   | 51:o:108:SER:O     | 2.16                     | 0.45              |
| 54:r:115:GLN:HB3   | 54:r:119:LYS:NZ    | 2.31                     | 0.45              |
| 4:3:562:C:O2       | 45:i:119:ARG:NH2   | 2.49                     | 0.45              |
| 4:3:1037:A:H3'     | 4:3:1038:G:H8      | 1.82                     | 0.45              |
| 4:3:2100:G:H2'     | 4:3:2101:A:C8      | 2.51                     | 0.45              |
| 4:3:2780:U:H2'     | 4:3:2781:C:C6      | 2.52                     | 0.45              |
| 5:4:85:A:O2'       | 5:4:86:G:O4'       | 2.32                     | 0.45              |
| 6:5:69:G:N2        | 6:5:86:A:N1        | 2.48                     | 0.45              |
| 6:5:94:A:O2'       | 6:5:95:C:H5'       | 2.15                     | 0.45              |
| 6:5:152:U:H2'      | 6:5:153:A:C8       | 2.51                     | 0.45              |
| 6:5:501:A:H2'      | 6:5:502:C:C6       | 2.52                     | 0.45              |
| 6:5:669:U:H2'      | 6:5:670:G:C8       | 2.51                     | 0.45              |
| 6:5:767:U:H1'      | 6:5:894:A:H2       | 1.81                     | 0.45              |
| 6:5:1351:U:H2'     | 6:5:1352:A:H8      | 1.82                     | 0.45              |
| 9:8:1338:SER:HB3   | 37:Z:402:ASN:CB    | 2.46                     | 0.45              |
| 16:B:11:ARG:HG2    | 16:B:181:LEU:HD12  | 1.99                     | 0.45              |
| 20:F:90:VAL:HG13   | 20:F:95:LYS:HG2    | 1.99                     | 0.45              |
| 31:Q:61:LYS:NZ     | 31:Q:99:VAL:HG12   | 2.32                     | 0.45              |
| 39:b:14:SER:HB2    | 51:o:14:GLU:OE1    | 2.17                     | 0.45              |
| 40:c:40:VAL:HG11   | 40:c:103:LEU:HD23  | 1.99                     | 0.45              |
| 42:e:145:GLY:O     | 42:e:149:THR:HG23  | 2.16                     | 0.45              |
| 52:p:79:ILE:HD11   | 52:p:83:LYS:NZ     | 2.32                     | 0.45              |
| 54:r:88:ARG:HG3    | 54:r:94:ASN:HB2    | 1.97                     | 0.45              |
| 4:3:8:A:H1'        | 45:i:138:GLN:OE1   | 2.17                     | 0.45              |
| 4:3:513:A:H2'      | 4:3:514:A:C8       | 2.51                     | 0.45              |
| 4:3:648:G:N2       | 40:c:185:LYS:HG3   | 2.30                     | 0.45              |
| 4:3:877:G:H2'      | 4:3:878:A:C8       | 2.52                     | 0.45              |
| 4:3:958:C:H2'      | 4:3:959:C:C6       | 2.52                     | 0.45              |
| 4:3:1462:A:O2'     | 4:3:1463:G:H8      | 1.99                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 4:3:1820:U:HO2'    | 4:3:1821:G:P       | 2.38                     | 0.45              |
| 4:3:1841:U:H5''    | 4:3:1842:G:H5''    | 1.99                     | 0.45              |
| 4:3:2330:A:H2'     | 4:3:2331:G:O4'     | 2.17                     | 0.45              |
| 4:3:2372:C:H2'     | 4:3:2373:G:C8      | 2.51                     | 0.45              |
| 4:3:2799:U:H3      | 4:3:2810:A:N6      | 2.14                     | 0.45              |
| 6:5:402:G:O6       | 6:5:403:A:N6       | 2.50                     | 0.45              |
| 6:5:606:A:H3'      | 6:5:607:A:H8       | 1.82                     | 0.45              |
| 6:5:643:U:H2'      | 6:5:644:U:H6       | 1.79                     | 0.45              |
| 6:5:1032:G:H2'     | 6:5:1033:U:C6      | 2.52                     | 0.45              |
| 6:5:1447:U:H2'     | 6:5:1448:A:C8      | 2.51                     | 0.45              |
| 7:6:173:ILE:HD12   | 7:6:180:ALA:HB2    | 1.99                     | 0.45              |
| 8:7:30:G:H5''      | 26:L:118:ASN:CG    | 2.42                     | 0.45              |
| 9:8:409:ALA:O      | 9:8:423:LYS:HE3    | 2.17                     | 0.45              |
| 9:8:1149:LEU:HD11  | 9:8:1181:LEU:CD2   | 2.45                     | 0.45              |
| 9:8:1269:LYS:CD    | 37:Z:313:ILE:CB    | 2.81                     | 0.45              |
| 11:A:112:TRP:CZ2   | 11:A:116:THR:HB    | 2.51                     | 0.45              |
| 12:AB:154:ILE:O    | 37:Z:77:LYS:HD3    | 2.16                     | 0.45              |
| 16:B:60:ARG:HG2    | 16:B:65:VAL:HA     | 1.99                     | 0.45              |
| 25:K:96:ARG:HH22   | 25:K:130:TYR:HE1   | 1.65                     | 0.45              |
| 32:R:41:PHE:CD1    | 32:R:42:PRO:HD2    | 2.52                     | 0.45              |
| 37:Z:164:GLU:OE1   | 37:Z:179:LYS:NZ    | 2.49                     | 0.45              |
| 37:Z:1130:LEU:HD22 | 37:Z:1215:VAL:HG23 | 1.98                     | 0.45              |
| 42:e:148:ALA:HA    | 42:e:151:VAL:HG22  | 1.99                     | 0.45              |
| 45:i:95:MET:HE2    | 45:i:103:LEU:HB2   | 1.99                     | 0.45              |
| 50:n:28:VAL:HG11   | 50:n:86:LEU:HD13   | 1.99                     | 0.45              |
| 4:3:195:A:H2'      | 4:3:196:G:C8       | 2.52                     | 0.45              |
| 4:3:405:C:H2'      | 4:3:406:C:C6       | 2.52                     | 0.45              |
| 4:3:853:G:H21      | 4:3:1220:A:H62     | 1.64                     | 0.45              |
| 4:3:873:G:H2'      | 4:3:874:U:C6       | 2.52                     | 0.45              |
| 4:3:1101:U:O2      | 4:3:1108:A:N6      | 2.50                     | 0.45              |
| 4:3:1349:C:H2'     | 4:3:1350:A:C8      | 2.51                     | 0.45              |
| 4:3:1600:A:H1'     | 38:a:62:ASN:HD22   | 1.80                     | 0.45              |
| 4:3:1749:A:O2'     | 4:3:1750:A:O4'     | 2.18                     | 0.45              |
| 4:3:2002:U:H2'     | 4:3:2003:C:C5      | 2.52                     | 0.45              |
| 4:3:2126:A:H2      | 4:3:2176:G:H21     | 1.65                     | 0.45              |
| 4:3:2303:U:C2      | 4:3:2346:G:N1      | 2.85                     | 0.45              |
| 4:3:2810:A:C8      | 4:3:2895:A:N6      | 2.83                     | 0.45              |
| 6:5:223:G:H2'      | 6:5:224:A:C8       | 2.52                     | 0.45              |
| 6:5:490:U:H2'      | 6:5:491:U:C6       | 2.52                     | 0.45              |
| 6:5:597:C:H5''     | 21:G:100:PRO:HA    | 1.98                     | 0.45              |
| 6:5:747:C:H5'      | 28:N:17:LYS:HE3    | 1.98                     | 0.45              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 6:5:1168:G:H2'    | 6:5:1169:U:H6      | 1.82                     | 0.45              |
| 6:5:1390:G:H2'    | 6:5:1391:A:H8      | 1.82                     | 0.45              |
| 8:7:3:G:H1'       | 57:u:20:GLY:HA3    | 1.99                     | 0.45              |
| 9:8:1340:LYS:NZ   | 9:8:1370:ILE:HG12  | 2.32                     | 0.45              |
| 12:AB:139:PHE:CD2 | 12:AB:147:ILE:HD11 | 2.48                     | 0.45              |
| 17:C:2:LYS:HG3    | 17:C:3:TYR:HD1     | 1.82                     | 0.45              |
| 17:C:74:LEU:HA    | 17:C:77:LEU:HG     | 1.99                     | 0.45              |
| 19:E:88:ILE:HG23  | 19:E:92:ARG:NE     | 2.31                     | 0.45              |
| 22:H:106:THR:HG23 | 22:H:107:THR:HG23  | 1.99                     | 0.45              |
| 23:I:63:VAL:HG12  | 23:I:64:ASP:H      | 1.81                     | 0.45              |
| 30:P:30:PHE:HZ    | 30:P:41:ARG:HD3    | 1.82                     | 0.45              |
| 31:Q:70:ILE:HD12  | 31:Q:90:LEU:HD21   | 1.99                     | 0.45              |
| 32:R:81:LYS:HG3   | 32:R:83:HIS:H      | 1.82                     | 0.45              |
| 33:S:50:GLN:NE2   | 33:S:54:LEU:HD23   | 2.32                     | 0.45              |
| 37:Z:299:LEU:CD1  | 37:Z:368:PHE:HE2   | 2.29                     | 0.45              |
| 39:b:1:MET:CE     | 39:b:2:GLU:HG2     | 2.46                     | 0.45              |
| 58:v:4:LYS:HG2    | 58:v:12:PRO:HD3    | 1.99                     | 0.45              |
| 4:3:289:U:H2'     | 4:3:290:A:C8       | 2.52                     | 0.45              |
| 4:3:1065:G:H5''   | 48:l:129:TRP:HH2   | 1.81                     | 0.45              |
| 4:3:1300:C:OP1    | 4:3:1301:G:H5'     | 2.17                     | 0.45              |
| 4:3:1447:A:O2'    | 4:3:1448:U:H5''    | 2.17                     | 0.45              |
| 4:3:1475:C:H2'    | 4:3:1476:C:O4'     | 2.16                     | 0.45              |
| 4:3:2023:U:H2'    | 4:3:2024:C:O4'     | 2.17                     | 0.45              |
| 4:3:2852:G:H1'    | 4:3:2872:A:N6      | 2.32                     | 0.45              |
| 6:5:619:A:OP2     | 6:5:619:A:H8       | 2.00                     | 0.45              |
| 6:5:733:A:H2'     | 6:5:734:A:H8       | 1.81                     | 0.45              |
| 6:5:744:U:H4'     | 6:5:745:U:C5       | 2.51                     | 0.45              |
| 6:5:887:C:H2'     | 6:5:888:A:O4'      | 2.17                     | 0.45              |
| 6:5:1072:G:H2'    | 6:5:1073:A:C8      | 2.52                     | 0.45              |
| 6:5:1258:U:H2'    | 6:5:1259:G:C8      | 2.52                     | 0.45              |
| 7:6:276:ARG:HG3   | 12:AB:313:LEU:HD22 | 1.99                     | 0.45              |
| 7:6:276:ARG:NE    | 12:AB:323:GLU:OE1  | 2.50                     | 0.45              |
| 9:8:648:VAL:HB    | 37:Z:872:TYR:CE1   | 2.52                     | 0.45              |
| 9:8:1350:ALA:N    | 37:Z:368:PHE:CZ    | 2.85                     | 0.45              |
| 16:B:141:LEU:HA   | 16:B:144:VAL:HG22  | 1.98                     | 0.45              |
| 18:D:148:ARG:HB2  | 18:D:183:LEU:HB2   | 1.98                     | 0.45              |
| 33:S:27:LYS:O     | 33:S:30:THR:OG1    | 2.34                     | 0.45              |
| 37:Z:314:GLN:HE21 | 37:Z:318:ALA:HA    | 1.80                     | 0.45              |
| 37:Z:748:TYR:OH   | 37:Z:791:GLU:OE1   | 2.24                     | 0.45              |
| 40:c:176:LYS:C    | 40:c:179:GLN:HE22  | 2.23                     | 0.45              |
| 45:i:37:ASP:OD2   | 45:i:43:ASN:ND2    | 2.49                     | 0.45              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 53:q:10:LYS:HD3  | 53:q:10:LYS:HA    | 1.75                     | 0.45              |
| 53:q:35:LEU:HB3  | 53:q:55:VAL:HG23  | 1.99                     | 0.45              |
| 54:r:85:THR:OG1  | 54:r:93:SER:OG    | 2.35                     | 0.45              |
| 4:3:174:A:H2'    | 4:3:175:A:H8      | 1.82                     | 0.44              |
| 4:3:858:A:N6     | 4:3:870:A:H61     | 2.15                     | 0.44              |
| 4:3:874:U:H2'    | 4:3:875:G:C8      | 2.52                     | 0.44              |
| 4:3:899:A:H2'    | 4:3:900:G:C8      | 2.52                     | 0.44              |
| 4:3:1001:C:H2'   | 4:3:1002:A:C8     | 2.52                     | 0.44              |
| 4:3:1513:A:H2'   | 4:3:1514:U:C6     | 2.52                     | 0.44              |
| 4:3:1778:G:H2'   | 4:3:1779:G:C8     | 2.52                     | 0.44              |
| 4:3:1785:U:H2'   | 4:3:1786:U:O2     | 2.18                     | 0.44              |
| 4:3:1839:C:H2'   | 4:3:1840:C:C6     | 2.51                     | 0.44              |
| 4:3:2265:U:H2'   | 4:3:2266:C:C6     | 2.52                     | 0.44              |
| 4:3:2447:A:H1'   | 4:3:2595:A:OP1    | 2.17                     | 0.44              |
| 4:3:2754:U:H5''  | 42:e:141:LYS:HB3  | 1.99                     | 0.44              |
| 4:3:2850:G:H2'   | 4:3:2851:U:H6     | 1.82                     | 0.44              |
| 6:5:108:C:H5''   | 6:5:307:C:H1'     | 1.99                     | 0.44              |
| 6:5:304:U:H2'    | 6:5:305:A:C8      | 2.52                     | 0.44              |
| 6:5:409:G:H1'    | 6:5:425:G:H21     | 1.81                     | 0.44              |
| 6:5:519:G:C5     | 6:5:527:G:N2      | 2.85                     | 0.44              |
| 6:5:949:G:H3'    | 6:5:950:C:C5      | 2.52                     | 0.44              |
| 6:5:1114:A:N6    | 6:5:1127:A:N6     | 2.65                     | 0.44              |
| 6:5:1464:G:H2'   | 6:5:1465:U:C6     | 2.52                     | 0.44              |
| 7:6:57:ALA:HB2   | 7:6:173:ILE:HD11  | 1.98                     | 0.44              |
| 8:7:68:G:H2'     | 8:7:69:A:C8       | 2.51                     | 0.44              |
| 9:8:90:LYS:HZ2   | 9:8:1034:GLU:HB3  | 1.80                     | 0.44              |
| 9:8:1001:GLU:N   | 12:AB:109:LYS:HE2 | 2.32                     | 0.44              |
| 9:8:1200:PHE:CD1 | 37:Z:864:ILE:N    | 2.85                     | 0.44              |
| 14:AD:12:DC:C2'  | 37:Z:890:TYR:OH   | 2.65                     | 0.44              |
| 17:C:147:LYS:O   | 17:C:150:LYS:NZ   | 2.49                     | 0.44              |
| 39:b:208:ARG:HD2 | 39:b:209:THR:N    | 2.32                     | 0.44              |
| 45:i:143:LEU:HG  | 45:i:146:SER:HB3  | 1.99                     | 0.44              |
| 53:q:67:LYS:HA   | 53:q:86:ARG:HE    | 1.82                     | 0.44              |
| 4:3:57:G:H2'     | 4:3:58:A:H8       | 1.81                     | 0.44              |
| 4:3:306:G:H2'    | 4:3:307:C:C6      | 2.51                     | 0.44              |
| 4:3:868:C:H2'    | 4:3:869:U:C6      | 2.52                     | 0.44              |
| 4:3:1149:G:O2'   | 4:3:1150:U:H5'    | 2.18                     | 0.44              |
| 4:3:1408:G:H2'   | 4:3:1409:G:H8     | 1.82                     | 0.44              |
| 4:3:1587:U:O2'   | 4:3:1588:A:N7     | 2.45                     | 0.44              |
| 4:3:1596:U:H2'   | 4:3:1597:U:C6     | 2.51                     | 0.44              |
| 4:3:1687:G:OP1   | 4:3:2826:G:N1     | 2.50                     | 0.44              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 4:3:1843:C:H2'    | 4:3:1844:C:C6     | 2.52                     | 0.44              |
| 4:3:2701:A:H2'    | 4:3:2702:G:C8     | 2.53                     | 0.44              |
| 5:4:4:G:C6        | 5:4:105:A:N6      | 2.86                     | 0.44              |
| 6:5:256:G:O6      | 33:S:71:ARG:NH1   | 2.50                     | 0.44              |
| 6:5:964:A:H2'     | 6:5:965:C:C6      | 2.52                     | 0.44              |
| 6:5:1089:C:H2'    | 6:5:1090:G:C8     | 2.51                     | 0.44              |
| 7:6:283:ARG:NH1   | 12:AB:313:LEU:O   | 2.50                     | 0.44              |
| 9:8:354:SER:N     | 13:AC:20:DG:C4    | 2.83                     | 0.44              |
| 9:8:404:TYR:HA    | 9:8:432:ILE:HD11  | 1.99                     | 0.44              |
| 9:8:648:VAL:C     | 37:Z:835:PHE:HE2  | 2.26                     | 0.44              |
| 9:8:1126:CYS:O    | 9:8:1154:LYS:CE   | 2.64                     | 0.44              |
| 9:8:1342:LEU:HD13 | 37:Z:398:LEU:HD23 | 1.99                     | 0.44              |
| 12:AB:156:THR:N   | 37:Z:76:ILE:CG2   | 2.77                     | 0.44              |
| 15:AE:96:TYR:OH   | 37:Z:355:ASN:ND2  | 2.50                     | 0.44              |
| 19:E:35:LEU:HD12  | 19:E:60:TRP:CD1   | 2.51                     | 0.44              |
| 20:F:71:ARG:HG3   | 20:F:72:LEU:HD22  | 1.99                     | 0.44              |
| 21:G:21:LYS:HA    | 21:G:21:LYS:HD2   | 1.67                     | 0.44              |
| 24:J:46:LYS:HE2   | 24:J:46:LYS:HB2   | 1.89                     | 0.44              |
| 26:L:26:GLY:O     | 26:L:30:SER:OG    | 2.29                     | 0.44              |
| 37:Z:583:LEU:O    | 37:Z:641:GLY:HA3  | 2.17                     | 0.44              |
| 37:Z:781:TRP:CE3  | 37:Z:853:PRO:HG3  | 2.52                     | 0.44              |
| 39:b:64:LYS:O     | 39:b:67:GLN:HG2   | 2.16                     | 0.44              |
| 39:b:227:GLU:OE1  | 39:b:227:GLU:N    | 2.51                     | 0.44              |
| 42:e:127:LYS:HB2  | 42:e:135:THR:HB   | 1.98                     | 0.44              |
| 50:n:79:ASP:O     | 50:n:82:VAL:HG22  | 2.16                     | 0.44              |
| 51:o:90:LEU:C     | 51:o:91:LYS:HD3   | 2.42                     | 0.44              |
| 56:t:41:LYS:HD2   | 56:t:64:GLN:HB3   | 1.99                     | 0.44              |
| 62:z:11:CYS:HA    | 62:z:47:HIS:ND1   | 2.33                     | 0.44              |
| 4:3:297:G:H1      | 4:3:440:C:H5      | 1.65                     | 0.44              |
| 4:3:387:U:H2'     | 4:3:388:U:C6      | 2.52                     | 0.44              |
| 4:3:832:C:H2'     | 4:3:833:C:C6      | 2.52                     | 0.44              |
| 4:3:984:C:H2'     | 4:3:985:A:C8      | 2.52                     | 0.44              |
| 4:3:991:G:H4'     | 48:l:87:LYS:HE3   | 1.99                     | 0.44              |
| 4:3:1028:C:H2'    | 4:3:1029:A:C8     | 2.53                     | 0.44              |
| 4:3:1308:A:H2'    | 4:3:1309:G:H8     | 1.83                     | 0.44              |
| 4:3:1364:A:H2'    | 4:3:1365:G:C8     | 2.53                     | 0.44              |
| 4:3:1457:A:H2'    | 4:3:1458:A:H8     | 1.81                     | 0.44              |
| 4:3:1535:A:H2'    | 4:3:1536:C:O4'    | 2.16                     | 0.44              |
| 4:3:1692:A:H2'    | 4:3:1693:U:C6     | 2.53                     | 0.44              |
| 4:3:1703:A:H8     | 46:j:5:MET:HG2    | 1.81                     | 0.44              |
| 4:3:2002:U:H3'    | 4:3:2003:C:H2'    | 1.99                     | 0.44              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 4:3:2382:A:H2'    | 4:3:2383:G:H8     | 1.82                     | 0.44              |
| 4:3:2823:A:C6     | 4:3:2832:G:N1     | 2.86                     | 0.44              |
| 6:5:176:G:H2'     | 6:5:177:G:C8      | 2.52                     | 0.44              |
| 6:5:623:G:H4'     | 29:O:32:HIS:HE2   | 1.82                     | 0.44              |
| 6:5:678:A:H2'     | 6:5:679:U:H6      | 1.83                     | 0.44              |
| 6:5:939:G:N2      | 6:5:1312:G:H8     | 2.15                     | 0.44              |
| 6:5:1154:A:H5''   | 22:H:107:THR:HA   | 2.00                     | 0.44              |
| 6:5:1438:U:H2'    | 6:5:1439:G:C8     | 2.52                     | 0.44              |
| 9:8:17:THR:H      | 9:8:1140:ASN:HD21 | 1.65                     | 0.44              |
| 9:8:641:PRO:HD2   | 13:AC:26:DT:H5'   | 1.73                     | 0.44              |
| 9:8:1289:MET:HE3  | 14:AD:14:DG:C2'   | 2.36                     | 0.44              |
| 9:8:1326:LYS:HG2  | 37:Z:464:ILE:HD11 | 2.00                     | 0.44              |
| 7:AA:82:LEU:HD13  | 37:Z:621:SER:HB2  | 1.96                     | 0.44              |
| 18:D:137:TYR:O    | 18:D:153:PRO:HG3  | 2.17                     | 0.44              |
| 23:I:57:ILE:HD12  | 27:M:41:ARG:HB2   | 2.00                     | 0.44              |
| 37:Z:57:GLU:OE2   | 37:Z:69:ALA:HB2   | 2.17                     | 0.44              |
| 37:Z:184:ILE:HD12 | 37:Z:210:LEU:CD1  | 2.47                     | 0.44              |
| 37:Z:890:TYR:CD1  | 37:Z:894:LYS:HE3  | 2.47                     | 0.44              |
| 51:o:5:ASN:C      | 51:o:6:LYS:HD3    | 2.43                     | 0.44              |
| 4:3:455:G:C4      | 4:3:456:G:C8      | 3.05                     | 0.44              |
| 4:3:731:A:H2'     | 4:3:732:G:C8      | 2.53                     | 0.44              |
| 4:3:810:G:H4'     | 4:3:811:G:H5'     | 1.99                     | 0.44              |
| 4:3:892:G:H4'     | 57:u:83:TYR:HD2   | 1.83                     | 0.44              |
| 4:3:1229:U:H2'    | 4:3:1230:U:H6     | 1.83                     | 0.44              |
| 4:3:1343:C:H2'    | 4:3:1344:U:C6     | 2.52                     | 0.44              |
| 4:3:1344:U:H2'    | 4:3:1345:G:C8     | 2.53                     | 0.44              |
| 4:3:2087:G:H2'    | 4:3:2088:U:H6     | 1.83                     | 0.44              |
| 5:4:77:G:H2'      | 5:4:78:C:H1'      | 1.98                     | 0.44              |
| 6:5:14:U:H3'      | 6:5:15:U:C6       | 2.52                     | 0.44              |
| 6:5:80:U:H2'      | 6:5:81:A:C8       | 2.53                     | 0.44              |
| 6:5:881:G:N1      | 6:5:905:U:N3      | 2.66                     | 0.44              |
| 6:5:909:A:O2'     | 6:5:910:C:H5'     | 2.18                     | 0.44              |
| 9:8:943:ILE:HD13  | 9:8:1043:ILE:HD12 | 1.98                     | 0.44              |
| 9:8:1160:ARG:NH1  | 9:8:1176:ASP:OD2  | 2.50                     | 0.44              |
| 9:8:1330:PHE:CZ   | 37:Z:542:LEU:CD1  | 3.01                     | 0.44              |
| 11:A:193:ILE:O    | 11:A:195:ARG:NH2  | 2.48                     | 0.44              |
| 17:C:41:ARG:HH21  | 17:C:41:ARG:HG2   | 1.81                     | 0.44              |
| 21:G:41:LYS:HA    | 21:G:44:ILE:HG12  | 2.00                     | 0.44              |
| 37:Z:257:LEU:HB3  | 37:Z:281:LEU:HD12 | 1.99                     | 0.44              |
| 40:c:156:ASN:O    | 40:c:194:ALA:HA   | 2.16                     | 0.44              |
| 48:l:36:ALA:N     | 48:l:103:MET:HE1  | 2.33                     | 0.44              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 49:m:117:GLN:HG2  | 61:y:53:VAL:HG21  | 2.00                     | 0.44              |
| 4:3:27:U:H4'      | 54:r:80:PRO:HD3   | 1.98                     | 0.44              |
| 4:3:745:U:H2'     | 4:3:746:G:C8      | 2.52                     | 0.44              |
| 4:3:815:G:H5''    | 38:a:225:ARG:NH2  | 2.33                     | 0.44              |
| 4:3:858:A:H2'     | 4:3:859:G:C8      | 2.52                     | 0.44              |
| 4:3:1369:U:OP1    | 4:3:1636:U:O2'    | 2.27                     | 0.44              |
| 4:3:1756:A:H2'    | 4:3:1757:G:H8     | 1.82                     | 0.44              |
| 4:3:1830:G:H2'    | 4:3:1831:G:C8     | 2.52                     | 0.44              |
| 4:3:1954:C:H2'    | 4:3:1955:G:C8     | 2.53                     | 0.44              |
| 4:3:2028:G:OP1    | 61:y:11:HIS:NE2   | 2.50                     | 0.44              |
| 4:3:2073:C:H2'    | 4:3:2074:G:C8     | 2.52                     | 0.44              |
| 4:3:2858:A:H2'    | 4:3:2859:U:C6     | 2.53                     | 0.44              |
| 5:4:59:A:H2'      | 5:4:60:C:H6       | 1.83                     | 0.44              |
| 6:5:255:G:H2'     | 6:5:256:G:C8      | 2.53                     | 0.44              |
| 6:5:335:C:H2'     | 6:5:336:U:C6      | 2.51                     | 0.44              |
| 6:5:433:C:O2'     | 17:C:151:ILE:HG12 | 2.18                     | 0.44              |
| 6:5:613:C:H2'     | 6:5:614:U:H6      | 1.82                     | 0.44              |
| 6:5:826:G:N2      | 6:5:851:U:O2      | 2.35                     | 0.44              |
| 6:5:865:U:O2'     | 6:5:866:A:OP1     | 2.34                     | 0.44              |
| 6:5:1348:G:H5''   | 20:F:35:LYS:HE3   | 1.99                     | 0.44              |
| 9:8:98:ALA:HB2    | 9:8:130:LEU:HD11  | 1.98                     | 0.44              |
| 9:8:607:HIS:HE1   | 9:8:609:LEU:HD12  | 1.83                     | 0.44              |
| 9:8:945:ARG:NH1   | 7:AA:298:ALA:HB1  | 2.33                     | 0.44              |
| 9:8:999:PHE:CZ    | 12:AB:64:ILE:CD1  | 3.01                     | 0.44              |
| 12:AB:158:LYS:HG2 | 37:Z:66:TYR:HE2   | 1.83                     | 0.44              |
| 16:B:35:ILE:HG12  | 27:M:25:GLN:HB2   | 2.00                     | 0.44              |
| 23:I:56:THR:O     | 23:I:68:ARG:NH1   | 2.50                     | 0.44              |
| 28:N:37:THR:HA    | 28:N:40:LEU:HG    | 2.00                     | 0.44              |
| 35:U:25:VAL:CG2   | 35:U:89:ILE:HD11  | 2.48                     | 0.44              |
| 39:b:29:ILE:HB    | 39:b:191:VAL:HG13 | 2.00                     | 0.44              |
| 43:f:98:ILE:HD13  | 43:f:108:LEU:HD12 | 1.99                     | 0.44              |
| 54:r:65:ASN:ND2   | 54:r:67:ASP:OD2   | 2.50                     | 0.44              |
| 4:3:616:G:H2'     | 4:3:617:C:H6      | 1.82                     | 0.44              |
| 4:3:1695:G:H4'    | 4:3:2720:C:O2     | 2.17                     | 0.44              |
| 4:3:2334:U:O2'    | 4:3:2335:A:N7     | 2.51                     | 0.44              |
| 4:3:2643:A:O2'    | 39:b:83:GLU:OE2   | 2.32                     | 0.44              |
| 4:3:2656:G:H2'    | 4:3:2657:C:H6     | 1.82                     | 0.44              |
| 4:3:2677:A:H2'    | 4:3:2678:A:H8     | 1.83                     | 0.44              |
| 4:3:2861:G:O2'    | 4:3:2863:G:N7     | 2.46                     | 0.44              |
| 5:4:70:G:H21      | 5:4:94:A:H62      | 1.65                     | 0.44              |
| 6:5:346:G:O2'     | 6:5:347:G:O4'     | 2.33                     | 0.44              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 6:5:371:U:H2'     | 6:5:372:G:C8       | 2.53                     | 0.44              |
| 6:5:1132:G:N2     | 6:5:1154:A:C2      | 2.86                     | 0.44              |
| 6:5:1463:A:H2'    | 6:5:1464:G:C8      | 2.53                     | 0.44              |
| 7:6:108:ARG:HH21  | 7:AA:316:LYS:NZ    | 2.16                     | 0.44              |
| 9:8:15:THR:HG21   | 9:8:863:LEU:HD23   | 1.99                     | 0.44              |
| 9:8:848:LYS:HD3   | 9:8:859:ASN:OD1    | 2.16                     | 0.44              |
| 9:8:1079:PRO:HB2  | 9:8:1228:LEU:HD21  | 2.00                     | 0.44              |
| 7:AA:283:ARG:HH22 | 12:AB:82:LEU:HD12  | 1.83                     | 0.44              |
| 15:AE:108:TRP:CZ3 | 15:AE:130:PRO:CB   | 2.99                     | 0.44              |
| 17:C:100:ILE:HG13 | 17:C:136:LEU:HG    | 1.98                     | 0.44              |
| 18:D:131:ILE:HD13 | 18:D:175:TYR:CE2   | 2.52                     | 0.44              |
| 20:F:37:LEU:O     | 20:F:41:ILE:HG12   | 2.18                     | 0.44              |
| 20:F:78:ARG:HH11  | 20:F:84:TYR:N      | 2.15                     | 0.44              |
| 24:J:119:ARG:HH22 | 34:T:36:LEU:HD13   | 1.82                     | 0.44              |
| 30:P:7:LYS:O      | 30:P:64:VAL:HG12   | 2.18                     | 0.44              |
| 34:T:28:LEU:HA    | 34:T:31:ARG:NH2    | 2.33                     | 0.44              |
| 37:Z:576:MET:SD   | 37:Z:720:LYS:HG3   | 2.58                     | 0.44              |
| 37:Z:1219:ASP:HB3 | 37:Z:1235:GLN:HE22 | 1.82                     | 0.44              |
| 40:c:112:LEU:O    | 40:c:115:VAL:HG12  | 2.18                     | 0.44              |
| 41:d:106:VAL:O    | 41:d:110:ARG:HB2   | 2.17                     | 0.44              |
| 3:2:15:LYS:HA     | 3:2:15:LYS:HD2     | 1.82                     | 0.44              |
| 4:3:107:C:H2'     | 4:3:108:G:C8       | 2.53                     | 0.44              |
| 4:3:595:U:H2'     | 4:3:605:A:C1'      | 2.48                     | 0.44              |
| 4:3:727:C:H2'     | 4:3:728:A:C8       | 2.52                     | 0.44              |
| 4:3:761:G:O2'     | 4:3:762:A:N7       | 2.47                     | 0.44              |
| 4:3:764:G:O4'     | 38:a:215:LYS:NZ    | 2.49                     | 0.44              |
| 4:3:1317:C:H2'    | 4:3:1318:U:C6      | 2.53                     | 0.44              |
| 4:3:1725:G:O6     | 4:3:1731:G:N2      | 2.51                     | 0.44              |
| 4:3:1992:C:H2'    | 4:3:1993:U:C6      | 2.53                     | 0.44              |
| 4:3:2599:C:H2'    | 4:3:2600:G:H8      | 1.82                     | 0.44              |
| 4:3:2891:C:H2'    | 4:3:2892:U:H6      | 1.83                     | 0.44              |
| 6:5:10:G:H2'      | 6:5:11:A:C8        | 2.53                     | 0.44              |
| 6:5:13:U:O2'      | 6:5:908:A:OP2      | 2.28                     | 0.44              |
| 6:5:324:C:H4'     | 6:5:325:A:H5''     | 2.00                     | 0.44              |
| 6:5:492:G:H2'     | 6:5:494:A:H8       | 1.83                     | 0.44              |
| 6:5:523:U:H5''    | 25:K:101:LYS:NZ    | 2.33                     | 0.44              |
| 6:5:747:C:H4'     | 28:N:18:ASP:HA     | 2.00                     | 0.44              |
| 6:5:763:A:N7      | 6:5:810:U:O4       | 2.50                     | 0.44              |
| 6:5:912:G:H2'     | 6:5:913:A:H8       | 1.81                     | 0.44              |
| 6:5:1012:A:O2'    | 6:5:1192:C:O2'     | 2.33                     | 0.44              |
| 6:5:1114:A:H2'    | 6:5:1115:G:C8      | 2.53                     | 0.44              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 7:6:34:PHE:HZ     | 7:AA:231:ILE:HG22 | 1.82                     | 0.44              |
| 9:8:374:CYS:HB3   | 9:8:459:VAL:HG12  | 2.00                     | 0.44              |
| 9:8:816:MET:HB3   | 9:8:877:ALA:HB3   | 1.99                     | 0.44              |
| 9:8:1349:LEU:HD11 | 37:Z:389:THR:CA   | 2.48                     | 0.44              |
| 16:B:18:TRP:O     | 16:B:21:ARG:NH1   | 2.50                     | 0.44              |
| 17:C:95:SER:O     | 17:C:95:SER:OG    | 2.35                     | 0.44              |
| 24:J:11:SER:OG    | 24:J:76:LYS:NZ    | 2.50                     | 0.44              |
| 25:K:100:VAL:HG13 | 25:K:109:HIS:HE1  | 1.83                     | 0.44              |
| 28:N:9:ILE:O      | 28:N:13:GLN:HG3   | 2.18                     | 0.44              |
| 37:Z:135:VAL:HG12 | 37:Z:139:LEU:HD12 | 1.99                     | 0.44              |
| 43:f:25:TYR:CE2   | 43:f:30:LEU:HB2   | 2.53                     | 0.44              |
| 43:f:33:LYS:HE3   | 43:f:109:GLN:NE2  | 2.33                     | 0.44              |
| 47:k:99:ILE:HG13  | 47:k:100:GLU:N    | 2.33                     | 0.44              |
| 54:r:81:SER:OG    | 54:r:97:THR:OG1   | 2.23                     | 0.44              |
| 54:r:116:GLU:N    | 54:r:116:GLU:OE1  | 2.50                     | 0.44              |
| 61:y:40:HIS:C     | 61:y:41:ARG:HD2   | 2.42                     | 0.44              |
| 61:y:40:HIS:O     | 61:y:41:ARG:HD2   | 2.18                     | 0.44              |
| 4:3:280:A:H2'     | 4:3:281:U:C6      | 2.53                     | 0.44              |
| 4:3:481:C:O3'     | 52:p:2:ARG:NH2    | 2.51                     | 0.44              |
| 4:3:535:G:N1      | 4:3:538:A:OP2     | 2.42                     | 0.44              |
| 4:3:755:C:H2'     | 4:3:756:A:H8      | 1.82                     | 0.44              |
| 4:3:898:A:O3'     | 5:4:76:A:O2'      | 2.26                     | 0.44              |
| 4:3:1307:G:H2'    | 4:3:1308:A:C8     | 2.53                     | 0.44              |
| 4:3:1320:C:H2'    | 4:3:1321:C:C6     | 2.53                     | 0.44              |
| 4:3:1597:U:H2'    | 4:3:1598:U:C6     | 2.52                     | 0.44              |
| 4:3:1775:G:H2'    | 4:3:1776:G:H8     | 1.82                     | 0.44              |
| 4:3:2749:A:H62    | 4:3:2771:G:N2     | 2.10                     | 0.44              |
| 4:3:2799:U:H3'    | 4:3:2896:G:H21    | 1.82                     | 0.44              |
| 6:5:287:U:N3      | 6:5:306:G:N1      | 2.66                     | 0.44              |
| 6:5:571:A:O2'     | 6:5:572:A:O4'     | 2.27                     | 0.44              |
| 6:5:596:U:H2'     | 6:5:597:C:C6      | 2.53                     | 0.44              |
| 6:5:839:U:H1'     | 31:Q:45:ALA:HB2   | 2.00                     | 0.44              |
| 6:5:1098:C:C2     | 6:5:1099:G:C8     | 3.05                     | 0.44              |
| 6:5:1194:A:H2'    | 6:5:1195:G:H8     | 1.83                     | 0.44              |
| 6:5:1405:U:O2     | 6:5:1445:G:N2     | 2.34                     | 0.44              |
| 8:7:11:G:N2       | 8:7:27:A:H1'      | 2.33                     | 0.44              |
| 7:AA:168:GLU:CD   | 37:Z:611:LYS:NZ   | 2.75                     | 0.44              |
| 12:AB:156:THR:H   | 37:Z:76:ILE:CG2   | 2.30                     | 0.44              |
| 12:AB:290:TRP:CZ2 | 12:AB:296:LYS:CE  | 3.00                     | 0.44              |
| 17:C:3:TYR:HD2    | 17:C:5:GLY:H      | 1.66                     | 0.44              |
| 17:C:12:ARG:HG2   | 17:C:35:PRO:HD3   | 1.99                     | 0.44              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 30:P:14:LYS:HD2  | 30:P:15:SER:OG   | 2.17                     | 0.44              |
| 40:c:54:THR:HG23 | 40:c:56:GLY:H    | 1.83                     | 0.44              |
| 41:d:40:VAL:HG23 | 41:d:150:ARG:CZ  | 2.48                     | 0.44              |
| 42:e:147:PHE:HA  | 42:e:150:GLU:CD  | 2.42                     | 0.44              |
| 46:j:21:ILE:HD11 | 46:j:39:VAL:HB   | 1.99                     | 0.44              |
| 55:s:16:VAL:HA   | 55:s:19:ASN:HD22 | 1.83                     | 0.44              |
| 4:3:40:A:H1'     | 40:c:49:THR:HB   | 2.00                     | 0.44              |
| 4:3:137:U:H2'    | 4:3:138:U:C6     | 2.53                     | 0.44              |
| 4:3:498:C:H2'    | 4:3:499:G:C8     | 2.53                     | 0.44              |
| 4:3:565:C:O2'    | 4:3:567:U:O4     | 2.32                     | 0.44              |
| 4:3:730:G:H2'    | 4:3:731:A:C8     | 2.53                     | 0.44              |
| 4:3:1050:A:N6    | 4:3:1183:A:H61   | 2.15                     | 0.44              |
| 4:3:1337:G:H2'   | 4:3:1338:G:C8    | 2.53                     | 0.44              |
| 4:3:1451:A:H2'   | 4:3:1452:G:C8    | 2.53                     | 0.44              |
| 4:3:1460:G:N2    | 4:3:1596:U:O2    | 2.50                     | 0.44              |
| 4:3:1857:G:H2'   | 4:3:1858:U:C6    | 2.53                     | 0.44              |
| 4:3:2070:C:O2'   | 8:7:77:A:H5''    | 2.17                     | 0.44              |
| 4:3:2074:G:H3'   | 4:3:2075:U:H4'   | 1.99                     | 0.44              |
| 4:3:2113:U:O2    | 4:3:2191:G:N2    | 2.51                     | 0.44              |
| 4:3:2127:G:N3    | 4:3:2127:G:H2'   | 2.33                     | 0.44              |
| 6:5:276:U:C2     | 30:P:41:ARG:HA   | 2.53                     | 0.44              |
| 6:5:434:U:O2'    | 17:C:121:HIS:NE2 | 2.45                     | 0.44              |
| 6:5:656:U:H2'    | 6:5:657:G:C8     | 2.53                     | 0.44              |
| 6:5:712:A:H2'    | 6:5:713:A:C8     | 2.52                     | 0.44              |
| 6:5:1487:U:H3    | 6:5:1498:G:H1    | 1.64                     | 0.44              |
| 9:8:163:MET:HG3  | 9:8:510:TYR:CD1  | 2.53                     | 0.44              |
| 9:8:614:ASP:HA   | 9:8:854:GLN:HE22 | 1.82                     | 0.44              |
| 9:8:774:ASP:O    | 37:Z:867:TYR:CE2 | 2.71                     | 0.44              |
| 9:8:999:PHE:HZ   | 12:AB:64:ILE:CD1 | 2.31                     | 0.44              |
| 21:G:90:ILE:HG12 | 21:G:139:ALA:HA  | 2.00                     | 0.44              |
| 26:L:90:ARG:HG2  | 26:L:95:LEU:HB2  | 2.00                     | 0.44              |
| 42:e:57:ARG:NH1  | 42:e:64:SER:OG   | 2.50                     | 0.44              |
| 4:3:344:A:H1'    | 4:3:346:G:N7     | 2.33                     | 0.43              |
| 4:3:433:A:H2'    | 4:3:434:G:H8     | 1.83                     | 0.43              |
| 4:3:609:U:O2'    | 4:3:610:G:H5'    | 2.18                     | 0.43              |
| 4:3:929:G:H2'    | 4:3:930:C:C6     | 2.52                     | 0.43              |
| 4:3:1065:G:H2'   | 4:3:1066:G:C8    | 2.53                     | 0.43              |
| 4:3:1172:G:N2    | 45:i:111:MET:HA  | 2.31                     | 0.43              |
| 4:3:1255:G:O2'   | 4:3:1256:A:O5'   | 2.32                     | 0.43              |
| 4:3:1368:U:O2    | 4:3:1636:U:H5''  | 2.18                     | 0.43              |
| 4:3:2041:C:H2'   | 4:3:2042:A:C8    | 2.53                     | 0.43              |

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| Atom-1           | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|--------------------|--------------------------|-------------------|
| 4:3:2080:C:H2'   | 4:3:2081:U:C6      | 2.53                     | 0.43              |
| 4:3:2179:A:H1'   | 4:3:2180:U:C5      | 2.53                     | 0.43              |
| 4:3:2348:U:H2'   | 4:3:2349:G:H8      | 1.83                     | 0.43              |
| 4:3:2639:G:H2'   | 4:3:2640:A:C8      | 2.52                     | 0.43              |
| 4:3:2893:C:H2'   | 4:3:2894:G:O4'     | 2.17                     | 0.43              |
| 6:5:418:U:H5''   | 6:5:420:A:H2       | 1.83                     | 0.43              |
| 6:5:591:A:H2'    | 6:5:592:A:C8       | 2.52                     | 0.43              |
| 6:5:1228:C:O2'   | 6:5:1329:G:O2'     | 2.30                     | 0.43              |
| 6:5:1505:G:O2'   | 6:5:1506:A:O4'     | 2.26                     | 0.43              |
| 9:8:999:PHE:CG   | 12:AB:108:LEU:HD22 | 2.52                     | 0.43              |
| 9:8:1223:HIS:O   | 37:Z:737:PHE:HB2   | 2.18                     | 0.43              |
| 15:AE:74:TRP:CH2 | 15:AE:84:LYS:HD2   | 2.53                     | 0.43              |
| 23:I:63:VAL:HG12 | 23:I:64:ASP:N      | 2.33                     | 0.43              |
| 36:W:14:ILE:CD1  | 36:X:17:ILE:HG13   | 2.23                     | 0.43              |
| 37:Z:549:GLU:OE1 | 37:Z:1270:THR:OG1  | 2.27                     | 0.43              |
| 39:b:123:ILE:H   | 39:b:123:ILE:HD12  | 1.82                     | 0.43              |
| 40:c:137:GLU:HA  | 40:c:167:ASN:HD22  | 1.83                     | 0.43              |
| 42:e:93:VAL:HG13 | 42:e:163:LYS:HA    | 2.00                     | 0.43              |
| 43:f:1:MET:N     | 43:f:24:GLY:HA2    | 2.33                     | 0.43              |
| 47:k:6:LEU:HD23  | 47:k:6:LEU:H       | 1.83                     | 0.43              |
| 3:2:4:ARG:HB3    | 4:3:2474:C:OP1     | 2.18                     | 0.43              |
| 4:3:481:C:H2'    | 4:3:482:G:C8       | 2.53                     | 0.43              |
| 4:3:1077:G:H2'   | 4:3:1078:C:C6      | 2.54                     | 0.43              |
| 4:3:1440:U:H2'   | 4:3:1441:A:C8      | 2.52                     | 0.43              |
| 4:3:1640:G:H4'   | 4:3:1642:G:N1      | 2.33                     | 0.43              |
| 4:3:1758:C:H2'   | 4:3:1759:C:H6      | 1.83                     | 0.43              |
| 4:3:2001:C:H2'   | 4:3:2002:U:C5      | 2.52                     | 0.43              |
| 4:3:2258:G:N2    | 48:l:84:GLY:HA3    | 2.33                     | 0.43              |
| 4:3:2267:G:H2'   | 4:3:2268:C:H6      | 1.83                     | 0.43              |
| 4:3:2534:G:N2    | 4:3:2545:U:O2      | 2.37                     | 0.43              |
| 4:3:2730:G:H2'   | 4:3:2731:U:C6      | 2.53                     | 0.43              |
| 6:5:60:A:N6      | 6:5:327:G:H1'      | 2.33                     | 0.43              |
| 6:5:317:A:N1     | 6:5:328:G:C6       | 2.85                     | 0.43              |
| 6:5:343:G:H2'    | 6:5:344:G:O4'      | 2.18                     | 0.43              |
| 6:5:404:A:H2'    | 6:5:405:C:C6       | 2.53                     | 0.43              |
| 6:5:798:U:C2     | 6:5:799:A:C8       | 3.06                     | 0.43              |
| 6:5:980:C:H2'    | 6:5:981:U:H6       | 1.83                     | 0.43              |
| 6:5:1002:A:H3'   | 6:5:1003:G:H8      | 1.83                     | 0.43              |
| 6:5:1471:C:H2'   | 6:5:1472:G:C8      | 2.53                     | 0.43              |
| 9:8:141:VAL:CG1  | 9:8:613:LEU:HD22   | 2.42                     | 0.43              |
| 9:8:1327:GLY:HA3 | 37:Z:444:HIS:ND1   | 2.34                     | 0.43              |

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| Atom-1           | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|--------------------|--------------------------|-------------------|
| 10:9:58:GLU:CG   | 37:Z:1213:ASN:HD21 | 2.22                     | 0.43              |
| 11:A:132:LYS:HE2 | 11:A:132:LYS:HB3   | 1.83                     | 0.43              |
| 7:AA:67:PHE:HE1  | 37:Z:596:ILE:CD1   | 2.30                     | 0.43              |
| 19:E:71:ASP:HA   | 19:E:74:ARG:NE     | 2.34                     | 0.43              |
| 28:N:5:LYS:O     | 28:N:9:ILE:HG23    | 2.18                     | 0.43              |
| 30:P:11:GLY:HA3  | 30:P:26:VAL:HG12   | 1.99                     | 0.43              |
| 49:m:17:THR:O    | 49:m:21:GLN:OE1    | 2.36                     | 0.43              |
| 51:o:52:VAL:HA   | 51:o:65:ILE:O      | 2.18                     | 0.43              |
| 53:q:54:ARG:HB2  | 53:q:98:VAL:HG22   | 1.99                     | 0.43              |
| 58:v:51:SER:O    | 58:v:54:THR:OG1    | 2.30                     | 0.43              |
| 60:x:39:CYS:H    | 60:x:42:CYS:HB2    | 1.82                     | 0.43              |
| 4:3:47:G:H5''    | 4:3:48:G:OP1       | 2.17                     | 0.43              |
| 4:3:109:G:H2'    | 4:3:110:A:C8       | 2.52                     | 0.43              |
| 4:3:349:G:H2'    | 4:3:350:C:C6       | 2.53                     | 0.43              |
| 4:3:725:G:H2'    | 4:3:726:U:C6       | 2.53                     | 0.43              |
| 4:3:1030:U:OP1   | 52:p:52:LYS:NZ     | 2.35                     | 0.43              |
| 4:3:1213:U:H2'   | 4:3:1214:U:C6      | 2.53                     | 0.43              |
| 4:3:1310:U:H2'   | 4:3:1311:G:C8      | 2.53                     | 0.43              |
| 4:3:1470:C:H2'   | 4:3:1471:A:H8      | 1.82                     | 0.43              |
| 4:3:1741:G:H2'   | 4:3:1742:C:C6      | 2.53                     | 0.43              |
| 4:3:2087:G:H2'   | 4:3:2088:U:C6      | 2.53                     | 0.43              |
| 4:3:2258:G:H22   | 48:l:84:GLY:HA3    | 1.83                     | 0.43              |
| 6:5:59:C:H42     | 6:5:351:C:N4       | 2.16                     | 0.43              |
| 6:5:137:A:C2     | 6:5:138:A:H1'      | 2.53                     | 0.43              |
| 6:5:499:U:H2'    | 6:5:500:G:C8       | 2.53                     | 0.43              |
| 6:5:519:G:O6     | 6:5:527:G:N1       | 2.51                     | 0.43              |
| 6:5:604:U:H5''   | 6:5:605:A:H5'      | 2.00                     | 0.43              |
| 6:5:843:C:H2'    | 6:5:844:U:C6       | 2.54                     | 0.43              |
| 6:5:862:C:H2'    | 6:5:863:A:O4'      | 2.17                     | 0.43              |
| 6:5:914:A:H2'    | 6:5:915:U:C6       | 2.54                     | 0.43              |
| 6:5:1003:G:N1    | 6:5:1018:U:C2      | 2.86                     | 0.43              |
| 6:5:1214:A:H1'   | 6:5:1216:G:C4      | 2.53                     | 0.43              |
| 6:5:1366:U:H2'   | 6:5:1367:G:C8      | 2.53                     | 0.43              |
| 6:5:1423:C:H2'   | 6:5:1424:C:C6      | 2.54                     | 0.43              |
| 9:8:385:LEU:O    | 9:8:389:GLY:HA3    | 2.19                     | 0.43              |
| 9:8:465:SER:HB2  | 9:8:500:THR:HB     | 2.00                     | 0.43              |
| 9:8:1340:LYS:HZ2 | 9:8:1370:ILE:CG1   | 2.32                     | 0.43              |
| 25:K:43:LYS:HA   | 25:K:43:LYS:HD2    | 1.74                     | 0.43              |
| 39:b:161:LYS:HG2 | 45:i:82:GLN:HG2    | 2.00                     | 0.43              |
| 41:d:40:VAL:HA   | 41:d:150:ARG:NH1   | 2.34                     | 0.43              |
| 41:d:117:LEU:HB2 | 41:d:176:PRO:HG2   | 2.00                     | 0.43              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 47:k:34:ARG:NH1   | 47:k:40:LYS:O     | 2.46                     | 0.43              |
| 52:p:14:LYS:HE2   | 52:p:14:LYS:HB2   | 1.73                     | 0.43              |
| 59:w:35:HIS:CG    | 59:w:36:GLY:H     | 2.36                     | 0.43              |
| 4:3:9:G:H2'       | 4:3:10:U:C6       | 2.53                     | 0.43              |
| 4:3:42:U:H2'      | 4:3:43:A:C8       | 2.52                     | 0.43              |
| 4:3:766:C:H2'     | 4:3:767:C:C6      | 2.53                     | 0.43              |
| 4:3:990:G:H2'     | 4:3:991:G:H8      | 1.84                     | 0.43              |
| 4:3:1263:G:H2'    | 4:3:1264:U:H6     | 1.83                     | 0.43              |
| 4:3:1278:G:C5     | 52:p:2:ARG:HB2    | 2.53                     | 0.43              |
| 4:3:1459:A:H2'    | 4:3:1460:G:C8     | 2.53                     | 0.43              |
| 4:3:1578:A:H2'    | 4:3:1579:G:O4'    | 2.18                     | 0.43              |
| 4:3:1585:A:N3     | 4:3:1585:A:H2'    | 2.34                     | 0.43              |
| 4:3:1701:G:H5''   | 46:j:7:ARG:NH1    | 2.33                     | 0.43              |
| 4:3:2024:C:O3'    | 61:y:6:ARG:NH1    | 2.51                     | 0.43              |
| 4:3:2138:U:H4'    | 4:3:2140:G:N7     | 2.34                     | 0.43              |
| 4:3:2669:G:H2'    | 4:3:2670:A:C8     | 2.54                     | 0.43              |
| 4:3:2780:U:H4'    | 39:b:175:THR:HG21 | 2.00                     | 0.43              |
| 6:5:118:C:H2'     | 6:5:119:U:C6      | 2.54                     | 0.43              |
| 6:5:818:A:H2'     | 6:5:819:G:H8      | 1.83                     | 0.43              |
| 6:5:949:G:H21     | 6:5:1202:A:N6     | 2.16                     | 0.43              |
| 6:5:1164:U:OP1    | 27:M:58:LYS:NZ    | 2.42                     | 0.43              |
| 6:5:1224:C:H42    | 6:5:1262:A:H8     | 1.62                     | 0.43              |
| 6:5:1233:G:H2'    | 6:5:1234:C:C6     | 2.53                     | 0.43              |
| 6:5:1499:G:H2'    | 6:5:1500:G:H8     | 1.83                     | 0.43              |
| 9:8:304:TYR:CE2   | 9:8:335:MET:HE2   | 2.54                     | 0.43              |
| 9:8:906:GLU:OE2   | 37:Z:530:ASP:CB   | 2.66                     | 0.43              |
| 9:8:998:ILE:CG1   | 12:AB:8:PHE:CZ    | 3.01                     | 0.43              |
| 10:9:57:LEU:HD21  | 37:Z:1211:ALA:H   | 1.84                     | 0.43              |
| 11:A:67:THR:HA    | 11:A:70:ASN:ND2   | 2.33                     | 0.43              |
| 12:AB:173:LYS:HB2 | 12:AB:207:TRP:HZ3 | 1.83                     | 0.43              |
| 38:a:204:SER:OG   | 38:a:205:ASN:N    | 2.50                     | 0.43              |
| 42:e:147:PHE:HA   | 42:e:150:GLU:OE2  | 2.18                     | 0.43              |
| 42:e:161:LYS:HA   | 42:e:174:ARG:HH12 | 1.83                     | 0.43              |
| 4:3:675:U:H2'     | 4:3:676:U:H6      | 1.83                     | 0.43              |
| 4:3:683:G:H2'     | 4:3:684:A:H8      | 1.83                     | 0.43              |
| 4:3:897:A:C2      | 5:4:76:A:H2       | 2.37                     | 0.43              |
| 4:3:1231:G:H2'    | 4:3:1232:U:C6     | 2.53                     | 0.43              |
| 4:3:1408:G:H2'    | 4:3:1409:G:C8     | 2.53                     | 0.43              |
| 4:3:1454:G:H2'    | 4:3:1455:A:N7     | 2.33                     | 0.43              |
| 4:3:1619:A:H2'    | 4:3:1620:A:H8     | 1.83                     | 0.43              |
| 4:3:1691:U:O3'    | 39:b:139:TYR:HB2  | 2.19                     | 0.43              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 4:3:1869:G:H2'    | 4:3:1870:G:C8     | 2.53                     | 0.43              |
| 4:3:2222:C:H2'    | 4:3:2223:C:O4'    | 2.19                     | 0.43              |
| 4:3:2332:U:O2     | 4:3:2339:G:N2     | 2.47                     | 0.43              |
| 4:3:2566:C:H2'    | 4:3:2567:C:C6     | 2.53                     | 0.43              |
| 4:3:2673:A:H2'    | 4:3:2674:C:C6     | 2.53                     | 0.43              |
| 4:3:2681:G:H2'    | 4:3:2682:A:H8     | 1.82                     | 0.43              |
| 4:3:2702:G:H2'    | 4:3:2703:U:C6     | 2.53                     | 0.43              |
| 4:3:2855:A:O2'    | 49:m:61:ARG:NH1   | 2.52                     | 0.43              |
| 6:5:111:A:H8      | 6:5:111:A:OP2     | 2.01                     | 0.43              |
| 6:5:203:C:H2'     | 6:5:204:C:C6      | 2.54                     | 0.43              |
| 6:5:781:A:H2'     | 6:5:782:G:C8      | 2.53                     | 0.43              |
| 6:5:1482:A:H2'    | 6:5:1483:C:O4'    | 2.18                     | 0.43              |
| 9:8:62:PRO:HG2    | 9:8:559:THR:HG23  | 2.00                     | 0.43              |
| 9:8:177:ARG:NH1   | 9:8:221:ALA:O     | 2.51                     | 0.43              |
| 9:8:392:LYS:NZ    | 9:8:529:ASN:HA    | 2.33                     | 0.43              |
| 9:8:998:ILE:HG12  | 12:AB:8:PHE:CE2   | 2.54                     | 0.43              |
| 7:AA:82:LEU:HD12  | 37:Z:621:SER:HB2  | 1.98                     | 0.43              |
| 16:B:123:LEU:HD21 | 16:B:140:SER:HB2  | 1.99                     | 0.43              |
| 16:B:158:GLY:HA3  | 16:B:199:ILE:HG13 | 1.99                     | 0.43              |
| 17:C:103:ARG:HG3  | 17:C:166:PHE:HZ   | 1.83                     | 0.43              |
| 18:D:77:SER:OG    | 18:D:84:ARG:HD3   | 2.19                     | 0.43              |
| 18:D:166:ILE:H    | 18:D:166:ILE:HD12 | 1.83                     | 0.43              |
| 23:I:62:HIS:CG    | 23:I:63:VAL:H     | 2.36                     | 0.43              |
| 37:Z:226:ILE:HG22 | 37:Z:232:PHE:HB3  | 1.99                     | 0.43              |
| 38:a:61:ARG:NH2   | 38:a:64:ARG:HE    | 2.16                     | 0.43              |
| 39:b:17:PHE:HZ    | 39:b:21:ASN:HD22  | 1.66                     | 0.43              |
| 50:n:12:HIS:ND1   | 50:n:94:GLY:HA2   | 2.34                     | 0.43              |
| 59:w:87:TRP:O     | 59:w:91:LEU:HG    | 2.18                     | 0.43              |
| 4:3:591:G:H2'     | 4:3:592:G:H8      | 1.83                     | 0.43              |
| 4:3:944:U:OP1     | 48:l:24:ASN:N     | 2.35                     | 0.43              |
| 4:3:1541:A:H3'    | 4:3:1542:G:H8     | 1.84                     | 0.43              |
| 4:3:1805:U:H5'    | 38:a:267:THR:HB   | 2.01                     | 0.43              |
| 4:3:2025:C:H2'    | 4:3:2026:A:C8     | 2.51                     | 0.43              |
| 4:3:2463:G:H2'    | 4:3:2464:C:C6     | 2.53                     | 0.43              |
| 5:4:16:G:O6       | 5:4:63:U:C2       | 2.70                     | 0.43              |
| 6:5:409:G:O3'     | 6:5:425:G:N2      | 2.51                     | 0.43              |
| 6:5:455:U:H3      | 6:5:472:G:H22     | 1.65                     | 0.43              |
| 6:5:610:C:H2'     | 6:5:611:A:C8      | 2.53                     | 0.43              |
| 6:5:672:A:H61     | 6:5:712:A:N6      | 2.14                     | 0.43              |
| 6:5:927:C:H5''    | 20:F:2:ARG:N      | 2.33                     | 0.43              |
| 6:5:1201:C:OP2    | 26:L:90:ARG:NH1   | 2.46                     | 0.43              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 6:5:1454:G:H2'    | 6:5:1455:G:C8     | 2.54                     | 0.43              |
| 7:6:108:ARG:NH2   | 7:AA:316:LYS:NZ   | 2.67                     | 0.43              |
| 9:8:814:LEU:CD2   | 9:8:858:TYR:OH    | 2.53                     | 0.43              |
| 9:8:1200:PHE:HD1  | 37:Z:862:LEU:O    | 2.02                     | 0.43              |
| 9:8:1325:VAL:HG22 | 37:Z:443:ILE:CD1  | 2.49                     | 0.43              |
| 11:A:129:LYS:O    | 11:A:133:LEU:HD23 | 2.19                     | 0.43              |
| 7:AA:166:PHE:HE1  | 37:Z:595:ILE:HG12 | 1.84                     | 0.43              |
| 12:AB:43:LYS:HE3  | 12:AB:49:VAL:HG13 | 2.00                     | 0.43              |
| 12:AB:45:HIS:CB   | 12:AB:115:LEU:CD2 | 2.96                     | 0.43              |
| 12:AB:153:ASP:OD2 | 37:Z:75:LYS:HD2   | 2.16                     | 0.43              |
| 12:AB:183:LYS:NZ  | 12:AB:245:GLY:CA  | 2.82                     | 0.43              |
| 16:B:77:LEU:HD12  | 16:B:78:ILE:HG12  | 2.00                     | 0.43              |
| 33:S:24:GLN:HA    | 33:S:27:LYS:HG2   | 2.00                     | 0.43              |
| 37:Z:269:VAL:HG11 | 37:Z:273:LYS:HD3  | 2.01                     | 0.43              |
| 37:Z:687:VAL:CG1  | 37:Z:802:ARG:HH22 | 2.16                     | 0.43              |
| 38:a:98:LEU:HB2   | 38:a:108:TYR:HE1  | 1.84                     | 0.43              |
| 38:a:253:ALA:O    | 38:a:261:ARG:NH2  | 2.43                     | 0.43              |
| 39:b:97:THR:OG1   | 39:b:100:ASN:OD1  | 2.36                     | 0.43              |
| 42:e:33:GLN:NE2   | 42:e:34:ILE:O     | 2.51                     | 0.43              |
| 45:i:40:ARG:HA    | 45:i:121:TRP:CZ3  | 2.53                     | 0.43              |
| 46:j:22:ILE:HG22  | 46:j:40:VAL:C     | 2.43                     | 0.43              |
| 48:l:67:ARG:HB2   | 48:l:103:MET:HA   | 2.00                     | 0.43              |
| 56:t:13:ILE:HG13  | 56:t:14:THR:N     | 2.32                     | 0.43              |
| 4:3:105:U:H2'     | 4:3:106:C:H5'     | 2.01                     | 0.43              |
| 4:3:482:G:H5'     | 52:p:2:ARG:HH21   | 1.83                     | 0.43              |
| 4:3:870:A:C6      | 4:3:871:G:C6      | 3.06                     | 0.43              |
| 4:3:942:A:H2'     | 4:3:943:A:O4'     | 2.19                     | 0.43              |
| 4:3:1057:G:N7     | 45:i:71:LYS:HD3   | 2.34                     | 0.43              |
| 4:3:1171:G:H2'    | 4:3:1172:G:C8     | 2.53                     | 0.43              |
| 4:3:1764:U:C4     | 4:3:1769:A:N7     | 2.86                     | 0.43              |
| 4:3:2363:C:O3'    | 57:u:38:LYS:NZ    | 2.52                     | 0.43              |
| 4:3:2384:A:H2'    | 4:3:2385:A:O4'    | 2.19                     | 0.43              |
| 4:3:2639:G:H2'    | 4:3:2640:A:H8     | 1.83                     | 0.43              |
| 6:5:175:U:H3      | 6:5:190:A:H61     | 1.67                     | 0.43              |
| 6:5:212:G:H2'     | 6:5:213:U:C6      | 2.53                     | 0.43              |
| 6:5:222:U:H2'     | 6:5:223:G:C8      | 2.53                     | 0.43              |
| 6:5:386:U:H2'     | 6:5:387:G:H8      | 1.83                     | 0.43              |
| 6:5:575:A:H2'     | 6:5:576:A:C8      | 2.53                     | 0.43              |
| 6:5:944:A:H2'     | 6:5:945:U:C6      | 2.54                     | 0.43              |
| 6:5:1267:G:H2'    | 6:5:1268:G:C8     | 2.53                     | 0.43              |
| 6:5:1306:A:H2'    | 6:5:1307:A:O4'    | 2.19                     | 0.43              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 6:5:1364:C:H2'    | 6:5:1365:U:C6     | 2.53                     | 0.43              |
| 6:5:1373:A:H4'    | 6:5:1374:C:O5'    | 2.17                     | 0.43              |
| 7:6:107:GLU:OE2   | 7:AA:316:LYS:HA   | 2.18                     | 0.43              |
| 9:8:168:GLN:O     | 13:AC:25:DC:H2''  | 2.18                     | 0.43              |
| 11:A:37:TRP:CD1   | 11:A:37:TRP:H     | 2.37                     | 0.43              |
| 11:A:218:ASN:OD1  | 11:A:219:ASN:N    | 2.51                     | 0.43              |
| 24:J:109:ILE:HG23 | 34:T:32:HIS:ND1   | 2.34                     | 0.43              |
| 26:L:17:ILE:O     | 26:L:20:THR:OG1   | 2.32                     | 0.43              |
| 28:N:57:VAL:HG23  | 28:N:60:ARG:NH1   | 2.34                     | 0.43              |
| 38:a:132:PRO:HA   | 38:a:200:VAL:HG23 | 2.00                     | 0.43              |
| 43:f:110:LYS:HB3  | 43:f:110:LYS:HE3  | 1.85                     | 0.43              |
| 45:i:16:ARG:HD2   | 45:i:56:TYR:CZ    | 2.53                     | 0.43              |
| 45:i:121:TRP:CD1  | 45:i:124:LYS:HZ3  | 2.37                     | 0.43              |
| 46:j:22:ILE:HG22  | 46:j:40:VAL:O     | 2.19                     | 0.43              |
| 52:p:34:ALA:O     | 52:p:38:VAL:HG23  | 2.18                     | 0.43              |
| 58:v:14:TYR:CE2   | 58:v:28:LYS:HB2   | 2.53                     | 0.43              |
| 59:w:89:GLN:O     | 59:w:92:GLU:HG2   | 2.18                     | 0.43              |
| 4:3:762:A:H2'     | 4:3:763:G:C4      | 2.54                     | 0.43              |
| 4:3:852:C:H2'     | 4:3:853:G:O4'     | 2.18                     | 0.43              |
| 4:3:867:G:H1'     | 47:k:53:GLY:HA2   | 2.01                     | 0.43              |
| 4:3:1019:A:H2'    | 4:3:1020:G:N3     | 2.34                     | 0.43              |
| 4:3:1959:A:C4     | 46:j:22:ILE:HD11  | 2.53                     | 0.43              |
| 4:3:2009:U:H5'    | 49:m:9:LYS:HB2    | 2.00                     | 0.43              |
| 4:3:2022:A:H8     | 4:3:2023:U:C5     | 2.37                     | 0.43              |
| 4:3:2237:U:H2'    | 4:3:2238:G:H8     | 1.82                     | 0.43              |
| 4:3:2764:U:H4'    | 4:3:2765:A:OP1    | 2.18                     | 0.43              |
| 6:5:290:G:H2'     | 6:5:291:C:C6      | 2.54                     | 0.43              |
| 6:5:292:U:H1'     | 6:5:554:C:H1'     | 2.01                     | 0.43              |
| 6:5:1208:G:H2'    | 6:5:1209:C:C6     | 2.54                     | 0.43              |
| 9:8:76:THR:CG2    | 9:8:125:VAL:HG21  | 2.48                     | 0.43              |
| 9:8:911:ILE:HB    | 9:8:915:LEU:HD12  | 2.00                     | 0.43              |
| 9:8:943:ILE:HD13  | 9:8:1043:ILE:HD11 | 2.00                     | 0.43              |
| 9:8:1118:ALA:CB   | 9:8:1191:LEU:O    | 2.67                     | 0.43              |
| 10:9:5:TYR:CZ     | 10:9:48:LEU:HD23  | 2.53                     | 0.43              |
| 13:AC:29:DC:H5''  | 37:Z:1057:VAL:CB  | 2.46                     | 0.43              |
| 19:E:13:LEU:HB3   | 19:E:17:GLN:NE2   | 2.32                     | 0.43              |
| 19:E:111:LYS:O    | 19:E:115:TYR:N    | 2.51                     | 0.43              |
| 21:G:107:VAL:HG13 | 21:G:140:TYR:HB3  | 2.01                     | 0.43              |
| 26:L:57:ARG:HA    | 26:L:60:ALA:HB3   | 2.00                     | 0.43              |
| 38:a:33:PRO:HG3   | 38:a:67:ARG:NH1   | 2.34                     | 0.43              |
| 41:d:16:LEU:HA    | 41:d:19:SER:OG    | 2.18                     | 0.43              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 42:e:126:VAL:HG12 | 42:e:136:ILE:HD13 | 2.00                     | 0.43              |
| 43:f:110:LYS:HD2  | 43:f:113:PHE:CE2  | 2.54                     | 0.43              |
| 4:3:347:C:H2'     | 4:3:348:A:H8      | 1.84                     | 0.43              |
| 4:3:428:U:H2'     | 4:3:429:U:C6      | 2.54                     | 0.43              |
| 4:3:491:A:C2      | 4:3:509:G:H5'     | 2.54                     | 0.43              |
| 4:3:552:C:H2'     | 4:3:553:A:H8      | 1.84                     | 0.43              |
| 4:3:666:G:N1      | 4:3:670:G:O6      | 2.51                     | 0.43              |
| 4:3:912:A:H2'     | 4:3:913:U:C6      | 2.54                     | 0.43              |
| 4:3:1142:G:C1'    | 35:U:78:GLY:C     | 2.76                     | 0.43              |
| 4:3:1173:G:H2'    | 4:3:1174:G:O4'    | 2.19                     | 0.43              |
| 4:3:1439:U:H3     | 4:3:1625:G:H1     | 1.66                     | 0.43              |
| 4:3:1829:U:H2'    | 4:3:1830:G:H8     | 1.84                     | 0.43              |
| 4:3:2092:U:O3'    | 38:a:270:MET:HE1  | 2.18                     | 0.43              |
| 4:3:2478:G:H2'    | 4:3:2479:A:H8     | 1.84                     | 0.43              |
| 4:3:2798:A:H5''   | 4:3:2799:U:H6     | 1.82                     | 0.43              |
| 4:3:2819:C:H2'    | 4:3:2820:G:H8     | 1.83                     | 0.43              |
| 4:3:2874:C:H2'    | 4:3:2875:U:C6     | 2.54                     | 0.43              |
| 5:4:40:U:C5       | 41:d:66:VAL:HG21  | 2.54                     | 0.43              |
| 6:5:87:G:H2'      | 6:5:88:A:C8       | 2.49                     | 0.43              |
| 6:5:290:G:H2'     | 6:5:291:C:H6      | 1.84                     | 0.43              |
| 6:5:880:G:H2'     | 6:5:881:G:C8      | 2.54                     | 0.43              |
| 6:5:1056:U:H1'    | 6:5:1057:C:H5     | 1.84                     | 0.43              |
| 9:8:212:LEU:HD12  | 9:8:223:ILE:HG12  | 2.01                     | 0.43              |
| 16:B:92:ILE:O     | 16:B:96:ILE:N     | 2.52                     | 0.43              |
| 20:F:30:MET:SD    | 20:F:34:LYS:N     | 2.92                     | 0.43              |
| 24:J:80:LYS:HD3   | 24:J:108:PRO:HD3  | 2.00                     | 0.43              |
| 32:R:19:VAL:HA    | 32:R:22:MET:HG2   | 2.01                     | 0.43              |
| 35:U:161:LYS:HE3  | 36:Y:17:ILE:CD1   | 2.47                     | 0.43              |
| 37:Z:188:PHE:CE2  | 37:Z:204:LYS:HB2  | 2.54                     | 0.43              |
| 37:Z:579:GLY:HA3  | 37:Z:723:GLY:O    | 2.19                     | 0.43              |
| 39:b:37:ALA:HB3   | 39:b:51:LEU:HD22  | 2.01                     | 0.43              |
| 48:l:27:VAL:HG13  | 48:l:134:ARG:HG3  | 2.00                     | 0.43              |
| 50:n:75:GLN:O     | 50:n:79:ASP:N     | 2.39                     | 0.43              |
| 61:y:52:ARG:HE    | 61:y:52:ARG:HB3   | 1.74                     | 0.43              |
| 4:3:500:U:HO2'    | 4:3:501:G:P       | 2.42                     | 0.43              |
| 4:3:552:C:H2'     | 4:3:553:A:C8      | 2.54                     | 0.43              |
| 4:3:659:C:H2'     | 4:3:660:U:C5      | 2.54                     | 0.43              |
| 4:3:659:C:H2'     | 4:3:660:U:C6      | 2.54                     | 0.43              |
| 4:3:756:A:H2'     | 4:3:757:A:C8      | 2.53                     | 0.43              |
| 4:3:963:U:O2      | 4:3:964:A:C8      | 2.71                     | 0.43              |
| 4:3:1070:U:H2'    | 4:3:1071:G:C8     | 2.53                     | 0.43              |

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| Atom-1            | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 4:3:1315:A:H8     | 49:m:106:ARG:NH1 | 2.16                     | 0.43              |
| 4:3:1363:C:H2'    | 4:3:1364:A:C8    | 2.54                     | 0.43              |
| 4:3:1458:A:H2'    | 4:3:1459:A:C8    | 2.54                     | 0.43              |
| 4:3:1489:G:C6     | 4:3:1490:G:C6    | 3.07                     | 0.43              |
| 4:3:2183:U:H2'    | 4:3:2184:A:C8    | 2.53                     | 0.43              |
| 4:3:2231:A:H2'    | 4:3:2232:G:O4'   | 2.19                     | 0.43              |
| 4:3:2623:U:H2'    | 4:3:2624:C:H6    | 1.83                     | 0.43              |
| 4:3:2728:U:H2'    | 4:3:2729:A:O4'   | 2.19                     | 0.43              |
| 6:5:82:C:H2'      | 6:5:83:U:C6      | 2.54                     | 0.43              |
| 6:5:253:G:O6      | 6:5:266:A:N6     | 2.52                     | 0.43              |
| 6:5:524:C:C4      | 6:5:525:G:H1'    | 2.54                     | 0.43              |
| 6:5:719:G:C8      | 6:5:721:G:H1'    | 2.53                     | 0.43              |
| 6:5:1113:U:H2'    | 6:5:1114:A:H8    | 1.84                     | 0.43              |
| 7:6:173:ILE:HG23  | 7:AA:324:LYS:HZ1 | 1.82                     | 0.43              |
| 7:6:300:ILE:HD11  | 7:6:325:LEU:HD22 | 2.01                     | 0.43              |
| 9:8:1310:LYS:HG2  | 37:Z:409:ASP:CB  | 2.40                     | 0.43              |
| 7:AA:32:SER:HA    | 7:AA:207:ASP:OD2 | 2.19                     | 0.43              |
| 12:AB:16:ILE:HD12 | 12:AB:57:PHE:HE1 | 1.84                     | 0.43              |
| 16:B:24:ALA:HB3   | 16:B:30:THR:HG22 | 2.01                     | 0.43              |
| 20:F:100:LEU:HD12 | 20:F:101:ARG:N   | 2.34                     | 0.43              |
| 25:K:76:VAL:HG21  | 25:K:108:TYR:CE1 | 2.53                     | 0.43              |
| 36:X:6:ILE:CD1    | 36:Y:23:ALA:HB1  | 2.35                     | 0.43              |
| 37:Z:648:VAL:HG21 | 37:Z:722:LEU:CD1 | 2.49                     | 0.43              |
| 52:p:66:ALA:O     | 52:p:70:GLU:HG3  | 2.19                     | 0.43              |
| 3:2:9:PRO:HB3     | 3:2:14:CYS:HB2   | 2.01                     | 0.42              |
| 4:3:493:A:H4'     | 4:3:494:G:H4'    | 2.01                     | 0.42              |
| 4:3:597:C:H2'     | 4:3:598:G:H8     | 1.82                     | 0.42              |
| 4:3:1270:C:H2'    | 4:3:1271:A:H8    | 1.83                     | 0.42              |
| 4:3:1314:A:H1'    | 4:3:1316:U:OP1   | 2.19                     | 0.42              |
| 4:3:1369:U:H4'    | 55:s:58:LEU:HG   | 2.00                     | 0.42              |
| 4:3:1475:C:H2'    | 4:3:1476:C:C6    | 2.54                     | 0.42              |
| 4:3:1536:C:H2'    | 4:3:1537:A:C8    | 2.53                     | 0.42              |
| 4:3:1647:A:H61    | 4:3:1651:C:H2'   | 1.83                     | 0.42              |
| 4:3:1974:U:H2'    | 4:3:1975:G:O4'   | 2.19                     | 0.42              |
| 4:3:2800:U:O2     | 4:3:2800:U:H2'   | 2.18                     | 0.42              |
| 6:5:253:G:H2'     | 6:5:254:G:C8     | 2.53                     | 0.42              |
| 6:5:451:G:H5'     | 29:O:65:SER:HB2  | 2.01                     | 0.42              |
| 6:5:621:C:H1'     | 29:O:5:ARG:CZ    | 2.49                     | 0.42              |
| 6:5:652:A:H2'     | 6:5:653:G:O4'    | 2.19                     | 0.42              |
| 6:5:681:U:O2      | 24:J:34:VAL:HG12 | 2.19                     | 0.42              |
| 6:5:779:A:OP1     | 6:5:1496:G:N2    | 2.42                     | 0.42              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 6:5:1315:U:H2'    | 6:5:1316:C:C5     | 2.54                     | 0.42              |
| 6:5:1451:A:H2'    | 6:5:1452:C:C6     | 2.54                     | 0.42              |
| 9:8:773:ASN:OD1   | 37:Z:861:GLY:CA   | 2.67                     | 0.42              |
| 9:8:824:VAL:CG1   | 9:8:827:VAL:HG23  | 2.49                     | 0.42              |
| 9:8:1002:SER:HG   | 12:AB:108:LEU:C   | 2.22                     | 0.42              |
| 9:8:1371:LEU:CG   | 37:Z:95:VAL:CG1   | 2.57                     | 0.42              |
| 7:AA:130:PRO:HG2  | 7:AA:133:PHE:CD2  | 2.54                     | 0.42              |
| 16:B:103:ASP:N    | 16:B:103:ASP:OD1  | 2.52                     | 0.42              |
| 32:R:11:VAL:HG22  | 32:R:13:ALA:H     | 1.84                     | 0.42              |
| 37:Z:1227:SER:HB2 | 37:Z:1258:GLU:OE1 | 2.19                     | 0.42              |
| 38:a:167:TYR:HE1  | 38:a:169:ARG:HD3  | 1.84                     | 0.42              |
| 39:b:147:VAL:O    | 39:b:163:LYS:NZ   | 2.52                     | 0.42              |
| 40:c:36:ASP:HA    | 40:c:39:LEU:HD12  | 2.01                     | 0.42              |
| 43:f:67:LYS:HA    | 43:f:70:GLU:CD    | 2.44                     | 0.42              |
| 45:i:39:ILE:HD11  | 45:i:121:TRP:HB3  | 2.00                     | 0.42              |
| 45:i:47:PHE:HA    | 45:i:53:CYS:SG    | 2.58                     | 0.42              |
| 46:j:38:VAL:HA    | 46:j:61:VAL:HG22  | 1.99                     | 0.42              |
| 54:r:5:ALA:O      | 54:r:104:VAL:HA   | 2.19                     | 0.42              |
| 54:r:48:ALA:O     | 54:r:52:ASN:ND2   | 2.52                     | 0.42              |
| 56:t:90:LYS:HG2   | 56:t:105:LYS:HE2  | 2.01                     | 0.42              |
| 58:v:13:LEU:HB3   | 58:v:29:TRP:HB2   | 2.01                     | 0.42              |
| 62:z:35:ASN:HA    | 62:z:46:VAL:HA    | 2.00                     | 0.42              |
| 4:3:82:G:N2       | 4:3:328:A:N3      | 2.66                     | 0.42              |
| 4:3:563:A:OP1     | 45:i:116:ARG:NH1  | 2.53                     | 0.42              |
| 4:3:667:A:N1      | 4:3:2424:C:H4'    | 2.33                     | 0.42              |
| 4:3:714:G:H2'     | 4:3:715:G:C8      | 2.52                     | 0.42              |
| 4:3:847:C:H5''    | 4:3:1280:G:O2'    | 2.19                     | 0.42              |
| 4:3:1082:A:O2'    | 4:3:1083:A:O5'    | 2.36                     | 0.42              |
| 4:3:1211:U:H2'    | 4:3:1212:C:O4'    | 2.19                     | 0.42              |
| 4:3:1598:U:H2'    | 4:3:1599:C:O4'    | 2.19                     | 0.42              |
| 4:3:1920:A:N6     | 6:5:1468:A:H1'    | 2.33                     | 0.42              |
| 5:4:90:G:H2'      | 5:4:91:A:O4'      | 2.19                     | 0.42              |
| 6:5:576:A:H2'     | 6:5:577:G:C8      | 2.53                     | 0.42              |
| 9:8:1051:ARG:NH1  | 9:8:1254:MET:HE3  | 2.34                     | 0.42              |
| 11:A:68:ALA:HB2   | 11:A:215:ILE:HD11 | 2.01                     | 0.42              |
| 12:AB:320:THR:O   | 12:AB:352:SER:OG  | 2.33                     | 0.42              |
| 16:B:31:ALA:HA    | 16:B:34:LEU:HG    | 2.00                     | 0.42              |
| 17:C:57:LYS:O     | 17:C:60:MET:N     | 2.48                     | 0.42              |
| 21:G:77:THR:HG22  | 21:G:79:ARG:H     | 1.84                     | 0.42              |
| 24:J:43:MET:HE3   | 24:J:45:PHE:HE1   | 1.83                     | 0.42              |
| 25:K:70:LEU:HG    | 25:K:71:THR:H     | 1.85                     | 0.42              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 34:T:20:ARG:HA    | 34:T:23:LEU:HG    | 2.01                     | 0.42              |
| 37:Z:399:PHE:HA   | 37:Z:403:LEU:HD12 | 2.00                     | 0.42              |
| 43:f:41:LYS:HB2   | 43:f:46:ASP:HB2   | 2.01                     | 0.42              |
| 43:f:53:LYS:HA    | 43:f:56:GLU:HG2   | 2.00                     | 0.42              |
| 48:l:114:MET:O    | 48:l:118:LEU:HD23 | 2.19                     | 0.42              |
| 51:o:48:PHE:CE2   | 51:o:66:VAL:HG13  | 2.53                     | 0.42              |
| 58:v:18:ARG:HA    | 58:v:23:THR:O     | 2.19                     | 0.42              |
| 2:1:36:LYS:C      | 2:1:40:HIS:HD1    | 2.23                     | 0.42              |
| 4:3:226:A:C5      | 4:3:236:G:N2      | 2.86                     | 0.42              |
| 4:3:309:A:N3      | 4:3:311:G:N1      | 2.66                     | 0.42              |
| 4:3:500:U:H2'     | 4:3:501:G:C8      | 2.54                     | 0.42              |
| 4:3:1155:G:H2'    | 4:3:1156:C:C6     | 2.55                     | 0.42              |
| 4:3:1672:C:H1'    | 4:3:2706:U:O2'    | 2.19                     | 0.42              |
| 4:3:2072:C:H2'    | 4:3:2073:C:C6     | 2.52                     | 0.42              |
| 4:3:2238:G:H2'    | 4:3:2239:U:C6     | 2.53                     | 0.42              |
| 4:3:2345:G:H2'    | 4:3:2345:G:N3     | 2.34                     | 0.42              |
| 4:3:2519:U:H5'    | 39:b:129:LYS:NZ   | 2.34                     | 0.42              |
| 4:3:2522:U:H2'    | 4:3:2523:C:C6     | 2.54                     | 0.42              |
| 4:3:2795:C:H2'    | 4:3:2796:C:C6     | 2.54                     | 0.42              |
| 4:3:2797:C:N4     | 4:3:2798:A:N6     | 2.66                     | 0.42              |
| 6:5:214:U:H2'     | 6:5:215:C:C6      | 2.53                     | 0.42              |
| 6:5:671:G:H5'     | 19:E:47:TYR:CE1   | 2.55                     | 0.42              |
| 6:5:780:U:H2'     | 6:5:781:A:H8      | 1.84                     | 0.42              |
| 6:5:1061:U:H2'    | 6:5:1062:C:C6     | 2.54                     | 0.42              |
| 6:5:1488:A:H2'    | 6:5:1489:C:C6     | 2.55                     | 0.42              |
| 7:6:85:LYS:NZ     | 9:8:919:ASP:OD2   | 2.52                     | 0.42              |
| 8:7:28:A:H2'      | 8:7:29:C:C6       | 2.53                     | 0.42              |
| 23:I:48:LEU:HD23  | 23:I:48:LEU:HA    | 1.88                     | 0.42              |
| 26:L:57:ARG:HA    | 26:L:57:ARG:HD3   | 1.90                     | 0.42              |
| 40:c:98:ASN:ND2   | 40:c:100:SER:OG   | 2.52                     | 0.42              |
| 41:d:53:ALA:O     | 41:d:56:GLU:HG3   | 2.18                     | 0.42              |
| 43:f:66:HIS:O     | 43:f:70:GLU:OE1   | 2.38                     | 0.42              |
| 47:k:104:ILE:HG13 | 47:k:105:SER:N    | 2.35                     | 0.42              |
| 52:p:13:ARG:HA    | 52:p:31:TYR:HE1   | 1.85                     | 0.42              |
| 52:p:64:LEU:O     | 52:p:68:LEU:HG    | 2.18                     | 0.42              |
| 3:2:20:HIS:O      | 3:2:22:ILE:HD12   | 2.19                     | 0.42              |
| 4:3:200:A:N7      | 47:k:39:GLN:NE2   | 2.66                     | 0.42              |
| 4:3:430:U:H2'     | 4:3:431:U:C6      | 2.54                     | 0.42              |
| 4:3:788:G:H2'     | 4:3:789:A:C8      | 2.50                     | 0.42              |
| 4:3:904:C:H2'     | 4:3:905:U:O4'     | 2.19                     | 0.42              |
| 4:3:1084:C:C2     | 4:3:1085:A:C8     | 3.07                     | 0.42              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 4:3:1095:U:O4'    | 4:3:1097:G:H5'    | 2.19                     | 0.42              |
| 4:3:1255:G:O2'    | 4:3:1256:A:O4'    | 2.34                     | 0.42              |
| 4:3:1367:G:H3'    | 55:s:60:ARG:HH12  | 1.82                     | 0.42              |
| 4:3:1399:G:OP1    | 38:a:49:ASN:ND2   | 2.52                     | 0.42              |
| 4:3:1501:U:H2'    | 4:3:1502:A:O4'    | 2.19                     | 0.42              |
| 4:3:1881:C:H2'    | 4:3:1882:G:C8     | 2.54                     | 0.42              |
| 4:3:2551:G:H21    | 4:3:2654:U:H5''   | 1.84                     | 0.42              |
| 4:3:2782:A:H2'    | 4:3:2783:A:O4'    | 2.19                     | 0.42              |
| 4:3:2800:U:H3'    | 4:3:2801:U:C5     | 2.54                     | 0.42              |
| 6:5:273:C:H2'     | 6:5:274:A:C8      | 2.54                     | 0.42              |
| 6:5:1016:A:H2'    | 6:5:1017:A:H8     | 1.83                     | 0.42              |
| 6:5:1272:C:C6     | 20:F:113:LYS:HD2  | 2.54                     | 0.42              |
| 6:5:1490:G:H2'    | 6:5:1491:A:C8     | 2.53                     | 0.42              |
| 7:6:225:PHE:CE1   | 7:AA:239:ILE:HG23 | 2.54                     | 0.42              |
| 9:8:1122:LEU:HD11 | 9:8:1149:LEU:HD23 | 2.01                     | 0.42              |
| 9:8:1325:VAL:CG1  | 37:Z:464:ILE:HD13 | 2.41                     | 0.42              |
| 9:8:1370:ILE:CD1  | 37:Z:94:ILE:HG13  | 2.46                     | 0.42              |
| 7:AA:73:MET:HE3   | 7:AA:143:PHE:CG   | 2.54                     | 0.42              |
| 13:AC:19:DT:C2'   | 13:AC:21:DC:C4'   | 2.92                     | 0.42              |
| 25:K:121:GLU:C    | 25:K:123:ARG:H    | 2.26                     | 0.42              |
| 28:N:57:VAL:HG23  | 28:N:60:ARG:CZ    | 2.50                     | 0.42              |
| 38:a:148:HIS:HB2  | 38:a:161:ALA:O    | 2.19                     | 0.42              |
| 38:a:256:THR:HG23 | 38:a:262:HIS:HB2  | 2.02                     | 0.42              |
| 39:b:165:MET:HE3  | 39:b:166:SER:HB2  | 2.02                     | 0.42              |
| 50:n:98:TYR:CE1   | 50:n:103:ALA:HA   | 2.54                     | 0.42              |
| 54:r:74:CYS:SG    | 54:r:75:VAL:N     | 2.92                     | 0.42              |
| 56:t:89:ILE:HG21  | 56:t:102:ARG:HB3  | 2.01                     | 0.42              |
| 2:1:15:LYS:HB3    | 4:3:687:G:H5''    | 2.01                     | 0.42              |
| 4:3:29:G:N2       | 4:3:547:G:O2'     | 2.46                     | 0.42              |
| 4:3:164:A:OP2     | 4:3:165:U:O2'     | 2.35                     | 0.42              |
| 4:3:325:G:C6      | 4:3:384:G:C6      | 3.07                     | 0.42              |
| 4:3:915:A:C6      | 4:3:937:A:C8      | 3.07                     | 0.42              |
| 4:3:1301:G:H22    | 4:3:1649:C:N4     | 2.16                     | 0.42              |
| 4:3:1611:C:H2'    | 4:3:1612:U:C6     | 2.55                     | 0.42              |
| 4:3:1921:C:H3'    | 4:3:1922:U:H6     | 1.84                     | 0.42              |
| 4:3:2056:A:H2'    | 4:3:2057:C:C6     | 2.55                     | 0.42              |
| 4:3:2174:G:H2'    | 4:3:2175:U:C6     | 2.54                     | 0.42              |
| 4:3:2472:G:H2'    | 4:3:2473:C:C6     | 2.55                     | 0.42              |
| 4:3:2718:C:H2'    | 4:3:2719:A:C8     | 2.54                     | 0.42              |
| 4:3:2849:G:H2'    | 4:3:2850:G:H8     | 1.83                     | 0.42              |
| 5:4:69:C:OP1      | 57:u:89:LYS:NZ    | 2.39                     | 0.42              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 6:5:176:G:O6      | 6:5:190:A:N6      | 2.52                     | 0.42              |
| 6:5:360:A:C8      | 6:5:361:U:C5      | 3.07                     | 0.42              |
| 6:5:451:G:H2'     | 6:5:451:G:N3      | 2.35                     | 0.42              |
| 6:5:494:A:H5'     | 6:5:495:U:OP2     | 2.19                     | 0.42              |
| 6:5:899:U:H2'     | 6:5:900:G:O4'     | 2.20                     | 0.42              |
| 6:5:1092:A:H4'    | 6:5:1093:A:O5'    | 2.19                     | 0.42              |
| 6:5:1182:C:H2'    | 6:5:1183:C:C6     | 2.55                     | 0.42              |
| 6:5:1320:A:H62    | 6:5:1349:A:H3'    | 1.83                     | 0.42              |
| 7:6:35:VAL:CG1    | 7:6:195:VAL:HG22  | 2.50                     | 0.42              |
| 9:8:1306:LEU:HD22 | 37:Z:408:VAL:CG1  | 2.42                     | 0.42              |
| 7:AA:82:LEU:HD21  | 37:Z:597:PHE:C    | 2.42                     | 0.42              |
| 7:AA:166:PHE:CE1  | 37:Z:595:ILE:HG12 | 2.54                     | 0.42              |
| 17:C:60:MET:HE1   | 17:C:71:PHE:HE1   | 1.83                     | 0.42              |
| 21:G:113:ILE:HB   | 21:G:141:VAL:HB   | 2.01                     | 0.42              |
| 38:a:46:GLY:O     | 38:a:54:THR:OG1   | 2.28                     | 0.42              |
| 49:m:9:LYS:HD3    | 49:m:13:TRP:CZ3   | 2.53                     | 0.42              |
| 49:m:49:ILE:O     | 49:m:53:LYS:HG3   | 2.19                     | 0.42              |
| 51:o:89:GLU:HG2   | 51:o:91:LYS:NZ    | 2.34                     | 0.42              |
| 53:q:60:GLU:CD    | 53:q:92:LEU:HA    | 2.45                     | 0.42              |
| 54:r:125:VAL:O    | 54:r:128:ARG:HB2  | 2.19                     | 0.42              |
| 55:s:41:LYS:HG3   | 55:s:42:LEU:HD22  | 2.01                     | 0.42              |
| 4:3:101:C:H4'     | 4:3:103:G:C5      | 2.54                     | 0.42              |
| 4:3:107:C:H2'     | 4:3:108:G:H8      | 1.85                     | 0.42              |
| 4:3:594:G:H4'     | 52:p:47:ARG:HH12  | 1.85                     | 0.42              |
| 4:3:675:U:O4      | 4:3:685:G:O6      | 2.38                     | 0.42              |
| 4:3:745:U:H2'     | 4:3:746:G:H8      | 1.85                     | 0.42              |
| 4:3:815:G:H21     | 4:3:818:A:N6      | 2.17                     | 0.42              |
| 4:3:1041:C:H2'    | 4:3:1042:C:C6     | 2.54                     | 0.42              |
| 4:3:1061:A:H2'    | 4:3:1062:A:C8     | 2.54                     | 0.42              |
| 4:3:1249:A:H1'    | 54:r:128:ARG:HH22 | 1.84                     | 0.42              |
| 4:3:1299:A:H61    | 4:3:2018:U:H3     | 1.67                     | 0.42              |
| 4:3:1433:U:H2'    | 4:3:1434:U:H6     | 1.84                     | 0.42              |
| 4:3:1656:A:H2'    | 4:3:1657:G:O4'    | 2.19                     | 0.42              |
| 4:3:1720:C:H3'    | 4:3:1721:G:H8     | 1.85                     | 0.42              |
| 4:3:1737:G:C6     | 4:3:1738:G:C6     | 3.07                     | 0.42              |
| 5:4:14:U:H2'      | 5:4:15:C:C6       | 2.55                     | 0.42              |
| 6:5:191:A:H2'     | 6:5:192:A:C8      | 2.55                     | 0.42              |
| 6:5:358:G:O2'     | 6:5:359:A:N7      | 2.45                     | 0.42              |
| 6:5:453:C:H2'     | 6:5:454:U:C6      | 2.55                     | 0.42              |
| 6:5:779:A:N6      | 6:5:797:G:C2      | 2.86                     | 0.42              |
| 6:5:1013:C:H2'    | 6:5:1014:A:C8     | 2.55                     | 0.42              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 6:5:1055:G:H1'    | 6:5:1165:G:N2     | 2.34                     | 0.42              |
| 6:5:1434:C:H2'    | 6:5:1435:G:H8     | 1.84                     | 0.42              |
| 9:8:20:TYR:CE1    | 9:8:22:GLY:HA3    | 2.55                     | 0.42              |
| 9:8:1269:LYS:HD2  | 37:Z:313:ILE:HD13 | 1.99                     | 0.42              |
| 11:A:177:ILE:HD13 | 11:A:199:VAL:HG13 | 2.01                     | 0.42              |
| 7:AA:280:CYS:SG   | 12:AB:81:PHE:HE2  | 2.43                     | 0.42              |
| 12:AB:10:ASN:N    | 12:AB:11:PRO:HD2  | 2.35                     | 0.42              |
| 16:B:58:ILE:HG13  | 16:B:67:VAL:HG12  | 2.00                     | 0.42              |
| 18:D:178:ILE:HG23 | 18:D:180:THR:HG23 | 2.01                     | 0.42              |
| 22:H:121:TYR:CE2  | 22:H:127:PRO:HB3  | 2.55                     | 0.42              |
| 26:L:16:GLU:OE2   | 26:L:17:ILE:HG23  | 2.20                     | 0.42              |
| 37:Z:488:ASP:CA   | 37:Z:551:ARG:NH2  | 2.82                     | 0.42              |
| 38:a:136:MET:CE   | 38:a:140:PHE:HB2  | 2.49                     | 0.42              |
| 39:b:1:MET:SD     | 39:b:3:ILE:HD12   | 2.59                     | 0.42              |
| 39:b:24:LEU:HD12  | 39:b:25:PRO:HD2   | 2.02                     | 0.42              |
| 40:c:189:ARG:O    | 40:c:193:LEU:N    | 2.51                     | 0.42              |
| 42:e:76:THR:O     | 42:e:80:ILE:HG12  | 2.19                     | 0.42              |
| 42:e:143:LEU:O    | 42:e:146:GLN:HG3  | 2.20                     | 0.42              |
| 43:f:31:PHE:HD1   | 43:f:111:PHE:CD1  | 2.37                     | 0.42              |
| 46:j:58:LEU:HD23  | 46:j:94:ARG:NE    | 2.35                     | 0.42              |
| 49:m:54:VAL:HB    | 49:m:59:ASN:HD22  | 1.84                     | 0.42              |
| 51:o:21:TYR:HE2   | 51:o:23:PRO:HG3   | 1.84                     | 0.42              |
| 52:p:13:ARG:HA    | 52:p:31:TYR:CE1   | 2.54                     | 0.42              |
| 52:p:35:LYS:O     | 52:p:39:ILE:HG12  | 2.19                     | 0.42              |
| 52:p:80:ASN:HD22  | 52:p:84:LYS:HE3   | 1.84                     | 0.42              |
| 54:r:39:THR:HG22  | 54:r:41:LYS:HG2   | 2.01                     | 0.42              |
| 57:u:37:ALA:HA    | 57:u:52:TYR:HD2   | 1.83                     | 0.42              |
| 3:2:19:ARG:HA     | 4:3:2764:U:H5''   | 2.00                     | 0.42              |
| 4:3:17:G:H2'      | 4:3:18:G:O4'      | 2.19                     | 0.42              |
| 4:3:228:A:H62     | 4:3:455:G:HO2'    | 1.67                     | 0.42              |
| 4:3:837:A:H2'     | 4:3:838:U:C6      | 2.54                     | 0.42              |
| 4:3:1455:A:C2     | 38:a:35:LYS:HD3   | 2.54                     | 0.42              |
| 4:3:1482:U:O4'    | 49:m:60:ARG:NH1   | 2.39                     | 0.42              |
| 4:3:1702:A:N7     | 4:3:1998:U:C4     | 2.87                     | 0.42              |
| 4:3:1766:A:H2'    | 4:3:1767:A:C8     | 2.54                     | 0.42              |
| 4:3:1842:G:O6     | 4:3:1937:G:N2     | 2.53                     | 0.42              |
| 4:3:1860:A:H2'    | 4:3:1861:A:O4'    | 2.20                     | 0.42              |
| 4:3:2841:A:C4     | 4:3:2842:G:C8     | 3.08                     | 0.42              |
| 6:5:56:A:H2'      | 6:5:57:U:O4'      | 2.19                     | 0.42              |
| 6:5:63:U:H2'      | 6:5:64:C:C6       | 2.55                     | 0.42              |
| 6:5:150:A:H2'     | 6:5:151:C:C6      | 2.54                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 6:5:173:U:H2'      | 6:5:174:U:C6       | 2.54                     | 0.42              |
| 6:5:203:C:H2'      | 6:5:204:C:H6       | 1.85                     | 0.42              |
| 6:5:368:C:O2'      | 6:5:383:U:O4       | 2.36                     | 0.42              |
| 6:5:387:G:OP1      | 29:O:22:ARG:NH2    | 2.53                     | 0.42              |
| 6:5:511:A:H2'      | 6:5:512:U:H6       | 1.85                     | 0.42              |
| 6:5:872:C:H5''     | 21:G:93:PRO:O      | 2.20                     | 0.42              |
| 6:5:924:A:H2'      | 6:5:925:C:C6       | 2.55                     | 0.42              |
| 6:5:1051:U:OP1     | 23:I:59:ARG:NH1    | 2.53                     | 0.42              |
| 6:5:1052:G:C6      | 6:5:1053:U:C4      | 3.07                     | 0.42              |
| 7:6:51:PRO:HG3     | 7:AA:1:MET:SD      | 2.60                     | 0.42              |
| 7:6:81:VAL:HG13    | 7:6:181:THR:HG22   | 2.01                     | 0.42              |
| 9:8:1269:LYS:CB    | 37:Z:313:ILE:HD11  | 2.38                     | 0.42              |
| 7:AA:95:LEU:HD11   | 7:AA:132:GLY:HA3   | 2.00                     | 0.42              |
| 15:AE:108:TRP:CE3  | 15:AE:120:ILE:HD12 | 2.54                     | 0.42              |
| 19:E:49:ILE:HG23   | 19:E:50:LYS:N      | 2.32                     | 0.42              |
| 29:O:48:VAL:HG23   | 29:O:52:TRP:HZ3    | 1.82                     | 0.42              |
| 32:R:27:LYS:HG3    | 32:R:29:ARG:HD3    | 2.02                     | 0.42              |
| 35:U:60:ARG:NH2    | 35:U:76:ILE:O      | 2.49                     | 0.42              |
| 37:Z:835:PHE:CB    | 37:Z:837:TYR:CZ    | 3.02                     | 0.42              |
| 37:Z:1143:ILE:HG13 | 37:Z:1166:ILE:CD1  | 2.50                     | 0.42              |
| 38:a:48:ASN:OD1    | 38:a:49:ASN:N      | 2.52                     | 0.42              |
| 46:j:21:ILE:HA     | 46:j:41:VAL:HG12   | 2.01                     | 0.42              |
| 47:k:133:LYS:O     | 47:k:137:LYS:HG2   | 2.19                     | 0.42              |
| 49:m:38:ALA:O      | 49:m:41:THR:N      | 2.52                     | 0.42              |
| 55:s:7:LEU:HD23    | 55:s:31:VAL:HG12   | 2.01                     | 0.42              |
| 56:t:42:VAL:HG22   | 56:t:43:THR:H      | 1.84                     | 0.42              |
| 1:0:22:MET:O       | 1:0:28:ARG:NH1     | 2.53                     | 0.42              |
| 2:1:15:LYS:HD2     | 4:3:687:G:H5''     | 2.02                     | 0.42              |
| 4:3:228:A:N6       | 4:3:455:G:O2'      | 2.48                     | 0.42              |
| 4:3:243:U:H2'      | 4:3:244:G:O4'      | 2.20                     | 0.42              |
| 4:3:270:G:H2'      | 4:3:271:G:H8       | 1.84                     | 0.42              |
| 4:3:355:A:N3       | 40:c:170:GLN:NE2   | 2.50                     | 0.42              |
| 4:3:435:U:H2'      | 4:3:436:G:O4'      | 2.20                     | 0.42              |
| 4:3:524:G:O2'      | 54:r:49:LYS:NZ     | 2.35                     | 0.42              |
| 4:3:534:U:H2'      | 4:3:535:G:O4'      | 2.19                     | 0.42              |
| 4:3:867:G:H2'      | 4:3:868:C:C6       | 2.55                     | 0.42              |
| 4:3:1138:A:H2'     | 4:3:1139:C:O4'     | 2.19                     | 0.42              |
| 4:3:1176:U:OP2     | 45:i:71:LYS:NZ     | 2.39                     | 0.42              |
| 4:3:1429:G:H2'     | 4:3:1430:U:C6      | 2.53                     | 0.42              |
| 4:3:1446:G:N2      | 4:3:1612:U:H5''    | 2.28                     | 0.42              |
| 4:3:1635:G:H2'     | 4:3:1636:U:C6      | 2.54                     | 0.42              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 4:3:1783:G:C2     | 4:3:1796:A:C2      | 3.08                     | 0.42              |
| 4:3:1974:U:H3'    | 4:3:1975:G:H8      | 1.85                     | 0.42              |
| 4:3:2034:G:H2'    | 4:3:2035:U:H6      | 1.84                     | 0.42              |
| 4:3:2294:A:H8     | 4:3:2295:A:N6      | 2.18                     | 0.42              |
| 4:3:2562:U:H2'    | 4:3:2563:U:H6      | 1.84                     | 0.42              |
| 4:3:2668:A:O2'    | 4:3:2669:G:O5'     | 2.30                     | 0.42              |
| 6:5:206:G:H2'     | 6:5:208:A:OP2      | 2.20                     | 0.42              |
| 6:5:500:G:OP1     | 25:K:127:ARG:N     | 2.52                     | 0.42              |
| 6:5:543:C:C2      | 6:5:544:A:C8       | 3.08                     | 0.42              |
| 6:5:831:C:H5''    | 31:Q:80:GLN:HB2    | 2.01                     | 0.42              |
| 6:5:946:G:OP2     | 26:L:101:ARG:NH2   | 2.49                     | 0.42              |
| 6:5:974:C:H2'     | 6:5:974:C:O2       | 2.19                     | 0.42              |
| 6:5:1046:A:H62    | 6:5:1175:C:N4      | 2.18                     | 0.42              |
| 7:6:35:VAL:HG21   | 7:6:207:ASP:HB2    | 2.00                     | 0.42              |
| 7:6:174:ASN:ND2   | 7:AA:324:LYS:C     | 2.64                     | 0.42              |
| 9:8:356:ARG:NH1   | 15:AE:113:ASN:H    | 2.18                     | 0.42              |
| 7:AA:82:LEU:HD22  | 37:Z:598:GLY:HA3   | 1.85                     | 0.42              |
| 13:AC:26:DT:OP1   | 13:AC:26:DT:H3'    | 2.20                     | 0.42              |
| 17:C:100:ILE:O    | 17:C:104:MET:HG2   | 2.20                     | 0.42              |
| 18:D:205:PRO:HA   | 18:D:208:VAL:HG22  | 2.01                     | 0.42              |
| 26:L:70:ARG:NH2   | 26:L:74:ALA:HB2    | 2.35                     | 0.42              |
| 27:M:4:LYS:HA     | 27:M:7:LYS:HD3     | 2.02                     | 0.42              |
| 33:S:59:ILE:HG13  | 33:S:60:ILE:N      | 2.34                     | 0.42              |
| 37:Z:573:THR:H    | 37:Z:576:MET:HE3   | 1.84                     | 0.42              |
| 37:Z:612:VAL:HG11 | 37:Z:640:VAL:HG21  | 2.02                     | 0.42              |
| 37:Z:1235:GLN:O   | 37:Z:1240:ILE:HD12 | 2.19                     | 0.42              |
| 38:a:2:PRO:HB2    | 38:a:3:ILE:H       | 1.61                     | 0.42              |
| 38:a:183:GLN:NE2  | 38:a:184:LEU:O     | 2.36                     | 0.42              |
| 38:a:272:LYS:HB2  | 38:a:275:THR:HG23  | 2.02                     | 0.42              |
| 53:q:5:VAL:N      | 53:q:11:GLN:OE1    | 2.53                     | 0.42              |
| 55:s:24:THR:HG1   | 55:s:26:LYS:HZ2    | 1.63                     | 0.42              |
| 4:3:23:A:H2'      | 4:3:24:U:C6        | 2.55                     | 0.42              |
| 4:3:51:A:C5       | 4:3:121:U:O4       | 2.73                     | 0.42              |
| 4:3:358:A:P       | 40:c:176:LYS:HE2   | 2.59                     | 0.42              |
| 4:3:1046:A:H5''   | 52:p:65:ASN:HD22   | 1.85                     | 0.42              |
| 4:3:1163:G:H1'    | 4:3:1164:A:C8      | 2.55                     | 0.42              |
| 4:3:1230:U:H1'    | 52:p:3:ILE:HD11    | 2.01                     | 0.42              |
| 4:3:1392:G:H2'    | 4:3:1394:A:OP2     | 2.20                     | 0.42              |
| 4:3:1853:G:N2     | 4:3:1902:C:C2      | 2.88                     | 0.42              |
| 4:3:2120:G:H2'    | 4:3:2121:A:O4'     | 2.20                     | 0.42              |
| 4:3:2229:C:H2'    | 4:3:2230:A:C8      | 2.55                     | 0.42              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 4:3:2254:G:H2'   | 4:3:2255:A:C8     | 2.55                     | 0.42              |
| 4:3:2348:U:H2'   | 4:3:2349:G:C8     | 2.55                     | 0.42              |
| 4:3:2558:G:H2'   | 4:3:2559:C:C6     | 2.55                     | 0.42              |
| 4:3:2596:A:N6    | 4:3:2615:G:O6     | 2.53                     | 0.42              |
| 4:3:2608:A:H2'   | 4:3:2609:C:C6     | 2.55                     | 0.42              |
| 4:3:2657:C:H2'   | 4:3:2658:U:C6     | 2.54                     | 0.42              |
| 5:4:1:U:H2'      | 5:4:2:U:O4'       | 2.20                     | 0.42              |
| 5:4:4:G:H5'      | 5:4:25:A:H2       | 1.84                     | 0.42              |
| 6:5:260:C:H2'    | 6:5:261:G:O4'     | 2.20                     | 0.42              |
| 6:5:320:G:N1     | 6:5:323:A:N7      | 2.68                     | 0.42              |
| 6:5:446:A:O2'    | 29:O:36:ALA:O     | 2.34                     | 0.42              |
| 6:5:458:G:H2'    | 6:5:459:C:C6      | 2.55                     | 0.42              |
| 6:5:569:U:H5'    | 6:5:816:A:C5      | 2.55                     | 0.42              |
| 6:5:778:A:H2     | 6:5:1489:C:H4'    | 1.84                     | 0.42              |
| 6:5:951:U:H2'    | 6:5:952:U:C6      | 2.54                     | 0.42              |
| 6:5:1247:G:H2'   | 6:5:1248:U:C6     | 2.54                     | 0.42              |
| 6:5:1261:A:H2'   | 6:5:1262:A:H8     | 1.81                     | 0.42              |
| 8:7:54:G:C2      | 8:7:63:U:C2       | 3.07                     | 0.42              |
| 9:8:349:HIS:CE1  | 15:AE:109:ARG:NH2 | 2.88                     | 0.42              |
| 9:8:647:ASP:HB3  | 37:Z:834:SER:HB3  | 2.02                     | 0.42              |
| 9:8:648:VAL:CG1  | 37:Z:872:TYR:CE1  | 3.02                     | 0.42              |
| 9:8:945:ARG:HH22 | 7:AA:298:ALA:HB3  | 1.80                     | 0.42              |
| 7:AA:163:PHE:O   | 37:Z:611:LYS:HE3  | 2.19                     | 0.42              |
| 16:B:65:VAL:HG12 | 16:B:100:THR:HB   | 2.01                     | 0.42              |
| 16:B:164:GLU:OE1 | 16:B:167:ARG:NE   | 2.35                     | 0.42              |
| 16:B:176:MET:SD  | 16:B:206:ASN:HB2  | 2.60                     | 0.42              |
| 36:V:19:GLU:HB3  | 36:W:2:LYS:HD3    | 2.02                     | 0.42              |
| 40:c:157:VAL:HB  | 40:c:159:PHE:CE1  | 2.55                     | 0.42              |
| 41:d:36:ILE:HD13 | 41:d:154:VAL:HG12 | 2.02                     | 0.42              |
| 42:e:80:ILE:HA   | 42:e:83:THR:HG22  | 2.02                     | 0.42              |
| 42:e:146:GLN:O   | 42:e:149:THR:OG1  | 2.20                     | 0.42              |
| 46:j:60:ALA:HB2  | 46:j:86:LEU:HD13  | 2.02                     | 0.42              |
| 48:l:34:LEU:HD12 | 48:l:130:LYS:O    | 2.20                     | 0.42              |
| 52:p:40:GLN:HG3  | 52:p:44:TYR:CZ    | 2.55                     | 0.42              |
| 54:r:125:VAL:O   | 54:r:129:VAL:HG13 | 2.20                     | 0.42              |
| 62:z:51:LYS:H    | 62:z:51:LYS:HG2   | 1.69                     | 0.42              |
| 4:3:172:U:H2'    | 4:3:173:C:C6      | 2.54                     | 0.42              |
| 4:3:194:A:N6     | 4:3:211:A:H1'     | 2.35                     | 0.42              |
| 4:3:239:U:O4     | 4:3:240:C:N4      | 2.53                     | 0.42              |
| 4:3:462:C:H2'    | 4:3:463:U:C6      | 2.55                     | 0.42              |
| 4:3:680:A:H2'    | 4:3:682:A:C8      | 2.55                     | 0.42              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 4:3:771:C:H2'     | 4:3:772:C:H6      | 1.84                     | 0.42              |
| 4:3:849:C:O2'     | 4:3:850:G:H5'     | 2.19                     | 0.42              |
| 4:3:928:G:H2'     | 4:3:929:G:C8      | 2.55                     | 0.42              |
| 4:3:1307:G:H2'    | 4:3:1308:A:H8     | 1.83                     | 0.42              |
| 4:3:1523:C:H2'    | 4:3:1524:C:H6     | 1.85                     | 0.42              |
| 4:3:1840:C:H2'    | 4:3:1841:U:C6     | 2.55                     | 0.42              |
| 4:3:2520:C:H2'    | 4:3:2521:A:O4'    | 2.20                     | 0.42              |
| 4:3:2726:G:H4'    | 51:o:100:TYR:CE2  | 2.55                     | 0.42              |
| 4:3:2750:A:H2'    | 4:3:2751:C:H6     | 1.83                     | 0.42              |
| 4:3:2847:C:H2'    | 4:3:2848:A:C8     | 2.52                     | 0.42              |
| 5:4:76:A:N6       | 5:4:89:A:H1'      | 2.35                     | 0.42              |
| 6:5:287:U:C4      | 6:5:306:G:C6      | 3.08                     | 0.42              |
| 6:5:498:G:H2'     | 6:5:499:U:O4'     | 2.20                     | 0.42              |
| 6:5:710:G:H2'     | 6:5:711:G:C8      | 2.55                     | 0.42              |
| 6:5:741:C:H2'     | 6:5:742:C:H6      | 1.84                     | 0.42              |
| 6:5:1087:C:H2'    | 6:5:1088:C:C6     | 2.55                     | 0.42              |
| 6:5:1355:U:O2'    | 20:F:2:ARG:NH1    | 2.53                     | 0.42              |
| 9:8:524:ILE:O     | 9:8:530:LYS:HE3   | 2.19                     | 0.42              |
| 9:8:566:ARG:HH22  | 9:8:582:LYS:HG2   | 1.85                     | 0.42              |
| 9:8:626:ARG:NH2   | 9:8:674:ALA:O     | 2.53                     | 0.42              |
| 9:8:772:GLU:HB2   | 37:Z:862:LEU:N    | 2.35                     | 0.42              |
| 7:AA:46:LEU:HD23  | 7:AA:50:ILE:HD11  | 2.01                     | 0.42              |
| 12:AB:4:GLN:OE1   | 12:AB:107:SER:HB2 | 2.20                     | 0.42              |
| 19:E:110:GLN:O    | 19:E:114:LYS:HG2  | 2.19                     | 0.42              |
| 22:H:15:SER:OG    | 22:H:72:GLY:HA3   | 2.20                     | 0.42              |
| 24:J:88:THR:O     | 24:J:91:ARG:HB2   | 2.20                     | 0.42              |
| 27:M:21:TYR:OH    | 27:M:23:ARG:NH1   | 2.49                     | 0.42              |
| 28:N:18:ASP:OD1   | 28:N:18:ASP:N     | 2.50                     | 0.42              |
| 42:e:5:GLY:HA2    | 42:e:72:ASN:HD22  | 1.85                     | 0.42              |
| 43:f:32:PRO:HG2   | 43:f:111:PHE:HZ   | 1.85                     | 0.42              |
| 54:r:23:LEU:HD11  | 61:y:22:LEU:HG    | 2.01                     | 0.42              |
| 54:r:104:VAL:HG13 | 54:r:106:LYS:NZ   | 2.34                     | 0.42              |
| 4:3:19:G:H4'      | 52:p:24:PHE:CE1   | 2.55                     | 0.41              |
| 4:3:116:C:H2'     | 4:3:117:C:C6      | 2.54                     | 0.41              |
| 4:3:985:A:C6      | 4:3:1005:G:C6     | 3.08                     | 0.41              |
| 4:3:993:A:C6      | 4:3:995:A:N1      | 2.88                     | 0.41              |
| 4:3:1280:G:OP1    | 47:k:22:ARG:NH1   | 2.47                     | 0.41              |
| 4:3:1437:A:H2'    | 4:3:1438:G:H8     | 1.84                     | 0.41              |
| 4:3:1558:A:H3'    | 4:3:1570:A:H61    | 1.84                     | 0.41              |
| 4:3:1714:U:H2'    | 4:3:1715:A:O4'    | 2.20                     | 0.41              |
| 4:3:1836:A:H3'    | 4:3:1837:C:C6     | 2.54                     | 0.41              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 4:3:1878:A:H2'    | 4:3:1879:A:O4'    | 2.20                     | 0.41              |
| 4:3:1885:G:H2'    | 4:3:1886:C:C6     | 2.55                     | 0.41              |
| 4:3:1958:U:H2'    | 4:3:1960:A:OP2    | 2.21                     | 0.41              |
| 4:3:1991:U:H2'    | 4:3:1992:C:C6     | 2.55                     | 0.41              |
| 4:3:2578:A:H2'    | 4:3:2579:U:C6     | 2.55                     | 0.41              |
| 6:5:400:G:N3      | 6:5:400:G:H2'     | 2.35                     | 0.41              |
| 6:5:838:A:H4'     | 19:E:106:GLN:HG2  | 2.01                     | 0.41              |
| 6:5:880:G:H2'     | 6:5:881:G:H8      | 1.85                     | 0.41              |
| 6:5:1376:G:H2'    | 6:5:1377:C:H6     | 1.85                     | 0.41              |
| 7:6:49:CYS:HG     | 7:AA:34:PHE:HE2   | 1.60                     | 0.41              |
| 7:6:93:ASP:HA     | 7:6:96:PHE:CD2    | 2.55                     | 0.41              |
| 11:A:19:SER:OG    | 11:A:20:LEU:N     | 2.51                     | 0.41              |
| 7:AA:283:ARG:CD   | 12:AB:49:VAL:HG21 | 2.40                     | 0.41              |
| 12:AB:290:TRP:CD2 | 12:AB:296:LYS:CE  | 3.03                     | 0.41              |
| 16:B:153:LYS:NZ   | 16:B:171:TYR:O    | 2.39                     | 0.41              |
| 23:I:16:LEU:HA    | 23:I:104:LEU:HA   | 2.01                     | 0.41              |
| 39:b:91:GLU:HB2   | 39:b:94:GLN:NE2   | 2.36                     | 0.41              |
| 42:e:17:ASN:OD1   | 42:e:28:LYS:HB3   | 2.20                     | 0.41              |
| 45:i:52:ASP:OD1   | 45:i:53:CYS:N     | 2.52                     | 0.41              |
| 48:l:77:LYS:HD3   | 48:l:78:PRO:HD2   | 2.02                     | 0.41              |
| 51:o:49:THR:HG22  | 51:o:68:LYS:HE3   | 2.02                     | 0.41              |
| 58:v:58:LEU:CD1   | 58:v:63:ARG:HB2   | 2.50                     | 0.41              |
| 4:3:224:G:H22     | 4:3:463:U:H2'     | 1.84                     | 0.41              |
| 4:3:568:G:OP1     | 52:p:24:PHE:N     | 2.48                     | 0.41              |
| 4:3:637:U:C6      | 47:k:88:LEU:HD13  | 2.55                     | 0.41              |
| 4:3:983:A:H2'     | 4:3:984:C:C6      | 2.56                     | 0.41              |
| 4:3:1167:U:H2'    | 4:3:1168:A:C5     | 2.55                     | 0.41              |
| 4:3:1801:U:H2'    | 4:3:1802:C:C6     | 2.55                     | 0.41              |
| 4:3:1867:G:H2'    | 4:3:1868:A:H8     | 1.85                     | 0.41              |
| 4:3:2175:U:O2     | 4:3:2179:A:N7     | 2.53                     | 0.41              |
| 4:3:2373:G:H4'    | 57:u:74:PHE:CZ    | 2.55                     | 0.41              |
| 4:3:2419:A:H2'    | 4:3:2420:A:C8     | 2.54                     | 0.41              |
| 5:4:61:A:H2'      | 5:4:62:G:H8       | 1.85                     | 0.41              |
| 5:4:76:A:H2'      | 5:4:77:G:C8       | 2.54                     | 0.41              |
| 6:5:10:G:H2'      | 6:5:11:A:H8       | 1.85                     | 0.41              |
| 6:5:16:G:O2'      | 18:D:84:ARG:NH2   | 2.53                     | 0.41              |
| 6:5:404:A:H2'     | 6:5:405:C:H6      | 1.85                     | 0.41              |
| 6:5:622:A:H2'     | 6:5:623:G:C8      | 2.55                     | 0.41              |
| 6:5:675:U:O2      | 6:5:710:G:N2      | 2.52                     | 0.41              |
| 6:5:861:A:H2'     | 6:5:862:C:H6      | 1.84                     | 0.41              |
| 6:5:951:U:H2'     | 6:5:952:U:N1      | 2.35                     | 0.41              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 6:5:957:C:H2'     | 6:5:958:G:H8      | 1.85                     | 0.41              |
| 6:5:981:U:H2'     | 6:5:982:A:C8      | 2.55                     | 0.41              |
| 6:5:1178:C:H2'    | 6:5:1179:A:H8     | 1.85                     | 0.41              |
| 6:5:1291:C:H3'    | 6:5:1292:A:C8     | 2.56                     | 0.41              |
| 6:5:1402:U:H2'    | 6:5:1403:A:H8     | 1.85                     | 0.41              |
| 6:5:1413:G:H2'    | 6:5:1414:U:C6     | 2.55                     | 0.41              |
| 7:6:56:PHE:CE1    | 7:6:156:TYR:HB3   | 2.55                     | 0.41              |
| 9:8:100:LEU:CD1   | 9:8:591:ILE:CD1   | 2.97                     | 0.41              |
| 9:8:1324:ILE:CD1  | 37:Z:410:TYR:CZ   | 3.03                     | 0.41              |
| 9:8:1341:LEU:HD11 | 37:Z:391:ARG:NH1  | 2.35                     | 0.41              |
| 7:AA:166:PHE:N    | 7:AA:182:ASP:OD1  | 2.44                     | 0.41              |
| 12:AB:291:ASN:CB  | 12:AB:296:LYS:HG2 | 2.50                     | 0.41              |
| 15:AE:93:LEU:HD11 | 15:AE:98:TYR:OH   | 2.19                     | 0.41              |
| 16:B:138:ARG:HD2  | 16:B:138:ARG:HA   | 1.89                     | 0.41              |
| 16:B:156:VAL:HG22 | 16:B:201:VAL:HG12 | 2.01                     | 0.41              |
| 18:D:150:LEU:HD12 | 18:D:150:LEU:HA   | 1.83                     | 0.41              |
| 19:E:26:GLN:HE22  | 19:E:60:TRP:HZ2   | 1.67                     | 0.41              |
| 23:I:78:ARG:HD3   | 23:I:79:LEU:H     | 1.85                     | 0.41              |
| 33:S:70:SER:HA    | 33:S:73:VAL:HG12  | 2.01                     | 0.41              |
| 39:b:33:PRO:HB2   | 39:b:95:GLN:HB3   | 2.01                     | 0.41              |
| 52:p:49:ARG:HA    | 52:p:52:LYS:HE2   | 2.02                     | 0.41              |
| 58:v:35:PRO:HB3   | 58:v:49:LEU:HD22  | 2.02                     | 0.41              |
| 62:z:38:CYS:O     | 62:z:42:ARG:N     | 2.53                     | 0.41              |
| 4:3:280:A:H2'     | 4:3:281:U:H6      | 1.85                     | 0.41              |
| 4:3:355:A:O4'     | 40:c:170:GLN:NE2  | 2.46                     | 0.41              |
| 4:3:612:G:H5'     | 4:3:2024:C:H3'    | 2.02                     | 0.41              |
| 4:3:657:A:C5      | 4:3:658:G:H1'     | 2.55                     | 0.41              |
| 4:3:1142:G:OP1    | 35:U:56:ASN:ND2   | 2.53                     | 0.41              |
| 4:3:1588:A:O2'    | 4:3:1589:A:P      | 2.78                     | 0.41              |
| 4:3:1737:G:H2'    | 4:3:1738:G:H8     | 1.80                     | 0.41              |
| 4:3:1806:G:N2     | 38:a:160:ILE:HG23 | 2.34                     | 0.41              |
| 4:3:1954:C:C2     | 4:3:1955:G:C8     | 3.08                     | 0.41              |
| 4:3:2129:U:H2'    | 4:3:2130:A:C8     | 2.56                     | 0.41              |
| 4:3:2148:U:H2'    | 4:3:2149:U:C6     | 2.55                     | 0.41              |
| 4:3:2155:G:H2'    | 4:3:2156:G:C8     | 2.56                     | 0.41              |
| 4:3:2196:G:H2'    | 4:3:2197:U:C6     | 2.55                     | 0.41              |
| 4:3:2649:G:H2'    | 4:3:2650:A:C8     | 2.56                     | 0.41              |
| 6:5:1052:G:C6     | 6:5:1172:A:C6     | 3.08                     | 0.41              |
| 6:5:1137:C:H2'    | 6:5:1138:U:H6     | 1.84                     | 0.41              |
| 9:8:658:PRO:HD3   | 37:Z:868:PHE:HE2  | 1.85                     | 0.41              |
| 15:AE:45:LEU:HD12 | 15:AE:98:TYR:CE2  | 2.55                     | 0.41              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 16:B:65:VAL:HG11  | 16:B:96:ILE:HG12  | 2.02                     | 0.41              |
| 18:D:100:LYS:HA   | 18:D:128:THR:HA   | 2.02                     | 0.41              |
| 19:E:29:LEU:HD22  | 19:E:68:SER:OG    | 2.20                     | 0.41              |
| 22:H:17:ALA:HA    | 22:H:68:VAL:O     | 2.20                     | 0.41              |
| 23:I:15:LYS:HD3   | 23:I:79:LEU:HD11  | 2.02                     | 0.41              |
| 24:J:54:TYR:CZ    | 24:J:58:ILE:HD11  | 2.55                     | 0.41              |
| 25:K:41:PRO:C     | 25:K:42:LEU:HD12  | 2.45                     | 0.41              |
| 30:P:71:ALA:O     | 30:P:72:THR:OG1   | 2.35                     | 0.41              |
| 33:S:20:ASN:O     | 33:S:24:GLN:OE1   | 2.39                     | 0.41              |
| 38:a:62:ASN:HD21  | 38:a:221:HIS:CD2  | 2.38                     | 0.41              |
| 47:k:57:PRO:O     | 47:k:61:ARG:HG3   | 2.20                     | 0.41              |
| 47:k:101:LYS:HA   | 47:k:101:LYS:HD2  | 1.82                     | 0.41              |
| 49:m:101:LEU:HD13 | 61:y:48:TYR:HB3   | 2.02                     | 0.41              |
| 52:p:91:ARG:CD    | 53:q:11:GLN:HB3   | 2.50                     | 0.41              |
| 1:0:12:ARG:HG3    | 1:0:44:VAL:HG11   | 2.01                     | 0.41              |
| 4:3:23:A:O2'      | 54:r:121:GLN:OE1  | 2.29                     | 0.41              |
| 4:3:149:A:H2'     | 4:3:150:U:O4'     | 2.21                     | 0.41              |
| 4:3:163:A:N3      | 4:3:2216:U:O2'    | 2.42                     | 0.41              |
| 4:3:190:G:H2'     | 4:3:191:G:C8      | 2.55                     | 0.41              |
| 4:3:217:A:H2'     | 4:3:218:G:C8      | 2.55                     | 0.41              |
| 4:3:377:U:H2'     | 4:3:378:G:C8      | 2.55                     | 0.41              |
| 4:3:525:A:N6      | 4:3:1312:A:N1     | 2.69                     | 0.41              |
| 4:3:609:U:H2'     | 4:3:610:G:H8      | 1.86                     | 0.41              |
| 4:3:645:C:H2'     | 4:3:646:A:C8      | 2.54                     | 0.41              |
| 4:3:860:C:H4'     | 4:3:2436:G:N7     | 2.35                     | 0.41              |
| 4:3:1055:A:N6     | 4:3:1176:U:O2'    | 2.50                     | 0.41              |
| 4:3:1790:U:C2     | 4:3:2595:A:N6     | 2.89                     | 0.41              |
| 4:3:2545:U:H2'    | 4:3:2546:U:C6     | 2.55                     | 0.41              |
| 4:3:2630:U:H2'    | 4:3:2631:G:C8     | 2.55                     | 0.41              |
| 6:5:174:U:H2'     | 6:5:175:U:C6      | 2.55                     | 0.41              |
| 6:5:311:A:H4'     | 6:5:313:U:OP2     | 2.19                     | 0.41              |
| 6:5:874:C:H2'     | 6:5:875:G:C8      | 2.55                     | 0.41              |
| 6:5:950:C:H2'     | 6:5:951:U:C6      | 2.55                     | 0.41              |
| 6:5:1262:A:H2'    | 6:5:1263:A:C8     | 2.55                     | 0.41              |
| 6:5:1301:U:H2'    | 6:5:1302:C:C6     | 2.55                     | 0.41              |
| 6:5:1325:U:H2'    | 6:5:1326:C:H6     | 1.86                     | 0.41              |
| 6:5:1337:U:O5'    | 6:5:1338:A:H5'    | 2.21                     | 0.41              |
| 9:8:185:GLU:HG2   | 9:8:195:LEU:HD23  | 2.01                     | 0.41              |
| 9:8:409:ALA:HA    | 9:8:474:TYR:CE2   | 2.55                     | 0.41              |
| 9:8:1288:GLU:HG2  | 9:8:1292:TRP:CZ2  | 2.56                     | 0.41              |
| 12:AB:65:GLU:OE2  | 12:AB:103:ARG:HD3 | 2.20                     | 0.41              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 15:AE:108:TRP:CZ3 | 15:AE:130:PRO:CG  | 3.04                     | 0.41              |
| 17:C:79:LEU:HA    | 17:C:85:LEU:HD11  | 2.02                     | 0.41              |
| 17:C:89:LEU:O     | 17:C:93:LEU:HD23  | 2.20                     | 0.41              |
| 19:E:124:ASN:O    | 19:E:126:GLU:N    | 2.50                     | 0.41              |
| 26:L:9:ILE:HD13   | 26:L:53:PHE:CZ    | 2.56                     | 0.41              |
| 38:a:231:SER:HA   | 38:a:240:HIS:HB3  | 2.03                     | 0.41              |
| 39:b:25:PRO:O     | 39:b:195:GLY:N    | 2.51                     | 0.41              |
| 39:b:58:GLU:HG2   | 39:b:60:LYS:HB2   | 2.02                     | 0.41              |
| 40:c:4:LEU:HD12   | 40:c:5:LYS:H      | 1.86                     | 0.41              |
| 41:d:34:ILE:O     | 41:d:91:LEU:HD23  | 2.20                     | 0.41              |
| 45:i:28:LEU:HD21  | 45:i:103:LEU:HD21 | 2.02                     | 0.41              |
| 52:p:14:LYS:C     | 52:p:18:LYS:HZ3   | 2.28                     | 0.41              |
| 52:p:32:LYS:O     | 52:p:36:GLN:HG3   | 2.21                     | 0.41              |
| 61:y:27:LEU:HD12  | 61:y:28:SER:N     | 2.32                     | 0.41              |
| 4:3:196:G:H2'     | 4:3:197:U:O4'     | 2.21                     | 0.41              |
| 4:3:766:C:H2'     | 4:3:767:C:H6      | 1.83                     | 0.41              |
| 4:3:851:U:H2'     | 4:3:852:C:H6      | 1.85                     | 0.41              |
| 4:3:1077:G:C6     | 4:3:1149:G:C6     | 3.07                     | 0.41              |
| 4:3:1251:G:OP1    | 53:q:66:ARG:NH1   | 2.45                     | 0.41              |
| 4:3:1309:G:H2'    | 4:3:1310:U:C6     | 2.55                     | 0.41              |
| 4:3:1676:G:H2'    | 4:3:1677:G:C8     | 2.55                     | 0.41              |
| 4:3:1707:U:H5     | 39:b:135:HIS:HE1  | 1.68                     | 0.41              |
| 4:3:1845:C:N4     | 4:3:1905:U:H2'    | 2.35                     | 0.41              |
| 4:3:1894:U:H2'    | 4:3:1895:G:O4'    | 2.20                     | 0.41              |
| 4:3:1997:C:H2'    | 4:3:1998:U:C6     | 2.55                     | 0.41              |
| 4:3:2007:U:H2'    | 4:3:2008:A:C8     | 2.55                     | 0.41              |
| 4:3:2384:A:N6     | 50:n:98:TYR:CG    | 2.89                     | 0.41              |
| 4:3:2491:C:N3     | 48:l:124:LYS:NZ   | 2.55                     | 0.41              |
| 4:3:2557:G:H2'    | 4:3:2558:G:H8     | 1.85                     | 0.41              |
| 4:3:2788:U:H5''   | 45:i:123:THR:HB   | 2.02                     | 0.41              |
| 4:3:2803:G:H8     | 4:3:2805:A:H4'    | 1.85                     | 0.41              |
| 4:3:2819:C:C2     | 4:3:2820:G:C8     | 3.09                     | 0.41              |
| 4:3:2846:A:H2'    | 4:3:2847:C:C6     | 2.55                     | 0.41              |
| 6:5:177:G:H2'     | 6:5:178:U:C6      | 2.56                     | 0.41              |
| 6:5:226:G:H2'     | 6:5:227:A:C8      | 2.55                     | 0.41              |
| 6:5:259:A:H2'     | 6:5:260:C:C5      | 2.56                     | 0.41              |
| 6:5:294:A:H2'     | 6:5:295:G:C8      | 2.56                     | 0.41              |
| 6:5:421:G:H2'     | 6:5:422:A:H8      | 1.86                     | 0.41              |
| 6:5:614:U:H2'     | 6:5:615:G:H8      | 1.86                     | 0.41              |
| 6:5:618:U:C2      | 17:C:133:SER:HB2  | 2.56                     | 0.41              |
| 6:5:1198:C:P      | 32:R:78:ARG:HH11  | 2.44                     | 0.41              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 9:8:767:LEU:HD21  | 9:8:808:ILE:HD12  | 2.01                     | 0.41              |
| 9:8:953:ALA:C     | 7:AA:326:ARG:CD   | 2.93                     | 0.41              |
| 11:A:177:ILE:CD1  | 11:A:199:VAL:HG13 | 2.51                     | 0.41              |
| 7:AA:82:LEU:CD2   | 37:Z:598:GLY:HA2  | 2.43                     | 0.41              |
| 12:AB:131:ALA:HA  | 12:AB:171:THR:CB  | 2.46                     | 0.41              |
| 16:B:193:GLN:NE2  | 16:B:194:THR:O    | 2.53                     | 0.41              |
| 17:C:4:THR:HG21   | 17:C:62:TYR:CE1   | 2.55                     | 0.41              |
| 25:K:83:GLU:O     | 25:K:112:ARG:NH2  | 2.52                     | 0.41              |
| 26:L:23:PHE:HB3   | 26:L:66:GLU:HB2   | 2.02                     | 0.41              |
| 28:N:68:LYS:HD3   | 28:N:75:TYR:CD1   | 2.56                     | 0.41              |
| 31:Q:82:HIS:O     | 31:Q:86:VAL:HG22  | 2.21                     | 0.41              |
| 34:T:11:LEU:HG    | 34:T:12:GLU:HG2   | 2.03                     | 0.41              |
| 37:Z:1247:LYS:HE3 | 37:Z:1249:GLN:OE1 | 2.20                     | 0.41              |
| 38:a:41:LEU:HD23  | 38:a:66:TYR:HB3   | 2.02                     | 0.41              |
| 38:a:215:LYS:HG3  | 38:a:217:GLY:H    | 1.85                     | 0.41              |
| 39:b:113:ILE:HD11 | 39:b:171:HIS:CD2  | 2.56                     | 0.41              |
| 40:c:52:ILE:HD12  | 40:c:52:ILE:HA    | 1.95                     | 0.41              |
| 49:m:26:LEU:CD1   | 49:m:78:LEU:HD13  | 2.50                     | 0.41              |
| 2:1:11:PHE:CE2    | 47:k:59:TYR:HB3   | 2.52                     | 0.41              |
| 4:3:178:A:O2'     | 4:3:179:A:O4'     | 2.16                     | 0.41              |
| 4:3:257:C:H2'     | 4:3:258:G:O4'     | 2.21                     | 0.41              |
| 4:3:647:G:O3'     | 40:c:185:LYS:NZ   | 2.54                     | 0.41              |
| 4:3:656:G:H4'     | 4:3:657:A:H5''    | 2.02                     | 0.41              |
| 4:3:688:U:H5''    | 4:3:689:U:H5'     | 2.03                     | 0.41              |
| 4:3:764:G:C8      | 38:a:215:LYS:HD3  | 2.56                     | 0.41              |
| 4:3:772:C:H4'     | 4:3:801:U:H4'     | 2.03                     | 0.41              |
| 4:3:945:U:H2'     | 4:3:946:A:H8      | 1.84                     | 0.41              |
| 4:3:947:A:H2'     | 4:3:948:A:C8      | 2.55                     | 0.41              |
| 4:3:955:A:N3      | 5:4:78:C:O2'      | 2.54                     | 0.41              |
| 4:3:1036:A:H2'    | 4:3:1037:A:C8     | 2.55                     | 0.41              |
| 4:3:1041:C:H2'    | 4:3:1042:C:C5     | 2.56                     | 0.41              |
| 4:3:1231:G:H2'    | 4:3:1232:U:H6     | 1.86                     | 0.41              |
| 4:3:1738:G:C6     | 4:3:1739:G:C6     | 3.09                     | 0.41              |
| 4:3:1995:G:C2     | 4:3:1996:A:C5     | 3.09                     | 0.41              |
| 4:3:2166:U:H2'    | 4:3:2167:G:H8     | 1.86                     | 0.41              |
| 4:3:2321:C:O2'    | 41:d:35:VAL:HG11  | 2.20                     | 0.41              |
| 5:4:89:A:C4       | 5:4:90:G:C8       | 3.09                     | 0.41              |
| 6:5:333:U:H2'     | 6:5:334:A:C8      | 2.56                     | 0.41              |
| 6:5:398:G:H5'     | 17:C:73:ARG:NH2   | 2.36                     | 0.41              |
| 6:5:715:A:H61     | 31:Q:94:ARG:NH2   | 2.12                     | 0.41              |
| 6:5:1191:U:H2'    | 6:5:1192:C:C6     | 2.55                     | 0.41              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 6:5:1409:A:H2'    | 6:5:1410:A:H8      | 1.86                     | 0.41              |
| 9:8:689:TYR:HB3   | 9:8:752:TYR:HB3    | 2.03                     | 0.41              |
| 9:8:1001:GLU:CB   | 12:AB:109:LYS:CB   | 2.53                     | 0.41              |
| 15:AE:137:ASP:OD2 | 37:Z:349:PRO:CA    | 2.66                     | 0.41              |
| 20:F:8:LYS:HA     | 20:F:8:LYS:HD3     | 1.93                     | 0.41              |
| 20:F:28:VAL:HG11  | 20:F:100:LEU:CD1   | 2.51                     | 0.41              |
| 23:I:30:LYS:O     | 23:I:33:GLU:HG3    | 2.20                     | 0.41              |
| 37:Z:649:LEU:HB3  | 37:Z:653:ILE:CD1   | 2.51                     | 0.41              |
| 37:Z:775:LYS:HE2  | 37:Z:1035:GLY:O    | 2.21                     | 0.41              |
| 37:Z:895:LEU:HD23 | 37:Z:1218:ILE:HG21 | 2.02                     | 0.41              |
| 39:b:47:TYR:HB2   | 39:b:85:ARG:CZ     | 2.50                     | 0.41              |
| 39:b:53:SER:HB2   | 39:b:78:THR:OG1    | 2.21                     | 0.41              |
| 40:c:4:LEU:HD11   | 40:c:127:LEU:N     | 2.36                     | 0.41              |
| 40:c:54:THR:O     | 40:c:58:VAL:HG23   | 2.19                     | 0.41              |
| 48:l:15:VAL:HG11  | 48:l:96:VAL:HG21   | 2.03                     | 0.41              |
| 49:m:17:THR:O     | 49:m:18:VAL:C      | 2.64                     | 0.41              |
| 62:z:36:LYS:O     | 62:z:47:HIS:NE2    | 2.49                     | 0.41              |
| 4:3:27:U:H2'      | 4:3:28:G:C8        | 2.55                     | 0.41              |
| 4:3:140:G:N2      | 4:3:143:A:H62      | 2.18                     | 0.41              |
| 4:3:476:G:H2'     | 4:3:477:U:H6       | 1.86                     | 0.41              |
| 4:3:638:A:C5      | 4:3:661:G:C2       | 3.08                     | 0.41              |
| 4:3:738:U:H3'     | 4:3:739:G:C8       | 2.55                     | 0.41              |
| 4:3:820:U:H2'     | 4:3:821:C:O4'      | 2.20                     | 0.41              |
| 4:3:894:G:H3'     | 4:3:895:G:C8       | 2.55                     | 0.41              |
| 4:3:1167:U:O2'    | 4:3:1168:A:O5'     | 2.37                     | 0.41              |
| 4:3:1269:C:H2'    | 4:3:1270:C:C6      | 2.56                     | 0.41              |
| 4:3:1367:G:H3'    | 55:s:60:ARG:NH1    | 2.36                     | 0.41              |
| 4:3:1652:A:N1     | 49:m:3:TYR:HE2     | 2.18                     | 0.41              |
| 4:3:1701:G:C6     | 4:3:1998:U:H3'     | 2.56                     | 0.41              |
| 4:3:1798:A:O3'    | 38:a:213:ILE:HB    | 2.20                     | 0.41              |
| 4:3:2553:G:H2'    | 4:3:2554:U:H6      | 1.85                     | 0.41              |
| 4:3:2770:U:H2'    | 4:3:2771:G:O4'     | 2.20                     | 0.41              |
| 4:3:2873:G:H2'    | 4:3:2874:C:C6      | 2.55                     | 0.41              |
| 6:5:588:U:H2'     | 6:5:589:U:H6       | 1.86                     | 0.41              |
| 6:5:596:U:H4'     | 21:G:98:TYR:HD1    | 1.86                     | 0.41              |
| 6:5:664:A:H2'     | 6:5:665:G:H8       | 1.84                     | 0.41              |
| 6:5:1093:A:H2'    | 6:5:1094:C:C6      | 2.55                     | 0.41              |
| 6:5:1424:C:H2'    | 6:5:1425:A:O4'     | 2.21                     | 0.41              |
| 8:7:19:G:N7       | 8:7:56:U:O2'       | 2.47                     | 0.41              |
| 9:8:134:PRO:HG2   | 9:8:604:PHE:CD2    | 2.56                     | 0.41              |
| 9:8:1297:TYR:CD1  | 37:Z:554:LEU:CD2   | 3.03                     | 0.41              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 9:8:1371:LEU:HD11 | 37:Z:95:VAL:HG22  | 2.01                     | 0.41              |
| 10:9:64:TYR:CE1   | 10:9:66:GLY:HA2   | 2.56                     | 0.41              |
| 20:F:111:HIS:ND1  | 20:F:112:GLU:HG3  | 2.36                     | 0.41              |
| 22:H:82:ARG:HA    | 22:H:85:ILE:HG12  | 2.02                     | 0.41              |
| 23:I:14:ILE:HD11  | 23:I:104:LEU:HD13 | 2.02                     | 0.41              |
| 34:T:24:GLU:HG3   | 34:T:27:ARG:NH1   | 2.35                     | 0.41              |
| 37:Z:232:PHE:CE1  | 37:Z:234:VAL:HG13 | 2.55                     | 0.41              |
| 39:b:56:THR:HB    | 39:b:78:THR:HG22  | 2.02                     | 0.41              |
| 41:d:37:ASN:O     | 41:d:38:MET:HE2   | 2.21                     | 0.41              |
| 57:u:77:SER:OG    | 57:u:78:ASP:N     | 2.52                     | 0.41              |
| 1:0:35:ARG:NH2    | 4:3:182:C:O3'     | 2.54                     | 0.41              |
| 4:3:267:A:H2'     | 4:3:268:C:C6      | 2.56                     | 0.41              |
| 4:3:291:G:C2      | 4:3:292:G:C5      | 3.08                     | 0.41              |
| 4:3:386:U:H2'     | 4:3:387:U:C6      | 2.55                     | 0.41              |
| 4:3:525:A:C6      | 4:3:1312:A:N6     | 2.89                     | 0.41              |
| 4:3:764:G:H5'     | 4:3:765:A:H5''    | 2.02                     | 0.41              |
| 4:3:1067:A:N1     | 4:3:1157:G:C6     | 2.88                     | 0.41              |
| 4:3:1230:U:H2'    | 4:3:1231:G:H8     | 1.83                     | 0.41              |
| 4:3:1268:U:H2'    | 4:3:1269:C:C6     | 2.56                     | 0.41              |
| 4:3:1336:A:H2'    | 4:3:1337:G:O4'    | 2.21                     | 0.41              |
| 4:3:1701:G:O2'    | 4:3:1998:U:O4     | 2.36                     | 0.41              |
| 4:3:2082:U:OP2    | 4:3:2246:G:O2'    | 2.24                     | 0.41              |
| 4:3:2363:C:H2'    | 4:3:2364:A:C4     | 2.56                     | 0.41              |
| 4:3:2513:G:O2'    | 4:3:2514:U:O5'    | 2.33                     | 0.41              |
| 6:5:130:G:H2'     | 6:5:131:G:C8      | 2.55                     | 0.41              |
| 6:5:471:A:H2'     | 6:5:472:G:C8      | 2.56                     | 0.41              |
| 6:5:1065:G:O2'    | 11:A:118:THR:HG21 | 2.21                     | 0.41              |
| 6:5:1289:U:O2'    | 6:5:1334:A:N3     | 2.47                     | 0.41              |
| 8:7:55:U:C2       | 8:7:59:A:N7       | 2.89                     | 0.41              |
| 9:8:150:PHE:CE1   | 9:8:625:LYS:HA    | 2.56                     | 0.41              |
| 9:8:772:GLU:O     | 37:Z:861:GLY:HA2  | 2.20                     | 0.41              |
| 9:8:998:ILE:HG12  | 12:AB:62:MET:CE   | 2.47                     | 0.41              |
| 9:8:1233:THR:HA   | 7:AA:40:ASN:ND2   | 2.35                     | 0.41              |
| 12:AB:239:LYS:NZ  | 12:AB:294:LYS:HB2 | 2.32                     | 0.41              |
| 14:AD:17:DT:C5'   | 37:Z:413:ARG:HH11 | 2.31                     | 0.41              |
| 16:B:33:TRP:HB3   | 16:B:60:ARG:CZ    | 2.51                     | 0.41              |
| 17:C:97:LEU:O     | 17:C:101:VAL:HG23 | 2.21                     | 0.41              |
| 29:O:3:MET:N      | 29:O:3:MET:SD     | 2.94                     | 0.41              |
| 34:T:18:PHE:HA    | 34:T:21:VAL:HG22  | 2.02                     | 0.41              |
| 35:U:36:GLU:HG2   | 35:U:99:VAL:HG12  | 2.03                     | 0.41              |
| 38:a:12:SER:O     | 38:a:12:SER:OG    | 2.38                     | 0.41              |

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| Atom-1          | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|------------------|--------------------------|-------------------|
| 42:e:3:LYS:HB3  | 42:e:4:ILE:H     | 1.61                     | 0.41              |
| 56:t:78:ASP:OD2 | 56:t:81:ALA:HB3  | 2.21                     | 0.41              |
| 4:3:35:U:O4     | 4:3:483:A:N7     | 2.54                     | 0.41              |
| 4:3:38:G:H4'    | 4:3:487:C:C4     | 2.56                     | 0.41              |
| 4:3:47:G:H4'    | 4:3:48:G:H5'     | 2.03                     | 0.41              |
| 4:3:63:U:C2     | 59:w:41:PRO:HB2  | 2.56                     | 0.41              |
| 4:3:101:C:H4'   | 4:3:103:G:C4     | 2.55                     | 0.41              |
| 4:3:167:A:H2'   | 4:3:168:A:O4'    | 2.21                     | 0.41              |
| 4:3:173:C:N4    | 4:3:174:A:H62    | 2.19                     | 0.41              |
| 4:3:226:A:C8    | 4:3:456:G:H4'    | 2.56                     | 0.41              |
| 4:3:291:G:H2'   | 4:3:292:G:C8     | 2.56                     | 0.41              |
| 4:3:404:C:H2'   | 4:3:405:C:H6     | 1.86                     | 0.41              |
| 4:3:483:A:O4'   | 4:3:485:A:N6     | 2.53                     | 0.41              |
| 4:3:519:A:H3'   | 4:3:520:C:H6     | 1.86                     | 0.41              |
| 4:3:595:U:H2'   | 4:3:605:A:H1'    | 2.03                     | 0.41              |
| 4:3:621:U:H2'   | 4:3:622:U:C6     | 2.55                     | 0.41              |
| 4:3:627:U:H2'   | 4:3:628:A:C8     | 2.55                     | 0.41              |
| 4:3:744:U:H2'   | 4:3:745:U:C6     | 2.56                     | 0.41              |
| 4:3:983:A:H2'   | 4:3:984:C:H6     | 1.86                     | 0.41              |
| 4:3:1082:A:H2'  | 4:3:1145:G:N1    | 2.36                     | 0.41              |
| 4:3:1119:A:P    | 4:3:1119:A:H8    | 2.44                     | 0.41              |
| 4:3:1140:U:H2'  | 4:3:1141:U:C6    | 2.56                     | 0.41              |
| 4:3:1477:A:C6   | 4:3:1489:G:C6    | 3.08                     | 0.41              |
| 4:3:1592:A:H4'  | 4:3:1593:U:H3'   | 2.03                     | 0.41              |
| 4:3:1603:A:H2'  | 4:3:1604:A:O4'   | 2.21                     | 0.41              |
| 4:3:1613:A:H3'  | 4:3:1614:G:H8    | 1.86                     | 0.41              |
| 4:3:1980:G:H2'  | 4:3:1981:U:C6    | 2.55                     | 0.41              |
| 4:3:1999:G:H5'  | 4:3:2001:C:H41   | 1.85                     | 0.41              |
| 4:3:2080:C:OP1  | 38:a:236:ASN:ND2 | 2.54                     | 0.41              |
| 4:3:2324:A:H1'  | 41:d:125:ARG:CZ  | 2.51                     | 0.41              |
| 4:3:2388:C:H2'  | 4:3:2389:A:H8    | 1.86                     | 0.41              |
| 4:3:2530:U:H1'  | 4:3:2572:A:C2    | 2.56                     | 0.41              |
| 4:3:2624:C:H2'  | 4:3:2625:U:C6    | 2.56                     | 0.41              |
| 5:4:26:C:H2'    | 5:4:27:A:C8      | 2.55                     | 0.41              |
| 6:5:23:G:H2'    | 6:5:24:C:C6      | 2.55                     | 0.41              |
| 6:5:172:C:H2'   | 6:5:173:U:C6     | 2.56                     | 0.41              |
| 6:5:388:G:O2'   | 6:5:480:C:O2'    | 2.30                     | 0.41              |
| 6:5:562:U:OP2   | 25:K:12:ARG:NH1  | 2.53                     | 0.41              |
| 6:5:663:G:C6    | 6:5:737:U:O2     | 2.74                     | 0.41              |
| 6:5:665:G:H1'   | 28:N:43:ASN:HD22 | 1.86                     | 0.41              |
| 6:5:727:G:C5    | 6:5:728:G:H1'    | 2.56                     | 0.41              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 6:5:736:U:O2'     | 28:N:39:HIS:CD2    | 2.73                     | 0.41              |
| 6:5:821:U:H2'     | 6:5:822:A:C8       | 2.56                     | 0.41              |
| 6:5:1133:A:H5'    | 6:5:1134:C:C6      | 2.56                     | 0.41              |
| 6:5:1137:C:H2'    | 6:5:1138:U:C6      | 2.55                     | 0.41              |
| 6:5:1298:U:H2'    | 6:5:1299:C:C6      | 2.56                     | 0.41              |
| 8:7:20:G:O3'      | 8:7:58:G:N2        | 2.54                     | 0.41              |
| 9:8:1002:SER:N    | 12:AB:109:LYS:CB   | 2.84                     | 0.41              |
| 9:8:1200:PHE:CE1  | 37:Z:864:ILE:HA    | 2.56                     | 0.41              |
| 9:8:1350:ALA:N    | 37:Z:368:PHE:CE1   | 2.89                     | 0.41              |
| 10:9:76:MET:HE1   | 10:9:84:ILE:HD12   | 2.02                     | 0.41              |
| 7:AA:56:PHE:CE1   | 7:AA:156:TYR:HB3   | 2.56                     | 0.41              |
| 7:AA:75:GLU:OE1   | 7:AA:141:TYR:OH    | 2.36                     | 0.41              |
| 7:AA:305:ASN:ND2  | 12:AB:80:ASP:O     | 2.54                     | 0.41              |
| 12:AB:18:ASN:O    | 12:AB:22:THR:OG1   | 2.38                     | 0.41              |
| 12:AB:42:TYR:CE2  | 12:AB:111:ILE:HD11 | 2.56                     | 0.41              |
| 12:AB:136:MET:HG2 | 12:AB:140:ILE:HD12 | 2.02                     | 0.41              |
| 12:AB:288:VAL:CG2 | 12:AB:297:PHE:CE2  | 2.98                     | 0.41              |
| 15:AE:94:GLY:C    | 37:Z:338:ARG:HH22  | 2.28                     | 0.41              |
| 15:AE:108:TRP:CD1 | 15:AE:112:ARG:NH2  | 2.89                     | 0.41              |
| 16:B:44:PHE:HD2   | 16:B:56:VAL:HG21   | 1.85                     | 0.41              |
| 17:C:183:GLU:O    | 17:C:187:LEU:HG    | 2.21                     | 0.41              |
| 18:D:111:VAL:HB   | 18:D:112:PRO:HD3   | 2.02                     | 0.41              |
| 21:G:95:LEU:HD13  | 25:K:4:ILE:HD13    | 2.03                     | 0.41              |
| 21:G:116:ILE:O    | 21:G:123:MET:N     | 2.39                     | 0.41              |
| 21:G:116:ILE:HA   | 21:G:136:GLU:O     | 2.20                     | 0.41              |
| 22:H:74:PHE:CD2   | 22:H:75:THR:HG23   | 2.56                     | 0.41              |
| 22:H:106:THR:OG1  | 22:H:107:THR:N     | 2.53                     | 0.41              |
| 24:J:54:TYR:O     | 24:J:58:ILE:HG12   | 2.21                     | 0.41              |
| 27:M:56:VAL:O     | 27:M:57:LYS:HE2    | 2.20                     | 0.41              |
| 29:O:46:GLU:OE1   | 29:O:72:LEU:HD12   | 2.20                     | 0.41              |
| 33:S:39:ILE:HG23  | 33:S:76:LEU:HD12   | 2.03                     | 0.41              |
| 37:Z:60:PHE:CD1   | 37:Z:307:PRO:HD3   | 2.55                     | 0.41              |
| 37:Z:806:ILE:HG22 | 37:Z:821:PHE:CE1   | 2.55                     | 0.41              |
| 37:Z:884:LYS:HG3  | 37:Z:1029:MET:HE2  | 2.03                     | 0.41              |
| 37:Z:1181:SER:HB2 | 37:Z:1197:LEU:HD21 | 2.02                     | 0.41              |
| 39:b:225:GLN:NE2  | 51:o:84:PRO:HG3    | 2.36                     | 0.41              |
| 40:c:197:LEU:HD23 | 40:c:198:LEU:N     | 2.35                     | 0.41              |
| 41:d:8:TYR:HA     | 41:d:12:ILE:HG12   | 2.02                     | 0.41              |
| 41:d:13:ALA:HA    | 41:d:28:VAL:HG11   | 2.03                     | 0.41              |
| 42:e:61:LEU:O     | 42:e:65:LYS:N      | 2.47                     | 0.41              |
| 44:h:98:MET:O     | 44:h:102:LYS:HB2   | 2.21                     | 0.41              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 49:m:74:ASP:HB3   | 49:m:77:GLN:OE1   | 2.21                     | 0.41              |
| 49:m:82:LEU:O     | 49:m:86:VAL:HG22  | 2.21                     | 0.41              |
| 50:n:52:LEU:HD13  | 50:n:84:LEU:HD13  | 2.02                     | 0.41              |
| 51:o:19:LYS:HD2   | 51:o:82:HIS:HA    | 2.03                     | 0.41              |
| 52:p:31:TYR:CZ    | 52:p:35:LYS:HD2   | 2.56                     | 0.41              |
| 53:q:2:HIS:HB2    | 53:q:13:LEU:HD11  | 2.03                     | 0.41              |
| 54:r:12:ILE:O     | 54:r:101:SER:OG   | 2.25                     | 0.41              |
| 58:v:36:CYS:O     | 58:v:47:ARG:HA    | 2.21                     | 0.41              |
| 62:z:23:LYS:HZ3   | 62:z:25:VAL:HA    | 1.85                     | 0.41              |
| 1:0:5:TYR:HD1     | 4:3:823:A:H2      | 1.69                     | 0.41              |
| 4:3:174:A:C2      | 4:3:175:A:C5      | 3.08                     | 0.41              |
| 4:3:1106:G:H21    | 4:3:1124:G:H2'    | 1.86                     | 0.41              |
| 4:3:1327:G:H4'    | 4:3:1328:A:O5'    | 2.21                     | 0.41              |
| 4:3:1391:U:C2     | 4:3:1392:G:C8     | 3.08                     | 0.41              |
| 4:3:1513:A:O2'    | 4:3:1514:U:O4'    | 2.21                     | 0.41              |
| 4:3:1742:C:H2'    | 4:3:1743:U:C6     | 2.56                     | 0.41              |
| 4:3:1802:C:H2'    | 4:3:1803:U:C6     | 2.56                     | 0.41              |
| 4:3:2337:U:H2'    | 4:3:2338:G:C8     | 2.56                     | 0.41              |
| 4:3:2661:U:OP2    | 4:3:2662:A:O2'    | 2.29                     | 0.41              |
| 4:3:2661:U:H3'    | 4:3:2662:A:H8     | 1.86                     | 0.41              |
| 4:3:2699:C:H2'    | 4:3:2700:C:C6     | 2.56                     | 0.41              |
| 6:5:103:U:O4      | 6:5:285:G:O2'     | 2.30                     | 0.41              |
| 6:5:248:U:H2'     | 6:5:249:U:C6      | 2.56                     | 0.41              |
| 6:5:398:G:H4'     | 6:5:618:U:H3      | 1.85                     | 0.41              |
| 6:5:949:G:N7      | 6:5:950:C:N4      | 2.69                     | 0.41              |
| 6:5:1011:A:H1'    | 6:5:1193:U:O2'    | 2.21                     | 0.41              |
| 6:5:1411:A:H2'    | 6:5:1412:C:C6     | 2.56                     | 0.41              |
| 9:8:647:ASP:HB3   | 37:Z:834:SER:CB   | 2.51                     | 0.41              |
| 9:8:655:ARG:NH2   | 9:8:709:GLU:OE2   | 2.46                     | 0.41              |
| 9:8:1054:GLN:NE2  | 9:8:1256:ASP:OD1  | 2.53                     | 0.41              |
| 11:A:37:TRP:HA    | 11:A:205:ASN:HB3  | 2.03                     | 0.41              |
| 11:A:84:PHE:HA    | 11:A:177:ILE:HG22 | 2.02                     | 0.41              |
| 11:A:177:ILE:HA   | 11:A:199:VAL:O    | 2.21                     | 0.41              |
| 7:AA:300:ILE:HD11 | 7:AA:325:LEU:HD22 | 2.01                     | 0.41              |
| 15:AE:23:VAL:CG2  | 15:AE:44:VAL:HG23 | 2.38                     | 0.41              |
| 15:AE:137:ASP:HB3 | 37:Z:349:PRO:HG3  | 2.02                     | 0.41              |
| 21:G:13:ASP:N     | 21:G:13:ASP:OD1   | 2.54                     | 0.41              |
| 25:K:16:LYS:HA    | 25:K:16:LYS:HD3   | 1.97                     | 0.41              |
| 25:K:78:THR:HG22  | 25:K:110:ILE:HG13 | 2.03                     | 0.41              |
| 26:L:10:PRO:HB2   | 26:L:13:LYS:HZ2   | 1.86                     | 0.41              |
| 29:O:67:PHE:CD2   | 29:O:72:LEU:HD13  | 2.55                     | 0.41              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 30:P:65:GLU:HA   | 30:P:75:PHE:HD1   | 1.86                     | 0.41              |
| 42:e:124:LEU:HB3 | 42:e:136:ILE:HD11 | 2.03                     | 0.41              |
| 48:l:41:TRP:CD1  | 48:l:41:TRP:N     | 2.89                     | 0.41              |
| 4:3:531:G:C4     | 4:3:532:A:C8      | 3.08                     | 0.40              |
| 4:3:1227:C:H2'   | 4:3:1228:G:C8     | 2.56                     | 0.40              |
| 4:3:1852:G:H2'   | 4:3:1853:G:C8     | 2.56                     | 0.40              |
| 4:3:2590:G:C2    | 4:3:2591:G:N2     | 2.88                     | 0.40              |
| 4:3:2625:U:O4    | 4:3:2626:A:N6     | 2.54                     | 0.40              |
| 4:3:2791:U:H2'   | 4:3:2792:C:C6     | 2.55                     | 0.40              |
| 6:5:271:G:H5'    | 30:P:17:LYS:HD3   | 2.04                     | 0.40              |
| 6:5:434:U:HO2'   | 17:C:121:HIS:HE2  | 1.65                     | 0.40              |
| 6:5:827:C:H2'    | 6:5:828:U:C6      | 2.56                     | 0.40              |
| 6:5:1046:A:H2    | 16:B:197:GLY:HA2  | 1.85                     | 0.40              |
| 6:5:1365:U:H2'   | 6:5:1366:U:C6     | 2.57                     | 0.40              |
| 6:5:1447:U:H2'   | 6:5:1448:A:H8     | 1.86                     | 0.40              |
| 6:5:1477:A:O2'   | 6:5:1478:A:H3'    | 2.21                     | 0.40              |
| 9:8:615:HIS:HB3  | 9:8:852:SER:HB2   | 2.04                     | 0.40              |
| 9:8:653:TYR:CD1  | 9:8:737:ARG:NH2   | 2.89                     | 0.40              |
| 9:8:819:PRO:HD3  | 9:8:844:LEU:HD11  | 2.04                     | 0.40              |
| 9:8:1141:GLN:OE1 | 9:8:1142:PRO:HD2  | 2.21                     | 0.40              |
| 9:8:1200:PHE:CD1 | 37:Z:863:THR:C    | 2.99                     | 0.40              |
| 18:D:97:ARG:HB2  | 18:D:98:LYS:HZ2   | 1.86                     | 0.40              |
| 24:J:28:SER:OG   | 24:J:33:ASN:N     | 2.54                     | 0.40              |
| 26:L:10:PRO:HG2  | 26:L:13:LYS:HD2   | 2.02                     | 0.40              |
| 26:L:79:HIS:HA   | 26:L:82:GLU:OE1   | 2.20                     | 0.40              |
| 36:V:5:LEU:HD23  | 36:W:20:ILE:HG23  | 2.04                     | 0.40              |
| 37:Z:490:PRO:HG3 | 37:Z:551:ARG:HG3  | 2.03                     | 0.40              |
| 40:c:38:VAL:O    | 40:c:41:GLU:HG3   | 2.22                     | 0.40              |
| 40:c:174:ASN:ND2 | 40:c:175:ILE:HG13 | 2.36                     | 0.40              |
| 54:r:10:VAL:C    | 54:r:100:SER:HG   | 2.26                     | 0.40              |
| 4:3:166:A:H2'    | 4:3:167:A:C8      | 2.56                     | 0.40              |
| 4:3:201:A:H2     | 4:3:2442:A:H62    | 1.70                     | 0.40              |
| 4:3:255:A:O5'    | 4:3:255:A:H8      | 2.04                     | 0.40              |
| 4:3:256:G:H2'    | 4:3:257:C:C6      | 2.57                     | 0.40              |
| 4:3:385:U:H2'    | 4:3:386:U:H6      | 1.85                     | 0.40              |
| 4:3:615:G:O2'    | 4:3:616:G:H5'     | 2.21                     | 0.40              |
| 4:3:679:A:N1     | 4:3:2377:A:O2'    | 2.48                     | 0.40              |
| 4:3:730:G:H2'    | 4:3:731:A:H8      | 1.86                     | 0.40              |
| 4:3:784:A:H4'    | 4:3:1301:G:N3     | 2.37                     | 0.40              |
| 4:3:992:G:O3'    | 4:3:993:A:H8      | 2.04                     | 0.40              |
| 4:3:1202:A:H2'   | 4:3:1203:G:H8     | 1.87                     | 0.40              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 4:3:1391:U:H2'    | 4:3:1392:G:C8     | 2.55                     | 0.40              |
| 4:3:1625:G:H2'    | 4:3:1626:C:C6     | 2.57                     | 0.40              |
| 4:3:1647:A:N6     | 4:3:1651:C:H2'    | 2.36                     | 0.40              |
| 4:3:2483:C:N4     | 4:3:2537:G:N2     | 2.69                     | 0.40              |
| 4:3:2557:G:O2'    | 4:3:2558:G:H5'    | 2.21                     | 0.40              |
| 6:5:737:U:H5'     | 28:N:39:HIS:CD2   | 2.55                     | 0.40              |
| 6:5:815:G:N2      | 6:5:817:U:O2'     | 2.54                     | 0.40              |
| 6:5:1055:G:H1'    | 6:5:1165:G:H21    | 1.87                     | 0.40              |
| 6:5:1495:C:H2'    | 6:5:1496:G:C8     | 2.56                     | 0.40              |
| 7:6:102:VAL:O     | 7:6:104:PRO:HD3   | 2.22                     | 0.40              |
| 7:6:106:LEU:N     | 7:AA:319:HIS:ND1  | 2.69                     | 0.40              |
| 9:8:1122:LEU:HD21 | 9:8:1149:LEU:HD23 | 2.01                     | 0.40              |
| 9:8:1288:GLU:OE2  | 37:Z:893:ARG:CZ   | 2.70                     | 0.40              |
| 33:S:26:THR:O     | 33:S:30:THR:HG23  | 2.21                     | 0.40              |
| 38:a:125:GLU:HB2  | 43:f:89:TYR:CE1   | 2.56                     | 0.40              |
| 41:d:92:ARG:HA    | 41:d:96:MET:SD    | 2.61                     | 0.40              |
| 48:l:37:THR:OG1   | 48:l:128:THR:HB   | 2.20                     | 0.40              |
| 51:o:4:ILE:C      | 51:o:6:LYS:HZ2    | 2.26                     | 0.40              |
| 52:p:106:ASN:HA   | 52:p:109:VAL:HG12 | 2.03                     | 0.40              |
| 57:u:39:LYS:HD2   | 57:u:45:ILE:HG21  | 2.03                     | 0.40              |
| 2:1:25:TYR:HD1    | 4:3:2400:A:H4'    | 1.86                     | 0.40              |
| 4:3:38:G:N3       | 4:3:486:G:O2'     | 2.54                     | 0.40              |
| 4:3:342:G:C2      | 4:3:536:A:N7      | 2.90                     | 0.40              |
| 4:3:487:C:O2      | 4:3:489:A:N6      | 2.55                     | 0.40              |
| 4:3:495:U:H2'     | 4:3:496:A:H8      | 1.87                     | 0.40              |
| 4:3:549:A:H2'     | 4:3:550:A:C8      | 2.57                     | 0.40              |
| 4:3:598:G:H2'     | 4:3:599:U:C6      | 2.56                     | 0.40              |
| 4:3:759:U:C4      | 4:3:760:G:C5      | 3.09                     | 0.40              |
| 4:3:1103:G:H4'    | 4:3:1105:A:H62    | 1.86                     | 0.40              |
| 4:3:1117:U:H2'    | 4:3:1118:U:O4'    | 2.21                     | 0.40              |
| 4:3:1263:G:H2'    | 4:3:1264:U:C6     | 2.56                     | 0.40              |
| 4:3:1795:C:OP1    | 38:a:229:ARG:NH2  | 2.48                     | 0.40              |
| 4:3:1872:U:C2     | 4:3:1882:G:N1     | 2.90                     | 0.40              |
| 4:3:2160:U:H2'    | 4:3:2161:G:C8     | 2.56                     | 0.40              |
| 4:3:2259:G:O2'    | 4:3:2457:U:O2     | 2.23                     | 0.40              |
| 4:3:2264:G:H2'    | 4:3:2265:U:C6     | 2.57                     | 0.40              |
| 4:3:2336:A:H61    | 4:3:2395:U:H3     | 1.69                     | 0.40              |
| 4:3:2590:G:C2     | 4:3:2591:G:C2     | 3.09                     | 0.40              |
| 4:3:2821:U:O2'    | 4:3:2841:A:H1'    | 2.21                     | 0.40              |
| 4:3:2823:A:C6     | 4:3:2832:G:C6     | 3.09                     | 0.40              |
| 4:3:2845:U:C2     | 4:3:2846:A:C8     | 3.10                     | 0.40              |

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| Atom-1           | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|--------------------|--------------------------|-------------------|
| 6:5:983:G:N2     | 6:5:1012:A:H8      | 2.17                     | 0.40              |
| 6:5:1038:G:OP1   | 27:M:4:LYS:HE3     | 2.20                     | 0.40              |
| 6:5:1131:A:C4    | 6:5:1132:G:C8      | 3.10                     | 0.40              |
| 9:8:567:GLY:HA3  | 15:AE:31:LYS:CD    | 2.49                     | 0.40              |
| 9:8:1136:SER:HA  | 9:8:1146:LEU:CD1   | 2.52                     | 0.40              |
| 9:8:1297:TYR:CB  | 37:Z:554:LEU:HD21  | 2.52                     | 0.40              |
| 15:AE:19:ASP:CG  | 15:AE:91:ASN:HD22  | 2.30                     | 0.40              |
| 16:B:87:LYS:O    | 16:B:91:GLN:OE1    | 2.39                     | 0.40              |
| 20:F:26:ILE:HG21 | 20:F:39:GLN:NE2    | 2.37                     | 0.40              |
| 21:G:15:VAL:HG21 | 21:G:138:LEU:HD12  | 2.03                     | 0.40              |
| 24:J:19:SER:N    | 24:J:22:ASN:O      | 2.54                     | 0.40              |
| 29:O:58:LYS:HB3  | 29:O:64:ARG:HH12   | 1.84                     | 0.40              |
| 32:R:42:PRO:HD3  | 32:R:67:VAL:HG21   | 2.03                     | 0.40              |
| 37:Z:553:ILE:CD1 | 37:Z:1270:THR:HG23 | 2.51                     | 0.40              |
| 39:b:17:PHE:HB3  | 51:o:17:GLN:HE22   | 1.87                     | 0.40              |
| 43:f:10:SER:OG   | 43:f:14:LYS:NZ     | 2.31                     | 0.40              |
| 43:f:67:LYS:HA   | 43:f:70:GLU:OE1    | 2.21                     | 0.40              |
| 47:k:82:LEU:HA   | 47:k:85:ILE:HG22   | 2.03                     | 0.40              |
| 49:m:104:GLY:O   | 49:m:113:MET:HE2   | 2.21                     | 0.40              |
| 58:v:16:ASN:ND2  | 58:v:25:THR:H      | 2.19                     | 0.40              |
| 61:y:38:LEU:HD22 | 61:y:41:ARG:HD3    | 2.04                     | 0.40              |
| 1:0:2:LYS:HE3    | 4:3:722:C:H4'      | 2.04                     | 0.40              |
| 1:0:39:ARG:NE    | 4:3:494:G:O2'      | 2.55                     | 0.40              |
| 2:1:2:LYS:HE3    | 4:3:246:G:O2'      | 2.21                     | 0.40              |
| 4:3:205:C:H1'    | 4:3:255:A:H2       | 1.86                     | 0.40              |
| 4:3:308:A:H2'    | 4:3:309:A:C8       | 2.57                     | 0.40              |
| 4:3:343:A:H1'    | 4:3:363:G:N3       | 2.36                     | 0.40              |
| 4:3:436:G:N7     | 58:v:56:ARG:NH1    | 2.68                     | 0.40              |
| 4:3:490:A:H3'    | 4:3:491:A:C8       | 2.57                     | 0.40              |
| 4:3:573:A:H2'    | 4:3:574:G:O4'      | 2.21                     | 0.40              |
| 4:3:596:G:C6     | 4:3:2025:C:C2      | 3.09                     | 0.40              |
| 4:3:738:U:H3     | 4:3:763:G:H1       | 1.70                     | 0.40              |
| 4:3:794:G:H2'    | 4:3:795:G:C8       | 2.55                     | 0.40              |
| 4:3:1245:G:H4'   | 52:p:7:LYS:HZ1     | 1.86                     | 0.40              |
| 4:3:1418:U:C2    | 4:3:1423:A:N6      | 2.89                     | 0.40              |
| 4:3:1838:A:H2'   | 4:3:1839:C:H6      | 1.87                     | 0.40              |
| 4:3:1841:U:H4'   | 4:3:1842:G:H5'     | 2.03                     | 0.40              |
| 4:3:2003:C:H4'   | 4:3:2004:G:O4'     | 2.20                     | 0.40              |
| 4:3:2364:A:H2    | 4:3:2370:G:N1      | 2.19                     | 0.40              |
| 4:3:2513:G:H2'   | 4:3:2584:G:H1      | 1.86                     | 0.40              |
| 4:3:2633:C:H2'   | 4:3:2634:C:C6      | 2.56                     | 0.40              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 4:3:2748:A:H2'    | 4:3:2749:A:C8      | 2.57                     | 0.40              |
| 4:3:2793:U:H2'    | 4:3:2794:U:C6      | 2.56                     | 0.40              |
| 6:5:31:U:H3       | 6:5:551:A:H61      | 1.69                     | 0.40              |
| 6:5:408:U:H1'     | 6:5:409:G:H2'      | 2.03                     | 0.40              |
| 6:5:449:A:OP2     | 29:O:38:LYS:NZ     | 2.38                     | 0.40              |
| 6:5:554:C:N4      | 6:5:555:G:O6       | 2.54                     | 0.40              |
| 6:5:1118:A:N7     | 6:5:1119:C:H1'     | 2.37                     | 0.40              |
| 6:5:1209:C:H2'    | 6:5:1210:U:O4'     | 2.21                     | 0.40              |
| 6:5:1390:G:H2'    | 6:5:1391:A:C8      | 2.56                     | 0.40              |
| 8:7:2:G:H1        | 8:7:74:A:H62       | 1.69                     | 0.40              |
| 8:7:57:C:H3'      | 8:7:58:G:H8        | 1.86                     | 0.40              |
| 9:8:161:ILE:HG23  | 9:8:184:CYS:SG     | 2.61                     | 0.40              |
| 12:AB:67:LEU:CD2  | 12:AB:103:ARG:HG2  | 2.51                     | 0.40              |
| 13:AC:29:DC:C5'   | 37:Z:1057:VAL:HG22 | 2.28                     | 0.40              |
| 23:I:50:THR:O     | 23:I:52:LYS:HG3    | 2.21                     | 0.40              |
| 30:P:23:THR:HG22  | 30:P:46:GLN:OE1    | 2.21                     | 0.40              |
| 34:T:41:ARG:O     | 34:T:44:GLU:HG3    | 2.21                     | 0.40              |
| 35:U:157:VAL:HG22 | 36:X:28:PHE:CD2    | 2.56                     | 0.40              |
| 37:Z:1069:GLU:HB2 | 37:Z:1095:ARG:HH11 | 1.85                     | 0.40              |
| 45:i:60:ILE:HG23  | 45:i:131:ASP:HA    | 2.02                     | 0.40              |
| 48:l:17:TYR:HD1   | 48:l:41:TRP:NE1    | 2.19                     | 0.40              |
| 48:l:42:ILE:HD12  | 48:l:126:PRO:HG2   | 2.03                     | 0.40              |
| 52:p:100:LYS:HD3  | 52:p:100:LYS:HA    | 1.59                     | 0.40              |
| 4:3:725:G:N2      | 4:3:807:U:O2       | 2.35                     | 0.40              |
| 4:3:739:G:O2'     | 4:3:761:G:N1       | 2.25                     | 0.40              |
| 4:3:806:A:H2'     | 4:3:807:U:C6       | 2.57                     | 0.40              |
| 4:3:965:U:H2'     | 4:3:966:U:C6       | 2.57                     | 0.40              |
| 4:3:985:A:N6      | 4:3:1005:G:O6      | 2.54                     | 0.40              |
| 4:3:1760:G:N2     | 4:3:1762:A:H5''    | 2.36                     | 0.40              |
| 4:3:1821:G:H2'    | 4:3:1822:A:C8      | 2.57                     | 0.40              |
| 4:3:2538:A:C5     | 42:e:160:TYR:HE1   | 2.39                     | 0.40              |
| 4:3:2614:U:H2'    | 4:3:2615:G:C8      | 2.56                     | 0.40              |
| 4:3:2637:A:N3     | 4:3:2898:A:N6      | 2.70                     | 0.40              |
| 5:4:30:U:C2       | 5:4:49:G:N2        | 2.89                     | 0.40              |
| 6:5:40:G:H2'      | 6:5:41:C:C6        | 2.56                     | 0.40              |
| 6:5:398:G:H2'     | 6:5:399:C:C6       | 2.56                     | 0.40              |
| 6:5:602:G:O6      | 6:5:632:A:N6       | 2.55                     | 0.40              |
| 6:5:671:G:H1      | 6:5:713:A:H61      | 1.69                     | 0.40              |
| 6:5:680:G:C6      | 6:5:681:U:C4       | 3.09                     | 0.40              |
| 6:5:960:C:H5'     | 6:5:964:A:H5'      | 2.04                     | 0.40              |
| 6:5:1225:A:C6     | 6:5:1226:A:C6      | 3.10                     | 0.40              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 6:5:1286:G:C2     | 6:5:1287:G:C8      | 3.10                     | 0.40              |
| 7:6:44:ARG:HH11   | 9:8:1232:ARG:HA    | 1.86                     | 0.40              |
| 8:7:12:C:H2'      | 8:7:13:U:C6        | 2.56                     | 0.40              |
| 9:8:265:LEU:HD23  | 9:8:276:LEU:CD1    | 2.51                     | 0.40              |
| 9:8:348:VAL:HG13  | 9:8:353:ILE:HB     | 2.03                     | 0.40              |
| 9:8:640:ASP:OD1   | 9:8:641:PRO:HD2    | 2.21                     | 0.40              |
| 9:8:1162:LEU:HD13 | 9:8:1168:ALA:HA    | 2.03                     | 0.40              |
| 9:8:1225:LYS:NZ   | 37:Z:738:ASP:OD2   | 2.55                     | 0.40              |
| 9:8:1307:LEU:HD22 | 37:Z:406:LYS:CD    | 2.52                     | 0.40              |
| 10:9:27:PHE:CE2   | 10:9:53:TYR:HD2    | 2.39                     | 0.40              |
| 11:A:64:SER:O     | 11:A:67:THR:OG1    | 2.32                     | 0.40              |
| 12:AB:37:ALA:HA   | 12:AB:122:LEU:HD23 | 2.03                     | 0.40              |
| 12:AB:183:LYS:HZ2 | 12:AB:245:GLY:C    | 2.24                     | 0.40              |
| 16:B:189:LEU:HD12 | 16:B:202:LYS:HE2   | 2.04                     | 0.40              |
| 19:E:13:LEU:HD12  | 19:E:17:GLN:NE2    | 2.36                     | 0.40              |
| 22:H:90:LEU:HD23  | 22:H:90:LEU:HA     | 1.89                     | 0.40              |
| 23:I:47:PRO:HA    | 23:I:78:ARG:HH22   | 1.86                     | 0.40              |
| 24:J:77:LEU:HB3   | 24:J:103:ILE:HG13  | 2.03                     | 0.40              |
| 25:K:80:ILE:HB    | 25:K:110:ILE:HD12  | 2.03                     | 0.40              |
| 29:O:58:LYS:HA    | 29:O:59:PRO:HD3    | 1.97                     | 0.40              |
| 38:a:185:LEU:HD23 | 38:a:186:SER:H     | 1.86                     | 0.40              |
| 45:i:134:ASN:OD1  | 45:i:134:ASN:N     | 2.54                     | 0.40              |
| 48:l:3:GLN:HE22   | 48:l:93:TRP:NE1    | 2.19                     | 0.40              |
| 48:l:54:ILE:HA    | 48:l:57:CYS:SG     | 2.61                     | 0.40              |
| 52:p:43:LYS:HZ3   | 53:q:73:HIS:C      | 2.25                     | 0.40              |
| 62:z:12:ASN:OD1   | 62:z:13:ASP:N      | 2.53                     | 0.40              |

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

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   | 0     | 45/47 (96%)      | 44 (98%)   | 1 (2%)   | 0        | 100         | 100 |
| 2   | 1     | 57/59 (97%)      | 54 (95%)   | 3 (5%)   | 0        | 100         | 100 |
| 3   | 2     | 35/37 (95%)      | 33 (94%)   | 2 (6%)   | 0        | 100         | 100 |
| 7   | 6     | 304/327 (93%)    | 301 (99%)  | 3 (1%)   | 0        | 100         | 100 |
| 7   | AA    | 308/327 (94%)    | 305 (99%)  | 3 (1%)   | 0        | 100         | 100 |
| 9   | 8     | 1389/1391 (100%) | 1355 (98%) | 33 (2%)  | 1 (0%)   | 48          | 83  |
| 10  | 9     | 87/89 (98%)      | 85 (98%)   | 2 (2%)   | 0        | 100         | 100 |
| 11  | A     | 238/240 (99%)    | 222 (93%)  | 16 (7%)  | 0        | 100         | 100 |
| 12  | AB    | 358/366 (98%)    | 350 (98%)  | 6 (2%)   | 2 (1%)   | 21          | 59  |
| 15  | AE    | 158/160 (99%)    | 155 (98%)  | 1 (1%)   | 2 (1%)   | 9           | 41  |
| 16  | B     | 213/215 (99%)    | 197 (92%)  | 16 (8%)  | 0        | 100         | 100 |
| 17  | C     | 201/203 (99%)    | 191 (95%)  | 10 (5%)  | 0        | 100         | 100 |
| 18  | D     | 151/153 (99%)    | 145 (96%)  | 6 (4%)   | 0        | 100         | 100 |
| 19  | E     | 165/167 (99%)    | 147 (89%)  | 18 (11%) | 0        | 100         | 100 |
| 20  | F     | 152/154 (99%)    | 135 (89%)  | 17 (11%) | 0        | 100         | 100 |
| 21  | G     | 139/141 (99%)    | 125 (90%)  | 14 (10%) | 0        | 100         | 100 |
| 22  | H     | 126/128 (98%)    | 115 (91%)  | 11 (9%)  | 0        | 100         | 100 |
| 23  | I     | 99/101 (98%)     | 87 (88%)   | 12 (12%) | 0        | 100         | 100 |
| 24  | J     | 112/114 (98%)    | 105 (94%)  | 7 (6%)   | 0        | 100         | 100 |
| 25  | K     | 134/136 (98%)    | 126 (94%)  | 8 (6%)   | 0        | 100         | 100 |
| 26  | L     | 116/118 (98%)    | 104 (90%)  | 12 (10%) | 0        | 100         | 100 |
| 27  | M     | 58/60 (97%)      | 56 (97%)   | 2 (3%)   | 0        | 100         | 100 |
| 28  | N     | 81/83 (98%)      | 81 (100%)  | 0        | 0        | 100         | 100 |
| 29  | O     | 78/80 (98%)      | 70 (90%)   | 8 (10%)  | 0        | 100         | 100 |
| 30  | P     | 81/83 (98%)      | 78 (96%)   | 3 (4%)   | 0        | 100         | 100 |
| 31  | Q     | 63/65 (97%)      | 51 (81%)   | 12 (19%) | 0        | 100         | 100 |
| 32  | R     | 82/84 (98%)      | 73 (89%)   | 9 (11%)  | 0        | 100         | 100 |
| 33  | S     | 75/77 (97%)      | 74 (99%)   | 1 (1%)   | 0        | 100         | 100 |
| 34  | T     | 51/53 (96%)      | 50 (98%)   | 1 (2%)   | 0        | 100         | 100 |
| 35  | U     | 159/161 (99%)    | 154 (97%)  | 4 (2%)   | 1 (1%)   | 21          | 59  |
| 36  | V     | 27/29 (93%)      | 27 (100%)  | 0        | 0        | 100         | 100 |
| 36  | W     | 27/29 (93%)      | 27 (100%)  | 0        | 0        | 100         | 100 |

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| Mol | Chain | Analysed         | Favoured   | Allowed  | Outliers | Percentiles |     |
|-----|-------|------------------|------------|----------|----------|-------------|-----|
| 36  | X     | 27/29 (93%)      | 27 (100%)  | 0        | 0        | 100         | 100 |
| 36  | Y     | 27/29 (93%)      | 27 (100%)  | 0        | 0        | 100         | 100 |
| 37  | Z     | 1274/1276 (100%) | 1251 (98%) | 22 (2%)  | 1 (0%)   | 48          | 83  |
| 38  | a     | 283/285 (99%)    | 265 (94%)  | 18 (6%)  | 0        | 100         | 100 |
| 39  | b     | 227/229 (99%)    | 214 (94%)  | 13 (6%)  | 0        | 100         | 100 |
| 40  | c     | 208/210 (99%)    | 197 (95%)  | 11 (5%)  | 0        | 100         | 100 |
| 41  | d     | 173/175 (99%)    | 160 (92%)  | 13 (8%)  | 0        | 100         | 100 |
| 42  | e     | 174/176 (99%)    | 166 (95%)  | 8 (5%)   | 0        | 100         | 100 |
| 43  | f     | 143/145 (99%)    | 125 (87%)  | 18 (13%) | 0        | 100         | 100 |
| 44  | h     | 126/128 (98%)    | 114 (90%)  | 12 (10%) | 0        | 100         | 100 |
| 45  | i     | 142/144 (99%)    | 136 (96%)  | 6 (4%)   | 0        | 100         | 100 |
| 46  | j     | 120/122 (98%)    | 113 (94%)  | 7 (6%)   | 0        | 100         | 100 |
| 47  | k     | 146/148 (99%)    | 139 (95%)  | 7 (5%)   | 0        | 100         | 100 |
| 48  | l     | 134/136 (98%)    | 124 (92%)  | 10 (8%)  | 0        | 100         | 100 |
| 49  | m     | 117/119 (98%)    | 108 (92%)  | 9 (8%)   | 0        | 100         | 100 |
| 50  | n     | 108/116 (93%)    | 99 (92%)   | 9 (8%)   | 0        | 100         | 100 |
| 51  | o     | 113/115 (98%)    | 101 (89%)  | 12 (11%) | 0        | 100         | 100 |
| 52  | p     | 112/114 (98%)    | 108 (96%)  | 4 (4%)   | 0        | 100         | 100 |
| 53  | q     | 97/99 (98%)      | 90 (93%)   | 7 (7%)   | 0        | 100         | 100 |
| 54  | r     | 137/139 (99%)    | 134 (98%)  | 3 (2%)   | 0        | 100         | 100 |
| 55  | s     | 90/92 (98%)      | 88 (98%)   | 2 (2%)   | 0        | 100         | 100 |
| 56  | t     | 109/111 (98%)    | 104 (95%)  | 5 (5%)   | 0        | 100         | 100 |
| 57  | u     | 84/86 (98%)      | 81 (96%)   | 3 (4%)   | 0        | 100         | 100 |
| 58  | v     | 61/63 (97%)      | 59 (97%)   | 2 (3%)   | 0        | 100         | 100 |
| 59  | w     | 96/108 (89%)     | 89 (93%)   | 7 (7%)   | 0        | 100         | 100 |
| 60  | x     | 42/44 (96%)      | 35 (83%)   | 7 (17%)  | 0        | 100         | 100 |
| 61  | y     | 54/56 (96%)      | 52 (96%)   | 2 (4%)   | 0        | 100         | 100 |
| 62  | z     | 48/50 (96%)      | 47 (98%)   | 1 (2%)   | 0        | 100         | 100 |
| All | All   | 9841/10021 (98%) | 9375 (95%) | 459 (5%) | 7 (0%)   | 49          | 83  |

All (7) Ramachandran outliers are listed below:

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 15  | AE    | 95   | ARG  |
| 9   | 8     | 582  | LYS  |
| 37  | Z     | 1035 | GLY  |
| 35  | U     | 106  | MET  |
| 12  | AB    | 3    | ASN  |
| 12  | AB    | 10   | ASN  |
| 15  | AE    | 17   | VAL  |

### 5.3.2 Protein sidechains ⓘ

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

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

| Mol | Chain | Analysed         | Rotameric  | Outliers | Percentiles |     |
|-----|-------|------------------|------------|----------|-------------|-----|
| 1   | 0     | 40/40 (100%)     | 40 (100%)  | 0        | 100         | 100 |
| 2   | 1     | 51/51 (100%)     | 51 (100%)  | 0        | 100         | 100 |
| 3   | 2     | 35/35 (100%)     | 35 (100%)  | 0        | 100         | 100 |
| 7   | 6     | 269/285 (94%)    | 262 (97%)  | 7 (3%)   | 40          | 61  |
| 7   | AA    | 272/285 (95%)    | 265 (97%)  | 7 (3%)   | 40          | 61  |
| 9   | 8     | 1213/1213 (100%) | 1188 (98%) | 25 (2%)  | 47          | 65  |
| 10  | 9     | 83/83 (100%)     | 79 (95%)   | 4 (5%)   | 23          | 44  |
| 11  | A     | 212/212 (100%)   | 211 (100%) | 1 (0%)   | 81          | 83  |
| 12  | AB    | 327/327 (100%)   | 322 (98%)  | 5 (2%)   | 57          | 71  |
| 15  | AE    | 140/140 (100%)   | 134 (96%)  | 6 (4%)   | 26          | 47  |
| 16  | B     | 180/180 (100%)   | 180 (100%) | 0        | 100         | 100 |
| 17  | C     | 181/181 (100%)   | 181 (100%) | 0        | 100         | 100 |
| 18  | D     | 123/123 (100%)   | 123 (100%) | 0        | 100         | 100 |
| 19  | E     | 150/150 (100%)   | 150 (100%) | 0        | 100         | 100 |
| 20  | F     | 131/131 (100%)   | 131 (100%) | 0        | 100         | 100 |
| 21  | G     | 123/123 (100%)   | 123 (100%) | 0        | 100         | 100 |
| 22  | H     | 111/111 (100%)   | 111 (100%) | 0        | 100         | 100 |
| 23  | I     | 95/95 (100%)     | 95 (100%)  | 0        | 100         | 100 |
| 24  | J     | 91/91 (100%)     | 91 (100%)  | 0        | 100         | 100 |

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| Mol | Chain | Analysed         | Rotameric  | Outliers | Percentiles |     |
|-----|-------|------------------|------------|----------|-------------|-----|
| 25  | K     | 117/117 (100%)   | 114 (97%)  | 3 (3%)   | 40          | 61  |
| 26  | L     | 100/100 (100%)   | 99 (99%)   | 1 (1%)   | 68          | 77  |
| 27  | M     | 47/47 (100%)     | 47 (100%)  | 0        | 100         | 100 |
| 28  | N     | 76/76 (100%)     | 76 (100%)  | 0        | 100         | 100 |
| 29  | O     | 69/69 (100%)     | 69 (100%)  | 0        | 100         | 100 |
| 30  | P     | 73/73 (100%)     | 73 (100%)  | 0        | 100         | 100 |
| 31  | Q     | 56/56 (100%)     | 56 (100%)  | 0        | 100         | 100 |
| 32  | R     | 74/74 (100%)     | 74 (100%)  | 0        | 100         | 100 |
| 33  | S     | 70/70 (100%)     | 70 (100%)  | 0        | 100         | 100 |
| 34  | T     | 49/49 (100%)     | 49 (100%)  | 0        | 100         | 100 |
| 35  | U     | 129/129 (100%)   | 129 (100%) | 0        | 100         | 100 |
| 36  | V     | 26/26 (100%)     | 26 (100%)  | 0        | 100         | 100 |
| 36  | W     | 26/26 (100%)     | 26 (100%)  | 0        | 100         | 100 |
| 36  | X     | 26/26 (100%)     | 26 (100%)  | 0        | 100         | 100 |
| 36  | Y     | 26/26 (100%)     | 26 (100%)  | 0        | 100         | 100 |
| 37  | Z     | 1113/1113 (100%) | 1100 (99%) | 13 (1%)  | 63          | 75  |
| 38  | a     | 241/241 (100%)   | 241 (100%) | 0        | 100         | 100 |
| 39  | b     | 186/186 (100%)   | 186 (100%) | 0        | 100         | 100 |
| 40  | c     | 182/182 (100%)   | 182 (100%) | 0        | 100         | 100 |
| 41  | d     | 150/150 (100%)   | 150 (100%) | 0        | 100         | 100 |
| 42  | e     | 153/153 (100%)   | 153 (100%) | 0        | 100         | 100 |
| 43  | f     | 123/131 (94%)    | 123 (100%) | 0        | 100         | 100 |
| 44  | h     | 102/102 (100%)   | 102 (100%) | 0        | 100         | 100 |
| 45  | i     | 126/126 (100%)   | 126 (100%) | 0        | 100         | 100 |
| 46  | j     | 103/103 (100%)   | 103 (100%) | 0        | 100         | 100 |
| 47  | k     | 123/123 (100%)   | 123 (100%) | 0        | 100         | 100 |
| 48  | l     | 113/113 (100%)   | 113 (100%) | 0        | 100         | 100 |
| 49  | m     | 105/105 (100%)   | 105 (100%) | 0        | 100         | 100 |
| 50  | n     | 96/99 (97%)      | 96 (100%)  | 0        | 100         | 100 |
| 51  | o     | 101/101 (100%)   | 101 (100%) | 0        | 100         | 100 |
| 52  | p     | 100/100 (100%)   | 100 (100%) | 0        | 100         | 100 |

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| Mol | Chain | Analysed        | Rotameric  | Outliers | Percentiles |     |
|-----|-------|-----------------|------------|----------|-------------|-----|
| 53  | q     | 90/90 (100%)    | 90 (100%)  | 0        | 100         | 100 |
| 54  | r     | 116/116 (100%)  | 116 (100%) | 0        | 100         | 100 |
| 55  | s     | 82/82 (100%)    | 82 (100%)  | 0        | 100         | 100 |
| 56  | t     | 96/96 (100%)    | 96 (100%)  | 0        | 100         | 100 |
| 57  | u     | 69/69 (100%)    | 69 (100%)  | 0        | 100         | 100 |
| 58  | v     | 58/58 (100%)    | 58 (100%)  | 0        | 100         | 100 |
| 59  | w     | 87/95 (92%)     | 87 (100%)  | 0        | 100         | 100 |
| 60  | x     | 41/41 (100%)    | 41 (100%)  | 0        | 100         | 100 |
| 61  | y     | 48/48 (100%)    | 45 (94%)   | 3 (6%)   | 16          | 37  |
| 62  | z     | 47/47 (100%)    | 47 (100%)  | 0        | 100         | 100 |
| All | All   | 8642/8690 (99%) | 8567 (99%) | 75 (1%)  | 68          | 78  |

All (75) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 7   | 6     | 34  | PHE  |
| 7   | 6     | 50  | ILE  |
| 7   | 6     | 58  | LEU  |
| 7   | 6     | 59  | SER  |
| 7   | 6     | 106 | LEU  |
| 7   | 6     | 208 | HIS  |
| 7   | 6     | 297 | LEU  |
| 9   | 8     | 135 | LEU  |
| 9   | 8     | 187 | LEU  |
| 9   | 8     | 204 | ILE  |
| 9   | 8     | 258 | VAL  |
| 9   | 8     | 265 | LEU  |
| 9   | 8     | 284 | THR  |
| 9   | 8     | 310 | GLU  |
| 9   | 8     | 314 | LEU  |
| 9   | 8     | 334 | LEU  |
| 9   | 8     | 355 | LEU  |
| 9   | 8     | 408 | LEU  |
| 9   | 8     | 428 | VAL  |
| 9   | 8     | 446 | PHE  |
| 9   | 8     | 459 | VAL  |
| 9   | 8     | 514 | ILE  |
| 9   | 8     | 554 | LEU  |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 9   | 8     | 585  | LEU  |
| 9   | 8     | 673  | LEU  |
| 9   | 8     | 863  | LEU  |
| 9   | 8     | 988  | VAL  |
| 9   | 8     | 1037 | ASP  |
| 9   | 8     | 1137 | THR  |
| 9   | 8     | 1149 | LEU  |
| 9   | 8     | 1179 | LEU  |
| 9   | 8     | 1386 | PHE  |
| 10  | 9     | 5    | TYR  |
| 10  | 9     | 8    | LEU  |
| 10  | 9     | 10   | SER  |
| 10  | 9     | 57   | LEU  |
| 11  | A     | 51   | HIS  |
| 7   | AA    | 34   | PHE  |
| 7   | AA    | 50   | ILE  |
| 7   | AA    | 58   | LEU  |
| 7   | AA    | 59   | SER  |
| 7   | AA    | 106  | LEU  |
| 7   | AA    | 297  | LEU  |
| 7   | AA    | 319  | HIS  |
| 12  | AB    | 22   | THR  |
| 12  | AB    | 61   | LEU  |
| 12  | AB    | 121  | LEU  |
| 12  | AB    | 122  | LEU  |
| 12  | AB    | 181  | LEU  |
| 15  | AE    | 17   | VAL  |
| 15  | AE    | 19   | ASP  |
| 15  | AE    | 45   | LEU  |
| 15  | AE    | 62   | LEU  |
| 15  | AE    | 92   | LEU  |
| 15  | AE    | 141  | LEU  |
| 25  | K     | 120  | VAL  |
| 25  | K     | 121  | GLU  |
| 25  | K     | 122  | LYS  |
| 26  | L     | 91   | HIS  |
| 37  | Z     | 174  | LEU  |
| 37  | Z     | 192  | ILE  |
| 37  | Z     | 219  | LEU  |
| 37  | Z     | 268  | SER  |
| 37  | Z     | 281  | LEU  |
| 37  | Z     | 493  | LEU  |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 37  | Z     | 757  | LEU  |
| 37  | Z     | 843  | SER  |
| 37  | Z     | 937  | VAL  |
| 37  | Z     | 1092 | VAL  |
| 37  | Z     | 1197 | LEU  |
| 37  | Z     | 1218 | ILE  |
| 37  | Z     | 1278 | LEU  |
| 61  | y     | 47   | MET  |
| 61  | y     | 48   | TYR  |
| 61  | y     | 52   | ARG  |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (119) such sidechains are listed below:

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | 1     | 44   | GLN  |
| 7   | 6     | 174  | ASN  |
| 7   | 6     | 190  | HIS  |
| 9   | 8     | 47   | HIS  |
| 9   | 8     | 63   | ASN  |
| 9   | 8     | 132  | ASN  |
| 9   | 8     | 179  | GLN  |
| 9   | 8     | 210  | GLN  |
| 9   | 8     | 349  | HIS  |
| 9   | 8     | 413  | HIS  |
| 9   | 8     | 477  | ASN  |
| 9   | 8     | 616  | GLN  |
| 9   | 8     | 624  | ASN  |
| 9   | 8     | 652  | GLN  |
| 9   | 8     | 841  | GLN  |
| 9   | 8     | 842  | HIS  |
| 9   | 8     | 883  | ASN  |
| 9   | 8     | 901  | ASN  |
| 9   | 8     | 1033 | ASN  |
| 9   | 8     | 1115 | HIS  |
| 9   | 8     | 1140 | ASN  |
| 9   | 8     | 1192 | HIS  |
| 9   | 8     | 1253 | HIS  |
| 9   | 8     | 1273 | GLN  |
| 9   | 8     | 1304 | GLN  |
| 11  | A     | 52   | ASN  |
| 11  | A     | 63   | GLN  |
| 11  | A     | 66   | GLN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 11  | A     | 70  | ASN  |
| 11  | A     | 97  | ASN  |
| 11  | A     | 98  | ASN  |
| 11  | A     | 192 | ASN  |
| 7   | AA    | 40  | ASN  |
| 7   | AA    | 86  | GLN  |
| 7   | AA    | 184 | ASN  |
| 7   | AA    | 287 | HIS  |
| 7   | AA    | 319 | HIS  |
| 12  | AB    | 6   | ASN  |
| 12  | AB    | 7   | HIS  |
| 12  | AB    | 291 | ASN  |
| 12  | AB    | 300 | ASN  |
| 15  | AE    | 113 | ASN  |
| 16  | B     | 6   | ASN  |
| 16  | B     | 47  | ASN  |
| 16  | B     | 193 | GLN  |
| 18  | D     | 190 | ASN  |
| 18  | D     | 193 | HIS  |
| 19  | E     | 17  | GLN  |
| 19  | E     | 36  | GLN  |
| 19  | E     | 106 | GLN  |
| 20  | F     | 85  | GLN  |
| 21  | G     | 56  | ASN  |
| 22  | H     | 77  | GLN  |
| 23  | I     | 74  | ASN  |
| 25  | K     | 59  | ASN  |
| 25  | K     | 86  | ASN  |
| 25  | K     | 88  | GLN  |
| 25  | K     | 90  | HIS  |
| 26  | L     | 40  | ASN  |
| 28  | N     | 13  | GLN  |
| 28  | N     | 39  | HIS  |
| 30  | P     | 5   | GLN  |
| 31  | Q     | 82  | HIS  |
| 32  | R     | 47  | ASN  |
| 33  | S     | 20  | ASN  |
| 33  | S     | 43  | ASN  |
| 33  | S     | 46  | ASN  |
| 34  | T     | 8   | ASN  |
| 35  | U     | 16  | HIS  |
| 35  | U     | 57  | ASN  |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 37  | Z     | 137  | GLN  |
| 37  | Z     | 143  | ASN  |
| 37  | Z     | 296  | ASN  |
| 37  | Z     | 314  | GLN  |
| 37  | Z     | 355  | ASN  |
| 37  | Z     | 374  | HIS  |
| 37  | Z     | 402  | ASN  |
| 37  | Z     | 500  | HIS  |
| 37  | Z     | 820  | ASN  |
| 37  | Z     | 906  | HIS  |
| 37  | Z     | 968  | GLN  |
| 37  | Z     | 1018 | GLN  |
| 37  | Z     | 1082 | ASN  |
| 37  | Z     | 1190 | HIS  |
| 37  | Z     | 1192 | HIS  |
| 37  | Z     | 1213 | ASN  |
| 38  | a     | 62   | ASN  |
| 38  | a     | 159  | GLN  |
| 38  | a     | 209  | ASN  |
| 39  | b     | 178  | ASN  |
| 40  | c     | 104  | ASN  |
| 40  | c     | 108  | HIS  |
| 41  | d     | 7    | HIS  |
| 42  | e     | 6    | ASN  |
| 42  | e     | 54   | GLN  |
| 42  | e     | 63   | GLN  |
| 42  | e     | 68   | HIS  |
| 42  | e     | 72   | ASN  |
| 45  | i     | 61   | ASN  |
| 45  | i     | 138  | GLN  |
| 47  | k     | 36   | GLN  |
| 48  | l     | 14   | ASN  |
| 48  | l     | 113  | GLN  |
| 49  | m     | 59   | ASN  |
| 49  | m     | 117  | GLN  |
| 50  | n     | 75   | GLN  |
| 52  | p     | 85   | HIS  |
| 53  | q     | 69   | ASN  |
| 54  | r     | 52   | ASN  |
| 54  | r     | 94   | ASN  |
| 55  | s     | 5    | ASN  |
| 55  | s     | 19   | ASN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 56  | t     | 33  | GLN  |
| 56  | t     | 64  | GLN  |
| 57  | u     | 64  | ASN  |
| 58  | v     | 6   | GLN  |
| 58  | v     | 16  | ASN  |
| 61  | y     | 19  | HIS  |
| 62  | z     | 18  | ASN  |

### 5.3.3 RNA ⓘ

| Mol | Chain | Analysed        | Backbone Outliers | Pucker Outliers |
|-----|-------|-----------------|-------------------|-----------------|
| 4   | 3     | 2875/2893 (99%) | 733 (25%)         | 25 (0%)         |
| 5   | 4     | 103/108 (95%)   | 34 (33%)          | 5 (4%)          |
| 6   | 5     | 1490/1505 (99%) | 349 (23%)         | 6 (0%)          |
| 8   | 7     | 75/76 (98%)     | 25 (33%)          | 2 (2%)          |
| All | All   | 4543/4582 (99%) | 1141 (25%)        | 38 (0%)         |

All (1141) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 4   | 3     | 12  | A    |
| 4   | 3     | 14  | U    |
| 4   | 3     | 15  | A    |
| 4   | 3     | 17  | G    |
| 4   | 3     | 29  | G    |
| 4   | 3     | 37  | G    |
| 4   | 3     | 47  | G    |
| 4   | 3     | 48  | G    |
| 4   | 3     | 51  | A    |
| 4   | 3     | 53  | G    |
| 4   | 3     | 54  | A    |
| 4   | 3     | 63  | U    |
| 4   | 3     | 65  | A    |
| 4   | 3     | 73  | A    |
| 4   | 3     | 75  | A    |
| 4   | 3     | 76  | A    |
| 4   | 3     | 77  | G    |
| 4   | 3     | 82  | G    |
| 4   | 3     | 86  | A    |
| 4   | 3     | 92  | U    |
| 4   | 3     | 102 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 4   | 3     | 103 | G    |
| 4   | 3     | 112 | A    |
| 4   | 3     | 115 | U    |
| 4   | 3     | 116 | C    |
| 4   | 3     | 119 | A    |
| 4   | 3     | 120 | A    |
| 4   | 3     | 121 | U    |
| 4   | 3     | 122 | G    |
| 4   | 3     | 126 | C    |
| 4   | 3     | 129 | U    |
| 4   | 3     | 132 | G    |
| 4   | 3     | 141 | A    |
| 4   | 3     | 143 | A    |
| 4   | 3     | 148 | U    |
| 4   | 3     | 165 | U    |
| 4   | 3     | 178 | A    |
| 4   | 3     | 180 | A    |
| 4   | 3     | 184 | A    |
| 4   | 3     | 185 | U    |
| 4   | 3     | 186 | A    |
| 4   | 3     | 187 | C    |
| 4   | 3     | 188 | G    |
| 4   | 3     | 200 | A    |
| 4   | 3     | 208 | A    |
| 4   | 3     | 219 | G    |
| 4   | 3     | 220 | A    |
| 4   | 3     | 226 | A    |
| 4   | 3     | 230 | G    |
| 4   | 3     | 232 | A    |
| 4   | 3     | 234 | G    |
| 4   | 3     | 237 | A    |
| 4   | 3     | 245 | U    |
| 4   | 3     | 246 | G    |
| 4   | 3     | 252 | G    |
| 4   | 3     | 254 | G    |
| 4   | 3     | 256 | G    |
| 4   | 3     | 269 | A    |
| 4   | 3     | 270 | G    |
| 4   | 3     | 276 | A    |
| 4   | 3     | 284 | U    |
| 4   | 3     | 287 | G    |
| 4   | 3     | 295 | U    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 4   | 3     | 296 | U    |
| 4   | 3     | 297 | G    |
| 4   | 3     | 298 | U    |
| 4   | 3     | 299 | A    |
| 4   | 3     | 309 | A    |
| 4   | 3     | 310 | U    |
| 4   | 3     | 312 | U    |
| 4   | 3     | 314 | G    |
| 4   | 3     | 315 | A    |
| 4   | 3     | 319 | G    |
| 4   | 3     | 325 | G    |
| 4   | 3     | 334 | A    |
| 4   | 3     | 336 | C    |
| 4   | 3     | 341 | G    |
| 4   | 3     | 345 | A    |
| 4   | 3     | 346 | G    |
| 4   | 3     | 347 | C    |
| 4   | 3     | 351 | G    |
| 4   | 3     | 357 | A    |
| 4   | 3     | 358 | A    |
| 4   | 3     | 363 | G    |
| 4   | 3     | 364 | A    |
| 4   | 3     | 367 | G    |
| 4   | 3     | 369 | C    |
| 4   | 3     | 374 | A    |
| 4   | 3     | 380 | A    |
| 4   | 3     | 401 | G    |
| 4   | 3     | 402 | A    |
| 4   | 3     | 403 | U    |
| 4   | 3     | 404 | C    |
| 4   | 3     | 409 | A    |
| 4   | 3     | 410 | G    |
| 4   | 3     | 411 | U    |
| 4   | 3     | 422 | A    |
| 4   | 3     | 425 | U    |
| 4   | 3     | 426 | U    |
| 4   | 3     | 432 | G    |
| 4   | 3     | 437 | A    |
| 4   | 3     | 439 | U    |
| 4   | 3     | 440 | C    |
| 4   | 3     | 441 | U    |
| 4   | 3     | 447 | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 4   | 3     | 448 | A    |
| 4   | 3     | 449 | C    |
| 4   | 3     | 457 | U    |
| 4   | 3     | 460 | G    |
| 4   | 3     | 464 | A    |
| 4   | 3     | 465 | A    |
| 4   | 3     | 466 | A    |
| 4   | 3     | 467 | U    |
| 4   | 3     | 480 | C    |
| 4   | 3     | 482 | G    |
| 4   | 3     | 484 | U    |
| 4   | 3     | 485 | A    |
| 4   | 3     | 487 | C    |
| 4   | 3     | 491 | A    |
| 4   | 3     | 492 | C    |
| 4   | 3     | 495 | U    |
| 4   | 3     | 500 | U    |
| 4   | 3     | 501 | G    |
| 4   | 3     | 509 | G    |
| 4   | 3     | 514 | A    |
| 4   | 3     | 515 | A    |
| 4   | 3     | 516 | A    |
| 4   | 3     | 517 | G    |
| 4   | 3     | 519 | A    |
| 4   | 3     | 527 | A    |
| 4   | 3     | 540 | A    |
| 4   | 3     | 543 | U    |
| 4   | 3     | 544 | U    |
| 4   | 3     | 545 | C    |
| 4   | 3     | 565 | C    |
| 4   | 3     | 566 | G    |
| 4   | 3     | 567 | U    |
| 4   | 3     | 581 | A    |
| 4   | 3     | 582 | A    |
| 4   | 3     | 583 | U    |
| 4   | 3     | 595 | U    |
| 4   | 3     | 596 | G    |
| 4   | 3     | 599 | U    |
| 4   | 3     | 601 | U    |
| 4   | 3     | 605 | A    |
| 4   | 3     | 606 | G    |
| 4   | 3     | 607 | U    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 4   | 3     | 608 | A    |
| 4   | 3     | 610 | G    |
| 4   | 3     | 616 | G    |
| 4   | 3     | 620 | G    |
| 4   | 3     | 623 | A    |
| 4   | 3     | 636 | U    |
| 4   | 3     | 637 | U    |
| 4   | 3     | 638 | A    |
| 4   | 3     | 663 | A    |
| 4   | 3     | 668 | A    |
| 4   | 3     | 670 | G    |
| 4   | 3     | 673 | A    |
| 4   | 3     | 681 | A    |
| 4   | 3     | 682 | A    |
| 4   | 3     | 689 | U    |
| 4   | 3     | 690 | U    |
| 4   | 3     | 691 | G    |
| 4   | 3     | 694 | U    |
| 4   | 3     | 695 | G    |
| 4   | 3     | 701 | A    |
| 4   | 3     | 702 | U    |
| 4   | 3     | 705 | A    |
| 4   | 3     | 706 | C    |
| 4   | 3     | 712 | A    |
| 4   | 3     | 721 | G    |
| 4   | 3     | 722 | C    |
| 4   | 3     | 730 | G    |
| 4   | 3     | 737 | U    |
| 4   | 3     | 740 | A    |
| 4   | 3     | 752 | C    |
| 4   | 3     | 761 | G    |
| 4   | 3     | 763 | G    |
| 4   | 3     | 764 | G    |
| 4   | 3     | 765 | A    |
| 4   | 3     | 769 | A    |
| 4   | 3     | 775 | C    |
| 4   | 3     | 782 | U    |
| 4   | 3     | 790 | U    |
| 4   | 3     | 792 | G    |
| 4   | 3     | 798 | G    |
| 4   | 3     | 799 | A    |
| 4   | 3     | 800 | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 4   | 3     | 801 | U    |
| 4   | 3     | 810 | G    |
| 4   | 3     | 811 | G    |
| 4   | 3     | 815 | G    |
| 4   | 3     | 816 | A    |
| 4   | 3     | 817 | A    |
| 4   | 3     | 819 | U    |
| 4   | 3     | 820 | U    |
| 4   | 3     | 824 | A    |
| 4   | 3     | 825 | U    |
| 4   | 3     | 827 | G    |
| 4   | 3     | 828 | A    |
| 4   | 3     | 829 | A    |
| 4   | 3     | 840 | G    |
| 4   | 3     | 841 | C    |
| 4   | 3     | 846 | U    |
| 4   | 3     | 847 | C    |
| 4   | 3     | 850 | G    |
| 4   | 3     | 854 | A    |
| 4   | 3     | 855 | A    |
| 4   | 3     | 862 | U    |
| 4   | 3     | 863 | U    |
| 4   | 3     | 865 | A    |
| 4   | 3     | 873 | G    |
| 4   | 3     | 881 | A    |
| 4   | 3     | 882 | C    |
| 4   | 3     | 883 | A    |
| 4   | 3     | 893 | A    |
| 4   | 3     | 895 | G    |
| 4   | 3     | 902 | U    |
| 4   | 3     | 903 | A    |
| 4   | 3     | 904 | C    |
| 4   | 3     | 906 | G    |
| 4   | 3     | 917 | G    |
| 4   | 3     | 918 | G    |
| 4   | 3     | 931 | G    |
| 4   | 3     | 932 | U    |
| 4   | 3     | 944 | U    |
| 4   | 3     | 947 | A    |
| 4   | 3     | 949 | C    |
| 4   | 3     | 951 | C    |
| 4   | 3     | 977 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | 3     | 980  | C    |
| 4   | 3     | 981  | A    |
| 4   | 3     | 982  | G    |
| 4   | 3     | 989  | G    |
| 4   | 3     | 991  | G    |
| 4   | 3     | 993  | A    |
| 4   | 3     | 995  | A    |
| 4   | 3     | 997  | G    |
| 4   | 3     | 1009 | A    |
| 4   | 3     | 1013 | G    |
| 4   | 3     | 1016 | A    |
| 4   | 3     | 1019 | A    |
| 4   | 3     | 1021 | C    |
| 4   | 3     | 1022 | C    |
| 4   | 3     | 1024 | A    |
| 4   | 3     | 1026 | A    |
| 4   | 3     | 1027 | U    |
| 4   | 3     | 1032 | A    |
| 4   | 3     | 1042 | C    |
| 4   | 3     | 1044 | C    |
| 4   | 3     | 1045 | A    |
| 4   | 3     | 1049 | U    |
| 4   | 3     | 1055 | A    |
| 4   | 3     | 1061 | A    |
| 4   | 3     | 1068 | U    |
| 4   | 3     | 1075 | G    |
| 4   | 3     | 1080 | A    |
| 4   | 3     | 1081 | A    |
| 4   | 3     | 1083 | A    |
| 4   | 3     | 1092 | A    |
| 4   | 3     | 1095 | U    |
| 4   | 3     | 1096 | U    |
| 4   | 3     | 1100 | U    |
| 4   | 3     | 1102 | A    |
| 4   | 3     | 1105 | A    |
| 4   | 3     | 1106 | G    |
| 4   | 3     | 1113 | U    |
| 4   | 3     | 1124 | G    |
| 4   | 3     | 1125 | U    |
| 4   | 3     | 1129 | U    |
| 4   | 3     | 1140 | U    |
| 4   | 3     | 1145 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | 3     | 1147 | G    |
| 4   | 3     | 1150 | U    |
| 4   | 3     | 1151 | U    |
| 4   | 3     | 1155 | G    |
| 4   | 3     | 1157 | G    |
| 4   | 3     | 1162 | A    |
| 4   | 3     | 1165 | U    |
| 4   | 3     | 1167 | U    |
| 4   | 3     | 1168 | A    |
| 4   | 3     | 1169 | A    |
| 4   | 3     | 1170 | C    |
| 4   | 3     | 1171 | G    |
| 4   | 3     | 1176 | U    |
| 4   | 3     | 1177 | A    |
| 4   | 3     | 1178 | A    |
| 4   | 3     | 1184 | U    |
| 4   | 3     | 1186 | A    |
| 4   | 3     | 1203 | G    |
| 4   | 3     | 1204 | A    |
| 4   | 3     | 1208 | A    |
| 4   | 3     | 1209 | U    |
| 4   | 3     | 1210 | A    |
| 4   | 3     | 1212 | C    |
| 4   | 3     | 1215 | G    |
| 4   | 3     | 1217 | G    |
| 4   | 3     | 1222 | A    |
| 4   | 3     | 1226 | G    |
| 4   | 3     | 1234 | U    |
| 4   | 3     | 1236 | G    |
| 4   | 3     | 1248 | A    |
| 4   | 3     | 1250 | A    |
| 4   | 3     | 1251 | G    |
| 4   | 3     | 1252 | C    |
| 4   | 3     | 1255 | G    |
| 4   | 3     | 1256 | A    |
| 4   | 3     | 1257 | G    |
| 4   | 3     | 1259 | A    |
| 4   | 3     | 1266 | G    |
| 4   | 3     | 1268 | U    |
| 4   | 3     | 1278 | G    |
| 4   | 3     | 1279 | U    |
| 4   | 3     | 1280 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | 3     | 1281 | A    |
| 4   | 3     | 1283 | A    |
| 4   | 3     | 1285 | U    |
| 4   | 3     | 1286 | G    |
| 4   | 3     | 1292 | A    |
| 4   | 3     | 1293 | U    |
| 4   | 3     | 1301 | G    |
| 4   | 3     | 1302 | C    |
| 4   | 3     | 1303 | U    |
| 4   | 3     | 1304 | U    |
| 4   | 3     | 1322 | A    |
| 4   | 3     | 1323 | A    |
| 4   | 3     | 1326 | C    |
| 4   | 3     | 1328 | A    |
| 4   | 3     | 1329 | U    |
| 4   | 3     | 1341 | U    |
| 4   | 3     | 1342 | C    |
| 4   | 3     | 1343 | C    |
| 4   | 3     | 1349 | C    |
| 4   | 3     | 1353 | G    |
| 4   | 3     | 1360 | U    |
| 4   | 3     | 1361 | U    |
| 4   | 3     | 1369 | U    |
| 4   | 3     | 1370 | A    |
| 4   | 3     | 1371 | G    |
| 4   | 3     | 1372 | U    |
| 4   | 3     | 1378 | C    |
| 4   | 3     | 1393 | A    |
| 4   | 3     | 1396 | A    |
| 4   | 3     | 1400 | U    |
| 4   | 3     | 1406 | A    |
| 4   | 3     | 1412 | A    |
| 4   | 3     | 1414 | C    |
| 4   | 3     | 1423 | A    |
| 4   | 3     | 1424 | U    |
| 4   | 3     | 1425 | U    |
| 4   | 3     | 1426 | C    |
| 4   | 3     | 1431 | A    |
| 4   | 3     | 1436 | C    |
| 4   | 3     | 1444 | C    |
| 4   | 3     | 1445 | U    |
| 4   | 3     | 1448 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | 3     | 1455 | A    |
| 4   | 3     | 1456 | C    |
| 4   | 3     | 1462 | A    |
| 4   | 3     | 1463 | G    |
| 4   | 3     | 1466 | U    |
| 4   | 3     | 1467 | U    |
| 4   | 3     | 1480 | A    |
| 4   | 3     | 1481 | U    |
| 4   | 3     | 1483 | G    |
| 4   | 3     | 1487 | U    |
| 4   | 3     | 1508 | G    |
| 4   | 3     | 1510 | A    |
| 4   | 3     | 1513 | A    |
| 4   | 3     | 1515 | A    |
| 4   | 3     | 1518 | C    |
| 4   | 3     | 1519 | A    |
| 4   | 3     | 1528 | G    |
| 4   | 3     | 1534 | A    |
| 4   | 3     | 1541 | A    |
| 4   | 3     | 1546 | U    |
| 4   | 3     | 1548 | A    |
| 4   | 3     | 1549 | U    |
| 4   | 3     | 1550 | G    |
| 4   | 3     | 1558 | A    |
| 4   | 3     | 1559 | A    |
| 4   | 3     | 1571 | G    |
| 4   | 3     | 1572 | U    |
| 4   | 3     | 1577 | A    |
| 4   | 3     | 1580 | G    |
| 4   | 3     | 1583 | G    |
| 4   | 3     | 1584 | U    |
| 4   | 3     | 1585 | A    |
| 4   | 3     | 1589 | A    |
| 4   | 3     | 1592 | A    |
| 4   | 3     | 1603 | A    |
| 4   | 3     | 1612 | U    |
| 4   | 3     | 1615 | G    |
| 4   | 3     | 1616 | G    |
| 4   | 3     | 1618 | U    |
| 4   | 3     | 1619 | A    |
| 4   | 3     | 1632 | C    |
| 4   | 3     | 1641 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | 3     | 1642 | G    |
| 4   | 3     | 1643 | A    |
| 4   | 3     | 1644 | A    |
| 4   | 3     | 1647 | A    |
| 4   | 3     | 1648 | A    |
| 4   | 3     | 1651 | C    |
| 4   | 3     | 1659 | C    |
| 4   | 3     | 1669 | A    |
| 4   | 3     | 1670 | U    |
| 4   | 3     | 1681 | G    |
| 4   | 3     | 1682 | C    |
| 4   | 3     | 1694 | A    |
| 4   | 3     | 1695 | G    |
| 4   | 3     | 1697 | C    |
| 4   | 3     | 1698 | A    |
| 4   | 3     | 1699 | A    |
| 4   | 3     | 1702 | A    |
| 4   | 3     | 1706 | C    |
| 4   | 3     | 1707 | U    |
| 4   | 3     | 1708 | G    |
| 4   | 3     | 1727 | U    |
| 4   | 3     | 1732 | A    |
| 4   | 3     | 1733 | G    |
| 4   | 3     | 1737 | G    |
| 4   | 3     | 1747 | G    |
| 4   | 3     | 1748 | U    |
| 4   | 3     | 1761 | C    |
| 4   | 3     | 1763 | G    |
| 4   | 3     | 1764 | U    |
| 4   | 3     | 1769 | A    |
| 4   | 3     | 1770 | A    |
| 4   | 3     | 1771 | C    |
| 4   | 3     | 1772 | G    |
| 4   | 3     | 1780 | A    |
| 4   | 3     | 1785 | U    |
| 4   | 3     | 1788 | A    |
| 4   | 3     | 1790 | U    |
| 4   | 3     | 1791 | A    |
| 4   | 3     | 1794 | A    |
| 4   | 3     | 1807 | C    |
| 4   | 3     | 1808 | C    |
| 4   | 3     | 1815 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | 3     | 1816 | A    |
| 4   | 3     | 1821 | G    |
| 4   | 3     | 1822 | A    |
| 4   | 3     | 1823 | U    |
| 4   | 3     | 1824 | G    |
| 4   | 3     | 1827 | U    |
| 4   | 3     | 1836 | A    |
| 4   | 3     | 1837 | C    |
| 4   | 3     | 1842 | G    |
| 4   | 3     | 1844 | C    |
| 4   | 3     | 1854 | A    |
| 4   | 3     | 1855 | A    |
| 4   | 3     | 1857 | G    |
| 4   | 3     | 1876 | G    |
| 4   | 3     | 1891 | A    |
| 4   | 3     | 1906 | G    |
| 4   | 3     | 1907 | A    |
| 4   | 3     | 1910 | G    |
| 4   | 3     | 1913 | G    |
| 4   | 3     | 1920 | A    |
| 4   | 3     | 1921 | C    |
| 4   | 3     | 1934 | A    |
| 4   | 3     | 1936 | G    |
| 4   | 3     | 1937 | G    |
| 4   | 3     | 1938 | U    |
| 4   | 3     | 1943 | A    |
| 4   | 3     | 1944 | A    |
| 4   | 3     | 1945 | A    |
| 4   | 3     | 1947 | U    |
| 4   | 3     | 1948 | C    |
| 4   | 3     | 1951 | A    |
| 4   | 3     | 1956 | G    |
| 4   | 3     | 1960 | A    |
| 4   | 3     | 1962 | U    |
| 4   | 3     | 1971 | G    |
| 4   | 3     | 1977 | A    |
| 4   | 3     | 1978 | U    |
| 4   | 3     | 1979 | G    |
| 4   | 3     | 1988 | A    |
| 4   | 3     | 1998 | U    |
| 4   | 3     | 1999 | G    |
| 4   | 3     | 2000 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | 3     | 2007 | U    |
| 4   | 3     | 2010 | A    |
| 4   | 3     | 2011 | G    |
| 4   | 3     | 2020 | A    |
| 4   | 3     | 2022 | A    |
| 4   | 3     | 2025 | C    |
| 4   | 3     | 2028 | G    |
| 4   | 3     | 2030 | A    |
| 4   | 3     | 2037 | A    |
| 4   | 3     | 2038 | A    |
| 4   | 3     | 2040 | A    |
| 4   | 3     | 2041 | C    |
| 4   | 3     | 2043 | C    |
| 4   | 3     | 2050 | G    |
| 4   | 3     | 2057 | C    |
| 4   | 3     | 2058 | G    |
| 4   | 3     | 2062 | C    |
| 4   | 3     | 2063 | G    |
| 4   | 3     | 2067 | A    |
| 4   | 3     | 2068 | G    |
| 4   | 3     | 2069 | A    |
| 4   | 3     | 2070 | C    |
| 4   | 3     | 2076 | G    |
| 4   | 3     | 2080 | C    |
| 4   | 3     | 2083 | U    |
| 4   | 3     | 2084 | A    |
| 4   | 3     | 2087 | G    |
| 4   | 3     | 2099 | U    |
| 4   | 3     | 2100 | G    |
| 4   | 3     | 2106 | G    |
| 4   | 3     | 2107 | A    |
| 4   | 3     | 2110 | U    |
| 4   | 3     | 2111 | U    |
| 4   | 3     | 2112 | A    |
| 4   | 3     | 2114 | C    |
| 4   | 3     | 2118 | U    |
| 4   | 3     | 2123 | A    |
| 4   | 3     | 2124 | A    |
| 4   | 3     | 2126 | A    |
| 4   | 3     | 2127 | G    |
| 4   | 3     | 2128 | G    |
| 4   | 3     | 2131 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | 3     | 2132 | G    |
| 4   | 3     | 2133 | A    |
| 4   | 3     | 2138 | U    |
| 4   | 3     | 2140 | G    |
| 4   | 3     | 2151 | G    |
| 4   | 3     | 2157 | A    |
| 4   | 3     | 2164 | G    |
| 4   | 3     | 2166 | U    |
| 4   | 3     | 2171 | A    |
| 4   | 3     | 2172 | A    |
| 4   | 3     | 2180 | U    |
| 4   | 3     | 2181 | A    |
| 4   | 3     | 2184 | A    |
| 4   | 3     | 2189 | U    |
| 4   | 3     | 2192 | U    |
| 4   | 3     | 2193 | U    |
| 4   | 3     | 2195 | U    |
| 4   | 3     | 2196 | G    |
| 4   | 3     | 2197 | U    |
| 4   | 3     | 2198 | G    |
| 4   | 3     | 2199 | C    |
| 4   | 3     | 2200 | U    |
| 4   | 3     | 2201 | G    |
| 4   | 3     | 2202 | U    |
| 4   | 3     | 2206 | A    |
| 4   | 3     | 2211 | G    |
| 4   | 3     | 2212 | U    |
| 4   | 3     | 2219 | U    |
| 4   | 3     | 2220 | A    |
| 4   | 3     | 2222 | C    |
| 4   | 3     | 2231 | A    |
| 4   | 3     | 2233 | A    |
| 4   | 3     | 2246 | G    |
| 4   | 3     | 2247 | G    |
| 4   | 3     | 2257 | U    |
| 4   | 3     | 2258 | G    |
| 4   | 3     | 2274 | A    |
| 4   | 3     | 2276 | A    |
| 4   | 3     | 2277 | A    |
| 4   | 3     | 2287 | G    |
| 4   | 3     | 2288 | G    |
| 4   | 3     | 2291 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | 3     | 2294 | A    |
| 4   | 3     | 2295 | A    |
| 4   | 3     | 2296 | A    |
| 4   | 3     | 2297 | G    |
| 4   | 3     | 2305 | C    |
| 4   | 3     | 2313 | U    |
| 4   | 3     | 2316 | G    |
| 4   | 3     | 2317 | A    |
| 4   | 3     | 2319 | A    |
| 4   | 3     | 2327 | U    |
| 4   | 3     | 2328 | A    |
| 4   | 3     | 2330 | A    |
| 4   | 3     | 2332 | U    |
| 4   | 3     | 2333 | G    |
| 4   | 3     | 2341 | G    |
| 4   | 3     | 2342 | U    |
| 4   | 3     | 2343 | A    |
| 4   | 3     | 2344 | A    |
| 4   | 3     | 2345 | G    |
| 4   | 3     | 2351 | U    |
| 4   | 3     | 2353 | G    |
| 4   | 3     | 2355 | C    |
| 4   | 3     | 2358 | U    |
| 4   | 3     | 2362 | A    |
| 4   | 3     | 2391 | G    |
| 4   | 3     | 2393 | C    |
| 4   | 3     | 2397 | G    |
| 4   | 3     | 2410 | C    |
| 4   | 3     | 2411 | C    |
| 4   | 3     | 2414 | U    |
| 4   | 3     | 2415 | A    |
| 4   | 3     | 2417 | G    |
| 4   | 3     | 2430 | C    |
| 4   | 3     | 2433 | A    |
| 4   | 3     | 2434 | A    |
| 4   | 3     | 2435 | C    |
| 4   | 3     | 2436 | G    |
| 4   | 3     | 2437 | G    |
| 4   | 3     | 2438 | A    |
| 4   | 3     | 2442 | A    |
| 4   | 3     | 2443 | A    |
| 4   | 3     | 2447 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | 3     | 2448 | C    |
| 4   | 3     | 2449 | U    |
| 4   | 3     | 2455 | G    |
| 4   | 3     | 2477 | A    |
| 4   | 3     | 2483 | C    |
| 4   | 3     | 2484 | A    |
| 4   | 3     | 2486 | A    |
| 4   | 3     | 2488 | C    |
| 4   | 3     | 2489 | G    |
| 4   | 3     | 2492 | G    |
| 4   | 3     | 2497 | U    |
| 4   | 3     | 2498 | G    |
| 4   | 3     | 2499 | U    |
| 4   | 3     | 2500 | U    |
| 4   | 3     | 2503 | G    |
| 4   | 3     | 2505 | A    |
| 4   | 3     | 2506 | C    |
| 4   | 3     | 2507 | C    |
| 4   | 3     | 2509 | C    |
| 4   | 3     | 2511 | A    |
| 4   | 3     | 2512 | U    |
| 4   | 3     | 2513 | G    |
| 4   | 3     | 2514 | U    |
| 4   | 3     | 2515 | C    |
| 4   | 3     | 2516 | G    |
| 4   | 3     | 2526 | A    |
| 4   | 3     | 2527 | U    |
| 4   | 3     | 2528 | C    |
| 4   | 3     | 2539 | A    |
| 4   | 3     | 2543 | G    |
| 4   | 3     | 2558 | G    |
| 4   | 3     | 2560 | U    |
| 4   | 3     | 2570 | U    |
| 4   | 3     | 2574 | A    |
| 4   | 3     | 2577 | G    |
| 4   | 3     | 2580 | A    |
| 4   | 3     | 2581 | C    |
| 4   | 3     | 2587 | U    |
| 4   | 3     | 2590 | G    |
| 4   | 3     | 2593 | U    |
| 4   | 3     | 2594 | C    |
| 4   | 3     | 2595 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | 3     | 2596 | A    |
| 4   | 3     | 2597 | A    |
| 4   | 3     | 2605 | G    |
| 4   | 3     | 2606 | A    |
| 4   | 3     | 2610 | A    |
| 4   | 3     | 2611 | G    |
| 4   | 3     | 2618 | C    |
| 4   | 3     | 2619 | C    |
| 4   | 3     | 2621 | U    |
| 4   | 3     | 2622 | A    |
| 4   | 3     | 2623 | U    |
| 4   | 3     | 2629 | G    |
| 4   | 3     | 2631 | G    |
| 4   | 3     | 2637 | A    |
| 4   | 3     | 2638 | G    |
| 4   | 3     | 2642 | G    |
| 4   | 3     | 2644 | U    |
| 4   | 3     | 2647 | A    |
| 4   | 3     | 2649 | G    |
| 4   | 3     | 2653 | G    |
| 4   | 3     | 2654 | U    |
| 4   | 3     | 2655 | U    |
| 4   | 3     | 2664 | U    |
| 4   | 3     | 2668 | A    |
| 4   | 3     | 2669 | G    |
| 4   | 3     | 2675 | C    |
| 4   | 3     | 2689 | C    |
| 4   | 3     | 2693 | U    |
| 4   | 3     | 2694 | A    |
| 4   | 3     | 2697 | C    |
| 4   | 3     | 2698 | U    |
| 4   | 3     | 2703 | U    |
| 4   | 3     | 2708 | G    |
| 4   | 3     | 2715 | C    |
| 4   | 3     | 2722 | G    |
| 4   | 3     | 2732 | A    |
| 4   | 3     | 2734 | C    |
| 4   | 3     | 2737 | G    |
| 4   | 3     | 2738 | U    |
| 4   | 3     | 2741 | A    |
| 4   | 3     | 2747 | U    |
| 4   | 3     | 2752 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | 3     | 2756 | A    |
| 4   | 3     | 2761 | A    |
| 4   | 3     | 2765 | A    |
| 4   | 3     | 2772 | A    |
| 4   | 3     | 2773 | A    |
| 4   | 3     | 2774 | A    |
| 4   | 3     | 2786 | A    |
| 4   | 3     | 2788 | U    |
| 4   | 3     | 2799 | U    |
| 4   | 3     | 2800 | U    |
| 4   | 3     | 2801 | U    |
| 4   | 3     | 2804 | C    |
| 4   | 3     | 2806 | A    |
| 4   | 3     | 2809 | A    |
| 4   | 3     | 2811 | G    |
| 4   | 3     | 2812 | U    |
| 4   | 3     | 2813 | A    |
| 4   | 3     | 2814 | A    |
| 4   | 3     | 2815 | G    |
| 4   | 3     | 2822 | C    |
| 4   | 3     | 2824 | A    |
| 4   | 3     | 2828 | C    |
| 4   | 3     | 2837 | U    |
| 4   | 3     | 2839 | A    |
| 4   | 3     | 2853 | U    |
| 4   | 3     | 2854 | A    |
| 4   | 3     | 2856 | G    |
| 4   | 3     | 2863 | G    |
| 4   | 3     | 2870 | U    |
| 4   | 3     | 2871 | G    |
| 4   | 3     | 2872 | A    |
| 4   | 3     | 2876 | G    |
| 4   | 3     | 2884 | C    |
| 4   | 3     | 2888 | U    |
| 4   | 3     | 2889 | U    |
| 4   | 3     | 2890 | G    |
| 4   | 3     | 2895 | A    |
| 4   | 3     | 2897 | G    |
| 4   | 3     | 2898 | A    |
| 4   | 3     | 2899 | C    |
| 5   | 4     | 9    | C    |
| 5   | 4     | 10   | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 5   | 4     | 11  | A    |
| 5   | 4     | 13  | G    |
| 5   | 4     | 14  | U    |
| 5   | 4     | 15  | C    |
| 5   | 4     | 16  | G    |
| 5   | 4     | 23  | A    |
| 5   | 4     | 25  | A    |
| 5   | 4     | 28  | C    |
| 5   | 4     | 33  | U    |
| 5   | 4     | 38  | U    |
| 5   | 4     | 39  | U    |
| 5   | 4     | 40  | U    |
| 5   | 4     | 41  | C    |
| 5   | 4     | 42  | G    |
| 5   | 4     | 48  | A    |
| 5   | 4     | 49  | G    |
| 5   | 4     | 50  | C    |
| 5   | 4     | 51  | A    |
| 5   | 4     | 54  | U    |
| 5   | 4     | 55  | A    |
| 5   | 4     | 60  | C    |
| 5   | 4     | 71  | A    |
| 5   | 4     | 74  | G    |
| 5   | 4     | 77  | G    |
| 5   | 4     | 78  | C    |
| 5   | 4     | 88  | G    |
| 5   | 4     | 89  | A    |
| 5   | 4     | 98  | A    |
| 5   | 4     | 99  | A    |
| 5   | 4     | 103 | C    |
| 5   | 4     | 106 | A    |
| 5   | 4     | 108 | C    |
| 6   | 5     | 6   | C    |
| 6   | 5     | 8   | G    |
| 6   | 5     | 9   | A    |
| 6   | 5     | 10  | G    |
| 6   | 5     | 33  | A    |
| 6   | 5     | 40  | G    |
| 6   | 5     | 48  | C    |
| 6   | 5     | 49  | C    |
| 6   | 5     | 52  | A    |
| 6   | 5     | 55  | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 6   | 5     | 56  | A    |
| 6   | 5     | 58  | G    |
| 6   | 5     | 67  | U    |
| 6   | 5     | 85  | U    |
| 6   | 5     | 86  | A    |
| 6   | 5     | 94  | A    |
| 6   | 5     | 95  | C    |
| 6   | 5     | 100 | G    |
| 6   | 5     | 101 | A    |
| 6   | 5     | 103 | U    |
| 6   | 5     | 105 | A    |
| 6   | 5     | 106 | C    |
| 6   | 5     | 107 | A    |
| 6   | 5     | 111 | A    |
| 6   | 5     | 114 | C    |
| 6   | 5     | 115 | A    |
| 6   | 5     | 116 | A    |
| 6   | 5     | 117 | U    |
| 6   | 5     | 120 | A    |
| 6   | 5     | 128 | A    |
| 6   | 5     | 129 | U    |
| 6   | 5     | 130 | G    |
| 6   | 5     | 134 | G    |
| 6   | 5     | 136 | U    |
| 6   | 5     | 145 | G    |
| 6   | 5     | 147 | A    |
| 6   | 5     | 149 | G    |
| 6   | 5     | 159 | U    |
| 6   | 5     | 167 | A    |
| 6   | 5     | 168 | A    |
| 6   | 5     | 169 | G    |
| 6   | 5     | 179 | U    |
| 6   | 5     | 186 | A    |
| 6   | 5     | 190 | A    |
| 6   | 5     | 197 | A    |
| 6   | 5     | 198 | A    |
| 6   | 5     | 200 | G    |
| 6   | 5     | 218 | U    |
| 6   | 5     | 219 | A    |
| 6   | 5     | 220 | U    |
| 6   | 5     | 230 | G    |
| 6   | 5     | 236 | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 6   | 5     | 239 | A    |
| 6   | 5     | 241 | C    |
| 6   | 5     | 242 | A    |
| 6   | 5     | 243 | G    |
| 6   | 5     | 247 | G    |
| 6   | 5     | 259 | A    |
| 6   | 5     | 260 | C    |
| 6   | 5     | 262 | G    |
| 6   | 5     | 263 | C    |
| 6   | 5     | 270 | A    |
| 6   | 5     | 285 | G    |
| 6   | 5     | 286 | C    |
| 6   | 5     | 294 | A    |
| 6   | 5     | 295 | G    |
| 6   | 5     | 302 | A    |
| 6   | 5     | 311 | A    |
| 6   | 5     | 323 | A    |
| 6   | 5     | 324 | C    |
| 6   | 5     | 325 | A    |
| 6   | 5     | 326 | C    |
| 6   | 5     | 328 | G    |
| 6   | 5     | 340 | A    |
| 6   | 5     | 341 | C    |
| 6   | 5     | 342 | G    |
| 6   | 5     | 344 | G    |
| 6   | 5     | 345 | A    |
| 6   | 5     | 348 | C    |
| 6   | 5     | 349 | A    |
| 6   | 5     | 350 | G    |
| 6   | 5     | 352 | A    |
| 6   | 5     | 359 | A    |
| 6   | 5     | 363 | U    |
| 6   | 5     | 364 | U    |
| 6   | 5     | 368 | C    |
| 6   | 5     | 373 | A    |
| 6   | 5     | 377 | A    |
| 6   | 5     | 381 | C    |
| 6   | 5     | 384 | G    |
| 6   | 5     | 385 | A    |
| 6   | 5     | 386 | U    |
| 6   | 5     | 393 | A    |
| 6   | 5     | 394 | U    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 6   | 5     | 402 | G    |
| 6   | 5     | 409 | G    |
| 6   | 5     | 410 | A    |
| 6   | 5     | 412 | G    |
| 6   | 5     | 417 | U    |
| 6   | 5     | 418 | U    |
| 6   | 5     | 420 | A    |
| 6   | 5     | 423 | U    |
| 6   | 5     | 425 | G    |
| 6   | 5     | 426 | U    |
| 6   | 5     | 432 | U    |
| 6   | 5     | 436 | U    |
| 6   | 5     | 440 | U    |
| 6   | 5     | 445 | A    |
| 6   | 5     | 446 | A    |
| 6   | 5     | 449 | A    |
| 6   | 5     | 451 | G    |
| 6   | 5     | 452 | A    |
| 6   | 5     | 453 | C    |
| 6   | 5     | 456 | U    |
| 6   | 5     | 457 | A    |
| 6   | 5     | 461 | G    |
| 6   | 5     | 464 | A    |
| 6   | 5     | 471 | A    |
| 6   | 5     | 473 | A    |
| 6   | 5     | 476 | U    |
| 6   | 5     | 477 | U    |
| 6   | 5     | 478 | G    |
| 6   | 5     | 481 | U    |
| 6   | 5     | 482 | G    |
| 6   | 5     | 488 | U    |
| 6   | 5     | 493 | A    |
| 6   | 5     | 504 | A    |
| 6   | 5     | 507 | A    |
| 6   | 5     | 509 | C    |
| 6   | 5     | 510 | U    |
| 6   | 5     | 515 | G    |
| 6   | 5     | 516 | C    |
| 6   | 5     | 517 | C    |
| 6   | 5     | 524 | C    |
| 6   | 5     | 525 | G    |
| 6   | 5     | 527 | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 6   | 5     | 529 | U    |
| 6   | 5     | 530 | A    |
| 6   | 5     | 531 | A    |
| 6   | 5     | 543 | C    |
| 6   | 5     | 545 | A    |
| 6   | 5     | 548 | G    |
| 6   | 5     | 557 | A    |
| 6   | 5     | 558 | U    |
| 6   | 5     | 560 | U    |
| 6   | 5     | 562 | U    |
| 6   | 5     | 569 | U    |
| 6   | 5     | 570 | A    |
| 6   | 5     | 571 | A    |
| 6   | 5     | 574 | C    |
| 6   | 5     | 575 | A    |
| 6   | 5     | 585 | G    |
| 6   | 5     | 586 | G    |
| 6   | 5     | 594 | A    |
| 6   | 5     | 595 | G    |
| 6   | 5     | 608 | G    |
| 6   | 5     | 616 | C    |
| 6   | 5     | 619 | A    |
| 6   | 5     | 628 | A    |
| 6   | 5     | 638 | A    |
| 6   | 5     | 639 | A    |
| 6   | 5     | 646 | A    |
| 6   | 5     | 650 | A    |
| 6   | 5     | 653 | G    |
| 6   | 5     | 662 | G    |
| 6   | 5     | 663 | G    |
| 6   | 5     | 683 | G    |
| 6   | 5     | 684 | A    |
| 6   | 5     | 699 | A    |
| 6   | 5     | 700 | G    |
| 6   | 5     | 715 | A    |
| 6   | 5     | 716 | C    |
| 6   | 5     | 718 | A    |
| 6   | 5     | 719 | G    |
| 6   | 5     | 720 | U    |
| 6   | 5     | 721 | G    |
| 6   | 5     | 726 | A    |
| 6   | 5     | 729 | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 6   | 5     | 744 | U    |
| 6   | 5     | 745 | U    |
| 6   | 5     | 746 | A    |
| 6   | 5     | 752 | G    |
| 6   | 5     | 753 | C    |
| 6   | 5     | 763 | A    |
| 6   | 5     | 791 | A    |
| 6   | 5     | 793 | C    |
| 6   | 5     | 796 | A    |
| 6   | 5     | 802 | C    |
| 6   | 5     | 809 | G    |
| 6   | 5     | 811 | A    |
| 6   | 5     | 812 | A    |
| 6   | 5     | 814 | C    |
| 6   | 5     | 815 | G    |
| 6   | 5     | 818 | A    |
| 6   | 5     | 825 | A    |
| 6   | 5     | 826 | G    |
| 6   | 5     | 829 | G    |
| 6   | 5     | 836 | C    |
| 6   | 5     | 849 | A    |
| 6   | 5     | 858 | A    |
| 6   | 5     | 864 | U    |
| 6   | 5     | 866 | A    |
| 6   | 5     | 867 | A    |
| 6   | 5     | 870 | A    |
| 6   | 5     | 875 | G    |
| 6   | 5     | 879 | G    |
| 6   | 5     | 883 | A    |
| 6   | 5     | 885 | U    |
| 6   | 5     | 895 | A    |
| 6   | 5     | 907 | A    |
| 6   | 5     | 908 | A    |
| 6   | 5     | 910 | C    |
| 6   | 5     | 911 | G    |
| 6   | 5     | 921 | G    |
| 6   | 5     | 922 | G    |
| 6   | 5     | 929 | C    |
| 6   | 5     | 930 | A    |
| 6   | 5     | 934 | G    |
| 6   | 5     | 953 | A    |
| 6   | 5     | 954 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 6   | 5     | 955  | U    |
| 6   | 5     | 956  | U    |
| 6   | 5     | 958  | G    |
| 6   | 5     | 964  | A    |
| 6   | 5     | 966  | A    |
| 6   | 5     | 970  | A    |
| 6   | 5     | 971  | A    |
| 6   | 5     | 972  | A    |
| 6   | 5     | 973  | A    |
| 6   | 5     | 978  | A    |
| 6   | 5     | 984  | A    |
| 6   | 5     | 987  | U    |
| 6   | 5     | 988  | G    |
| 6   | 5     | 1000 | A    |
| 6   | 5     | 1001 | A    |
| 6   | 5     | 1003 | G    |
| 6   | 5     | 1010 | A    |
| 6   | 5     | 1011 | A    |
| 6   | 5     | 1013 | C    |
| 6   | 5     | 1014 | A    |
| 6   | 5     | 1015 | U    |
| 6   | 5     | 1016 | A    |
| 6   | 5     | 1033 | U    |
| 6   | 5     | 1037 | A    |
| 6   | 5     | 1044 | G    |
| 6   | 5     | 1045 | C    |
| 6   | 5     | 1046 | A    |
| 6   | 5     | 1047 | U    |
| 6   | 5     | 1056 | U    |
| 6   | 5     | 1057 | C    |
| 6   | 5     | 1072 | G    |
| 6   | 5     | 1074 | U    |
| 6   | 5     | 1075 | G    |
| 6   | 5     | 1076 | U    |
| 6   | 5     | 1085 | G    |
| 6   | 5     | 1086 | U    |
| 6   | 5     | 1092 | A    |
| 6   | 5     | 1101 | A    |
| 6   | 5     | 1107 | U    |
| 6   | 5     | 1109 | U    |
| 6   | 5     | 1113 | U    |
| 6   | 5     | 1119 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 6   | 5     | 1120 | A    |
| 6   | 5     | 1121 | U    |
| 6   | 5     | 1122 | U    |
| 6   | 5     | 1123 | G    |
| 6   | 5     | 1124 | U    |
| 6   | 5     | 1128 | G    |
| 6   | 5     | 1133 | A    |
| 6   | 5     | 1134 | C    |
| 6   | 5     | 1135 | U    |
| 6   | 5     | 1141 | U    |
| 6   | 5     | 1144 | A    |
| 6   | 5     | 1154 | A    |
| 6   | 5     | 1155 | A    |
| 6   | 5     | 1158 | A    |
| 6   | 5     | 1159 | A    |
| 6   | 5     | 1163 | A    |
| 6   | 5     | 1171 | A    |
| 6   | 5     | 1172 | A    |
| 6   | 5     | 1173 | A    |
| 6   | 5     | 1187 | U    |
| 6   | 5     | 1188 | A    |
| 6   | 5     | 1189 | U    |
| 6   | 5     | 1199 | U    |
| 6   | 5     | 1200 | G    |
| 6   | 5     | 1201 | C    |
| 6   | 5     | 1211 | A    |
| 6   | 5     | 1215 | U    |
| 6   | 5     | 1223 | A    |
| 6   | 5     | 1225 | A    |
| 6   | 5     | 1235 | C    |
| 6   | 5     | 1243 | A    |
| 6   | 5     | 1245 | A    |
| 6   | 5     | 1254 | A    |
| 6   | 5     | 1255 | A    |
| 6   | 5     | 1260 | U    |
| 6   | 5     | 1261 | A    |
| 6   | 5     | 1271 | U    |
| 6   | 5     | 1272 | C    |
| 6   | 5     | 1273 | A    |
| 6   | 5     | 1274 | G    |
| 6   | 5     | 1276 | U    |
| 6   | 5     | 1279 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 6   | 5     | 1291 | C    |
| 6   | 5     | 1296 | C    |
| 6   | 5     | 1297 | G    |
| 6   | 5     | 1298 | U    |
| 6   | 5     | 1312 | G    |
| 6   | 5     | 1319 | U    |
| 6   | 5     | 1320 | A    |
| 6   | 5     | 1323 | A    |
| 6   | 5     | 1333 | C    |
| 6   | 5     | 1335 | G    |
| 6   | 5     | 1337 | U    |
| 6   | 5     | 1338 | A    |
| 6   | 5     | 1339 | U    |
| 6   | 5     | 1340 | G    |
| 6   | 5     | 1343 | G    |
| 6   | 5     | 1344 | C    |
| 6   | 5     | 1353 | C    |
| 6   | 5     | 1354 | G    |
| 6   | 5     | 1356 | U    |
| 6   | 5     | 1359 | C    |
| 6   | 5     | 1373 | A    |
| 6   | 5     | 1374 | C    |
| 6   | 5     | 1381 | U    |
| 6   | 5     | 1394 | G    |
| 6   | 5     | 1400 | A    |
| 6   | 5     | 1404 | U    |
| 6   | 5     | 1408 | A    |
| 6   | 5     | 1415 | G    |
| 6   | 5     | 1417 | U    |
| 6   | 5     | 1421 | A    |
| 6   | 5     | 1427 | U    |
| 6   | 5     | 1429 | G    |
| 6   | 5     | 1430 | G    |
| 6   | 5     | 1457 | G    |
| 6   | 5     | 1466 | U    |
| 6   | 5     | 1467 | A    |
| 6   | 5     | 1468 | A    |
| 6   | 5     | 1471 | C    |
| 6   | 5     | 1474 | A    |
| 6   | 5     | 1480 | G    |
| 6   | 5     | 1481 | U    |
| 6   | 5     | 1490 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 6   | 5     | 1496 | G    |
| 6   | 5     | 1504 | G    |
| 6   | 5     | 1505 | G    |
| 8   | 7     | 3    | G    |
| 8   | 7     | 9    | U    |
| 8   | 7     | 11   | G    |
| 8   | 7     | 16   | G    |
| 8   | 7     | 17   | U    |
| 8   | 7     | 18   | C    |
| 8   | 7     | 19   | G    |
| 8   | 7     | 20   | G    |
| 8   | 7     | 21   | U    |
| 8   | 7     | 22   | A    |
| 8   | 7     | 38   | G    |
| 8   | 7     | 42   | C    |
| 8   | 7     | 44   | U    |
| 8   | 7     | 48   | U    |
| 8   | 7     | 49   | C    |
| 8   | 7     | 53   | A    |
| 8   | 7     | 54   | G    |
| 8   | 7     | 57   | C    |
| 8   | 7     | 58   | G    |
| 8   | 7     | 59   | A    |
| 8   | 7     | 60   | U    |
| 8   | 7     | 63   | U    |
| 8   | 7     | 71   | A    |
| 8   | 7     | 72   | C    |
| 8   | 7     | 76   | C    |

All (38) RNA pucker outliers are listed below:

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | 3     | 309  | A    |
| 4   | 3     | 410  | G    |
| 4   | 3     | 425  | U    |
| 4   | 3     | 500  | U    |
| 4   | 3     | 513  | A    |
| 4   | 3     | 688  | U    |
| 4   | 3     | 881  | A    |
| 4   | 3     | 996  | A    |
| 4   | 3     | 1048 | A    |
| 4   | 3     | 1082 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | 3     | 1209 | U    |
| 4   | 3     | 1255 | G    |
| 4   | 3     | 1327 | G    |
| 4   | 3     | 1583 | G    |
| 4   | 3     | 1588 | A    |
| 4   | 3     | 1820 | U    |
| 4   | 3     | 1920 | A    |
| 4   | 3     | 2180 | U    |
| 4   | 3     | 2504 | C    |
| 4   | 3     | 2506 | C    |
| 4   | 3     | 2513 | G    |
| 4   | 3     | 2604 | U    |
| 4   | 3     | 2668 | A    |
| 4   | 3     | 2764 | U    |
| 4   | 3     | 2897 | G    |
| 5   | 4     | 10   | C    |
| 5   | 4     | 50   | C    |
| 5   | 4     | 54   | U    |
| 5   | 4     | 59   | A    |
| 5   | 4     | 70   | G    |
| 6   | 5     | 294  | A    |
| 6   | 5     | 417  | U    |
| 6   | 5     | 448  | A    |
| 6   | 5     | 1075 | G    |
| 6   | 5     | 1123 | G    |
| 6   | 5     | 1373 | A    |
| 8   | 7     | 16   | G    |
| 8   | 7     | 19   | G    |

## 5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

There are no non-standard protein/DNA/RNA residues in this entry.

## 5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

There are no ligands in this entry.

## 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 |
|-----|-------|------------------|
| 12  | AB    | 3                |
| 14  | AD    | 1                |

All chain breaks are listed below:

| Model | Chain | Residue-1 | Atom-1 | Residue-2 | Atom-2 | Distance (Å) |
|-------|-------|-----------|--------|-----------|--------|--------------|
| 1     | AB    | 292:GLU   | C      | 293:ASP   | N      | 8.91         |
| 1     | AB    | 143:VAL   | C      | 144:GLY   | N      | 6.10         |
| 1     | AB    | 215:ASP   | C      | 216:SER   | N      | 3.12         |
| 1     | AD    | 22:DA     | O3'    | 23:DC     | P      | 1.38         |

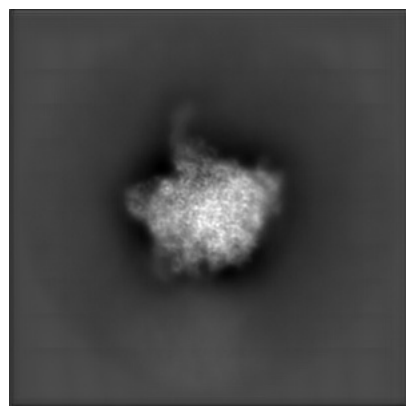
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-53670. These allow visual inspection of the internal detail of the map and identification of artifacts.

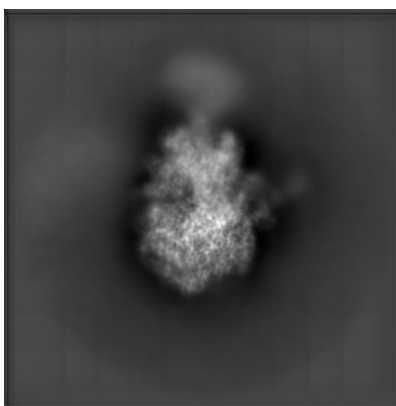
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

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

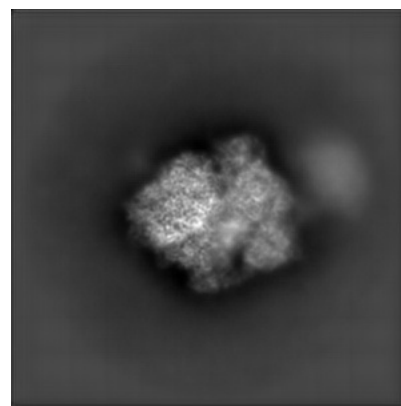
#### 6.1.1 Primary map



X

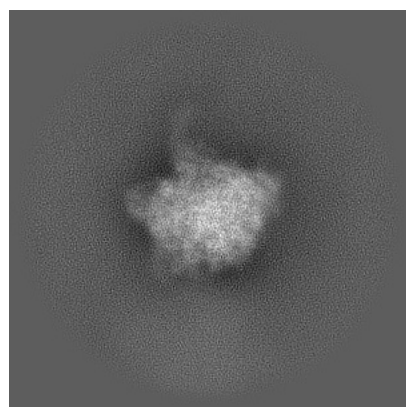


Y

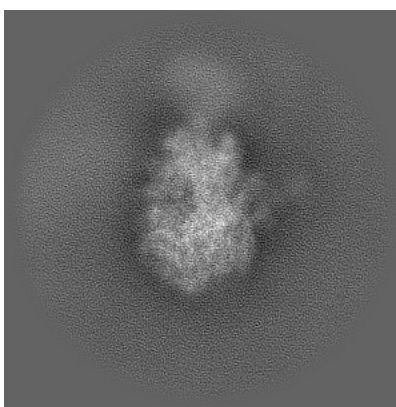


Z

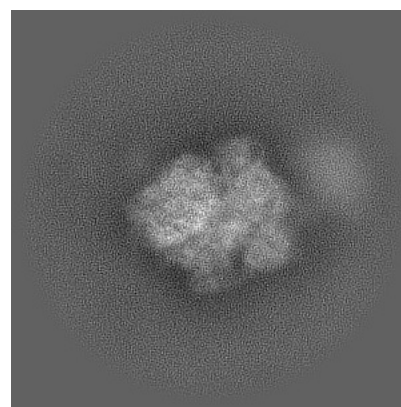
#### 6.1.2 Raw map



X



Y

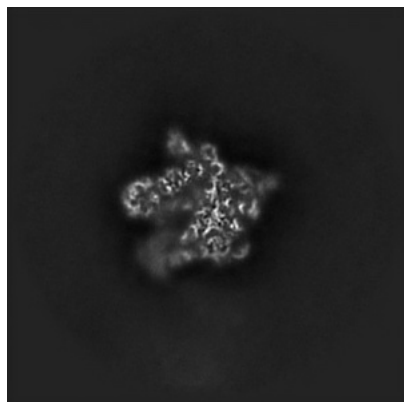


Z

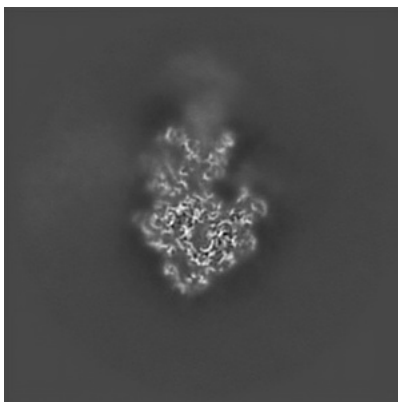
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

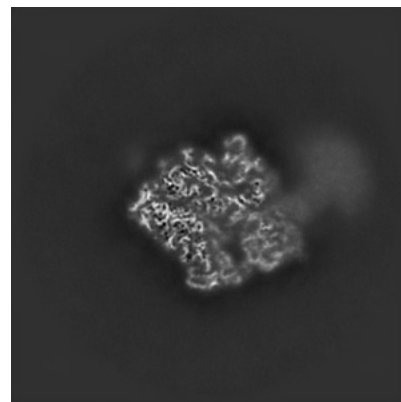
### 6.2.1 Primary map



X Index: 150

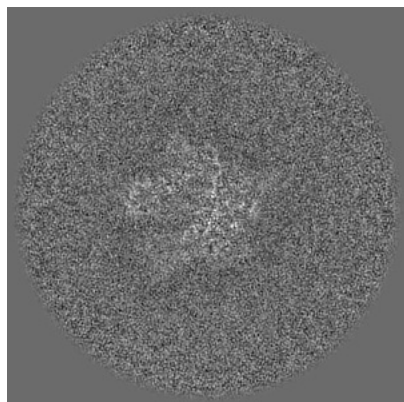


Y Index: 150

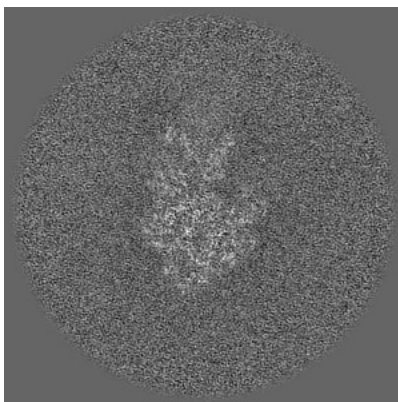


Z Index: 150

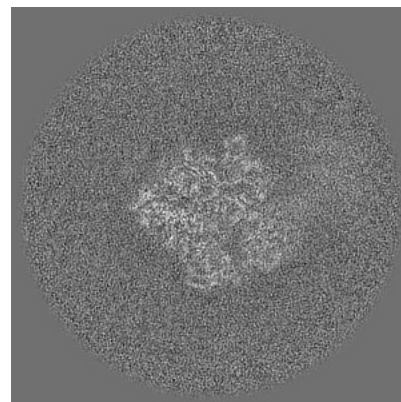
### 6.2.2 Raw map



X Index: 150



Y Index: 150

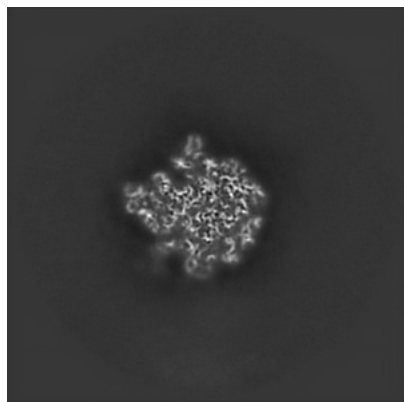


Z Index: 150

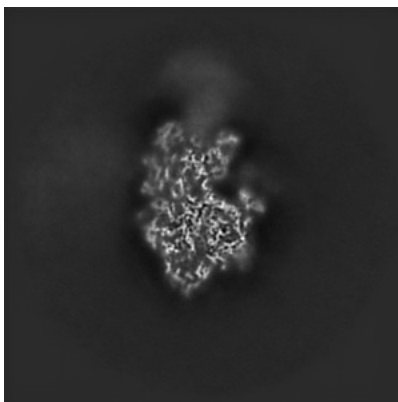
The images above show central slices of the map in three orthogonal directions.

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

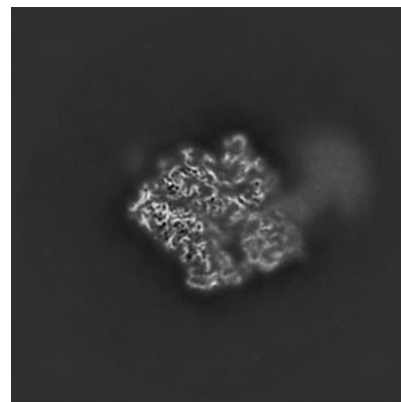
### 6.3.1 Primary map



X Index: 138

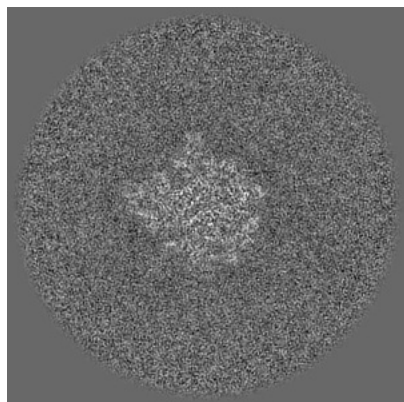


Y Index: 155

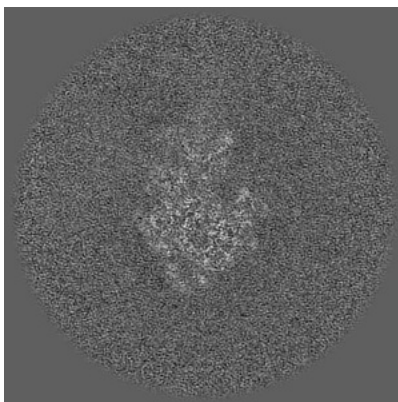


Z Index: 150

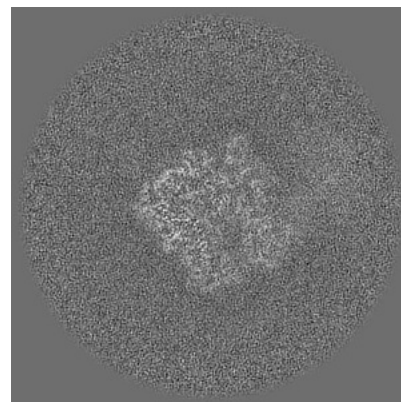
### 6.3.2 Raw map



X Index: 139



Y Index: 151

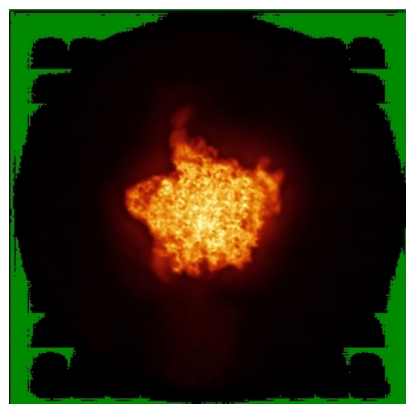


Z Index: 152

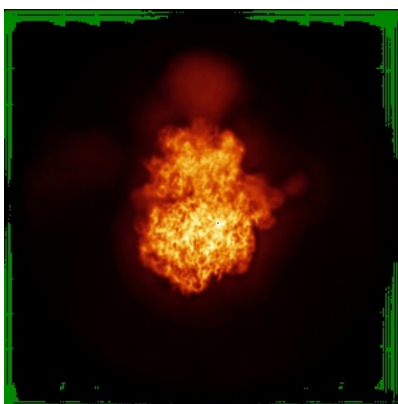
The images above show the largest variance slices of the map in three orthogonal directions.

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

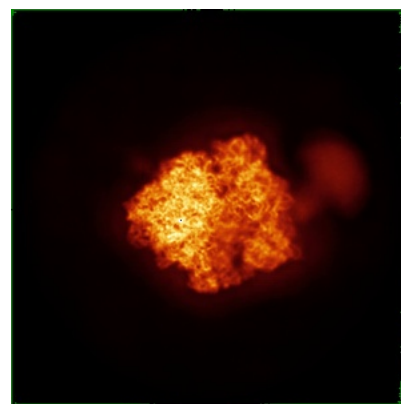
### 6.4.1 Primary map



X

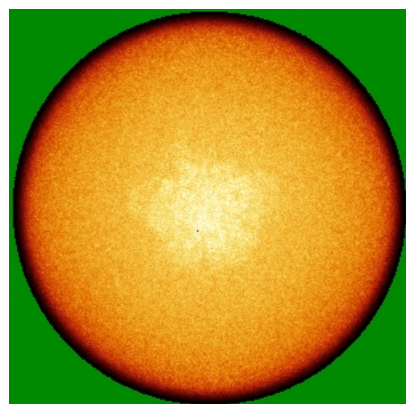


Y

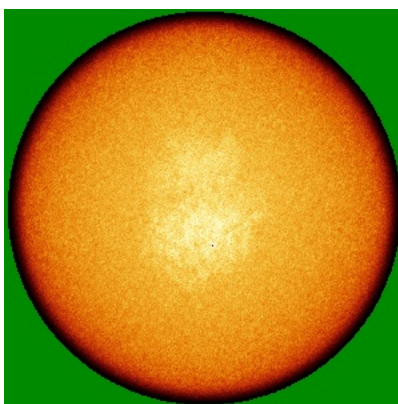


Z

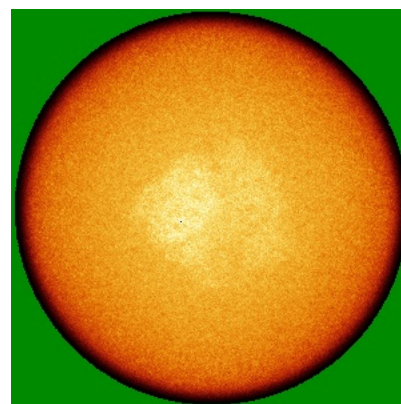
### 6.4.2 Raw map



X



Y

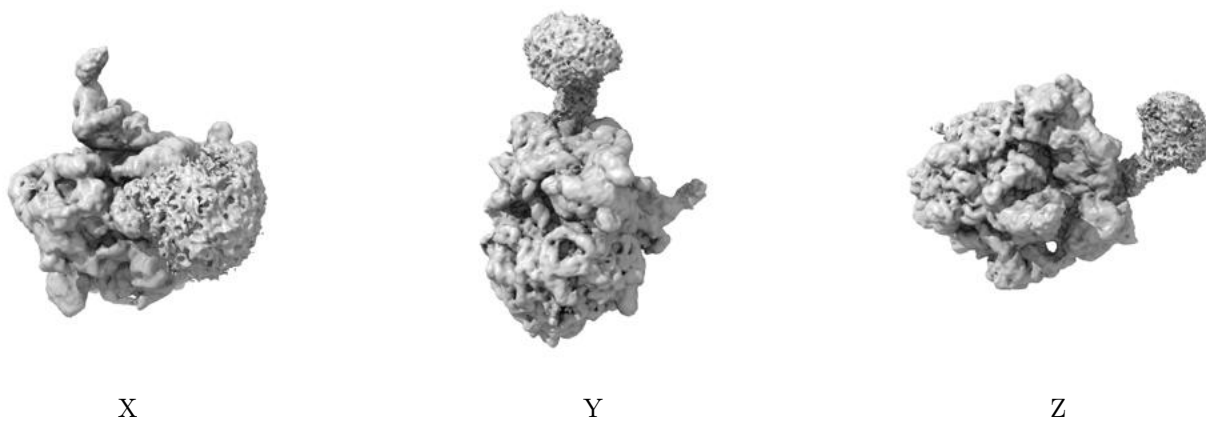


Z

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.

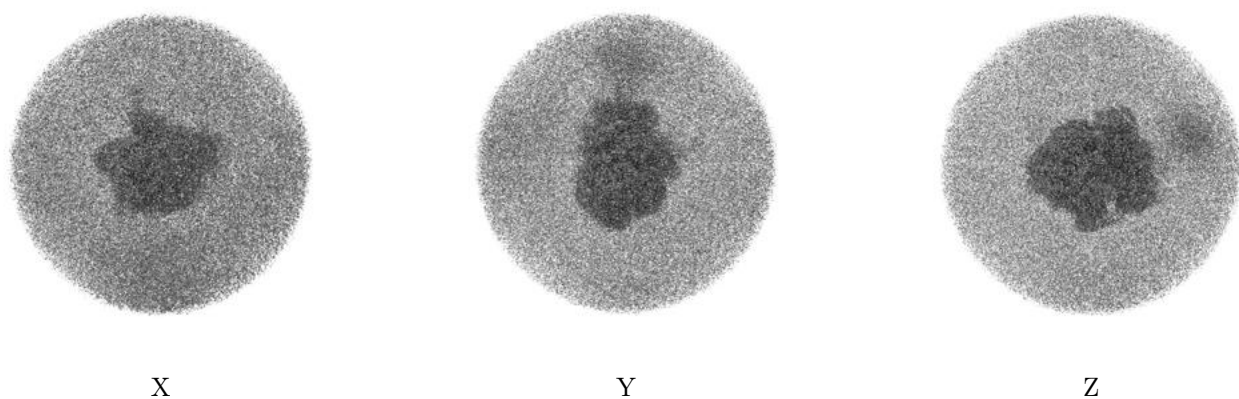
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.002. 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.

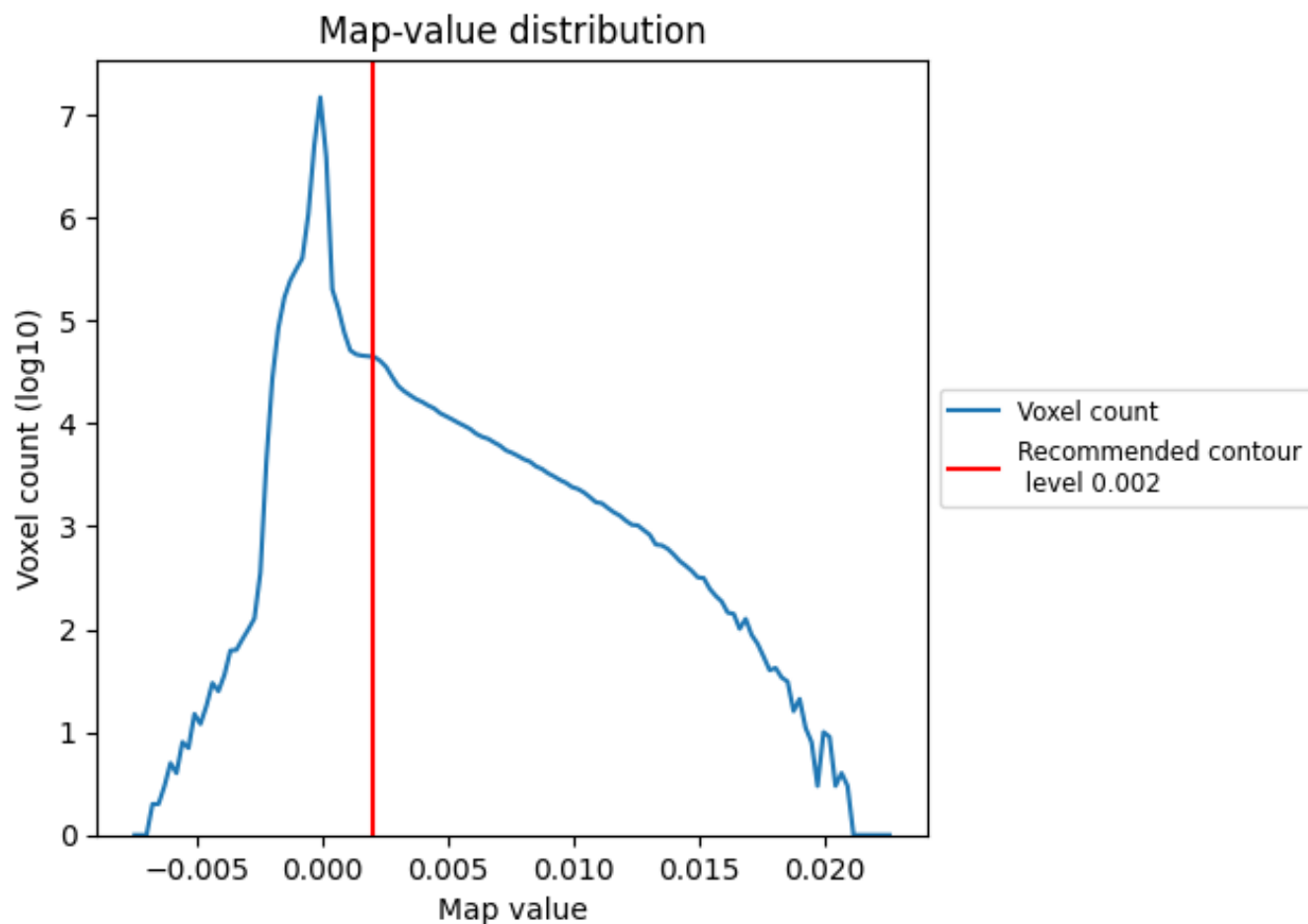
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

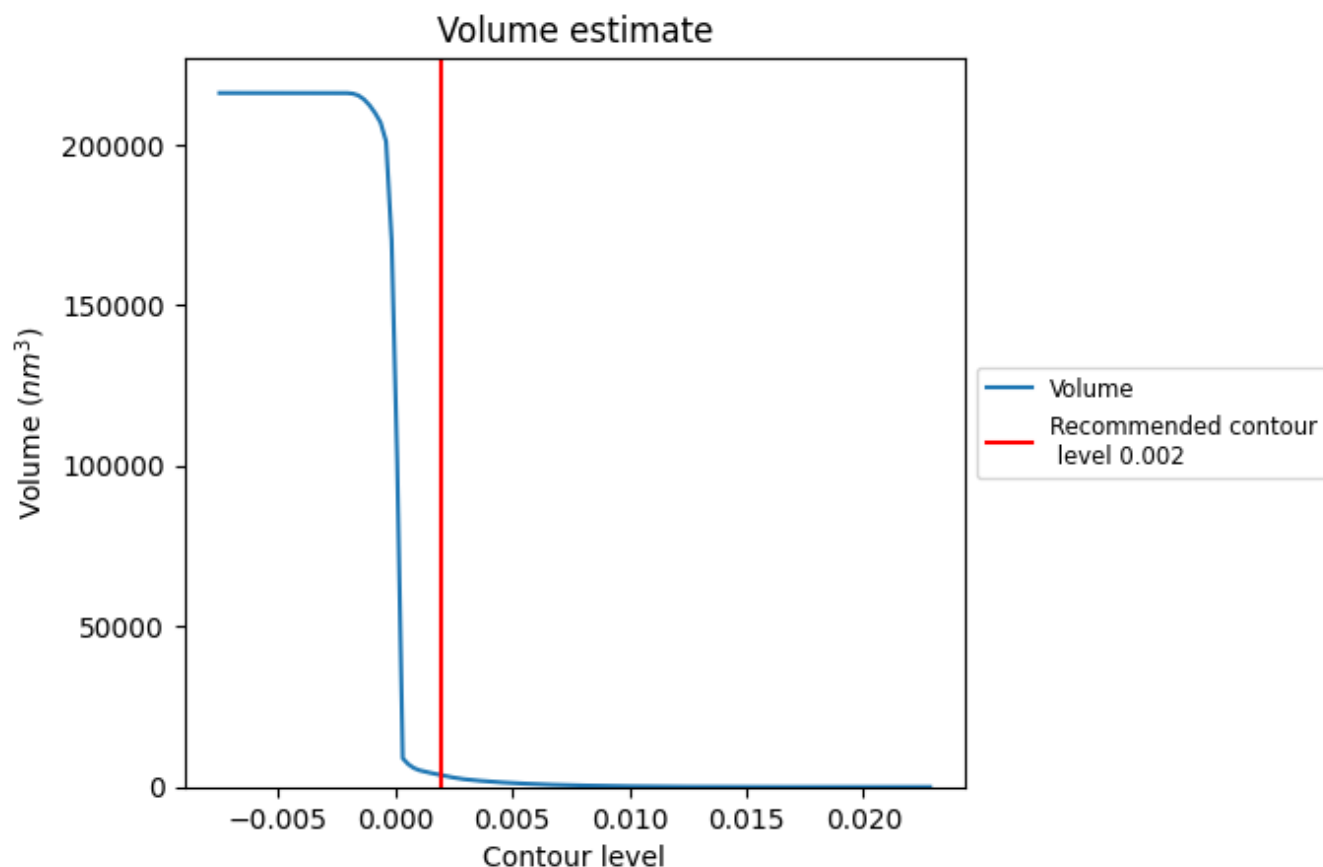
This section contains the results of statistical analysis of the map.

### 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.

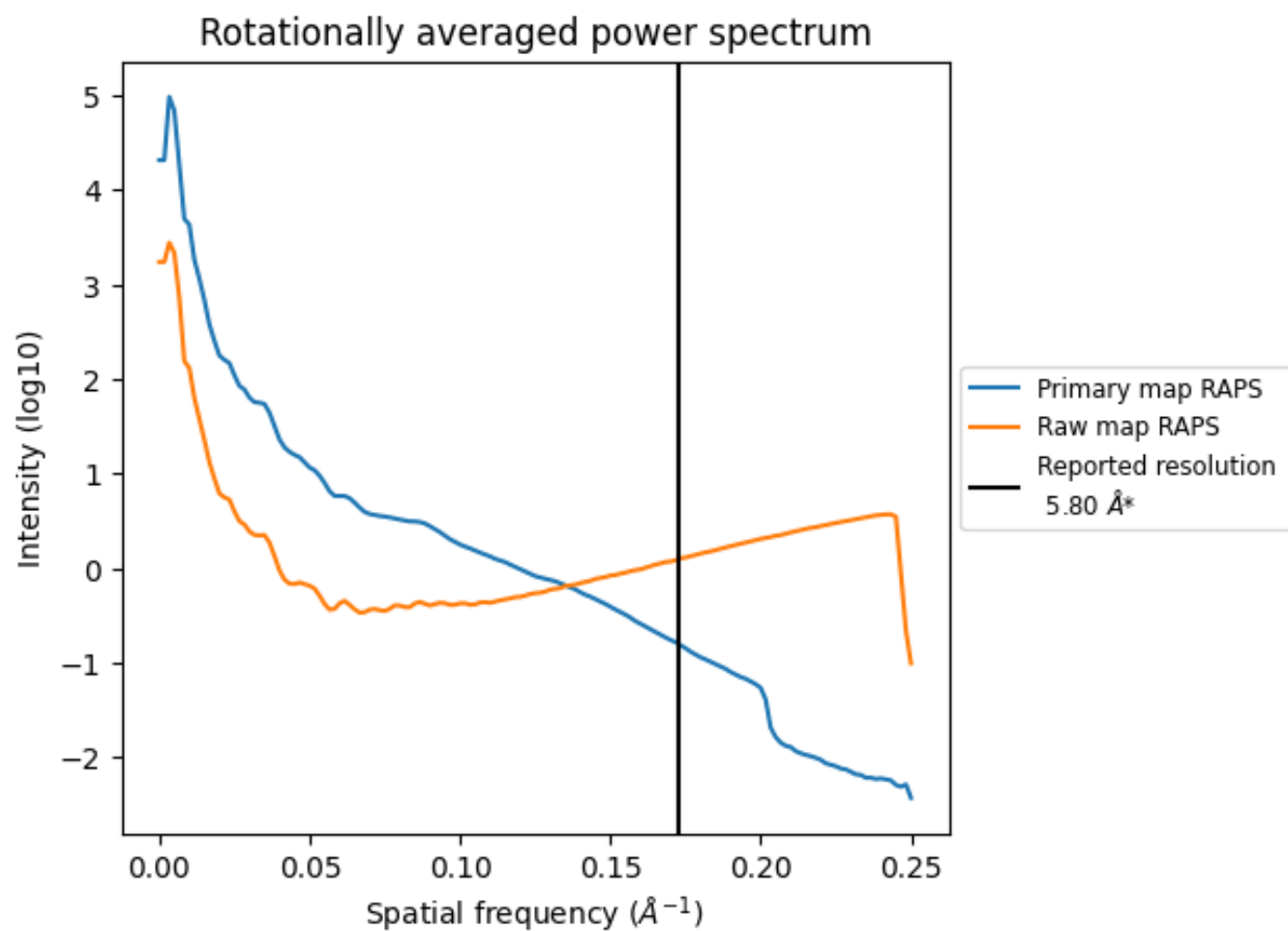
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is  $3632 \text{ nm}^3$ ; this corresponds to an approximate mass of 3281 kDa.

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

### 7.3 Rotationally averaged power spectrum ⓘ

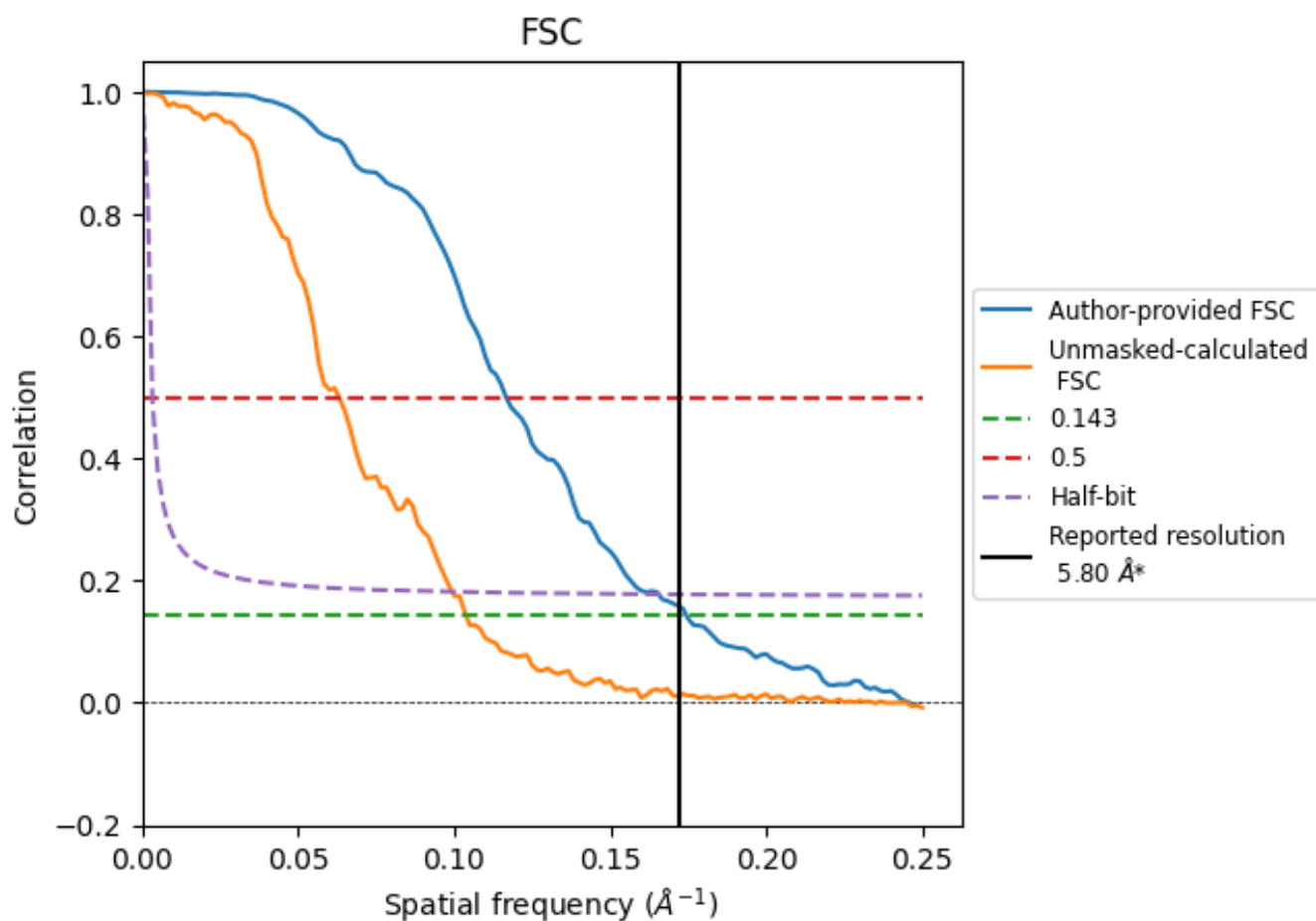


\*Reported resolution corresponds to spatial frequency of 0.172 Å<sup>-1</sup>

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

## 8.2 Resolution estimates [i](#)

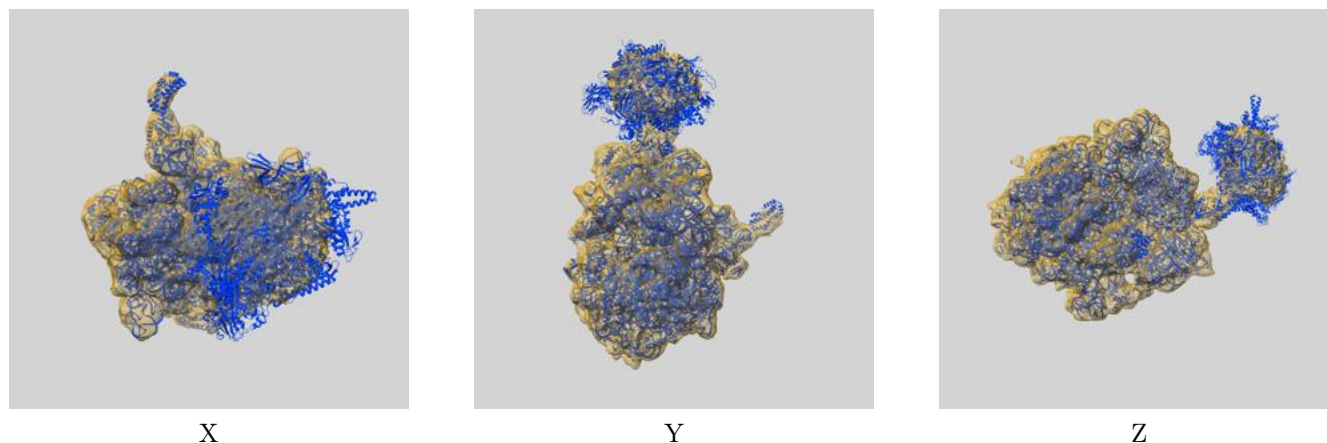
| Resolution estimate (Å)   | Estimation criterion (FSC cut-off) |       |          |
|---------------------------|------------------------------------|-------|----------|
|                           | 0.143                              | 0.5   | Half-bit |
| Reported by author        | 5.80                               | -     | -        |
| Author-provided FSC curve | 5.73                               | 8.58  | 6.04     |
| Unmasked-calculated*      | 9.63                               | 15.85 | 10.06    |

\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 9.63 differs from the reported value 5.8 by more than 10 %

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

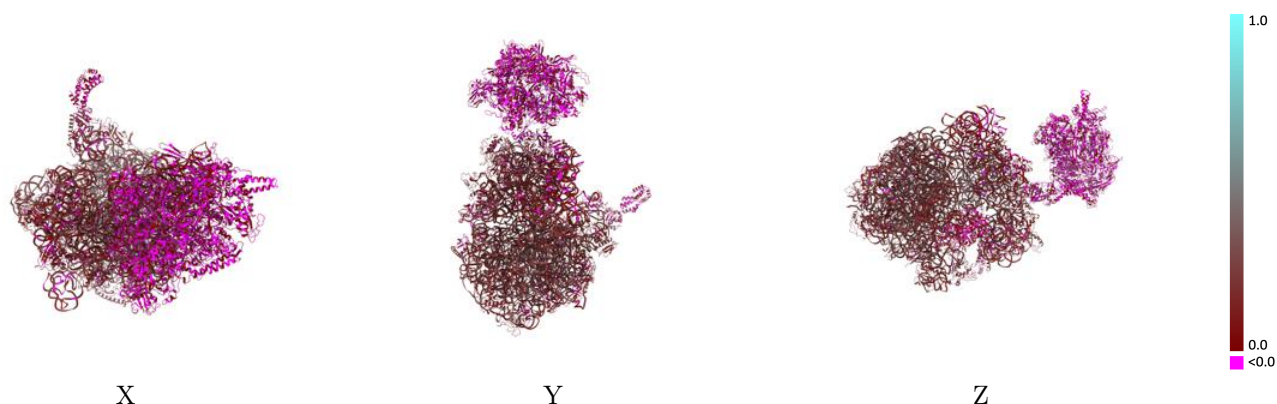
This section contains information regarding the fit between EMDB map EMD-53670 and PDB model 9SL6. Per-residue inclusion information can be found in section 3 on page 16.

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



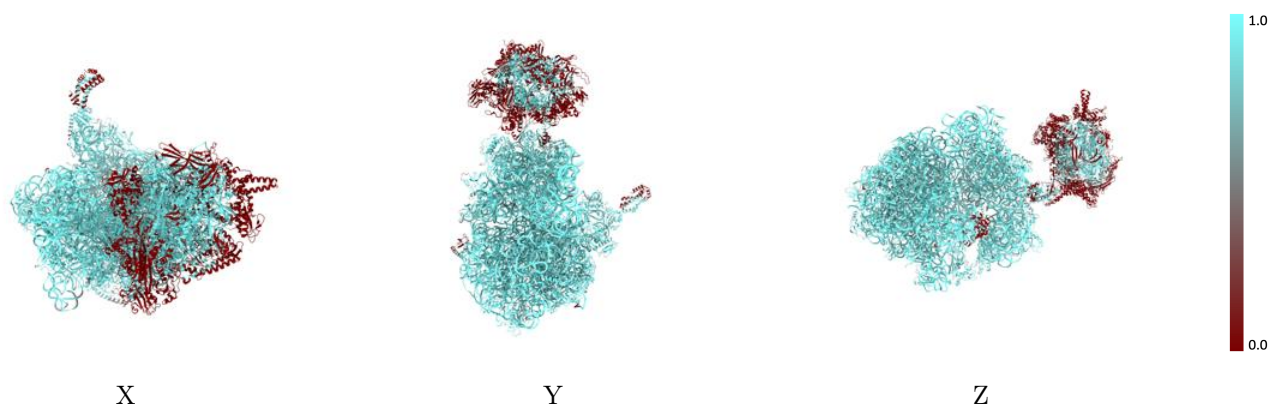
The images above show the 3D surface view of the map at the recommended contour level 0.002 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



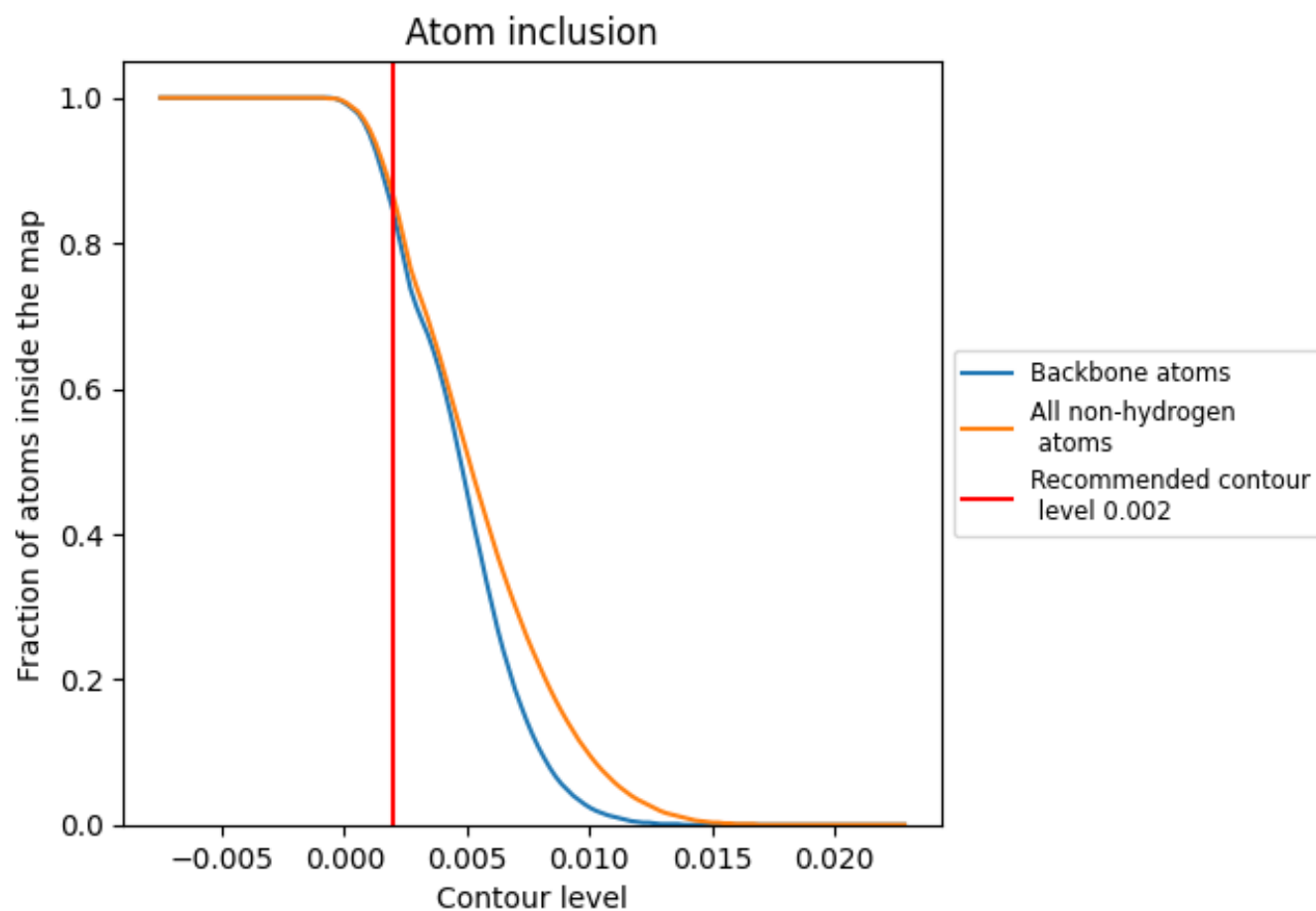
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.002).

## 9.4 Atom inclusion [i](#)



At the recommended contour level, 84% of all backbone atoms, 86% 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 (0.002) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion                                                                             | Q-score                                                                                    |
|-------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| All   |  0.8640   |  0.1500   |
| 0     |  0.9310   |  0.1450   |
| 1     |  0.9160   |  0.1490   |
| 2     |  0.9190   |  0.1600   |
| 3     |  0.9920   |  0.2230   |
| 4     |  0.9980   |  0.1970   |
| 5     |  0.9920   |  0.1640   |
| 6     |  0.2030   |  0.0230   |
| 7     |  0.9420   |  0.1450   |
| 8     |  0.5820   |  0.0090   |
| 9     |  0.0120   |  0.0270   |
| A     |  0.9230   |  0.1460   |
| AA    |  0.0080   |  0.0070   |
| AB    |  0.3660   |  0.0200   |
| AC    |  0.7320  |  0.0120  |
| AD    |  0.7300 |  0.0270 |
| AE    |  0.3550 |  0.0450 |
| B     |  0.9730 |  0.1430 |
| C     |  0.9170 |  0.0600 |
| D     |  0.9690 |  0.1460 |
| E     |  0.8730 |  0.1310 |
| F     |  0.9380 |  0.1110 |
| G     |  0.9510 |  0.1230 |
| H     |  0.9630 |  0.1070 |
| I     |  0.9860 |  0.1290 |
| J     |  0.9340 |  0.1310 |
| K     |  0.9370 |  0.0950 |
| L     |  0.9440 |  0.1160 |
| M     |  0.9690 |  0.0830 |
| N     |  0.9470 |  0.1560 |
| O     |  0.9060 |  0.0880 |
| P     |  0.8800 |  0.0950 |
| Q     |  0.9460 |  0.1230 |
| R     |  0.9070 |  0.1090 |
| S     |  0.9620 |  0.1150 |



*Continued on next page...*

*Continued from previous page...*

| Chain | Atom inclusion                                                                             | Q-score                                                                                    |
|-------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| T     |  0.9670   |  0.1400   |
| U     |  0.7990   |  0.0780   |
| V     |  0.6940   |  0.0420   |
| W     |  0.6250   |  0.0240   |
| X     |  0.4700   |  0.0640   |
| Y     |  0.0300   |  0.0270   |
| Z     |  0.3840   |  0.0160   |
| a     |  0.9530   |  0.1610   |
| b     |  0.9130   |  0.1670   |
| c     |  0.9310   |  0.1570   |
| d     |  0.9450   |  0.1260   |
| e     |  0.9110   |  0.1490   |
| f     |  0.5880   |  0.1050   |
| h     |  0.8610   |  0.0800   |
| i     |  0.9240   |  0.1690   |
| j     |  0.9200   |  0.1650   |
| k     |  0.9180   |  0.1720   |
| l     |  0.9050   |  0.1700   |
| m     |  0.9060   |  0.1700   |
| n     |  0.9330  |  0.1420  |
| o     |  0.9230 |  0.1610 |
| p     |  0.9060 |  0.1440 |
| q     |  0.9200 |  0.1660 |
| r     |  0.9260 |  0.1720 |
| s     |  0.9460 |  0.1720 |
| t     |  0.8490 |  0.1120 |
| u     |  0.9220 |  0.1510 |
| v     |  0.9330 |  0.1490 |
| w     |  0.9260 |  0.1560 |
| x     |  0.9420 |  0.1230 |
| y     |  0.9080 |  0.1370 |
| z     |  0.9520 |  0.1550 |