



## Full wwPDB EM Validation Report ⓘ

Mar 15, 2026 – 01:35 PM UTC

PDB ID : 9V24 / pdb\_00009v24  
EMDB ID : EMD-64716  
Title : Cryo- EM structure of 75S ribosome with A/P- & P/E- tRNAs from Entamoeba histolytica  
Authors : Sharma, S.; Mishra, S.; Gourinath, S.; Kaushal, P.S.  
Deposited on : 2025-05-19  
Resolution : 3.10 Å(reported)  
Based on initial model : .

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:

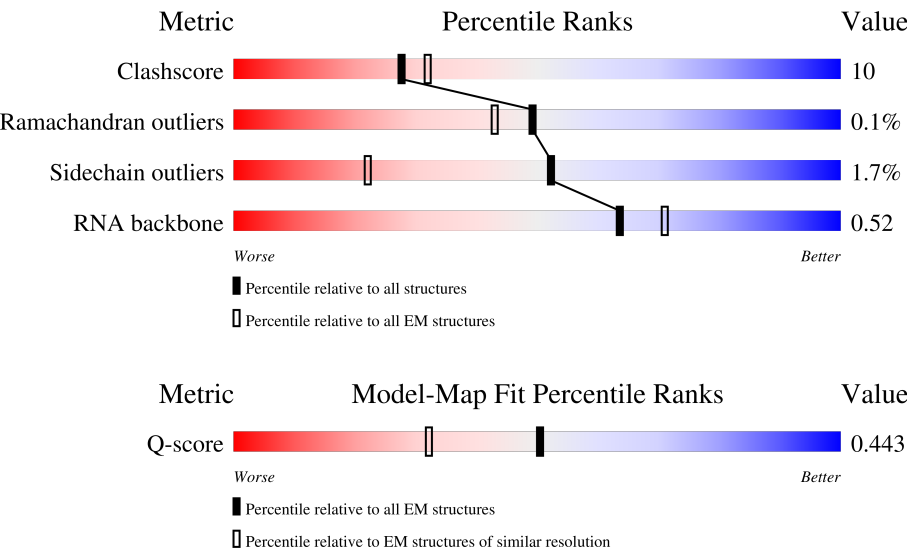
EMDB validation analysis : 0.0.1.dev132  
MolProbity : 4-5-2 with Phenix2.0  
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)  
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.49

# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:  
*ELECTRON MICROSCOPY*

The reported resolution of this entry is 3.10 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                       | 14724 ( 2.60 - 3.60 )                                    |

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   | 1A    | 3503   |                  |
| 2   | 1B    | 155    |                  |
| 3   | 1C    | 117    |                  |

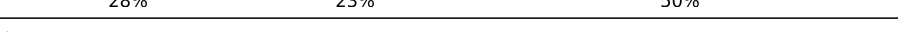
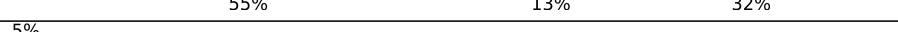
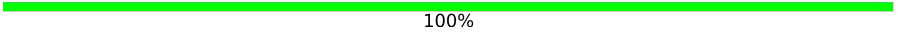
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| Mol | Chain | Length | Quality of chain                                                                     |
|-----|-------|--------|--------------------------------------------------------------------------------------|
| 4   | ID    | 257    |    |
| 5   | IE    | 402    |    |
| 6   | IF    | 431    |    |
| 7   | IG    | 286    |    |
| 8   | IH    | 204    |    |
| 9   | II    | 230    |    |
| 10  | IJ    | 286    |    |
| 11  | IK    | 197    |    |
| 12  | IL    | 210    |    |
| 13  | IM    | 174    |    |
| 14  | IN    | 291    |    |
| 15  | IO    | 205    |   |
| 16  | IP    | 135    |  |
| 17  | IQ    | 205    |  |
| 18  | IR    | 179    |  |
| 19  | IS    | 168    |  |
| 20  | IT    | 173    |  |
| 21  | IU    | 198    |  |
| 22  | IV    | 166    |  |
| 23  | IW    | 137    |  |
| 24  | IX    | 140    |  |
| 25  | IY    | 121    |  |
| 26  | IZ    | 163    |  |
| 27  | la    | 213    |  |
| 28  | lb    | 139    |  |

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| Mol | Chain | Length | Quality of chain                                                                     |
|-----|-------|--------|--------------------------------------------------------------------------------------|
| 29  | lc    | 149    |    |
| 30  | ld    | 64     |    |
| 31  | le    | 109    |    |
| 32  | lf    | 150    |    |
| 33  | lg    | 134    |    |
| 34  | lh    | 137    |    |
| 35  | li    | 122    |    |
| 36  | lj    | 108    |    |
| 37  | lk    | 104    |    |
| 38  | ll    | 77     |    |
| 39  | lm    | 93     |    |
| 40  | ln    | 77     |    |
| 41  | lo    | 51     |  |
| 42  | lp    | 56     |  |
| 43  | lq    | 98     |  |
| 44  | sA    | 137    |  |
| 45  | sB    | 144    |  |
| 46  | sC    | 84     |  |
| 47  | sD    | 69     |  |
| 48  | sE    | 56     |  |
| 49  | sH    | 4      |  |
| 50  | sI    | 76     |  |
| 51  | sJ    | 77     |  |
| 52  | sK    | 10     |  |
| 53  | sa    | 1947   |  |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 54  | sb    | 254    |                  |
| 55  | sc    | 255    |                  |
| 56  | sd    | 244    |                  |
| 57  | se    | 256    |                  |
| 58  | sf    | 326    |                  |
| 59  | sg    | 206    |                  |
| 60  | sh    | 266    |                  |
| 61  | si    | 201    |                  |
| 62  | sj    | 237    |                  |
| 63  | sk    | 185    |                  |
| 64  | sl    | 127    |                  |
| 65  | sm    | 156    |                  |
| 66  | so    | 151    |                  |
| 67  | sp    | 146    |                  |
| 68  | sq    | 144    |                  |
| 69  | sr    | 130    |                  |
| 70  | ss    | 158    |                  |
| 71  | st    | 117    |                  |
| 72  | su    | 155    |                  |
| 73  | sv    | 155    |                  |
| 74  | sw    | 118    |                  |
| 75  | sx    | 86     |                  |
| 76  | sy    | 141    |                  |
| 77  | sz    | 140    |                  |

## 2 Entry composition

There are 77 unique types of molecules in this entry. The entry contains 185725 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a RNA chain called 25S rRNA.

| Mol | Chain | Residues | Atoms |       |       |       |      | AltConf | Trace |
|-----|-------|----------|-------|-------|-------|-------|------|---------|-------|
| 1   | 1A    | 3145     | Total | C     | N     | O     | P    | 0       | 0     |
|     |       |          | 67215 | 30134 | 12203 | 21733 | 3145 |         |       |

- Molecule 2 is a RNA chain called 5.8S rRNA.

| Mol | Chain | Residues | Atoms |      |     |      |     | AltConf | Trace |
|-----|-------|----------|-------|------|-----|------|-----|---------|-------|
| 2   | 1B    | 145      | Total | C    | N   | O    | P   | 0       | 0     |
|     |       |          | 3097  | 1390 | 560 | 1002 | 145 |         |       |

- Molecule 3 is a RNA chain called 5S rRNA.

| Mol | Chain | Residues | Atoms |      |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|-----|---------|-------|
| 3   | 1C    | 117      | Total | C    | N   | O   | P   | 0       | 0     |
|     |       |          | 2477  | 1108 | 425 | 827 | 117 |         |       |

- Molecule 4 is a protein called Large ribosomal subunit protein uL2.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 4   | 1D    | 246      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1881  | 1165 | 382 | 326 | 8 |         |       |

- Molecule 5 is a protein called 60S ribosomal protein L3, putative.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 5   | 1E    | 387      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3076  | 1956 | 578 | 527 | 15 |         |       |

- Molecule 6 is a protein called 60S ribosomal protein L4, putative.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 6   | 1F    | 424      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3253  | 2069 | 619 | 551 | 14 |         |       |

- Molecule 7 is a protein called 60S ribosomal protein L5, putative.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 7   | lG    | 282      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 2245  | 1434 | 405 | 398 | 8 |         |       |

- Molecule 8 is a protein called Large ribosomal subunit protein eL6.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 8   | lH    | 203      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1608  | 1054 | 272 | 278 | 4 |         |       |

- Molecule 9 is a protein called 60S ribosomal protein L7, putative.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 9   | lI    | 210      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1658  | 1067 | 301 | 282 | 8 |         |       |

- Molecule 10 is a protein called 60S ribosomal protein L7a.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 10  | lJ    | 213      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1727  | 1114 | 317 | 291 | 5 |         |       |

- Molecule 11 is a protein called 60S ribosomal protein L9, putative.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 11  | lK    | 193      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1538  | 974 | 279 | 279 | 6 |         |       |

- Molecule 12 is a protein called Ribosomal protein L10, putative.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 12  | lL    | 200      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 1597  | 1017 | 302 | 264 | 14 |         |       |

- Molecule 13 is a protein called 60S ribosomal protein L11, putative.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 13  | lM    | 170      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1350  | 857 | 243 | 245 | 5 |         |       |

- Molecule 14 is a protein called 60S ribosomal protein L13, putative.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 14  | lN    | 267      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 2122  | 1352 | 410 | 352 | 8 |         |       |

- Molecule 15 is a protein called 60S ribosomal protein L13, putative.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 15  | lO    | 204      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1616  | 1030 | 302 | 275 | 9 |         |       |

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

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 16  | lP    | 130      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1020  | 654 | 188 | 174 | 4 |         |       |

- Molecule 17 is a protein called Ribosomal protein L15.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 17  | lQ    | 204      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1676  | 1051 | 356 | 264 | 5 |         |       |

- Molecule 18 is a protein called 60S ribosomal protein L17, putative.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 18  | lR    | 158      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1232  | 779 | 238 | 210 | 5 |         |       |

- Molecule 19 is a protein called 60S ribosomal protein L18, putative.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 19  | lS    | 167      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1316  | 832 | 257 | 218 | 9 |         |       |

- Molecule 20 is a protein called 60S ribosomal protein L18a.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 20  | lT    | 173      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1413  | 910 | 259 | 235 | 9 |         |       |

- Molecule 21 is a protein called Ribosomal protein L19.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 21  | IU    | 150      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1235  | 787 | 246 | 197 | 5 |         |       |

- Molecule 22 is a protein called 60S ribosomal protein L21, putative.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 22  | IV    | 165      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1320  | 846 | 254 | 217 | 3 |         |       |

- Molecule 23 is a protein called Large ribosomal subunit protein eL22.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 23  | IW    | 93       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 761   | 491 | 132 | 133 | 5 |         |       |

- Molecule 24 is a protein called 60S ribosomal protein L23, putative.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 24  | IX    | 133      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1015  | 629 | 196 | 182 | 8 |         |       |

- Molecule 25 is a protein called Ribosomal protein L23A, putative.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 25  | IY    | 116      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 926   | 597 | 166 | 159 | 4 |         |       |

- Molecule 26 is a protein called 60S ribosomal protein L24, putative.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 26  | IZ    | 57       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 481   | 318 | 88 | 73 | 2 |         |       |

- Molecule 27 is a protein called 60S ribosomal protein L26, putative.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 27  | la    | 210      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1651  | 1055 | 304 | 285 | 7 |         |       |

- Molecule 28 is a protein called 60S ribosomal protein L27, putative.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 28  | lb    | 137      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1094  | 707 | 196 | 187 | 4 |         |       |

- Molecule 29 is a protein called Large ribosomal subunit protein uL15A.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 29  | lc    | 148      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1192  | 757 | 236 | 194 | 5 |         |       |

- Molecule 30 is a protein called 60S ribosomal protein L29.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 30  | ld    | 60       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 478   | 297 | 97 | 82 | 2 |         |       |

- Molecule 31 is a protein called 60S ribosomal protein L30, putative.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 31  | le    | 103      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 768   | 486 | 131 | 149 | 2 |         |       |

- Molecule 32 is a protein called 60S ribosomal protein L31, putative.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 32  | lf    | 146      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1184  | 759 | 219 | 200 | 6 |         |       |

- Molecule 33 is a protein called 60S ribosomal protein L32, putative.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 33  | lg    | 129      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1058  | 672 | 209 | 172 | 5 |         |       |

- Molecule 34 is a protein called 60S ribosomal protein L34, putative.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 34  | lh    | 105      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 820   | 512 | 169 | 133 | 6 |         |       |

- Molecule 35 is a protein called uL29.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 35  | li    | 122      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 974   | 620 | 188 | 162 | 4 |         |       |

- Molecule 36 is a protein called 60S ribosomal protein L35a, putative.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 36  | lj    | 106      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 841   | 545 | 158 | 135 | 3 |         |       |

- Molecule 37 is a protein called 60S ribosomal protein L36, putative.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 37  | lk    | 89       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 712   | 447 | 144 | 116 | 5 |         |       |

- Molecule 38 is a protein called 60S ribosomal protein L37-A, putative.

| Mol | Chain | Residues | Atoms |     |     |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 38  | ll    | 72       | Total | C   | N   | O  | S | 0       | 0     |
|     |       |          | 591   | 361 | 132 | 91 | 7 |         |       |

- Molecule 39 is a protein called 60S ribosomal protein L37a, putative.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 39  | lm    | 90       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 688   | 428 | 135 | 119 | 6 |         |       |

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

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 40  | ln    | 73       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 584   | 378 | 104 | 100 | 2 |         |       |

- Molecule 41 is a protein called Ribosomal protein L39, putative.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 41  | lo    | 50       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 432   | 275 | 91 | 63 | 3 |         |       |

- Molecule 42 is a protein called 60S ribosomal protein L40, putative.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 42  | lp    | 53       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 420   | 259 | 86 | 69 | 6 |         |       |

- Molecule 43 is a protein called 60S ribosomal protein L44, putative.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 43  | lq    | 92       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 756   | 480 | 148 | 122 | 6 |         |       |

- Molecule 44 is a protein called 40S ribosomal protein S25.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 44  | sA    | 69       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 548   | 356 | 92 | 96 | 4 |         |       |

- Molecule 45 is a protein called 40S ribosomal protein S26.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 45  | sB    | 98       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 787   | 478 | 169 | 134 | 6 |         |       |

- Molecule 46 is a protein called Small ribosomal subunit protein eS27.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 46  | sC    | 33       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 257   | 167 | 43 | 46 | 1 |         |       |

- Molecule 47 is a protein called 40S ribosomal protein S28, putative.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 47  | sD    | 60       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 468   | 289 | 93 | 84 | 2 |         |       |

- Molecule 48 is a protein called Ribosomal protein S29, putative.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 48  | sE    | 55       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 442   | 273 | 90 | 75 | 4 |         |       |

- Molecule 49 is a protein called Unknown peptide.

| Mol | Chain | Residues | Atoms |   |   |   | AltConf | Trace |
|-----|-------|----------|-------|---|---|---|---------|-------|
| 49  | sH    | 2        | Total | C | N | O | 0       | 0     |
|     |       |          | 9     | 6 | 2 | 1 |         |       |

- Molecule 50 is a RNA chain called A/P-tRNA.

| Mol | Chain | Residues | Atoms |     |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 50  | sI    | 72       | Total | C   | N   | O   | P  | 0       | 0     |
|     |       |          | 1533  | 685 | 278 | 499 | 71 |         |       |

- Molecule 51 is a RNA chain called P/E-tRNA.

| Mol | Chain | Residues | Atoms |     |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 51  | sJ    | 77       | Total | C   | N   | O   | P  | 0       | 0     |
|     |       |          | 1630  | 728 | 282 | 543 | 77 |         |       |

- Molecule 52 is a RNA chain called mRNA.

| Mol | Chain | Residues | Atoms |    |    |    |    | AltConf | Trace |
|-----|-------|----------|-------|----|----|----|----|---------|-------|
| 52  | sK    | 10       | Total | C  | N  | O  | P  | 0       | 0     |
|     |       |          | 215   | 97 | 41 | 67 | 10 |         |       |

- Molecule 53 is a RNA chain called 17S rRNA.

| Mol | Chain | Residues | Atoms |       |      |      |      | AltConf | Trace |
|-----|-------|----------|-------|-------|------|------|------|---------|-------|
| 53  | sa    | 1434     | Total | C     | N    | O    | P    | 0       | 0     |
|     |       |          | 30685 | 13734 | 5586 | 9931 | 1434 |         |       |

- Molecule 54 is a protein called Small ribosomal subunit protein uS2.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 54  | sb    | 205      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 1626  | 1029 | 286 | 296 | 15 |         |       |

- Molecule 55 is a protein called Small ribosomal subunit protein uS5.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 55  | sc    | 215      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1642  | 1052 | 291 | 291 | 8 |         |       |

- Molecule 56 is a protein called 40S ribosomal protein S3.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 56  | sd    | 219      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 1696  | 1072 | 310 | 303 | 11 |         |       |

- Molecule 57 is a protein called Small ribosomal subunit protein eS1.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 57  | se    | 163      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1329  | 853 | 237 | 232 | 7 |         |       |

- Molecule 58 is a protein called 40S ribosomal protein S4, putative.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 58  | sf    | 256      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 2031  | 1297 | 378 | 345 | 11 |         |       |

- Molecule 59 is a protein called Small ribosomal subunit protein uS7.

| Mol | Chain | Residues | Atoms |     |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 59  | sg    | 181      | Total | C   | N   | O   | S  | 0       | 0     |
|     |       |          | 1440  | 908 | 261 | 260 | 11 |         |       |

- Molecule 60 is a protein called 40S ribosomal protein S6.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 60  | sh    | 119      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 944   | 588 | 194 | 157 | 5 |         |       |

- Molecule 61 is a protein called 40S ribosomal protein S7.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 61  | si    | 110      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 854   | 559 | 152 | 142 | 1 |         |       |

- Molecule 62 is a protein called 40S ribosomal protein S8.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 62  | sj    | 127      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 990   | 611 | 198 | 177 | 4 |         |       |

- Molecule 63 is a protein called Small ribosomal subunit protein uS4.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 63  | sk    | 162      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1323  | 845 | 251 | 221 | 6 |         |       |

- Molecule 64 is a protein called 40S ribosomal protein S10, putative.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 64  | sl    | 91       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 729   | 475 | 122 | 123 | 9 |         |       |

- Molecule 65 is a protein called 40S ribosomal protein S11, putative.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 65  | sm    | 141      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1161  | 735 | 224 | 196 | 6 |         |       |

- Molecule 66 is a protein called 40S ribosomal protein S13, putative.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 66  | so    | 76       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 644   | 410 | 123 | 108 | 3 |         |       |

- Molecule 67 is a protein called Ribosomal protein S14, putative.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 67  | sp    | 133      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 999   | 615 | 192 | 186 | 6 |         |       |

- Molecule 68 is a protein called 40S ribosomal protein S15, putative.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 68  | sq    | 105      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 842   | 543 | 150 | 144 | 5 |         |       |

- Molecule 69 is a protein called 40S ribosomal protein S15a, putative.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 69  | sr    | 129      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1022  | 650 | 186 | 181 | 5 |         |       |

- Molecule 70 is a protein called 40S ribosomal protein S16, putative.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 70  | ss    | 141      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1104  | 713 | 198 | 189 | 4 |         |       |

- Molecule 71 is a protein called 40S ribosomal protein S17, putative.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 71  | st    | 81       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 676   | 424 | 135 | 116 | 1 |         |       |

- Molecule 72 is a protein called Small ribosomal subunit protein uS13.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 72  | su    | 135      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1096  | 681 | 224 | 185 | 6 |         |       |

- Molecule 73 is a protein called Small ribosomal subunit protein eS19.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 73  | sv    | 151      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1214  | 777 | 218 | 212 | 7 |         |       |

- Molecule 74 is a protein called 40S ribosomal protein S20, putative.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 74  | sw    | 98       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 766   | 486 | 133 | 142 | 5 |         |       |

- Molecule 75 is a protein called 40S ribosomal protein S21.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 75  | sx    | 83       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 651   | 412 | 117 | 119 | 3 |         |       |

- Molecule 76 is a protein called 40S ribosomal protein S23, putative.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 76  | sy    | 106      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 836   | 522 | 169 | 142 | 3 |         |       |

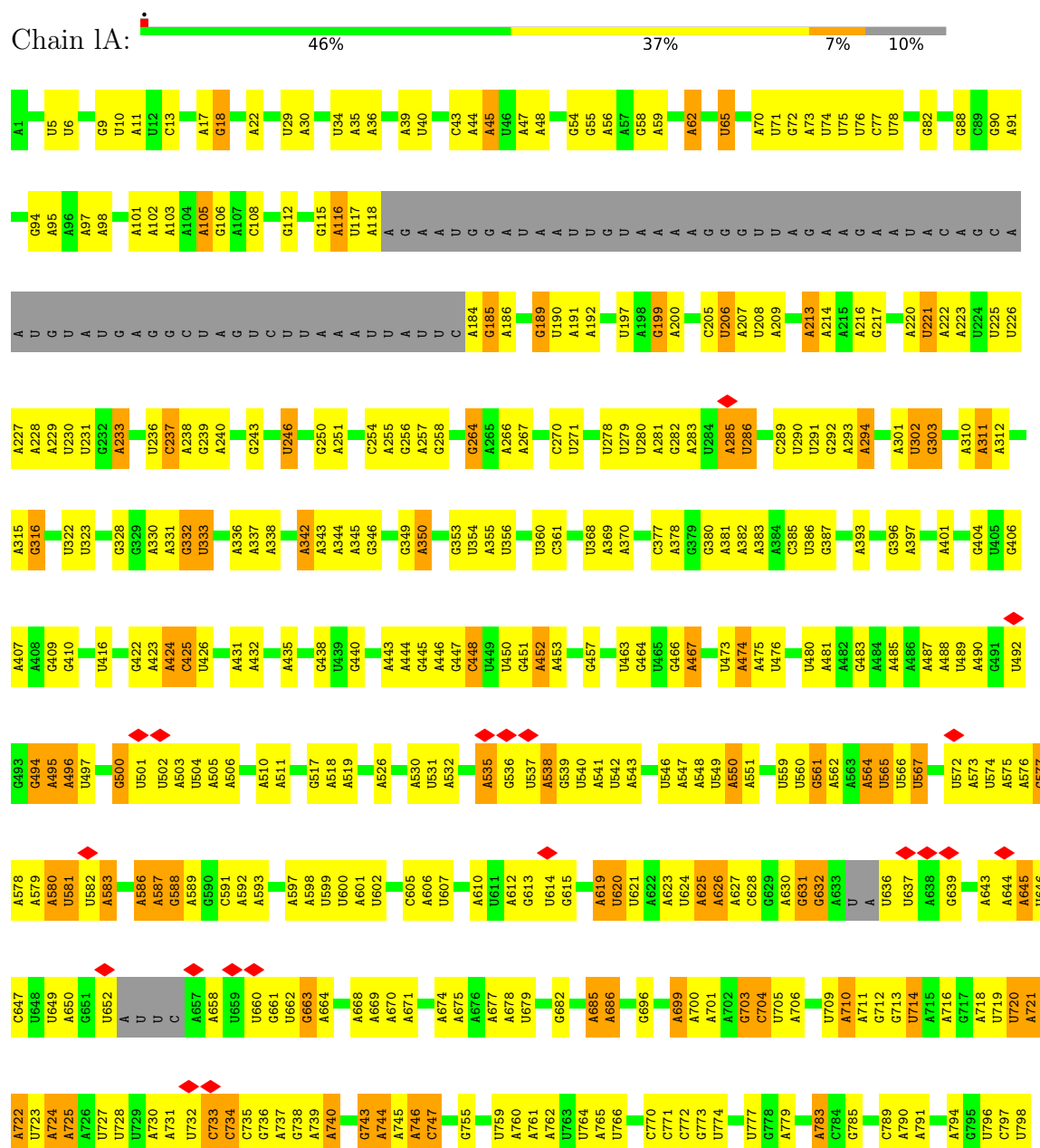
- Molecule 77 is a protein called 40S ribosomal protein S24, putative.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 77  | SZ    | 56       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 438   | 288 | 74 | 75 | 1 |         |       |

### 3 Residue-property plots

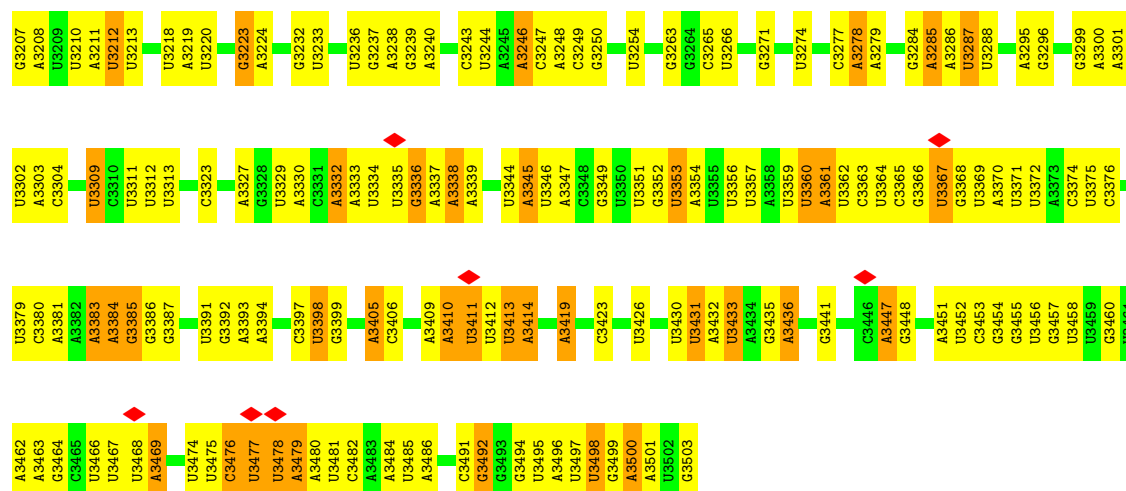
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

#### • Molecule 1: 25S rRNA



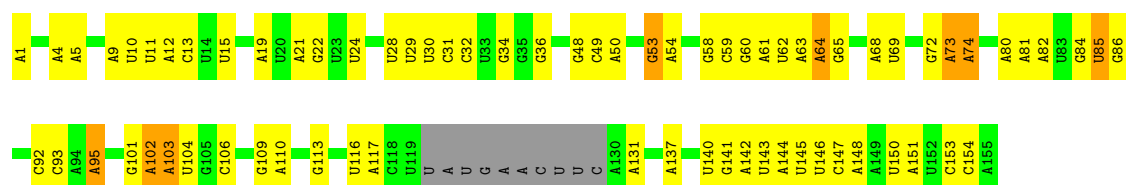
|       |       |   |       |       |       |       |       |       |      |      |
|-------|-------|---|-------|-------|-------|-------|-------|-------|------|------|
| U1935 | A1848 | U | A1605 | G1512 | G1430 | A1254 | C1156 | A965  | A871 | A802 |
| A1936 | A1849 | G | A1606 | A1513 | G1431 | A1255 | A1157 | A966  | A872 | U803 |
| G1938 | U1850 | A | U1611 | A1517 | A1432 | G1256 | U1158 | A967  | U873 | U804 |
| A1939 | G1855 | U | C1612 | C1516 | U1433 | A1261 | C1159 | C968  | A874 | C968 |
| A1940 | G1856 | U | A1618 | A1518 | G1434 | C1266 | A1165 | U969  | C875 | G805 |
| A1941 | A1857 | A | C1619 | A1519 | A1437 | A     | A1166 | U974  | A876 | A806 |
| C1944 | A1858 | A | A     | A1520 | A1440 | U1269 | A1167 | G979  | G851 | C809 |
| A1945 | G1859 | A | U     | A1521 | U1441 | U1269 | C1168 | A980  | C882 | G810 |
| A1946 | U1860 | C | A     | A1522 | A1442 | A1275 | U1169 | A981  | A883 | A811 |
| C     | C1864 | U | A     | U1523 | A1443 | A1278 | G1172 | U982  | A884 | A812 |
| A     | U1865 | A | G     | A1524 | A1447 | A1279 | A1177 | C983  | U885 | U813 |
| U     | U1869 | G | U     | A1527 | C1447 | A1284 | A1178 | A984  | G887 | G816 |
| U     | U1870 | A | C     | A1528 | A1450 | A1284 | A1178 | U993  | A889 | A817 |
| A     | C1871 | A | A     | U1533 | A1451 | A1292 | A1181 | A994  | A889 | A818 |
| U     | U1872 | A | A     | U1533 | C1452 | A1293 | A1182 | A995  | A896 | U819 |
| A     | U1873 | U | U     | U1533 | U1453 | U1293 | G1183 | A996  | A897 | A820 |
| U     | U1876 | A | U     | A1535 | G1454 | A1303 | A1184 | G997  | U898 | C821 |
| U1965 | A1877 | G | U     | A1536 | A1455 | A1306 | A1185 | U998  | U898 | C822 |
| A1958 | A1878 | A | U     | G1537 | U1456 | A1307 | G1186 | G999  | A899 | A823 |
| U1959 | A1878 | U | C     | G1538 | A1457 | A1308 | A1194 | A1003 | A904 | G824 |
| U1960 | U1882 | U | C     | A1541 | U1466 | A1309 | G1195 | A1006 | A905 | A826 |
| G1961 | A1883 | A | A     | U1544 | U1467 | A1310 | U1198 | C1007 | G906 | A827 |
| U1965 | A1886 | A | A     | A1545 | A1468 | A1311 | A1115 | A1006 | U907 | A828 |
| U     | A1887 | U | U     | U1549 | A1469 | A1312 | G1117 | C1007 | A908 | G829 |
| U1969 | U1888 | C | U     | U1550 | A1470 | A1313 | A1118 | A1013 | A909 | U832 |
| U1972 | U1889 | C | U     | G1551 | A1471 | A1314 | A1119 | A1019 | U911 | U833 |
| C1973 | U1890 | A | U     | A1552 | A1472 | A1315 | A1120 | G1019 | A918 | A834 |
| A1974 | A1891 | A | U     | A1553 | A1473 | A1316 | U1122 | G1026 | G919 | A835 |
| G1975 | U1892 | U | U     | C1554 | A1477 | A1326 | G1123 | G1027 | A920 | C836 |
| U1978 | A1897 | A | U     | U1555 | A1479 | A1327 | U1131 | G1028 | U837 | U838 |
| U1979 | U1898 | A | U     | G1556 | U1480 | A1328 | U1132 | G1029 | A925 | G839 |
| C1980 | U1904 | U | U     | U1561 | U1481 | A1328 | A     | C1030 | A926 | A840 |
| U1982 | C1905 | A | C     | G1568 | A1482 | A1328 | A     | A1033 | U933 | A841 |
| A1983 | A1906 | A | A     | U1570 | U1483 | A1328 | U     | A1034 | G934 | G842 |
| A1984 | A1907 | C | C     | C1571 | A1484 | A1335 | G     | A1035 | A935 | A843 |
| A1985 | U1912 | U | U     | U1571 | A1485 | U1335 | G     | A1036 | A936 | A846 |
| A1986 | G1913 | A | U     | U1580 | A1486 | C1340 | U     | C1042 | U940 | A847 |
| U1992 | A1921 | U | U     | A1581 | U1490 | A1341 | G     | G1043 | A941 | A848 |
| G1993 | U1922 | C | U     | U1582 | A1491 | A1342 | A     | U1047 | C942 | C849 |
| U1994 | U1923 | A | U     | U1583 | G1494 | A1343 | A     | A1048 | U943 | A853 |
| G1995 | U1924 | U | U     | G1584 | A1495 | A1344 | U     | U1048 | U944 | A854 |
| U1998 | A1925 | U | U     | A1593 | G1499 | U1346 | U     | G1053 | C948 | A855 |
| C     | U1926 | A | U     | G1595 | A1501 | A1347 | U     | G1056 | G949 | U857 |
| U     | G1927 | U | U     | A1596 | A1502 | A1348 | U     | C1057 | U953 | U858 |
| U     | G1928 | U | U     | A1597 | U1503 | A1349 | U     | G1063 | G954 | G860 |
| A     | C1930 | A | U     | A1602 | G1504 | A1352 | A     | A1071 | G957 | G866 |
| G     | U1931 | U | A     | U1603 | G1505 | G1353 | U     | A1072 | G960 | U867 |
| C     | U1932 | U | U     | A1604 | U1508 | G1354 | C1153 | U1073 | A868 | A868 |
| A     | U1933 | A | U     | U     | U1509 | A     | A1154 | A1074 | G869 | G869 |
| U     | G1934 | U | U     | U     | A     | C     | A1155 | U1074 | G964 | A870 |





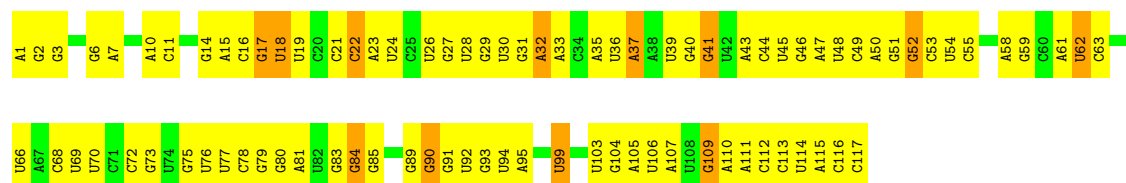
• Molecule 2: 5.8S rRNA

Chain 1B: 47% 41% 5% 6%



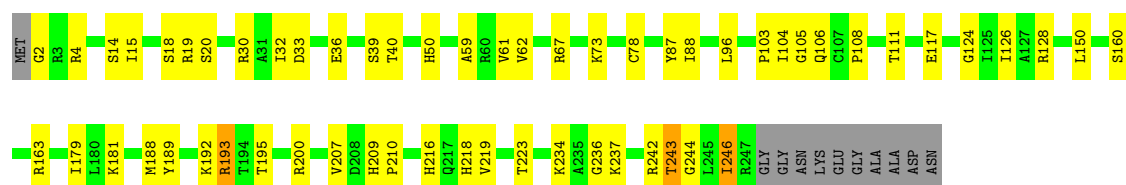
• Molecule 3: 5S rRNA

Chain 1C: 26% 64% 10%



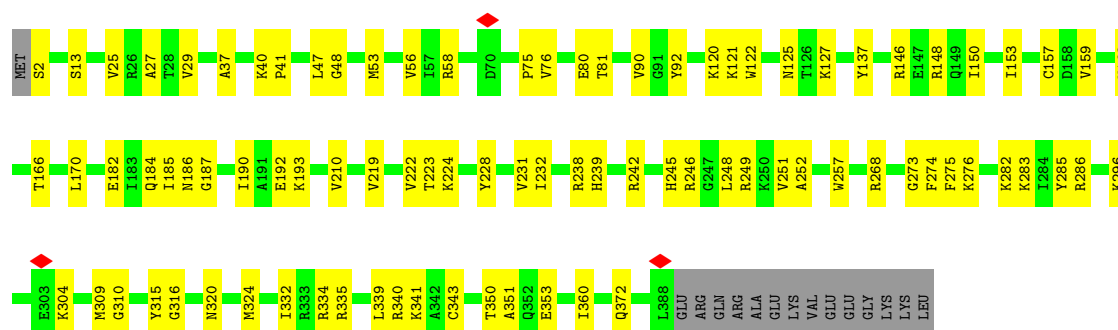
• Molecule 4: Large ribosomal subunit protein uL2

Chain 1D: 73% 21% ..



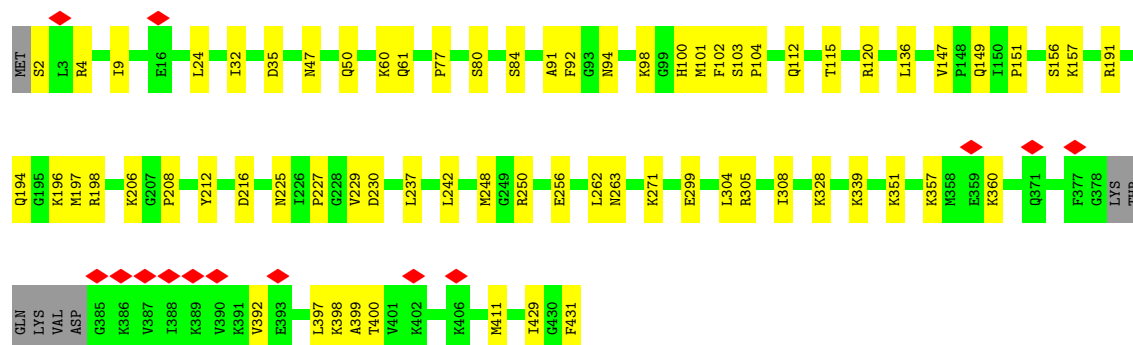
• Molecule 5: 60S ribosomal protein L3, putative

Chain 1E: 74% 22% .



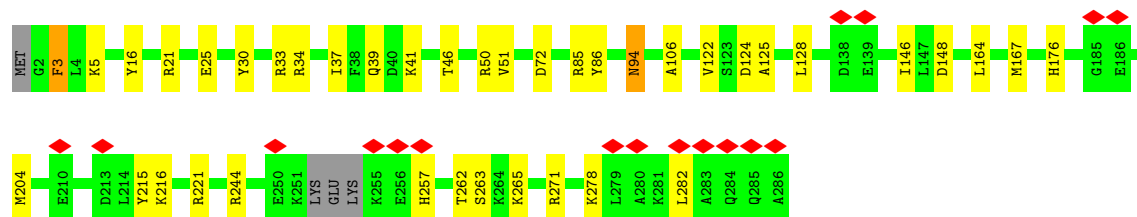
- Molecule 6: 60S ribosomal protein L4, putative

Chain 1F: 82% 16%



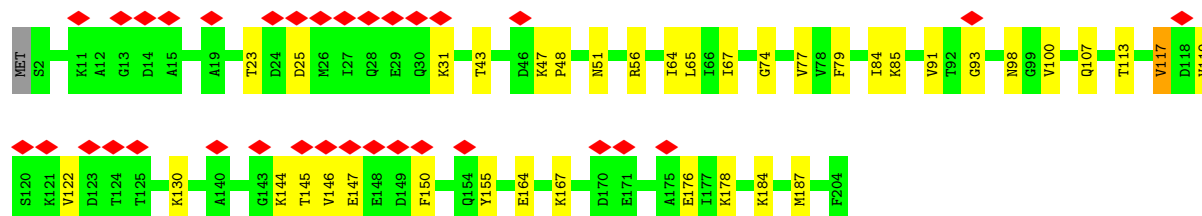
- Molecule 7: 60S ribosomal protein L5, putative

Chain 1G: 6% 85% 13%



- Molecule 8: Large ribosomal subunit protein eL6

Chain 1H: 16% 81% 18%



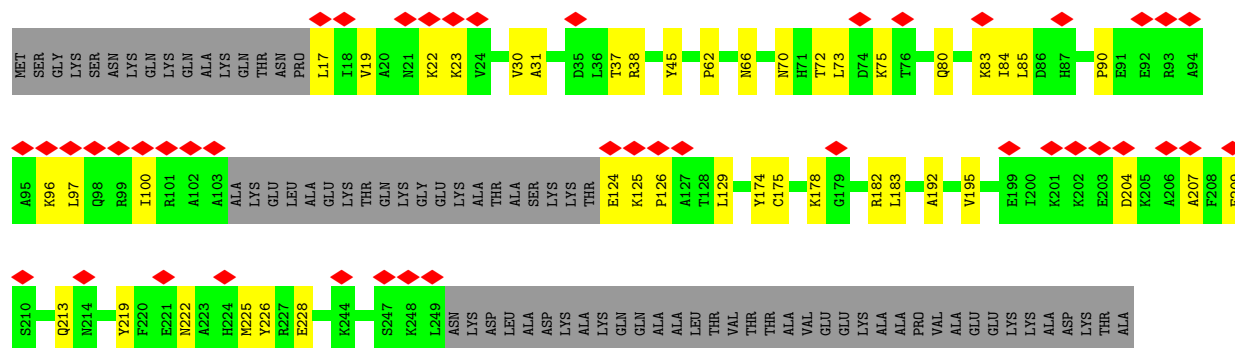
- Molecule 9: 60S ribosomal protein L7, putative

Chain II: 



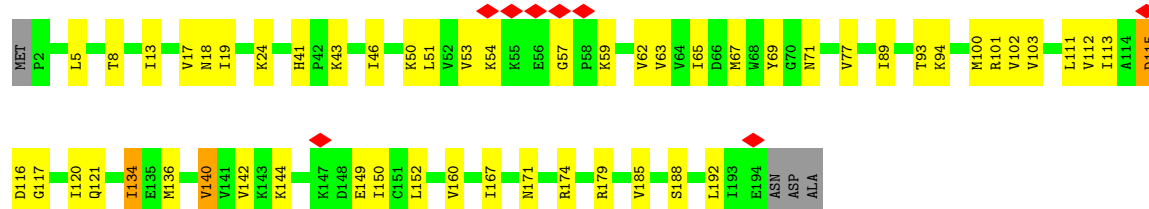
- Molecule 10: 60S ribosomal protein L7a

Chain IJ: 



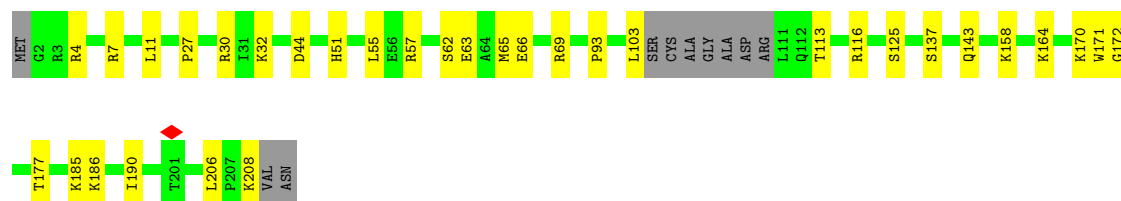
- Molecule 11: 60S ribosomal protein L9, putative

Chain IK: 



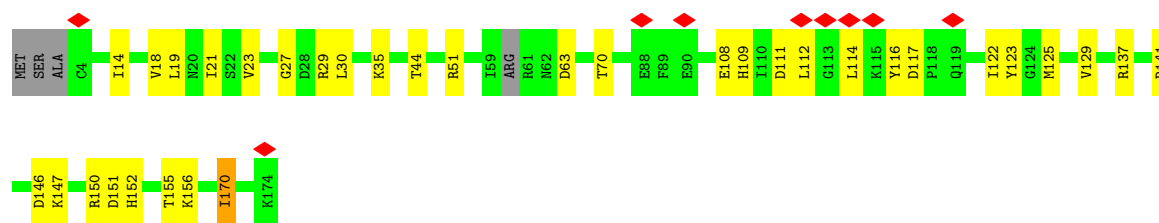
- Molecule 12: Ribosomal protein L10, putative

Chain IL: 

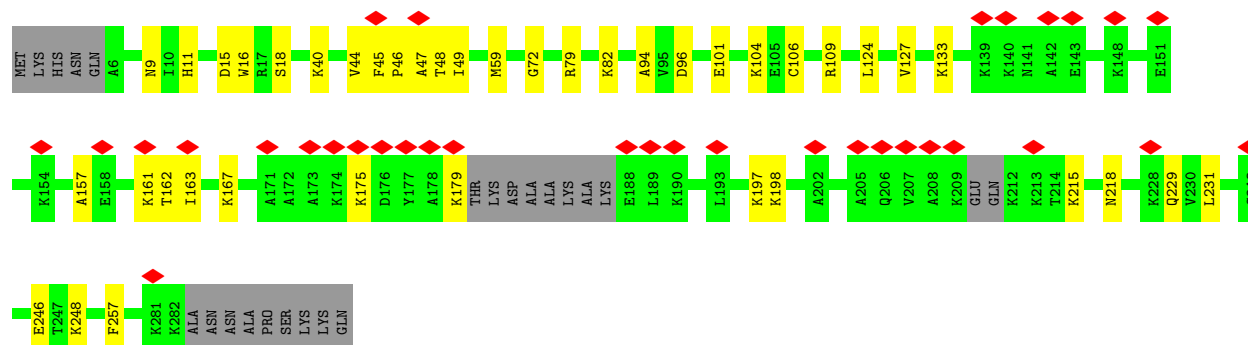
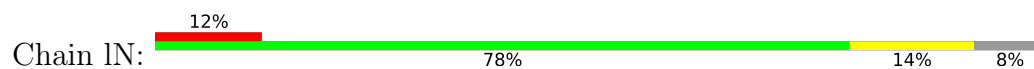


- Molecule 13: 60S ribosomal protein L11, putative

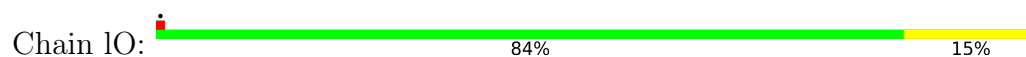
Chain IM: 



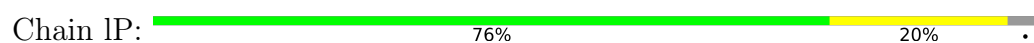
- Molecule 14: 60S ribosomal protein L13, putative



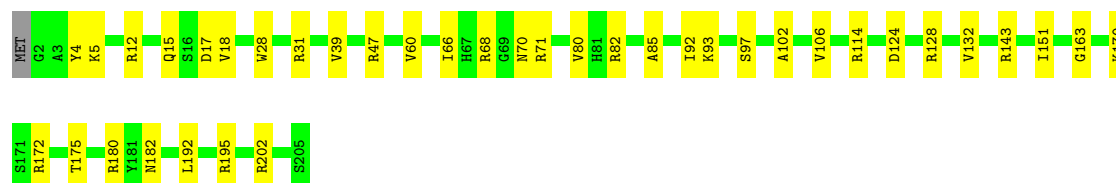
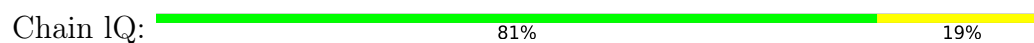
- Molecule 15: 60S ribosomal protein L13, putative



- Molecule 16: 60S ribosomal protein L14, putative

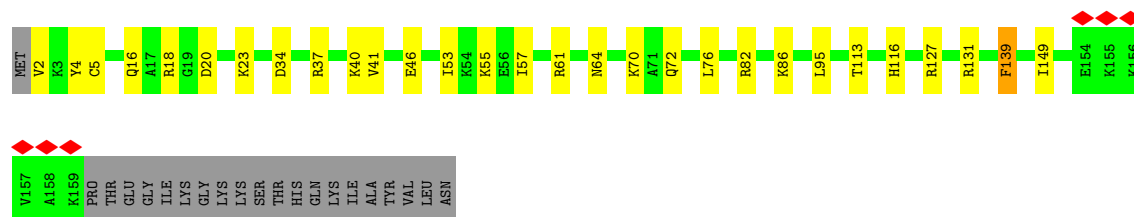


- Molecule 17: Ribosomal protein L15



- Molecule 18: 60S ribosomal protein L17, putative





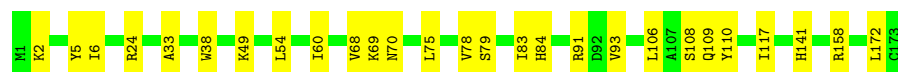
- Molecule 19: 60S ribosomal protein L18, putative

Chain IS: 81% 18% ..



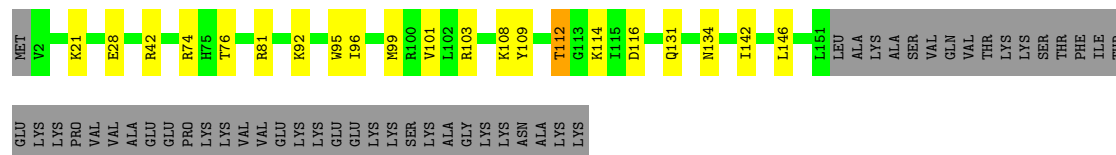
- Molecule 20: 60S ribosomal protein L18a

Chain IT: 84% 16%



- Molecule 21: Ribosomal protein L19

Chain IU: 65% 10% 24%



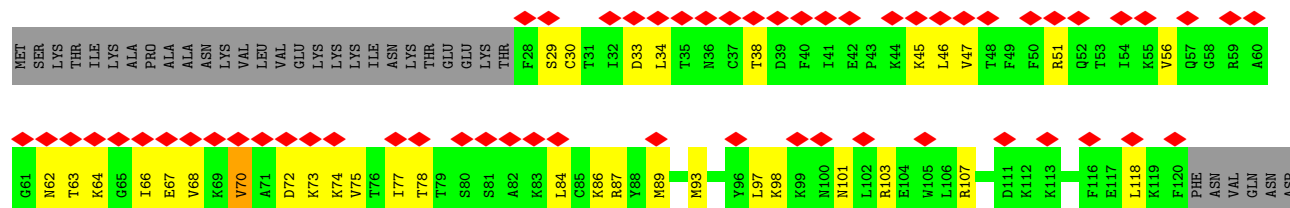
- Molecule 22: 60S ribosomal protein L21, putative

Chain IV: 86% 14%



- Molecule 23: Large ribosomal subunit protein eL22

Chain IW: 42% 43% 24% 32%



GLU  
GLU  
GLU  
VAL  
ARG  
ALA  
GLU  
GLU  
THR  
ASN  
ALA  
GLN

- Molecule 24: 60S ribosomal protein L23, putative

Chain IX: 79% 16% 5%

MET PRO GLY ARG GLY ALA GLY G8 R15 V16 T17 C18 N21 N22 A23 S24 I40 S41 V42 K43 L52 F53 R54 M60 V61 R83 Q84 R85 R86 T87 R88 R89 Y97 M108 T118 K123 V140

- Molecule 25: Ribosomal protein L23A, putative

Chain IY: 83% 12% . .

MET ALA GLY THR LYS R6 K17 R27 D57 A69 N70 K71 T72 K75 K76 G83 V84 K85 V86 L95 K99 D108 V109 E110 A111 M112 E113 K117 L120 F121

- Molecule 26: 60S ribosomal protein L24, putative

Chain IZ: 29% 6% 65%

MET SER ILE THR Q6 S11 R21 R25 F31 T54 A55 I56 Q59 L60 N61 K62 LYS GLY GLN ASN GLU LEU VAL GLU LYS LYS THR ARG VAL ILE LYS VAL ASN ARG GLY TYR SER ILE SER ALA GLU LEU ILE ALA LYS ARG HIS GLN THR

PHE  
ASN  
SER  
ARG

- Molecule 27: 60S ribosomal protein L26, putative

Chain Ia: 80% 18% .

M1 K2 A21 N22 R26 S31 A32 R33 K36 E37 L38 Y42 P48 D52 K59 Q60 K63 K67 R73 S74 K75 Y76 V77 D81 K82 K85 T86 K87 A88 N89 I95 L109 R113 E114 S123 V145 N150 I153 T162

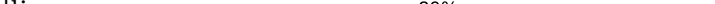
- Molecule 28: 60S ribosomal protein L27, putative

Chain Ib: 19% 74% 24% . .

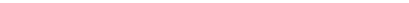
MET SER K3 V10 V11 R17 G20 A23 T33 K34 D35 R36 K37 Y38 V43 V46 E47 R48 A49 P50 I53 T54 R55 K56 A59 K60 V61 Q62 E63 M64 V68 K69 N78 P82 T83 N88 L89 E90 Q91 F92 N93 L94 I95 K96 Q97 V98 K99



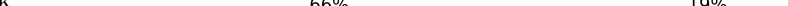
[illegible]

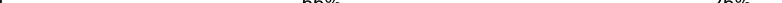
Chain li: 

| Category | Count |
|----------|-------|
| A-9      | 12    |
| S-8      | 10    |
| L-7      | 8     |
| K-6      | 6     |
| S2       | 4     |
| K3       | 4     |
| N4       | 4     |
| D5       | 4     |
| E12      | 4     |
| V38      | 4     |
| D42      | 4     |
| R59      | 4     |
| K60      | 4     |
| A65      | 4     |
| P69      | 4     |
| L72      | 4     |
| T76      | 4     |
| R82      | 4     |
| F109     | 4     |
| A112     | 1     |

Chain lj:  84% 13%

| Category | Count |
|----------|-------|
| MET      | 1     |
| SER      | 1     |
| K3       | 1     |
| C4       | 1     |
| R5       | 1     |
| L6       | 1     |
| H7       | 1     |
| V34      | 1     |
| N35      | 1     |
| T36      | 1     |
| D39      | 1     |
| V48      | 1     |
| K57      | 1     |
| K58      | 1     |
| N61      | 1     |
| N89      | 1     |
| P92      | 1     |
| N98      | 1     |
| V101     | 1     |
| T108     | 1     |

Chain lk: 

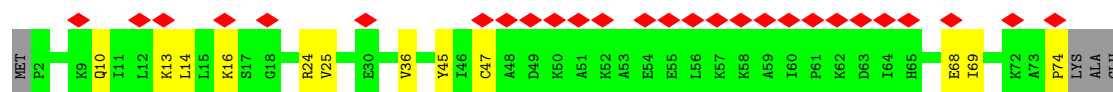
Chain II:  66% 26% • 6%

| MET |
|-----|
| T2  |
| T5  |
| S6  |
| C7  |
| R8  |
| H12 |
| L18 |
| R21 |
| R33 |
| G38 |
| Y39 |
| P40 |
| D41 |
| Y51 |
| K52 |
| A53 |
| L54 |
| R55 |
| R56 |
| R63 |
| M64 |
| R65 |
| H66 |
| R73 |
| THR |
| THR |
| LYS |
| ALA |

Chain lm:  81% 16%

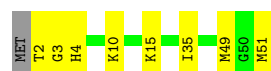
| Region | Mutations |
|--------|-----------|
| MET    | 1         |
| ALA    | 1         |
| ARG    | 1         |
| R4     | 1         |
| K7     | 1         |
| T16    | 1         |
| R17    | 1         |
| K24    | 1         |
| K36    | 1         |
| C42    | 1         |
| V47    | 1         |
| R48    | 1         |
| R49    | 1         |
| T50    | 5         |
| A51    | 1         |
| I54    | 1         |
| L71    | 1         |
| V83    | 1         |
| R84    | 1         |
| R85    | 1         |
| Q93    | 1         |

Chain In: 



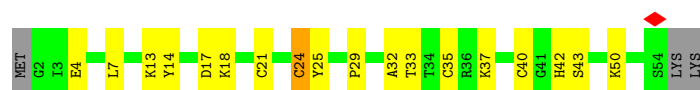
- Molecule 41: Ribosomal protein L39, putative

Chain lo: 82% 16%



- Molecule 42: 60S ribosomal protein L40, putative

Chain lp: 62% 30% 5%



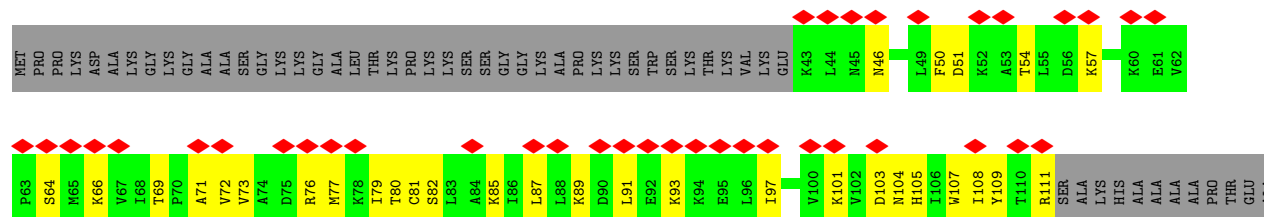
- Molecule 43: 60S ribosomal protein L44, putative

Chain lq: 79% 15% 6%



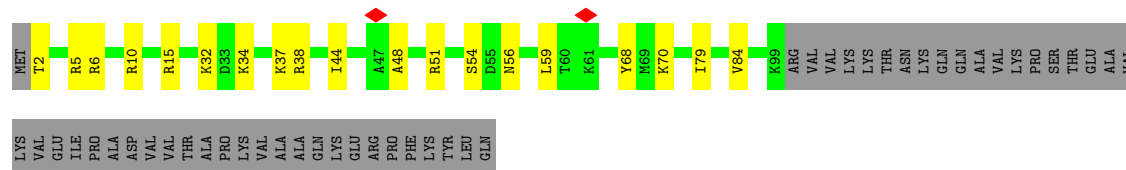
- Molecule 44: 40S ribosomal protein S25

Chain sA: 28% 23% 50%

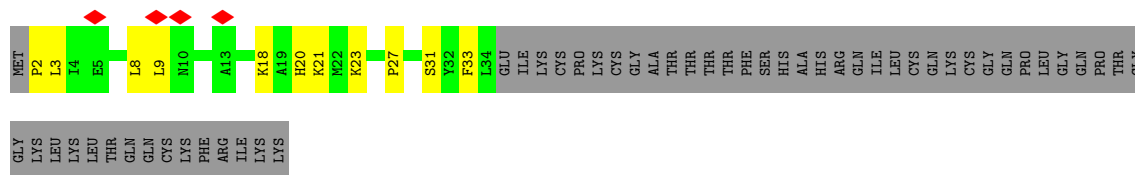


- Molecule 45: 40S ribosomal protein S26

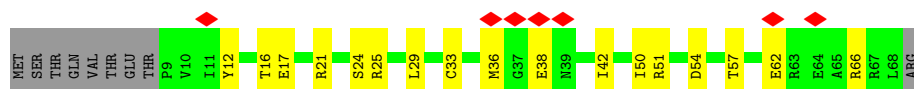
Chain sB: 55% 13% 32%



- Molecule 46: Small ribosomal subunit protein eS27



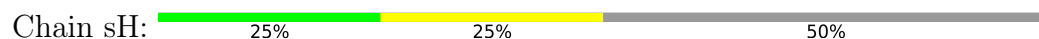
- Molecule 47: 40S ribosomal protein S28, putative



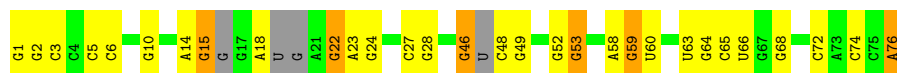
- Molecule 48: Ribosomal protein S29, putative



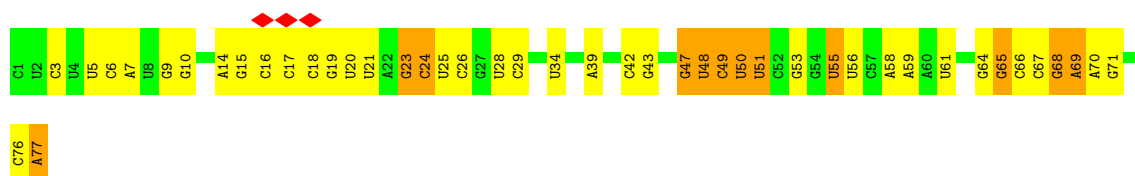
- Molecule 49: Unknown peptide



- Molecule 50: A/P-tRNA



- Molecule 51: P/E-tRNA



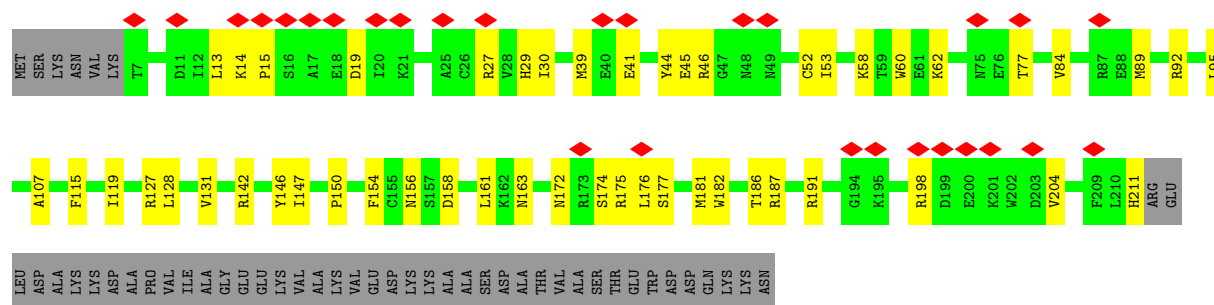
- Molecule 52: mRNA



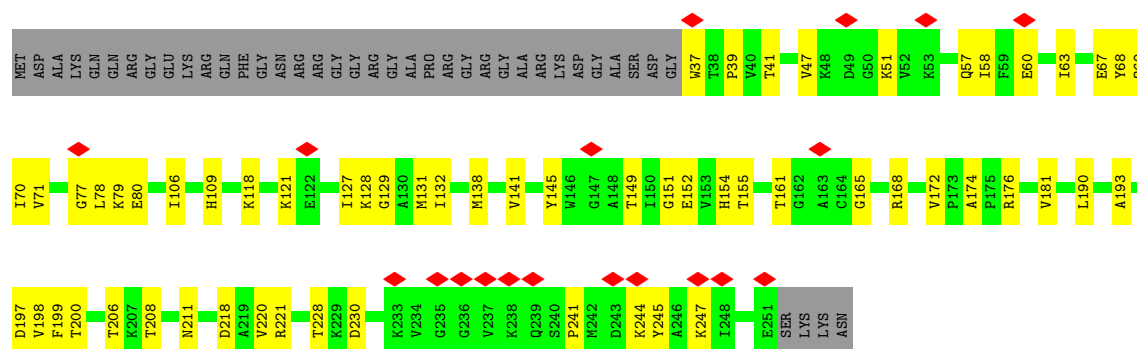
- Molecule 53: 17S rRNA

|                                                                                                                |      |      |      |      |      |      |      |      |       |
|----------------------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|-------|
| <div><div></div><div>34%</div><div></div><div>32%</div><div></div><div>8%</div><div></div><div>26%</div></div> |      |      |      |      |      |      |      |      |       |
| C14                                                                                                            | C96  | C167 | C294 | C384 | C458 | C600 | C794 | C860 | C934  |
| U15                                                                                                            | A295 | G167 | A    | G394 | A459 | G    | G795 | A    | C935  |
| C16                                                                                                            | C98  | U168 | C    | C385 | U    | U    | G796 | A    | U936  |
| C17                                                                                                            | C98  | U169 | A    | A386 | A463 | A    | G797 | G    | U     |
|                                                                                                                | A99  | G170 | U    | C387 |      | A    |      | U    |       |
| U24                                                                                                            | A171 | G171 | U    | C388 | A466 | G    | G803 | U    | G839  |
| A25                                                                                                            | A102 | G172 | C    | U389 | C467 | U    | G804 | U    | U940  |
| U26                                                                                                            | U103 |      | C    | U390 | A468 | C    | G605 | G    | A865  |
| A27                                                                                                            | A104 |      | U    | U391 | C469 | U    | G607 | U    | A867  |
| U28                                                                                                            | A105 |      | A    | U392 | A470 | A    | U    | U    | A868  |
| C29                                                                                                            | C106 |      | A    | C393 | A471 | A    | A734 | A    | A869  |
| C30                                                                                                            | A107 |      | A    | C394 | A    | G    | C738 | G    | A946  |
| U31                                                                                                            | G108 |      | U    | A395 | A    | U    | U739 | G    | U948  |
| C32                                                                                                            |      |      | C    | A396 | A    | U    | U740 | G    | A949  |
| A33                                                                                                            | A111 |      | C    | A397 | U    | C    | U741 | G    | C974  |
|                                                                                                                | U112 |      | A    | C398 | U    | U    | U742 | U    | A950  |
| A39                                                                                                            | A113 |      | G    | C399 | U    | A    | G617 | U    | G875  |
| A40                                                                                                            | G114 |      | U    | C400 | U    | A    | G618 | U    | G876  |
| G41                                                                                                            | U115 |      | U    | U401 | A    | G    | G619 | A    | A880  |
| A42                                                                                                            | U116 |      | G    | A402 | A    | U    | U746 | U    | U881  |
| U43                                                                                                            | U117 |      | G    | C403 | A    | U    | A747 | C    | A882  |
| U44                                                                                                            |      |      | U    | C404 | U    | A    |      | U    | U883  |
| A45                                                                                                            |      |      | A    |      | U    | U    | U750 | A    |       |
| A46                                                                                                            | U124 |      | A    | G250 | U    | U    | A751 | U    | A887  |
| U51                                                                                                            | U125 |      | C    | C251 | U    | G    | U752 | U    | A888  |
| G52                                                                                                            | A    |      | U    | A252 | U    | U    | G753 | U    | A889  |
|                                                                                                                | G    |      | A    | C253 | A    | U    | U754 | U    | C890  |
|                                                                                                                | U    |      | U    | G254 | A    | U    | G755 | U    |       |
|                                                                                                                | A    |      | U    | G255 | U    | A    | U755 | C    | A894  |
|                                                                                                                | A    |      | U    |      | U    | A    | U756 | U    | A895  |
| G56                                                                                                            | A    |      | C    | A258 | A    | U    | U757 | U    | U896  |
|                                                                                                                | A    |      | C    | A259 | A    | U    | U758 | U    |       |
| U59                                                                                                            | A    |      | A    | C334 | A    | A    | U759 | U    | U984  |
|                                                                                                                | U    |      | A    | U260 | U    | U    | G760 | U    | A985  |
| A60                                                                                                            | A    |      | A    | U261 | U    | A    | A761 | C    |       |
| A61                                                                                                            | A134 |      | A    | A336 | C    | U    | U762 | U    | U900  |
| G62                                                                                                            | C135 |      | U    | C337 | A    | A    | A763 | G    | A901  |
| U63                                                                                                            | A136 |      | A    | C338 | U    | G    | U764 | C    | U902  |
| A64                                                                                                            | A137 |      | G    | A339 | U    | U    | C765 | G    | A1003 |
| U65                                                                                                            | G138 |      | C    | A340 | U    | A    | U766 | A    | A904  |
| A66                                                                                                            | G139 |      | C    | G341 | U    | G    | A767 | G    | U1006 |
| A67                                                                                                            | A140 |      | A    |      | C    | A    | U768 | A    | A1007 |
| A68                                                                                                            | U141 |      | C    |      | U    | U    | A    | A    | C1008 |
| G69                                                                                                            | A142 |      | C    | A348 | U    | A    |      | G    |       |
| A70                                                                                                            | G143 |      | A    |      | U    | G    | U776 | C    | U1011 |
|                                                                                                                |      |      | C    |      | U    | A    |      | G    | G1012 |
| C71                                                                                                            | G148 |      | A    | U353 | A    | C    | A    | A    | A913  |
| C72                                                                                                            | U149 |      | C    | A354 | U    | A    | U    | U    | C914  |
| A73                                                                                                            | C150 |      | G    | A355 | A    | A    | U    | A    | A915  |
| A74                                                                                                            | A151 |      | U    | C356 | U    | C    | U    | U    | G916  |
| G75                                                                                                            | A152 |      | U    |      | G    | U    | A    | U    | A919  |
| U76                                                                                                            | U153 |      | U    | G366 | A    | A    | U    | U    | A843  |
| A77                                                                                                            | C154 |      | U    | G367 | G    | U    | U779 | A    | A844  |
| G78                                                                                                            | U156 |      | A    |      | U    | U    | U780 | C    | A945  |
| G79                                                                                                            | A157 |      | U    | C374 | U    | A    | G781 | U    | A849  |
| A80                                                                                                            |      |      | C    |      | A    | A    |      | C    | A852  |

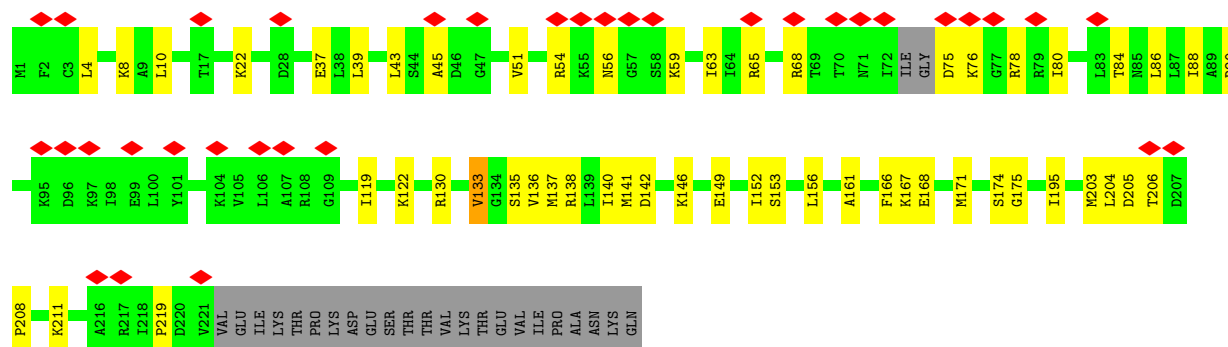




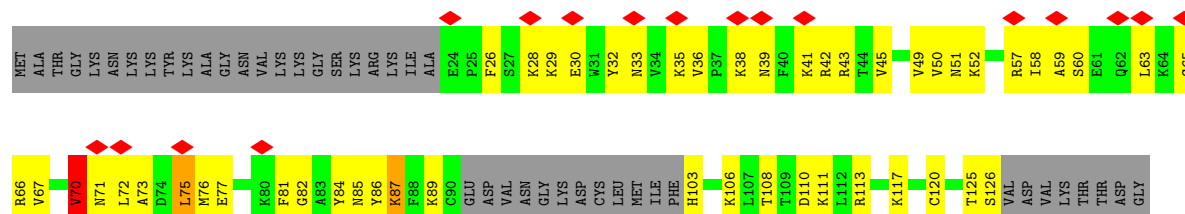
- Molecule 55: Small ribosomal subunit protein uS5



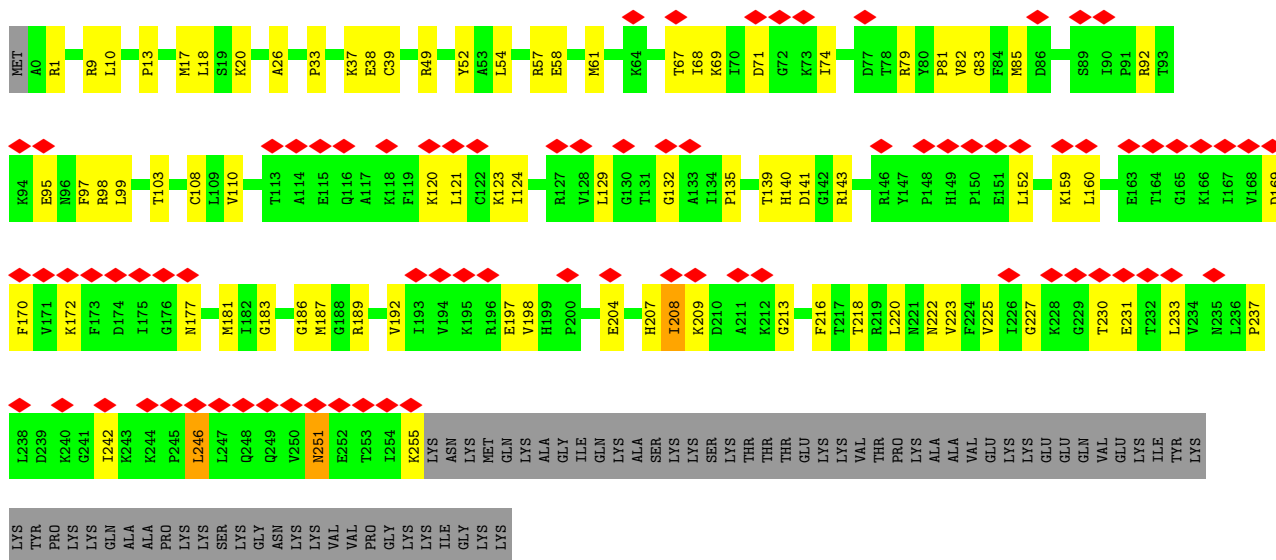
- Molecule 56: 40S ribosomal protein S3



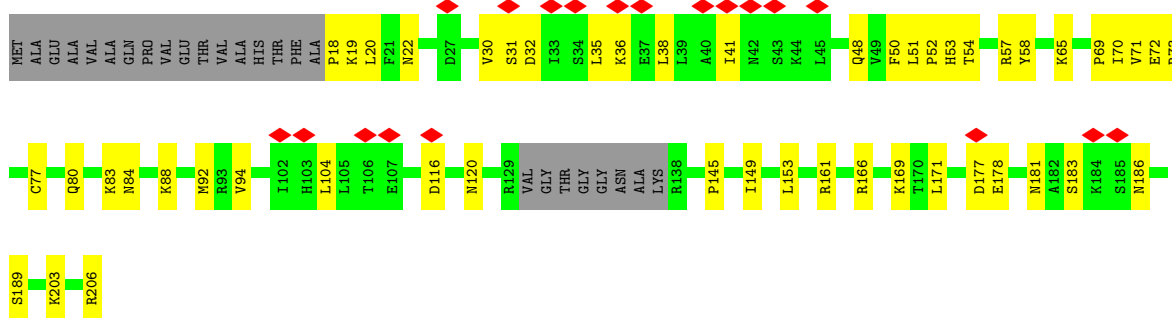
- Molecule 57: Small ribosomal subunit protein eS1



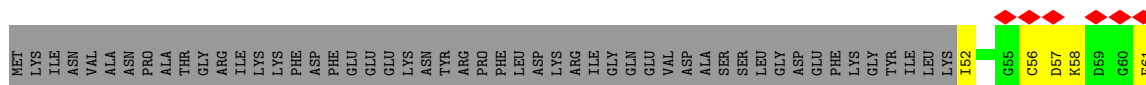
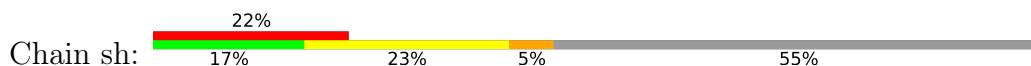
- Molecule 58: 40S ribosomal protein S4, putative

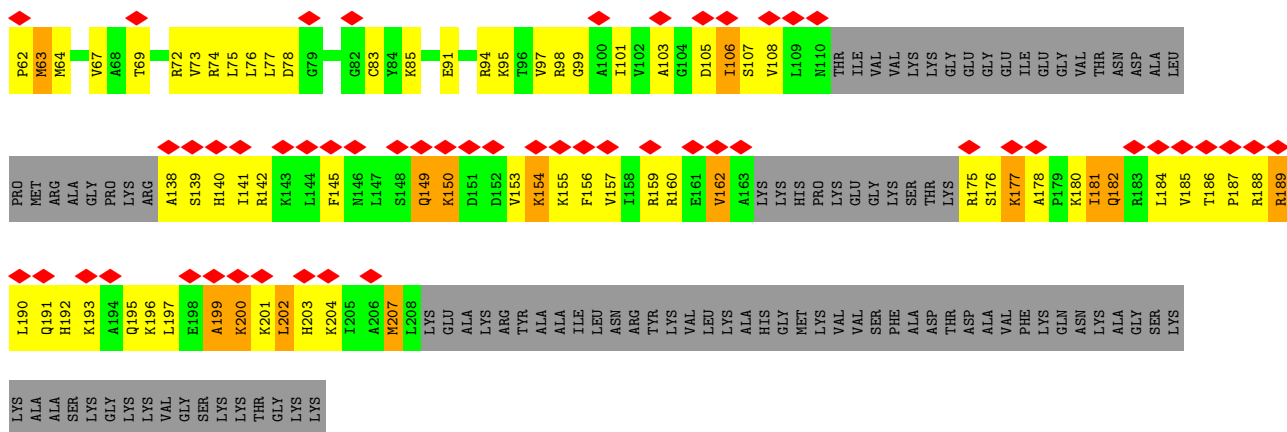


- Molecule 59: Small ribosomal subunit protein uS7

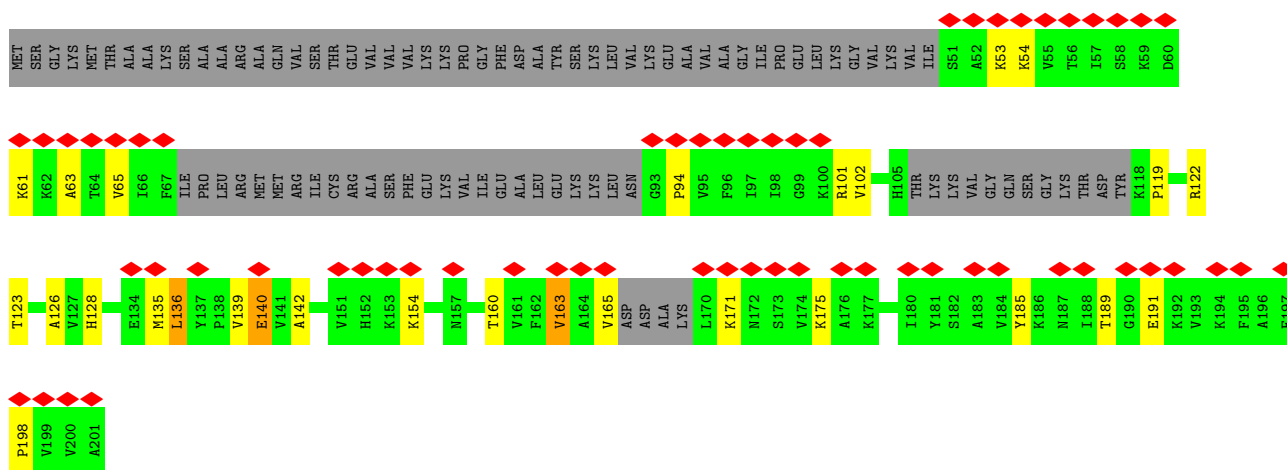


- Molecule 60: 40S ribosomal protein S6

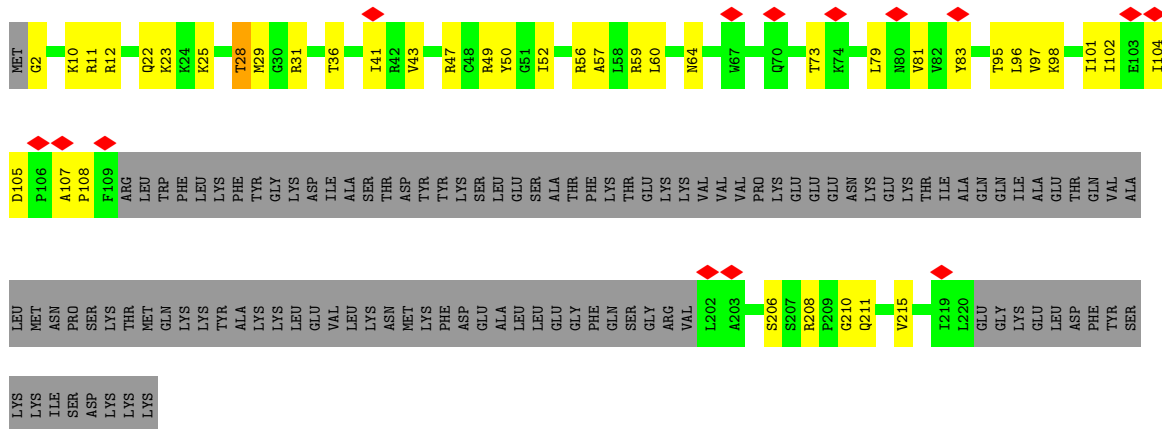
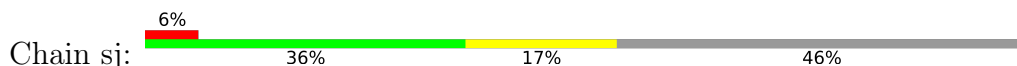




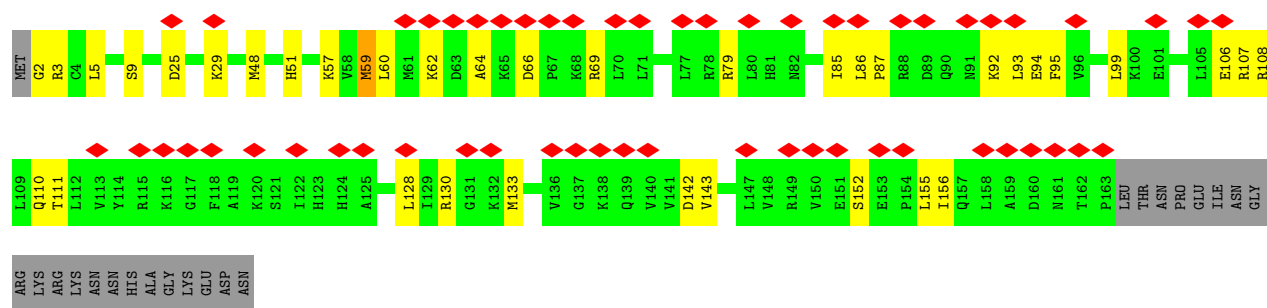
• Molecule 61: 40S ribosomal protein S7



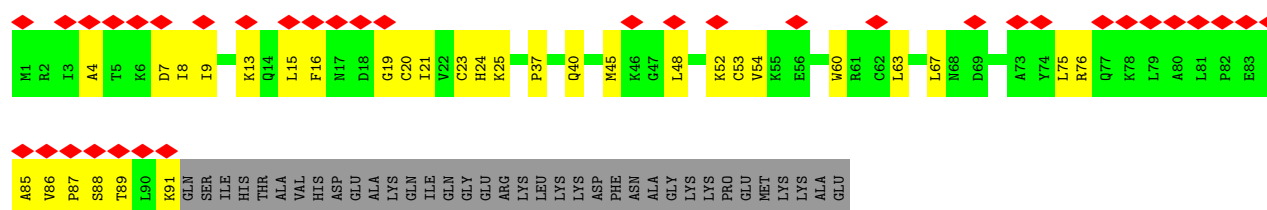
• Molecule 62: 40S ribosomal protein S8



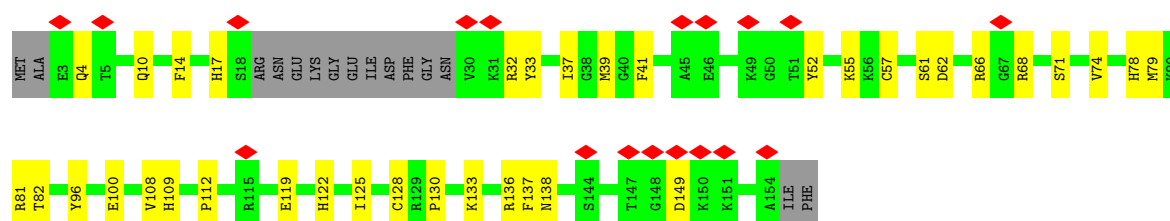
• Molecule 63: Small ribosomal subunit protein uS4



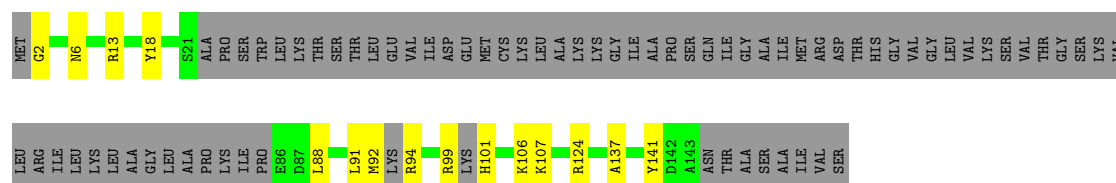
- Molecule 64: 40S ribosomal protein S10, putative



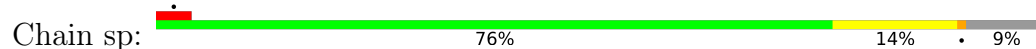
- Molecule 65: 40S ribosomal protein S11, putative

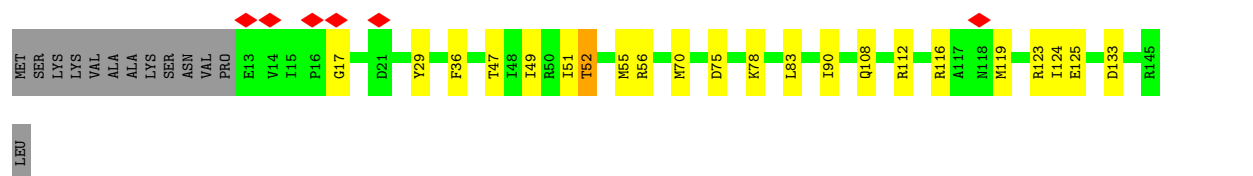


- Molecule 66: 40S ribosomal protein S13, putative

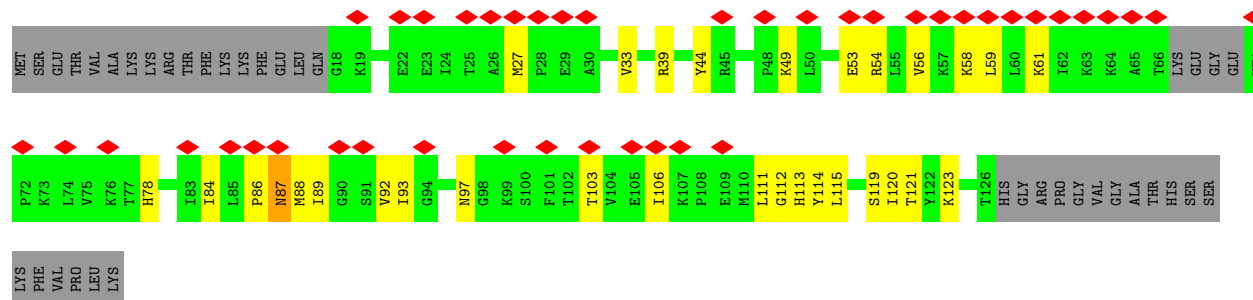


- Molecule 67: Ribosomal protein S14, putative

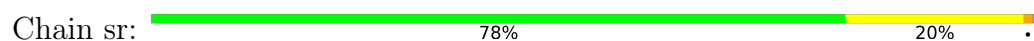




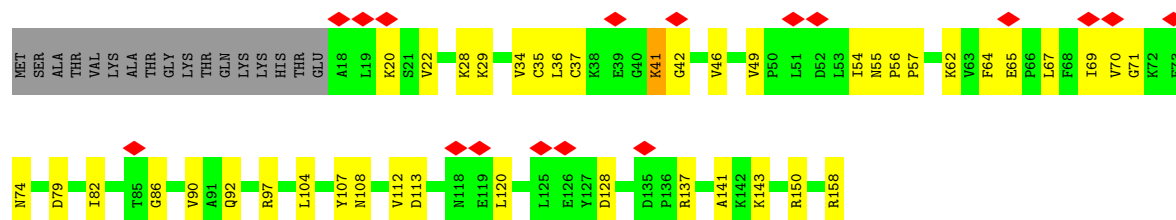
- Molecule 68: 40S ribosomal protein S15, putative



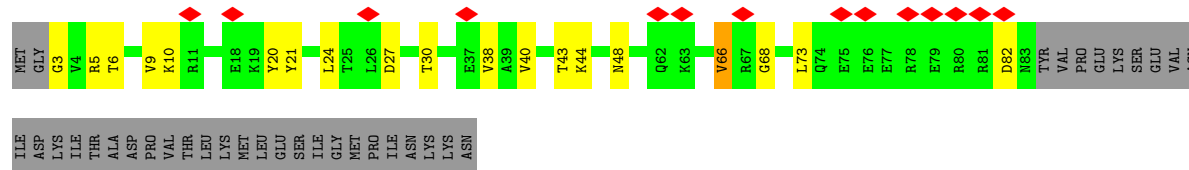
- Molecule 69: 40S ribosomal protein S15a, putative



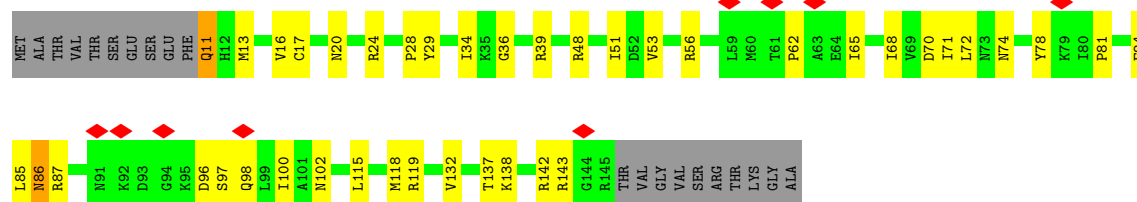
- Molecule 70: 40S ribosomal protein S16, putative



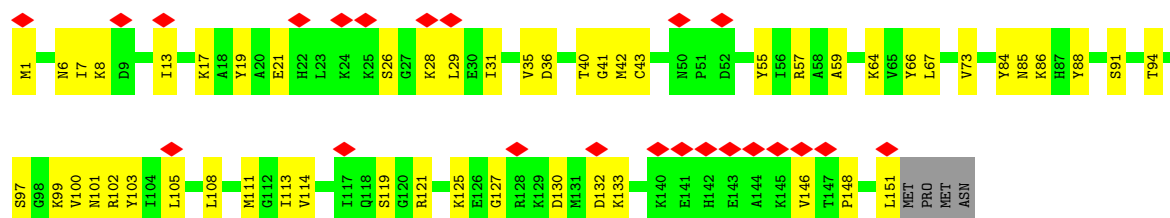
- Molecule 71: 40S ribosomal protein S17, putative



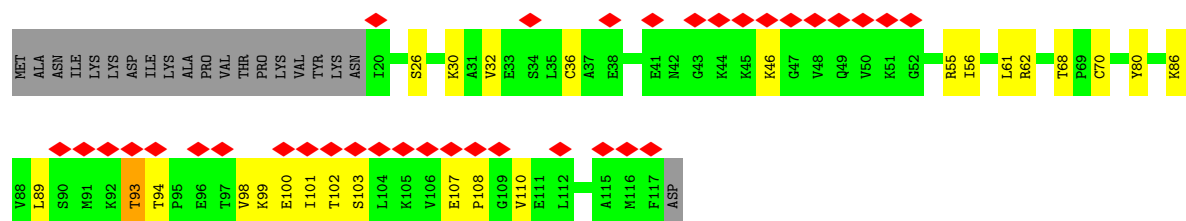
- Molecule 72: Small ribosomal subunit protein uS13



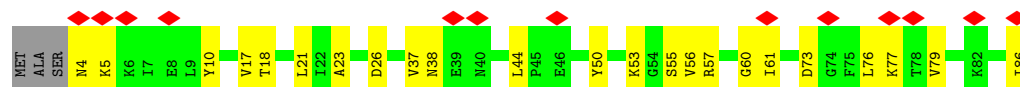
• Molecule 73: Small ribosomal subunit protein eS19



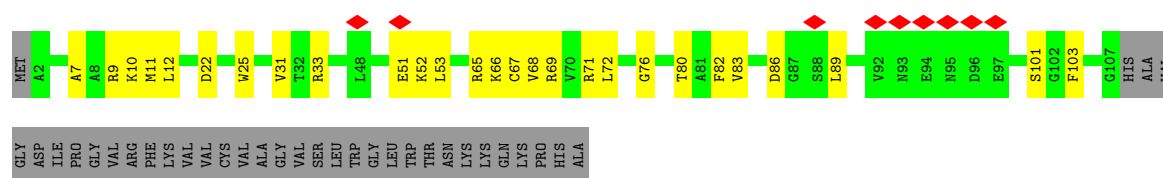
• Molecule 74: 40S ribosomal protein S20, putative



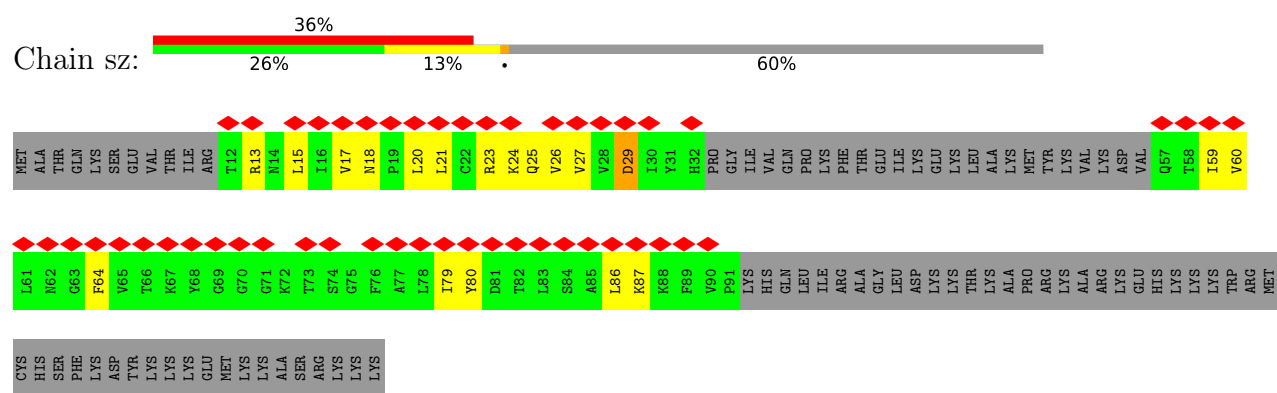
• Molecule 75: 40S ribosomal protein S21



• Molecule 76: 40S ribosomal protein S23, putative



• Molecule 77: 40S ribosomal protein S24, putative



## 4 Experimental information

| Property                             | Value                                   | Source    |
|--------------------------------------|-----------------------------------------|-----------|
| EM reconstruction method             | SINGLE PARTICLE                         | Depositor |
| Imposed symmetry                     | POINT, Not provided                     |           |
| Number of particles used             | 39958                                   | 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 ( $e^-/\text{\AA}^2$ ) | 1.106                                   | Depositor |
| Minimum defocus (nm)                 | 1800                                    | Depositor |
| Maximum defocus (nm)                 | 3000                                    | Depositor |
| Magnification                        | 75000                                   | Depositor |
| Image detector                       | FEI FALCON III (4k x 4k)                | Depositor |
| Maximum map value                    | 18.910                                  | Depositor |
| Minimum map value                    | -5.957                                  | Depositor |
| Average map value                    | 0.000                                   | Depositor |
| Map value standard deviation         | 1.000                                   | Depositor |
| Recommended contour level            | 2.8                                     | Depositor |
| Map size (Å)                         | 428.00003, 428.00003, 428.00003         | wwPDB     |
| Map dimensions                       | 400, 400, 400                           | wwPDB     |
| Map angles (°)                       | 90.0, 90.0, 90.0                        | wwPDB     |
| Pixel spacing (Å)                    | 1.07, 1.07, 1.07                        | 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   | 1A    | 0.12         | 0/75319     | 0.28        | 0/117329      |
| 2   | 1B    | 0.11         | 0/3470      | 0.27        | 0/5401        |
| 3   | 1C    | 0.12         | 0/2765      | 0.35        | 2/4303 (0.0%) |
| 4   | 1D    | 0.10         | 0/1920      | 0.25        | 0/2582        |
| 5   | 1E    | 0.09         | 0/3140      | 0.25        | 0/4216        |
| 6   | 1F    | 0.09         | 0/3311      | 0.26        | 0/4446        |
| 7   | 1G    | 0.10         | 0/2284      | 0.26        | 0/3059        |
| 8   | 1H    | 0.09         | 0/1640      | 0.27        | 0/2204        |
| 9   | 1I    | 0.08         | 0/1680      | 0.23        | 0/2252        |
| 10  | 1J    | 0.09         | 0/1757      | 0.26        | 0/2360        |
| 11  | 1K    | 0.07         | 0/1562      | 0.21        | 0/2103        |
| 12  | 1L    | 0.09         | 0/1633      | 0.23        | 0/2184        |
| 13  | 1M    | 0.08         | 0/1369      | 0.23        | 0/1834        |
| 14  | 1N    | 0.09         | 0/2150      | 0.23        | 0/2867        |
| 15  | 1O    | 0.09         | 0/1646      | 0.23        | 0/2209        |
| 16  | 1P    | 0.08         | 0/1032      | 0.21        | 0/1388        |
| 17  | 1Q    | 0.09         | 0/1707      | 0.22        | 0/2276        |
| 18  | 1R    | 0.08         | 0/1251      | 0.23        | 0/1675        |
| 19  | 1S    | 0.09         | 0/1337      | 0.23        | 0/1789        |
| 20  | 1T    | 0.09         | 0/1445      | 0.26        | 0/1946        |
| 21  | 1U    | 0.09         | 0/1253      | 0.23        | 0/1666        |
| 22  | 1V    | 0.10         | 0/1351      | 0.25        | 0/1819        |
| 23  | 1W    | 0.12         | 0/772       | 0.29        | 0/1028        |
| 24  | 1X    | 0.09         | 0/1030      | 0.23        | 0/1384        |
| 25  | 1Y    | 0.08         | 0/941       | 0.21        | 0/1262        |
| 26  | 1Z    | 0.09         | 0/492       | 0.23        | 0/656         |
| 27  | 1a    | 0.08         | 0/1673      | 0.23        | 0/2236        |
| 28  | 1b    | 0.09         | 0/1112      | 0.26        | 0/1489        |
| 29  | 1c    | 0.09         | 0/1223      | 0.23        | 0/1636        |
| 30  | 1d    | 0.10         | 0/485       | 0.25        | 0/639         |
| 31  | 1e    | 0.08         | 0/776       | 0.29        | 0/1044        |
| 32  | 1f    | 0.10         | 0/1205      | 0.25        | 0/1609        |
| 33  | 1g    | 0.09         | 0/1075      | 0.23        | 0/1434        |
| 34  | 1h    | 0.09         | 0/833       | 0.22        | 0/1115        |

| Mol | Chain | Bond lengths |          | Bond angles |                 |
|-----|-------|--------------|----------|-------------|-----------------|
|     |       | RMSZ         | # Z  >5  | RMSZ        | # Z  >5         |
| 35  | li    | 0.07         | 0/984    | 0.21        | 0/1310          |
| 36  | lj    | 0.11         | 0/862    | 0.25        | 0/1163          |
| 37  | lk    | 0.07         | 0/721    | 0.20        | 0/955           |
| 38  | ll    | 0.11         | 0/602    | 0.28        | 0/797           |
| 39  | lm    | 0.09         | 0/696    | 0.23        | 0/928           |
| 40  | ln    | 0.10         | 0/592    | 0.27        | 0/789           |
| 41  | lo    | 0.09         | 0/444    | 0.20        | 0/587           |
| 42  | lp    | 0.13         | 0/425    | 0.42        | 1/563 (0.2%)    |
| 43  | lq    | 0.09         | 0/770    | 0.22        | 0/1019          |
| 44  | sA    | 0.13         | 0/555    | 0.37        | 0/749           |
| 45  | sB    | 0.09         | 0/797    | 0.23        | 0/1062          |
| 46  | sC    | 0.08         | 0/263    | 0.25        | 0/357           |
| 47  | sD    | 0.10         | 0/470    | 0.25        | 0/630           |
| 48  | sE    | 0.15         | 0/449    | 0.37        | 0/595           |
| 50  | sI    | 0.13         | 0/1710   | 0.28        | 0/2657          |
| 51  | sJ    | 0.09         | 0/1818   | 0.24        | 0/2827          |
| 52  | sK    | 0.07         | 0/241    | 0.20        | 0/373           |
| 53  | sa    | 0.11         | 0/34364  | 0.28        | 0/53526         |
| 54  | sb    | 0.08         | 0/1659   | 0.22        | 0/2243          |
| 55  | sc    | 0.11         | 0/1673   | 0.29        | 0/2257          |
| 56  | sd    | 0.08         | 0/1716   | 0.24        | 0/2297          |
| 57  | se    | 0.41         | 0/1346   | 0.95        | 6/1793 (0.3%)   |
| 58  | sf    | 0.10         | 0/2072   | 0.28        | 0/2792          |
| 59  | sg    | 0.08         | 0/1460   | 0.25        | 0/1960          |
| 60  | sh    | 0.19         | 0/952    | 0.54        | 0/1265          |
| 61  | si    | 0.11         | 0/868    | 0.30        | 0/1166          |
| 62  | sj    | 0.08         | 0/1002   | 0.22        | 0/1341          |
| 63  | sk    | 0.07         | 0/1344   | 0.22        | 0/1800          |
| 64  | sl    | 0.08         | 0/745    | 0.24        | 0/1007          |
| 65  | sm    | 0.08         | 0/1187   | 0.24        | 0/1586          |
| 66  | so    | 0.07         | 0/654    | 0.20        | 0/866           |
| 67  | sp    | 0.09         | 0/1013   | 0.22        | 0/1361          |
| 68  | sq    | 0.11         | 0/856    | 0.37        | 0/1143          |
| 69  | sr    | 0.10         | 0/1040   | 0.28        | 0/1404          |
| 70  | ss    | 0.08         | 0/1121   | 0.23        | 0/1503          |
| 71  | st    | 0.10         | 0/684    | 0.30        | 0/914           |
| 72  | su    | 0.13         | 0/1113   | 0.37        | 0/1491          |
| 73  | sv    | 0.09         | 0/1239   | 0.23        | 0/1665          |
| 74  | sw    | 0.10         | 0/776    | 0.31        | 0/1044          |
| 75  | sx    | 0.10         | 0/663    | 0.28        | 0/898           |
| 76  | sy    | 0.07         | 0/848    | 0.24        | 0/1131          |
| 77  | sz    | 0.09         | 0/445    | 0.24        | 0/601           |
| All | All   | 0.11         | 0/199878 | 0.28        | 9/293855 (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 |
|-----|-------|---------------------|---------------------|
| 38  | ll    | 0                   | 1                   |
| 48  | sE    | 0                   | 1                   |
| 57  | se    | 0                   | 2                   |
| 60  | sh    | 0                   | 2                   |
| 68  | sq    | 0                   | 1                   |
| All | All   | 0                   | 7                   |

There are no bond length outliers.

All (9) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms     | Z      | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-----------|--------|-------------|----------|
| 57  | se    | 70  | VAL  | N-CA-C    | -21.55 | 81.78       | 109.58   |
| 3   | lC    | 62  | U    | OP2-P-O3' | -8.82  | 81.54       | 108.00   |
| 3   | lC    | 62  | U    | OP1-P-O3' | -8.48  | 82.56       | 108.00   |
| 57  | se    | 39  | ASN  | CA-C-N    | -6.54  | 110.65      | 122.54   |
| 57  | se    | 39  | ASN  | C-N-CA    | -6.54  | 110.65      | 122.54   |
| 42  | lp    | 24  | CYS  | CA-CB-SG  | 6.12   | 128.48      | 114.40   |
| 57  | se    | 75  | LEU  | CA-CB-CG  | 5.51   | 135.60      | 116.30   |
| 57  | se    | 70  | VAL  | CA-C-N    | -5.46  | 114.38      | 122.56   |
| 57  | se    | 70  | VAL  | C-N-CA    | -5.46  | 114.38      | 122.56   |

There are no chirality outliers.

All (7) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group   |
|-----|-------|-----|------|---------|
| 38  | ll    | 39  | TYR  | Peptide |
| 48  | sE    | 15  | GLY  | Peptide |
| 57  | se    | 176 | LYS  | Peptide |
| 57  | se    | 195 | LEU  | Peptide |
| 60  | sh    | 199 | ALA  | Peptide |
| 60  | sh    | 200 | LYS  | Peptide |
| 68  | sq    | 87  | ASN  | Peptide |

## 5.2 Too-close contacts

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen

atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | lA    | 67215 | 0        | 33720    | 1093    | 0            |
| 2   | lB    | 3097  | 0        | 1552     | 46      | 0            |
| 3   | lC    | 2477  | 0        | 1252     | 87      | 0            |
| 4   | lD    | 1881  | 0        | 1928     | 43      | 0            |
| 5   | lE    | 3076  | 0        | 3209     | 60      | 0            |
| 6   | lF    | 3253  | 0        | 3444     | 56      | 0            |
| 7   | lG    | 2245  | 0        | 2325     | 33      | 0            |
| 8   | lH    | 1608  | 0        | 1728     | 29      | 0            |
| 9   | lI    | 1658  | 0        | 1802     | 21      | 0            |
| 10  | lJ    | 1727  | 0        | 1849     | 27      | 0            |
| 11  | lK    | 1538  | 0        | 1598     | 39      | 0            |
| 12  | lL    | 1597  | 0        | 1654     | 21      | 0            |
| 13  | lM    | 1350  | 0        | 1390     | 25      | 0            |
| 14  | lN    | 2122  | 0        | 2316     | 32      | 0            |
| 15  | lO    | 1616  | 0        | 1700     | 19      | 0            |
| 16  | lP    | 1020  | 0        | 1104     | 19      | 0            |
| 17  | lQ    | 1676  | 0        | 1777     | 33      | 0            |
| 18  | lR    | 1232  | 0        | 1307     | 22      | 0            |
| 19  | lS    | 1316  | 0        | 1420     | 23      | 0            |
| 20  | lT    | 1413  | 0        | 1479     | 18      | 0            |
| 21  | lU    | 1235  | 0        | 1369     | 18      | 0            |
| 22  | lV    | 1320  | 0        | 1406     | 18      | 0            |
| 23  | lW    | 761   | 0        | 811      | 23      | 0            |
| 24  | lX    | 1015  | 0        | 1054     | 17      | 0            |
| 25  | lY    | 926   | 0        | 997      | 12      | 0            |
| 26  | lZ    | 481   | 0        | 518      | 7       | 0            |
| 27  | la    | 1651  | 0        | 1822     | 26      | 0            |
| 28  | lb    | 1094  | 0        | 1174     | 24      | 0            |
| 29  | lc    | 1192  | 0        | 1205     | 19      | 0            |
| 30  | ld    | 478   | 0        | 507      | 15      | 0            |
| 31  | le    | 768   | 0        | 810      | 15      | 0            |
| 32  | lf    | 1184  | 0        | 1270     | 22      | 0            |
| 33  | lg    | 1058  | 0        | 1140     | 15      | 0            |
| 34  | lh    | 820   | 0        | 864      | 15      | 0            |
| 35  | li    | 974   | 0        | 1093     | 8       | 0            |
| 36  | lj    | 841   | 0        | 878      | 11      | 0            |
| 37  | lk    | 712   | 0        | 755      | 19      | 0            |
| 38  | ll    | 591   | 0        | 617      | 16      | 0            |
| 39  | lm    | 688   | 0        | 726      | 12      | 0            |
| 40  | ln    | 584   | 0        | 643      | 8       | 0            |
| 41  | lo    | 432   | 0        | 444      | 8       | 0            |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Non-H  | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|--------|----------|----------|---------|--------------|
| 42  | lp    | 420    | 0        | 450      | 19      | 0            |
| 43  | lq    | 756    | 0        | 821      | 12      | 0            |
| 44  | sA    | 548    | 0        | 604      | 25      | 0            |
| 45  | sB    | 787    | 0        | 833      | 16      | 0            |
| 46  | sC    | 257    | 0        | 270      | 9       | 0            |
| 47  | sD    | 468    | 0        | 500      | 14      | 0            |
| 48  | sE    | 442    | 0        | 444      | 17      | 0            |
| 49  | sH    | 9      | 0        | 4        | 1       | 0            |
| 50  | sI    | 1533   | 0        | 785      | 22      | 0            |
| 51  | sJ    | 1630   | 0        | 829      | 31      | 0            |
| 52  | sK    | 215    | 0        | 108      | 0       | 0            |
| 53  | sa    | 30685  | 0        | 15419    | 589     | 0            |
| 54  | sb    | 1626   | 0        | 1627     | 30      | 0            |
| 55  | sc    | 1642   | 0        | 1721     | 39      | 0            |
| 56  | sd    | 1696   | 0        | 1794     | 41      | 0            |
| 57  | se    | 1329   | 0        | 1420     | 54      | 0            |
| 58  | sf    | 2031   | 0        | 2145     | 59      | 0            |
| 59  | sg    | 1440   | 0        | 1506     | 32      | 0            |
| 60  | sh    | 944    | 0        | 1023     | 81      | 0            |
| 61  | si    | 854    | 0        | 928      | 20      | 0            |
| 62  | sj    | 990    | 0        | 1031     | 34      | 0            |
| 63  | sk    | 1323   | 0        | 1420     | 31      | 0            |
| 64  | sl    | 729    | 0        | 760      | 24      | 0            |
| 65  | sm    | 1161   | 0        | 1181     | 35      | 0            |
| 66  | so    | 644    | 0        | 664      | 13      | 0            |
| 67  | sp    | 999    | 0        | 1024     | 18      | 0            |
| 68  | sq    | 842    | 0        | 913      | 22      | 0            |
| 69  | sr    | 1022   | 0        | 1051     | 20      | 0            |
| 70  | ss    | 1104   | 0        | 1185     | 33      | 0            |
| 71  | st    | 676    | 0        | 718      | 14      | 0            |
| 72  | su    | 1096   | 0        | 1143     | 30      | 0            |
| 73  | sv    | 1214   | 0        | 1254     | 41      | 0            |
| 74  | sw    | 766    | 0        | 829      | 20      | 0            |
| 75  | sx    | 651    | 0        | 668      | 16      | 0            |
| 76  | sy    | 836    | 0        | 885      | 19      | 0            |
| 77  | sz    | 438    | 0        | 465      | 11      | 0            |
| All | All   | 185725 | 0        | 137079   | 3057    | 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 10.

All (3057) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:lA:511:A:H62    | 1:lA:561:G:H21     | 1.01                     | 0.95              |
| 53:sa:389:U:H3    | 53:sa:396:A:H62    | 1.07                     | 0.95              |
| 3:lC:27:G:H1      | 3:lC:50:A:H61      | 1.12                     | 0.94              |
| 57:se:72:LEU:HB3  | 57:se:81:PHE:HB3   | 1.52                     | 0.91              |
| 3:lC:79:G:H1      | 3:lC:95:A:H2       | 1.13                     | 0.91              |
| 50:sI:15:G:H22    | 50:sI:48:C:H42     | 1.18                     | 0.90              |
| 1:lA:1841:G:H22   | 1:lA:1975:G:H1     | 1.18                     | 0.89              |
| 68:sq:97:ASN:HB3  | 68:sq:119:SER:HB2  | 1.54                     | 0.89              |
| 1:lA:3474:U:H3    | 1:lA:3480:A:H62    | 1.21                     | 0.87              |
| 53:sa:1824:G:H1   | 53:sa:1890:U:H3    | 0.88                     | 0.86              |
| 1:lA:511:A:H62    | 1:lA:561:G:N2      | 1.73                     | 0.86              |
| 1:lA:737:A:H3'    | 1:lA:738:G:H21     | 1.43                     | 0.83              |
| 3:lC:27:G:H1      | 3:lC:50:A:N6       | 1.76                     | 0.83              |
| 51:sJ:55:U:O2     | 51:sJ:59:A:N7      | 2.11                     | 0.83              |
| 1:lA:511:A:N6     | 1:lA:561:G:H21     | 1.76                     | 0.82              |
| 1:lA:2269:U:H5'   | 1:lA:2270:G:H5'    | 1.61                     | 0.82              |
| 3:lC:52:G:N2      | 3:lC:54:U:O4       | 2.13                     | 0.82              |
| 1:lA:225:U:H3     | 1:lA:282:G:H1      | 1.27                     | 0.82              |
| 3:lC:69:U:H3      | 3:lC:104:G:H1      | 1.28                     | 0.81              |
| 1:lA:3454:G:H1    | 1:lA:3501:A:H2     | 1.25                     | 0.81              |
| 1:lA:3475:U:H3    | 1:lA:3479:A:N6     | 1.79                     | 0.81              |
| 53:sa:876:G:N2    | 53:sa:896:U:O4     | 2.14                     | 0.81              |
| 1:lA:2098:A:H61   | 1:lA:2415:C:H42    | 1.29                     | 0.79              |
| 1:lA:3431:U:H3    | 1:lA:3441:G:H1     | 1.30                     | 0.79              |
| 65:sm:128:CYS:SG  | 65:sm:138:ASN:ND2  | 2.54                     | 0.79              |
| 50:sI:15:G:H22    | 50:sI:48:C:N4      | 1.80                     | 0.79              |
| 60:sh:186:THR:OG1 | 60:sh:189:ARG:NH2  | 2.15                     | 0.79              |
| 53:sa:150:G:H21   | 53:sa:152:A:H8     | 1.31                     | 0.78              |
| 50:sI:15:G:N2     | 50:sI:48:C:H42     | 1.80                     | 0.78              |
| 57:se:71:ASN:OD1  | 57:se:75:LEU:HD23  | 1.83                     | 0.78              |
| 23:lW:70:VAL:HG22 | 23:lW:72:ASP:H     | 1.49                     | 0.78              |
| 53:sa:1758:G:H2'  | 53:sa:1759:A:H8    | 1.49                     | 0.78              |
| 1:lA:206:U:H3     | 1:lA:303:G:H1      | 1.32                     | 0.78              |
| 1:lA:541:A:H2'    | 1:lA:542:U:H6      | 1.49                     | 0.77              |
| 1:lA:668:A:H2'    | 1:lA:669:A:H8      | 1.48                     | 0.77              |
| 3:lC:79:G:N1      | 3:lC:95:A:C2       | 2.47                     | 0.77              |
| 43:lq:72:CYS:HB3  | 43:lq:77:TYR:H     | 1.50                     | 0.76              |
| 1:lA:668:A:H2'    | 1:lA:669:A:C8      | 2.20                     | 0.76              |
| 1:lA:703:G:N1     | 1:lA:744:A:N6      | 2.33                     | 0.76              |
| 47:sD:62:GLU:HG2  | 67:sp:116:ARG:HH21 | 1.51                     | 0.76              |
| 53:sa:104:A:H62   | 53:sa:305:A:H2     | 1.32                     | 0.75              |
| 72:su:11:GLN:N    | 72:su:11:GLN:HE21  | 1.82                     | 0.75              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:lA:3455:G:N1    | 1:lA:3500:A:C2     | 2.50                     | 0.75              |
| 1:lA:2236:A:H61   | 1:lA:2250:C:H42    | 1.34                     | 0.75              |
| 1:lA:3038:C:O2'   | 42:lp:25:TYR:O     | 2.05                     | 0.75              |
| 1:lA:3455:G:H1    | 1:lA:3500:A:H2     | 1.29                     | 0.75              |
| 68:sq:78:HIS:ND1  | 68:sq:78:HIS:O     | 2.20                     | 0.75              |
| 1:lA:3469:A:N6    | 1:lA:3485:U:H3     | 1.85                     | 0.75              |
| 54:sb:191:ARG:HD3 | 54:sb:198:ARG:HG2  | 1.69                     | 0.74              |
| 60:sh:200:LYS:HG3 | 60:sh:204:LYS:HD2  | 1.68                     | 0.74              |
| 1:lA:1818:C:OP2   | 34:lh:74:ARG:NH2   | 2.20                     | 0.74              |
| 1:lA:2865:A:O2'   | 1:lA:2866:C:O4'    | 2.05                     | 0.74              |
| 57:se:26:PHE:HA   | 57:se:29:LYS:HE3   | 1.69                     | 0.74              |
| 57:se:65:GLY:HA3  | 57:se:89:LYS:HA    | 1.67                     | 0.74              |
| 53:sa:103:U:OP2   | 53:sa:305:A:N6     | 2.21                     | 0.74              |
| 1:lA:3456:U:H3    | 1:lA:3496:A:H2     | 1.36                     | 0.74              |
| 11:lK:43:LYS:HE3  | 15:lO:132:PRO:HG2  | 1.68                     | 0.74              |
| 1:lA:774:U:OP1    | 29:lc:21:ARG:NH2   | 2.21                     | 0.74              |
| 60:sh:184:LEU:HB3 | 60:sh:186:THR:HG23 | 1.70                     | 0.74              |
| 33:lg:41:ASN:HB3  | 33:lg:44:ARG:HG2   | 1.70                     | 0.73              |
| 1:lA:3457:G:H1    | 1:lA:3495:U:H3     | 1.37                     | 0.73              |
| 3:lC:6:G:OP1      | 7:lG:33:ARG:NH1    | 2.22                     | 0.73              |
| 32:lf:11:VAL:HG13 | 32:lf:15:ARG:HE    | 1.54                     | 0.73              |
| 53:sa:866:G:N2    | 67:sp:133:ASP:O    | 2.22                     | 0.73              |
| 1:lA:2213:U:OP2   | 1:lA:2218:A:N6     | 2.19                     | 0.73              |
| 1:lA:2669:A:H2'   | 1:lA:2670:U:H6     | 1.53                     | 0.73              |
| 60:sh:162:VAL:O   | 60:sh:175:ARG:N    | 2.22                     | 0.73              |
| 1:lA:213:A:H5'    | 14:lN:133:LYS:H    | 1.53                     | 0.73              |
| 1:lA:1118:A:H2    | 1:lA:1165:A:H62    | 1.36                     | 0.73              |
| 22:IV:80:VAL:HG12 | 22:IV:81:ASN:H     | 1.54                     | 0.73              |
| 3:lC:59:G:H5'     | 7:lG:265:LYS:HG2   | 1.70                     | 0.73              |
| 34:lh:81:CYS:SG   | 34:lh:84:CYS:N     | 2.60                     | 0.73              |
| 53:sa:562:G:N7    | 76:sy:65:ARG:NH2   | 2.37                     | 0.73              |
| 1:lA:3467:U:H3    | 1:lA:3486:A:H2     | 1.35                     | 0.72              |
| 1:lA:310:A:N1     | 1:lA:2873:G:O2'    | 2.22                     | 0.72              |
| 1:lA:2233:G:H4'   | 1:lA:2234:A:H5'    | 1.71                     | 0.72              |
| 53:sa:1591:G:H21  | 53:sa:1772:A:H1'   | 1.55                     | 0.72              |
| 53:sa:1096:U:H2'  | 53:sa:1097:C:H6    | 1.54                     | 0.72              |
| 53:sa:163:A:H5'   | 60:sh:140:HIS:HB3  | 1.72                     | 0.72              |
| 57:se:42:ARG:HB2  | 57:se:75:LEU:HD12  | 1.70                     | 0.72              |
| 1:lA:2098:A:H61   | 1:lA:2415:C:N4     | 1.88                     | 0.72              |
| 53:sa:1364:C:O2'  | 53:sa:1366:A:N7    | 2.21                     | 0.72              |
| 53:sa:1170:U:H2'  | 53:sa:1171:U:C6    | 2.24                     | 0.72              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 53:sa:1750:G:N2    | 53:sa:1776:G:O2'   | 2.23                     | 0.72              |
| 1:1A:920:A:OP1     | 29:lc:27:LYS:NZ    | 2.23                     | 0.71              |
| 5:1E:125:ASN:HD22  | 5:1E:127:LYS:H     | 1.38                     | 0.71              |
| 68:sq:93:ILE:HG22  | 68:sq:106:ILE:HD11 | 1.72                     | 0.71              |
| 1:1A:1661:G:O2'    | 1:1A:1751:A:N6     | 2.22                     | 0.71              |
| 53:sa:763:G:H21    | 53:sa:765:A:H1'    | 1.56                     | 0.71              |
| 60:sh:200:LYS:HA   | 60:sh:204:LYS:HB2  | 1.72                     | 0.71              |
| 2:1B:30:U:H2'      | 2:1B:31:C:H6       | 1.55                     | 0.71              |
| 5:1E:58:ARG:NH1    | 5:1E:353:GLU:OE2   | 2.23                     | 0.71              |
| 24:1X:22:ASN:ND2   | 24:1X:40:ILE:O     | 2.24                     | 0.71              |
| 53:sa:389:U:O4     | 53:sa:396:A:N7     | 2.23                     | 0.71              |
| 1:1A:494:G:N2      | 1:1A:578:A:OP2     | 2.24                     | 0.71              |
| 3:1C:27:G:N2       | 3:1C:50:A:N1       | 2.38                     | 0.71              |
| 34:lh:25:THR:HG22  | 34:lh:26:ALA:H     | 1.56                     | 0.71              |
| 53:sa:972:A:O2'    | 53:sa:1932:U:O2    | 2.08                     | 0.71              |
| 1:1A:1944:C:OP1    | 23:1W:107:ARG:NH2  | 2.23                     | 0.71              |
| 3:1C:28:U:H3'      | 3:1C:29:G:H21      | 1.55                     | 0.71              |
| 53:sa:1820:G:O3'   | 53:sa:1821:A:H8    | 1.73                     | 0.71              |
| 54:sb:174:SER:HG   | 54:sb:177:SER:HG   | 1.38                     | 0.71              |
| 59:sg:120:ASN:ND2  | 59:sg:183:SER:O    | 2.23                     | 0.71              |
| 53:sa:1661:C:H2'   | 53:sa:1662:G:H8    | 1.56                     | 0.71              |
| 53:sa:1694:A:H5'   | 70:ss:57:PRO:HG2   | 1.72                     | 0.71              |
| 58:sf:33:PRO:HD2   | 58:sf:81:PRO:HG2   | 1.72                     | 0.71              |
| 1:1A:3452:U:H3     | 1:1A:3503:G:H22    | 1.34                     | 0.70              |
| 6:1F:101:MET:HE2   | 6:1F:104:PRO:HA    | 1.73                     | 0.70              |
| 60:sh:193:LYS:HE3  | 60:sh:197:LEU:HD12 | 1.73                     | 0.70              |
| 1:1A:816:G:N2      | 1:1A:829:G:OP2     | 2.24                     | 0.70              |
| 60:sh:153:VAL:HG12 | 60:sh:155:LYS:HE2  | 1.70                     | 0.70              |
| 53:sa:1760:G:OP2   | 53:sa:1762:C:N4    | 2.25                     | 0.70              |
| 53:sa:866:G:H2'    | 53:sa:867:A:H8     | 1.56                     | 0.70              |
| 2:1B:60:G:O6       | 38:1l:63:ARG:NH2   | 2.24                     | 0.70              |
| 1:1A:353:G:H2'     | 1:1A:354:U:C6      | 2.27                     | 0.70              |
| 53:sa:783:A:H3'    | 53:sa:784:U:H4'    | 1.74                     | 0.70              |
| 60:sh:64:MET:HB2   | 60:sh:67:VAL:HG12  | 1.72                     | 0.70              |
| 57:se:42:ARG:CB    | 57:se:75:LEU:HD12  | 2.21                     | 0.70              |
| 1:1A:836:C:H2'     | 1:1A:837:A:H8      | 1.57                     | 0.70              |
| 1:1A:1072:U:OP1    | 30:ld:12:GLN:NE2   | 2.24                     | 0.70              |
| 53:sa:880:A:H3'    | 53:sa:881:G:H21    | 1.56                     | 0.70              |
| 62:sj:208:ARG:HD3  | 62:sj:211:GLN:HG3  | 1.74                     | 0.70              |
| 1:1A:3136:U:H2'    | 1:1A:3137:C:C6     | 2.27                     | 0.69              |
| 53:sa:438:C:O2     | 53:sa:440:A:N6     | 2.26                     | 0.69              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 53:sa:839:A:H8    | 61:si:119:PRO:HA   | 1.56                     | 0.69              |
| 62:sj:11:ARG:O    | 65:sm:133:LYS:NZ   | 2.24                     | 0.69              |
| 1:lA:331:A:OP2    | 43:lq:39:ARG:NH1   | 2.25                     | 0.69              |
| 15:lO:202:PHE:HB3 | 16:lP:107:MET:HE2  | 1.74                     | 0.69              |
| 46:sC:3:LEU:HG    | 75:sx:61:ILE:HD11  | 1.73                     | 0.69              |
| 12:lL:66:GLU:OE1  | 12:lL:69:ARG:NH2   | 2.26                     | 0.69              |
| 60:sh:56:CYS:HA   | 60:sh:62:PRO:HA    | 1.75                     | 0.69              |
| 1:lA:586:A:N6     | 8:lH:43:THR:O      | 2.25                     | 0.69              |
| 4:lD:192:LYS:HD3  | 4:lD:193:ARG:HH21  | 1.57                     | 0.69              |
| 53:sa:134:A:H4'   | 53:sa:135:C:H4'    | 1.74                     | 0.69              |
| 2:lB:141:G:H5''   | 17:lQ:60:VAL:HG11  | 1.75                     | 0.69              |
| 3:lC:3:G:H1       | 3:lC:114:U:H3      | 1.39                     | 0.69              |
| 65:sm:149:ASP:HB2 | 66:so:137:ALA:HB3  | 1.73                     | 0.69              |
| 53:sa:1824:G:O6   | 53:sa:1890:U:O4    | 2.10                     | 0.69              |
| 53:sa:1391:C:H2'  | 53:sa:1392:A:H8    | 1.56                     | 0.69              |
| 60:sh:207:MET:N   | 60:sh:207:MET:SD   | 2.66                     | 0.69              |
| 1:lA:685:A:O4'    | 1:lA:1450:A:N6     | 2.26                     | 0.69              |
| 38:ll:7:CYS:SG    | 38:ll:8:ARG:NH1    | 2.66                     | 0.69              |
| 50:sI:58:A:O2'    | 50:sI:60:U:OP2     | 2.10                     | 0.69              |
| 53:sa:1758:G:H2'  | 53:sa:1759:A:C8    | 2.28                     | 0.69              |
| 58:sf:139:THR:OG1 | 58:sf:141:ASP:OD1  | 2.11                     | 0.69              |
| 11:lK:136:MET:HE1 | 11:lK:152:LEU:HD23 | 1.76                     | 0.68              |
| 60:sh:195:GLN:HA  | 60:sh:199:ALA:HB2  | 1.75                     | 0.68              |
| 3:lC:26:U:H3      | 3:lC:51:G:H22      | 1.38                     | 0.68              |
| 53:sa:750:U:O4    | 53:sa:751:A:N6     | 2.27                     | 0.68              |
| 57:se:72:LEU:HB3  | 57:se:81:PHE:CB    | 2.23                     | 0.68              |
| 1:lA:3141:A:N3    | 1:lA:3143:A:N6     | 2.41                     | 0.68              |
| 1:lA:559:U:H2'    | 1:lA:560:U:H6      | 1.59                     | 0.68              |
| 1:lA:2381:G:N2    | 1:lA:2381:G:OP2    | 2.26                     | 0.68              |
| 48:sE:17:GLY:HA2  | 48:sE:27:ARG:HE    | 1.56                     | 0.68              |
| 53:sa:157:A:H5'   | 60:sh:62:PRO:HB3   | 1.75                     | 0.68              |
| 1:lA:3091:C:OP1   | 5:lE:246:ARG:NH1   | 2.27                     | 0.68              |
| 2:lB:11:U:H2'     | 2:lB:12:A:H8       | 1.58                     | 0.68              |
| 44:sA:107:TRP:HB3 | 44:sA:109:TYR:HE1  | 1.58                     | 0.68              |
| 53:sa:1588:C:OP2  | 73:sv:64:LYS:NZ    | 2.26                     | 0.68              |
| 1:lA:628:C:O2'    | 20:lT:141:HIS:NE2  | 2.26                     | 0.68              |
| 62:sj:83:TYR:HB3  | 62:sj:101:ILE:HB   | 1.75                     | 0.68              |
| 1:lA:625:A:O2'    | 1:lA:664:A:N6      | 2.26                     | 0.68              |
| 60:sh:62:PRO:HB2  | 60:sh:83:CYS:SG    | 2.34                     | 0.68              |
| 19:lS:73:HIS:HB3  | 19:lS:76:GLU:HG3   | 1.76                     | 0.68              |
| 1:lA:409:G:OP2    | 38:ll:56:ARG:NH2   | 2.26                     | 0.68              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:lA:2416:U:O2'    | 1:lA:3246:A:N1     | 2.26                     | 0.68              |
| 1:lA:2468:C:O2'    | 5:lE:268:ARG:NH1   | 2.26                     | 0.68              |
| 1:lA:2939:G:N7     | 43:lq:61:LYS:NZ    | 2.42                     | 0.68              |
| 1:lA:2979:C:H5     | 1:lA:2995:C:H42    | 1.42                     | 0.68              |
| 44:sA:104:ASN:HB2  | 53:sa:1696:G:H21   | 1.59                     | 0.68              |
| 53:sa:1679:G:H21   | 53:sa:1685:C:H1'   | 1.59                     | 0.68              |
| 55:sc:155:THR:HG22 | 55:sc:197:ASP:HB2  | 1.75                     | 0.68              |
| 57:se:176:LYS:O    | 57:se:177:GLU:HG3  | 1.94                     | 0.68              |
| 1:lA:789:C:H2'     | 1:lA:790:A:H8      | 1.59                     | 0.67              |
| 53:sa:90:G:OP1     | 53:sa:392:A:N6     | 2.27                     | 0.67              |
| 1:lA:3107:G:N2     | 1:lA:3110:A:OP2    | 2.25                     | 0.67              |
| 1:lA:660:U:H2'     | 1:lA:661:G:H8      | 1.59                     | 0.67              |
| 53:sa:1383:C:H5    | 53:sa:1389:G:H1    | 1.43                     | 0.67              |
| 53:sa:1439:C:H5'   | 71:st:48:ASN:HB3   | 1.75                     | 0.67              |
| 1:lA:530:A:H2'     | 1:lA:531:U:H6      | 1.59                     | 0.67              |
| 39:lm:51:ALA:HB3   | 39:lm:54:ILE:HD12  | 1.75                     | 0.67              |
| 53:sa:1281:A:H4'   | 53:sa:1282:U:H5'   | 1.76                     | 0.67              |
| 53:sa:1668:G:H22   | 53:sa:1673:A:H2    | 1.43                     | 0.67              |
| 1:lA:541:A:H2'     | 1:lA:542:U:C6      | 2.30                     | 0.67              |
| 1:lA:1605:A:H2     | 1:lA:3430:U:H3     | 1.41                     | 0.67              |
| 53:sa:15:U:O2'     | 53:sa:614:A:N6     | 2.28                     | 0.67              |
| 55:sc:151:GLY:O    | 55:sc:176:ARG:NH2  | 2.28                     | 0.67              |
| 1:lA:682:G:H5'     | 20:IT:2:LYS:HD3    | 1.77                     | 0.67              |
| 1:lA:896:A:O2'     | 1:lA:2790:U:OP1    | 2.13                     | 0.67              |
| 1:lA:2907:C:H2'    | 1:lA:2908:U:H6     | 1.59                     | 0.67              |
| 33:lg:130:GLN:HG3  | 33:lg:134:GLN:HG2  | 1.76                     | 0.67              |
| 1:lA:720:U:H2'     | 1:lA:721:A:H8      | 1.60                     | 0.67              |
| 53:sa:332:G:O2'    | 62:sj:10:LYS:NZ    | 2.28                     | 0.67              |
| 53:sa:1262:G:N1    | 53:sa:1274:U:O4    | 2.27                     | 0.67              |
| 59:sg:203:LYS:HA   | 59:sg:206:ARG:HE   | 1.59                     | 0.67              |
| 1:lA:1252:G:N2     | 1:lA:1255:A:OP2    | 2.26                     | 0.67              |
| 1:lA:1892:C:H2'    | 1:lA:1893:A:H8     | 1.60                     | 0.67              |
| 53:sa:293:U:H2'    | 53:sa:294:G:H2'    | 1.75                     | 0.67              |
| 53:sa:866:G:H2'    | 53:sa:867:A:C8     | 2.30                     | 0.67              |
| 74:sw:99:LYS:HB2   | 74:sw:102:THR:HG22 | 1.75                     | 0.67              |
| 1:lA:699:A:H5''    | 1:lA:746:A:H62     | 1.59                     | 0.67              |
| 1:lA:3475:U:H3     | 1:lA:3479:A:H61    | 1.42                     | 0.67              |
| 53:sa:262:G:OP2    | 60:sh:191:GLN:NE2  | 2.27                     | 0.67              |
| 58:sf:181:MET:HE1  | 58:sf:223:VAL:HA   | 1.76                     | 0.67              |
| 60:sh:138:ALA:N    | 60:sh:182:GLN:O    | 2.28                     | 0.67              |
| 1:lA:500:G:H1      | 1:lA:572:U:H3      | 1.40                     | 0.67              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 50:sI:65:C:H2'     | 50:sI:66:U:H6     | 1.60                     | 0.66              |
| 1:lA:98:A:H4'      | 14:lN:59:MET:HE2  | 1.78                     | 0.66              |
| 1:lA:2738:A:OP2    | 13:lM:51:ARG:NH2  | 2.28                     | 0.66              |
| 1:lA:467:A:N1      | 1:lA:2438:C:O2'   | 2.28                     | 0.66              |
| 44:sA:101:LYS:HB3  | 44:sA:108:ILE:HB  | 1.78                     | 0.66              |
| 1:lA:2214:A:HO2'   | 38:ll:2:THR:N     | 1.93                     | 0.66              |
| 1:lA:1728:A:N7     | 1:lA:1729:G:N2    | 2.43                     | 0.66              |
| 3:lC:112:C:H2'     | 3:lC:113:C:C6     | 2.31                     | 0.66              |
| 11:lK:93:THR:HG22  | 11:lK:94:LYS:HG3  | 1.78                     | 0.66              |
| 53:sa:1581:G:H2'   | 53:sa:1582:G:H8   | 1.61                     | 0.66              |
| 70:ss:35:CYS:SG    | 70:ss:36:LEU:N    | 2.69                     | 0.66              |
| 1:lA:221:U:H2'     | 1:lA:222:A:H8     | 1.61                     | 0.65              |
| 1:lA:1744:A:H2'    | 1:lA:1745:A:H8    | 1.61                     | 0.65              |
| 45:sB:32:LYS:O     | 45:sB:37:LYS:NZ   | 2.29                     | 0.65              |
| 53:sa:115:U:O2'    | 53:sa:328:C:O2    | 2.10                     | 0.65              |
| 61:si:163:VAL:HG22 | 61:si:198:PRO:HG3 | 1.78                     | 0.65              |
| 1:lA:500:G:N2      | 1:lA:572:U:O2     | 2.28                     | 0.65              |
| 14:lN:44:VAL:HG13  | 14:lN:47:ALA:HB2  | 1.78                     | 0.65              |
| 1:lA:457:G:N2      | 18:lR:5:CYS:SG    | 2.69                     | 0.65              |
| 1:lA:1883:A:H62    | 1:lA:1931:U:H3    | 1.43                     | 0.65              |
| 53:sa:394:A:OP1    | 62:sj:49:ARG:NH2  | 2.29                     | 0.65              |
| 45:sB:15:ARG:NH2   | 53:sa:916:G:N7    | 2.38                     | 0.65              |
| 1:lA:1744:A:H2'    | 1:lA:1745:A:C8    | 2.30                     | 0.65              |
| 1:lA:1813:G:N7     | 28:lb:17:ARG:NH2  | 2.44                     | 0.65              |
| 3:lC:15:A:OP1      | 13:lM:147:LYS:NZ  | 2.28                     | 0.65              |
| 40:ln:13:LYS:HD2   | 40:ln:16:LYS:HE2  | 1.78                     | 0.65              |
| 53:sa:1595:G:H3'   | 53:sa:1682:A:H61  | 1.62                     | 0.65              |
| 53:sa:1661:C:H2'   | 53:sa:1662:G:C8   | 2.31                     | 0.65              |
| 3:lC:79:G:N1       | 3:lC:95:A:H2      | 1.86                     | 0.65              |
| 53:sa:209:A:N6     | 53:sa:250:G:O6    | 2.30                     | 0.65              |
| 53:sa:1595:G:O2'   | 53:sa:1661:C:O2   | 2.14                     | 0.65              |
| 72:su:87:ARG:HB3   | 72:su:97:SER:HA   | 1.78                     | 0.65              |
| 1:lA:3309:U:OP1    | 32:lf:15:ARG:NH2  | 2.30                     | 0.65              |
| 5:lE:340:ARG:HH21  | 5:lE:343:CYS:HB2  | 1.62                     | 0.65              |
| 45:sB:79:ILE:HD11  | 53:sa:1942:U:H5'  | 1.79                     | 0.65              |
| 73:sv:105:LEU:HD13 | 73:sv:121:ARG:HG3 | 1.79                     | 0.65              |
| 1:lA:3458:U:H3     | 1:lA:3494:G:H1    | 1.42                     | 0.65              |
| 3:lC:47:A:OP2      | 7:lG:94:ASN:ND2   | 2.28                     | 0.65              |
| 8:lH:56:ARG:NH2    | 8:lH:107:GLN:O    | 2.29                     | 0.65              |
| 72:su:48:ARG:NH1   | 73:sv:36:ASP:OD2  | 2.30                     | 0.65              |
| 73:sv:43:CYS:SG    | 73:sv:94:THR:OG1  | 2.54                     | 0.65              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:lA:700:A:OP2     | 1:lA:745:A:N6      | 2.30                     | 0.65              |
| 1:lA:1528:A:OP1    | 33:lg:126:ARG:NH2  | 2.30                     | 0.65              |
| 64:sl:25:LYS:HD3   | 64:sl:63:LEU:HD11  | 1.79                     | 0.65              |
| 53:sa:864:C:H2'    | 53:sa:865:A:H8     | 1.62                     | 0.65              |
| 53:sa:1096:U:H2'   | 53:sa:1097:C:C6    | 2.32                     | 0.65              |
| 53:sa:1579:A:H4'   | 53:sa:1580:U:H5'   | 1.79                     | 0.65              |
| 1:lA:1648:U:OP2    | 1:lA:2081:A:O2'    | 2.15                     | 0.64              |
| 53:sa:39:A:H4'     | 63:sk:3:ARG:HB2    | 1.78                     | 0.64              |
| 53:sa:902:U:H2'    | 53:sa:903:A:C8     | 2.33                     | 0.64              |
| 10:lJ:174:TYR:HH   | 10:lJ:226:TYR:HH   | 1.42                     | 0.64              |
| 64:sl:86:VAL:HG12  | 64:sl:88:SER:H     | 1.62                     | 0.64              |
| 53:sa:783:A:N7     | 53:sa:784:U:O2'    | 2.29                     | 0.64              |
| 76:sy:71:ARG:HE    | 76:sy:76:GLY:HA2   | 1.60                     | 0.64              |
| 1:lA:732:U:O2'     | 1:lA:733:C:O5'     | 2.12                     | 0.64              |
| 1:lA:1335:U:O2     | 20:lT:109:GLN:NE2  | 2.27                     | 0.64              |
| 53:sa:467:C:O2'    | 53:sa:760:A:N3     | 2.30                     | 0.64              |
| 1:lA:1763:C:H2'    | 1:lA:1764:A:H8     | 1.62                     | 0.64              |
| 1:lA:2064:G:N1     | 1:lA:2067:A:OP2    | 2.30                     | 0.64              |
| 1:lA:3263:G:OP2    | 42:lp:37:LYS:NZ    | 2.28                     | 0.64              |
| 38:ll:39:TYR:O     | 38:ll:41:ASP:N     | 2.31                     | 0.64              |
| 57:se:198:GLU:N    | 57:se:198:GLU:OE2  | 2.28                     | 0.64              |
| 56:sd:122:LYS:NZ   | 56:sd:135:SER:OG   | 2.31                     | 0.64              |
| 53:sa:335:U:H2'    | 53:sa:336:A:H8     | 1.63                     | 0.64              |
| 53:sa:1376:U:H2'   | 53:sa:1377:U:C6    | 2.32                     | 0.64              |
| 1:lA:3367:U:H2'    | 1:lA:3368:G:C8     | 2.32                     | 0.64              |
| 53:sa:440:A:OP2    | 58:sf:57:ARG:NH2   | 2.31                     | 0.64              |
| 57:se:173:LEU:HD21 | 57:se:199:ILE:HG12 | 1.79                     | 0.64              |
| 1:lA:1313:U:O2'    | 1:lA:1315:A:N7     | 2.30                     | 0.64              |
| 18:lR:34:ASP:OD1   | 18:lR:37:ARG:NH1   | 2.31                     | 0.64              |
| 32:lf:48:ARG:NH1   | 32:lf:144:THR:OG1  | 2.30                     | 0.64              |
| 1:lA:1209:U:OP1    | 1:lA:1211:A:O2'    | 2.16                     | 0.63              |
| 38:ll:21:ARG:NH2   | 38:ll:38:GLY:O     | 2.31                     | 0.63              |
| 53:sa:565:G:N2     | 53:sa:592:U:OP1    | 2.31                     | 0.63              |
| 57:se:70:VAL:HG21  | 67:sp:123:ARG:HD2  | 1.79                     | 0.63              |
| 68:sq:58:LYS:HA    | 68:sq:61:LYS:HE3   | 1.80                     | 0.63              |
| 3:lC:22:C:H2'      | 3:lC:23:A:H8       | 1.63                     | 0.63              |
| 3:lC:54:U:H4'      | 13:lM:152:HIS:HB2  | 1.81                     | 0.63              |
| 51:sJ:34:U:OP2     | 70:ss:158:ARG:NH2  | 2.32                     | 0.63              |
| 26:lZ:25:ARG:HE    | 26:lZ:31:PHE:HE2   | 1.46                     | 0.63              |
| 65:sm:71:SER:OG    | 65:sm:122:HIS:NE2  | 2.32                     | 0.63              |
| 9:ll:21:CYS:SG     | 9:ll:22:LYS:N      | 2.68                     | 0.63              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 17:lQ:68:ARG:HD3  | 17:lQ:128:ARG:HB2  | 1.80                     | 0.63              |
| 53:sa:1432:A:H1'  | 74:sw:55:ARG:HD2   | 1.79                     | 0.63              |
| 1:lA:1760:A:OP1   | 40:ln:24:ARG:NH2   | 2.31                     | 0.63              |
| 53:sa:1585:U:OP1  | 73:sv:40:THR:OG1   | 2.12                     | 0.63              |
| 66:so:99:ARG:O    | 66:so:101:HIS:N    | 2.31                     | 0.63              |
| 1:lA:797:C:H2'    | 1:lA:798:U:H6      | 1.62                     | 0.63              |
| 1:lA:1408:C:O2'   | 1:lA:3271:G:N2     | 2.30                     | 0.63              |
| 18:lR:16:GLN:HG2  | 18:lR:149:ILE:HG12 | 1.81                     | 0.63              |
| 38:ll:33:ARG:NH2  | 38:ll:41:ASP:OD2   | 2.31                     | 0.63              |
| 53:sa:797:G:OP2   | 53:sa:797:G:N2     | 2.21                     | 0.63              |
| 53:sa:1126:G:H1'  | 69:sr:76:SER:HB3   | 1.79                     | 0.63              |
| 59:sg:30:VAL:HB   | 59:sg:36:LYS:HG2   | 1.79                     | 0.63              |
| 23:lW:30:CYS:HB3  | 23:lW:77:ILE:HD13  | 1.81                     | 0.63              |
| 61:si:171:LYS:HE2 | 61:si:175:LYS:HD3  | 1.81                     | 0.63              |
| 73:sv:8:LYS:HE3   | 73:sv:67:LEU:HD22  | 1.81                     | 0.63              |
| 75:sx:76:LEU:HD13 | 75:sx:79:VAL:HG21  | 1.81                     | 0.63              |
| 53:sa:170:G:H22   | 53:sa:259:A:H5'    | 1.62                     | 0.62              |
| 53:sa:1287:U:H2'  | 53:sa:1288:G:C8    | 2.33                     | 0.62              |
| 1:lA:2480:A:N7    | 1:lA:3015:A:N6     | 2.47                     | 0.62              |
| 10:lJ:17:LEU:N    | 28:lb:126:ARG:O    | 2.32                     | 0.62              |
| 23:lW:34:LEU:O    | 23:lW:38:THR:OG1   | 2.17                     | 0.62              |
| 53:sa:366:G:N2    | 53:sa:606:U:O2     | 2.32                     | 0.62              |
| 53:sa:865:A:H2'   | 53:sa:866:G:C8     | 2.34                     | 0.62              |
| 53:sa:1322:G:N2   | 53:sa:1325:A:OP2   | 2.30                     | 0.62              |
| 1:lA:858:A:O2'    | 1:lA:1185:A:N7     | 2.31                     | 0.62              |
| 1:lA:2883:A:H2'   | 1:lA:2884:U:H6     | 1.65                     | 0.62              |
| 1:lA:3150:A:H2'   | 1:lA:3151:A:H8     | 1.64                     | 0.62              |
| 9:ll:87:ILE:HG23  | 9:ll:118:VAL:HG12  | 1.81                     | 0.62              |
| 53:sa:584:C:H2'   | 53:sa:585:A:H8     | 1.63                     | 0.62              |
| 53:sa:841:U:O2'   | 53:sa:842:A:O4'    | 2.17                     | 0.62              |
| 1:lA:410:G:OP2    | 38:ll:52:LYS:NZ    | 2.30                     | 0.62              |
| 1:lA:3204:C:O2    | 24:IX:89:ARG:NH1   | 2.32                     | 0.62              |
| 53:sa:560:C:OP2   | 53:sa:1902:A:N6    | 2.33                     | 0.62              |
| 57:se:72:LEU:O    | 57:se:81:PHE:HB2   | 1.98                     | 0.62              |
| 1:lA:809:C:OP2    | 19:lS:101:LYS:NZ   | 2.29                     | 0.62              |
| 1:lA:1292:A:H61   | 1:lA:1457:A:H61    | 1.45                     | 0.62              |
| 1:lA:3497:U:H4'   | 1:lA:3498:U:H5'    | 1.80                     | 0.62              |
| 3:lC:18:U:H3      | 3:lC:58:A:H61      | 1.47                     | 0.62              |
| 16:lP:12:VAL:O    | 16:lP:60:THR:OG1   | 2.17                     | 0.62              |
| 53:sa:1437:G:N7   | 71:st:44:LYS:NZ    | 2.42                     | 0.62              |
| 1:lA:699:A:OP2    | 1:lA:746:A:N6      | 2.32                     | 0.62              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 11:IK:134:ILE:HG21 | 11:IK:167:ILE:HG12 | 1.79                     | 0.62              |
| 19:IS:152:VAL:HA   | 19:IS:159:ALA:H    | 1.65                     | 0.62              |
| 1:IA:1508:U:H2'    | 1:IA:1509:A:H8     | 1.65                     | 0.62              |
| 3:IC:44:C:H2'      | 3:IC:45:U:C6       | 2.35                     | 0.62              |
| 74:sw:93:THR:HG21  | 74:sw:98:VAL:HG23  | 1.81                     | 0.62              |
| 1:IA:1269:U:OP2    | 33:lg:44:ARG:NH2   | 2.33                     | 0.62              |
| 1:IA:1555:U:H2'    | 1:IA:1556:G:H8     | 1.62                     | 0.62              |
| 1:IA:3193:G:H2'    | 1:IA:3194:U:H6     | 1.62                     | 0.62              |
| 3:IC:84:G:H1       | 3:IC:91:G:H22      | 1.48                     | 0.62              |
| 8:IH:98:ASN:ND2    | 8:IH:187:MET:O     | 2.31                     | 0.62              |
| 1:IA:2972:U:C2     | 1:IA:2973:G:C8     | 2.88                     | 0.62              |
| 1:IA:3042:C:N3     | 11:IK:179:ARG:NH1  | 2.48                     | 0.62              |
| 11:IK:115:ASP:OD1  | 11:IK:115:ASP:N    | 2.33                     | 0.62              |
| 36:lj:5:ARG:NH1    | 36:lj:7:HIS:O      | 2.33                     | 0.62              |
| 39:lm:36:LYS:HG2   | 39:lm:48:ARG:HE    | 1.63                     | 0.62              |
| 1:IA:1523:U:OP1    | 33:lg:105:LYS:NZ   | 2.32                     | 0.62              |
| 61:si:135:MET:HE1  | 61:si:185:TYR:HB2  | 1.82                     | 0.62              |
| 1:IA:393:A:O3'     | 6:IF:98:LYS:NZ     | 2.32                     | 0.61              |
| 3:IC:43:A:OP2      | 13:IM:137:ARG:NH1  | 2.31                     | 0.61              |
| 20:IT:69:LYS:NZ    | 20:IT:93:VAL:O     | 2.32                     | 0.61              |
| 53:sa:1382:C:H2'   | 53:sa:1383:C:O2    | 1.99                     | 0.61              |
| 53:sa:1577:C:O2'   | 53:sa:1703:A:N1    | 2.33                     | 0.61              |
| 66:so:92:MET:O     | 66:so:94:ARG:N     | 2.32                     | 0.61              |
| 6:IF:77:PRO:HB2    | 6:IF:91:ALA:HB3    | 1.82                     | 0.61              |
| 53:sa:457:G:H2'    | 53:sa:458:U:H6     | 1.65                     | 0.61              |
| 58:sf:71:ASP:OD2   | 58:sf:143:ARG:NH2  | 2.33                     | 0.61              |
| 68:sq:93:ILE:HD13  | 68:sq:115:LEU:HD11 | 1.81                     | 0.61              |
| 1:IA:2272:C:O2'    | 1:IA:2346:A:N3     | 2.31                     | 0.61              |
| 73:sv:85:ASN:HB3   | 73:sv:91:SER:HB3   | 1.81                     | 0.61              |
| 1:IA:440:G:N1      | 1:IA:443:A:OP2     | 2.29                     | 0.61              |
| 1:IA:2098:A:N6     | 1:IA:2415:C:H42    | 1.97                     | 0.61              |
| 1:IA:2688:G:O2'    | 1:IA:3008:U:OP1    | 2.14                     | 0.61              |
| 51:sJ:20:U:H5''    | 51:sJ:21:U:H5'     | 1.82                     | 0.61              |
| 53:sa:440:A:H5''   | 58:sf:57:ARG:HH21  | 1.65                     | 0.61              |
| 53:sa:441:C:H41    | 53:sa:456:G:H21    | 1.48                     | 0.61              |
| 1:IA:1555:U:H2'    | 1:IA:1556:G:C8     | 2.36                     | 0.61              |
| 1:IA:3500:A:H2'    | 1:IA:3501:A:C8     | 2.35                     | 0.61              |
| 6:IF:61:GLN:OE1    | 38:IL:55:ARG:NH2   | 2.29                     | 0.61              |
| 53:sa:1124:A:OP1   | 55:sc:161:THR:OG1  | 2.18                     | 0.61              |
| 32:lf:62:SER:HB2   | 32:lf:65:LYS:HD3   | 1.83                     | 0.61              |
| 43:lq:72:CYS:SG    | 43:lq:75:CYS:N     | 2.73                     | 0.61              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 3:IC:80:G:H1      | 3:IC:94:U:H3       | 1.49                     | 0.61              |
| 8:IH:23:THR:OG1   | 8:IH:25:ASP:OD1    | 2.19                     | 0.61              |
| 53:sa:1838:A:H2'  | 53:sa:1839:A:C8    | 2.36                     | 0.61              |
| 1:IA:1513:A:H5'   | 6:IF:206:LYS:HG2   | 1.82                     | 0.61              |
| 1:IA:2114:U:N3    | 1:IA:2198:G:OP2    | 2.31                     | 0.61              |
| 3:IC:112:C:H2'    | 3:IC:113:C:H6      | 1.64                     | 0.61              |
| 53:sa:864:C:H2'   | 53:sa:865:A:C8     | 2.35                     | 0.61              |
| 70:ss:71:GLY:O    | 70:ss:74:ASN:ND2   | 2.33                     | 0.61              |
| 74:sw:68:THR:OG1  | 74:sw:70:CYS:O     | 2.18                     | 0.61              |
| 1:IA:1502:A:N6    | 19:IS:15:SER:OG    | 2.29                     | 0.61              |
| 1:IA:1846:A:H2'   | 1:IA:1847:A:C8     | 2.36                     | 0.61              |
| 1:IA:2829:A:H5''  | 1:IA:2830:C:H5'    | 1.83                     | 0.61              |
| 27:la:52:ASP:O    | 27:la:67:LYS:NZ    | 2.34                     | 0.61              |
| 62:sj:79:LEU:HD13 | 62:sj:104:ILE:HA   | 1.82                     | 0.61              |
| 1:IA:535:A:N1     | 14:IN:218:ASN:ND2  | 2.33                     | 0.61              |
| 1:IA:1561:U:OP2   | 29:lc:4:ARG:NH1    | 2.31                     | 0.61              |
| 10:IJ:66:ASN:OD1  | 10:IJ:70:ASN:ND2   | 2.32                     | 0.61              |
| 13:IM:21:ILE:HD11 | 13:IM:125:MET:HE2  | 1.83                     | 0.61              |
| 58:sf:197:GLU:OE1 | 58:sf:207:HIS:NE2  | 2.30                     | 0.61              |
| 72:su:28:PRO:HG2  | 72:su:53:VAL:HG13  | 1.82                     | 0.61              |
| 9:II:66:GLU:O     | 22:IV:142:ARG:NH1  | 2.34                     | 0.60              |
| 32:lf:119:GLU:N   | 32:lf:119:GLU:OE2  | 2.31                     | 0.60              |
| 53:sa:601:G:H4'   | 53:sa:604:G:H21    | 1.66                     | 0.60              |
| 53:sa:1689:A:N6   | 53:sa:1774:A:O4'   | 2.34                     | 0.60              |
| 1:IA:1809:A:O2'   | 1:IA:1810:A:N7     | 2.33                     | 0.60              |
| 1:IA:3476:C:H5''  | 1:IA:3477:U:C5     | 2.36                     | 0.60              |
| 1:IA:199:G:N1     | 1:IA:311:A:OP2     | 2.32                     | 0.60              |
| 23:IW:62:ASN:O    | 23:IW:64:LYS:NZ    | 2.34                     | 0.60              |
| 48:sE:56:ASP:O    | 74:sw:62:ARG:NH2   | 2.34                     | 0.60              |
| 1:IA:1634:G:N2    | 1:IA:1634:G:OP2    | 2.34                     | 0.60              |
| 2:IB:11:U:H2'     | 2:IB:12:A:C8       | 2.36                     | 0.60              |
| 53:sa:1376:U:H2'  | 53:sa:1377:U:H6    | 1.66                     | 0.60              |
| 59:sg:52:PRO:HG2  | 59:sg:92:MET:HG2   | 1.83                     | 0.60              |
| 1:IA:1476:G:O2'   | 1:IA:1477:A:H5'    | 2.01                     | 0.60              |
| 49:sH:101:UNK:N   | 50:sI:76:A:O3'     | 2.33                     | 0.60              |
| 1:IA:189:G:OP1    | 17:IQ:4:TYR:OH     | 2.17                     | 0.60              |
| 1:IA:3103:C:H2'   | 1:IA:3104:G:H8     | 1.67                     | 0.60              |
| 3:IC:94:U:H2'     | 3:IC:95:A:C8       | 2.37                     | 0.60              |
| 10:IJ:90:PRO:HD3  | 10:IJ:129:LEU:HD12 | 1.84                     | 0.60              |
| 42:lp:29:PRO:HG2  | 42:lp:32:ALA:HB2   | 1.83                     | 0.60              |
| 1:IA:231:U:H4'    | 27:la:123:SER:HB3  | 1.84                     | 0.60              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:lA:3463:A:H3'   | 1:lA:3464:G:H21    | 1.66                     | 0.60              |
| 1:lA:58:G:H22     | 1:lA:75:U:H4'      | 1.67                     | 0.60              |
| 1:lA:302:U:OP1    | 14:lN:79:ARG:NH2   | 2.34                     | 0.60              |
| 1:lA:425:C:H2'    | 1:lA:426:U:H6      | 1.66                     | 0.60              |
| 1:lA:2062:A:O2'   | 1:lA:3220:U:OP1    | 2.17                     | 0.60              |
| 1:lA:3455:G:N1    | 1:lA:3500:A:H2     | 1.97                     | 0.60              |
| 2:lB:101:G:OP2    | 2:lB:103:A:O2'     | 2.19                     | 0.60              |
| 24:lX:83:ARG:NH2  | 24:lX:118:THR:O    | 2.33                     | 0.60              |
| 1:lA:530:A:H2'    | 1:lA:531:U:C6      | 2.37                     | 0.60              |
| 29:lc:146:GLU:HB3 | 37:lk:1:MET:HE1    | 1.82                     | 0.60              |
| 53:sa:782:A:H2    | 58:sf:246:LEU:HD11 | 1.67                     | 0.60              |
| 53:sa:1254:G:N2   | 53:sa:1280:G:O2'   | 2.34                     | 0.60              |
| 1:lA:1117:G:N3    | 1:lA:1120:A:N6     | 2.50                     | 0.60              |
| 1:lA:2079:A:H2'   | 1:lA:2080:A:O4'    | 2.01                     | 0.60              |
| 1:lA:3128:C:H2'   | 1:lA:3129:U:H6     | 1.67                     | 0.60              |
| 2:lB:141:G:H2'    | 2:lB:142:A:H8      | 1.67                     | 0.60              |
| 12:lL:171:TRP:CD1 | 12:lL:172:GLY:H    | 2.19                     | 0.60              |
| 54:sb:92:ARG:NH2  | 71:st:82:ASP:O     | 2.33                     | 0.60              |
| 63:sk:25:ASP:OD1  | 63:sk:25:ASP:N     | 2.34                     | 0.60              |
| 1:lA:779:A:O2'    | 1:lA:783:A:N6      | 2.35                     | 0.59              |
| 1:lA:1198:U:H3    | 1:lA:1204:A:H62    | 1.50                     | 0.59              |
| 1:lA:1640:A:H2'   | 1:lA:1641:A:H8     | 1.67                     | 0.59              |
| 1:lA:1992:A:H2'   | 1:lA:1993:G:H8     | 1.66                     | 0.59              |
| 16:lP:11:ARG:NH1  | 16:lP:60:THR:O     | 2.34                     | 0.59              |
| 32:lf:63:PHE:HB3  | 32:lf:103:ARG:HG2  | 1.83                     | 0.59              |
| 77:sz:13:ARG:HG2  | 77:sz:27:VAL:HB    | 1.84                     | 0.59              |
| 1:lA:1822:U:HO2'  | 34:lh:67:LYS:HZ2   | 1.47                     | 0.59              |
| 1:lA:2261:G:O2'   | 1:lA:2390:U:OP2    | 2.18                     | 0.59              |
| 1:lA:3170:A:H2'   | 1:lA:3171:A:H8     | 1.67                     | 0.59              |
| 1:lA:3476:C:N4    | 1:lA:3478:U:O3'    | 2.35                     | 0.59              |
| 51:sJ:39:A:O2'    | 53:sa:981:A:OP1    | 2.14                     | 0.59              |
| 53:sa:295:A:H61   | 58:sf:38:GLU:HG2   | 1.66                     | 0.59              |
| 53:sa:328:C:H2'   | 53:sa:329:G:C8     | 2.37                     | 0.59              |
| 57:se:57:ARG:HE   | 57:se:59:ALA:HB3   | 1.67                     | 0.59              |
| 1:lA:873:U:H2'    | 1:lA:874:A:C8      | 2.37                     | 0.59              |
| 1:lA:1325:C:H42   | 1:lA:3000:C:H5''   | 1.68                     | 0.59              |
| 1:lA:1864:C:OP1   | 23:lW:98:LYS:NZ    | 2.35                     | 0.59              |
| 12:lL:206:LEU:O   | 12:lL:208:LYS:NZ   | 2.35                     | 0.59              |
| 51:sJ:64:G:N1     | 51:sJ:65:G:O6      | 2.35                     | 0.59              |
| 53:sa:1596:U:O2'  | 53:sa:1681:A:N6    | 2.35                     | 0.59              |
| 60:sh:74:ARG:HB2  | 60:sh:94:ARG:HG2   | 1.84                     | 0.59              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 12:IL:51:HIS:ND1   | 12:IL:137:SER:OG  | 2.34                     | 0.59              |
| 53:sa:356:C:N4     | 53:sa:374:C:OP1   | 2.36                     | 0.59              |
| 55:sc:79:LYS:HG3   | 55:sc:109:HIS:HE1 | 1.67                     | 0.59              |
| 72:su:11:GLN:N     | 72:su:11:GLN:NE2  | 2.49                     | 0.59              |
| 1:IA:2318:U:H5''   | 4:ID:244:GLY:HA3  | 1.84                     | 0.59              |
| 1:IA:2499:U:H2'    | 1:IA:2500:A:H8    | 1.67                     | 0.59              |
| 25:IY:75:LYS:NZ    | 25:IY:86:VAL:O    | 2.32                     | 0.59              |
| 53:sa:934:A:H2'    | 53:sa:935:C:C6    | 2.38                     | 0.59              |
| 53:sa:1816:U:H2'   | 53:sa:1817:A:C8   | 2.36                     | 0.59              |
| 57:se:29:LYS:HB3   | 57:se:50:VAL:O    | 2.03                     | 0.59              |
| 58:sf:159:LYS:HB3  | 58:sf:169:ASP:H   | 1.67                     | 0.59              |
| 61:si:185:TYR:O    | 61:si:189:THR:OG1 | 2.20                     | 0.59              |
| 8:IH:64:ILE:O      | 8:IH:113:THR:OG1  | 2.20                     | 0.59              |
| 44:sA:77:MET:HG2   | 44:sA:79:ILE:HG23 | 1.82                     | 0.59              |
| 57:se:187:VAL:HG12 | 57:se:189:TYR:H   | 1.68                     | 0.59              |
| 1:IA:1342:U:H2'    | 1:IA:1343:A:H4'   | 1.85                     | 0.59              |
| 11:IK:101:ARG:HG3  | 11:IK:188:SER:HB3 | 1.83                     | 0.59              |
| 53:sa:1566:C:OP2   | 72:su:137:THR:OG1 | 2.17                     | 0.59              |
| 53:sa:1820:G:O3'   | 53:sa:1821:A:C8   | 2.55                     | 0.59              |
| 63:sk:86:LEU:HD13  | 63:sk:99:LEU:HD21 | 1.84                     | 0.59              |
| 65:sm:108:VAL:HG12 | 65:sm:137:PHE:HB2 | 1.84                     | 0.59              |
| 1:IA:1312:A:H62    | 1:IA:1441:U:H3    | 1.51                     | 0.59              |
| 1:IA:1345:U:H4'    | 1:IA:1346:G:H5'   | 1.84                     | 0.59              |
| 53:sa:78:G:OP1     | 60:sh:178:ALA:HB3 | 2.03                     | 0.59              |
| 64:sl:4:ALA:HB3    | 64:sl:7:ASP:HB2   | 1.85                     | 0.59              |
| 1:IA:662:U:H2'     | 1:IA:663:G:O4'    | 2.03                     | 0.59              |
| 1:IA:760:A:H2'     | 1:IA:761:A:H8     | 1.66                     | 0.59              |
| 1:IA:1814:G:N2     | 1:IA:1817:A:OP2   | 2.33                     | 0.59              |
| 8:IH:145:THR:OG1   | 8:IH:146:VAL:N    | 2.35                     | 0.59              |
| 33:lg:75:PHE:HZ    | 33:lg:85:MET:HE2  | 1.68                     | 0.59              |
| 43:lq:54:PRO:O     | 51:sJ:76:C:O2'    | 2.16                     | 0.59              |
| 72:su:24:ARG:O     | 72:su:56:ARG:NH1  | 2.36                     | 0.59              |
| 1:IA:559:U:H2'     | 1:IA:560:U:C6     | 2.36                     | 0.59              |
| 4:ID:117:GLU:OE2   | 4:ID:163:ARG:NH2  | 2.36                     | 0.59              |
| 17:IQ:31:ARG:NH1   | 17:IQ:124:ASP:OD2 | 2.36                     | 0.59              |
| 53:sa:1678:A:H3'   | 53:sa:1679:G:H8   | 1.68                     | 0.59              |
| 1:IA:1639:U:H2'    | 1:IA:1640:A:H8    | 1.68                     | 0.58              |
| 18:IR:23:LYS:O     | 18:IR:86:LYS:NZ   | 2.35                     | 0.58              |
| 24:IX:22:ASN:HB3   | 24:IX:52:LEU:HD22 | 1.85                     | 0.58              |
| 53:sa:619:C:H2'    | 53:sa:620:U:C6    | 2.38                     | 0.58              |
| 53:sa:960:G:H4'    | 53:sa:1923:A:H4'  | 1.85                     | 0.58              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:lA:926:A:H62     | 1:lA:1053:G:H1     | 1.50                     | 0.58              |
| 26:lZ:11:SER:HA    | 26:lZ:54:THR:HG23  | 1.85                     | 0.58              |
| 53:sa:1823:U:OP1   | 53:sa:1824:G:O2'   | 2.20                     | 0.58              |
| 53:sa:1827:U:H2'   | 53:sa:1828:A:H8    | 1.68                     | 0.58              |
| 67:sp:52:THR:H     | 67:sp:55:MET:HG3   | 1.67                     | 0.58              |
| 1:lA:322:U:H2'     | 1:lA:323:U:H6      | 1.68                     | 0.58              |
| 1:lA:333:U:O2'     | 17:lQ:180:ARG:O    | 2.22                     | 0.58              |
| 1:lA:489:U:H3      | 1:lA:583:A:H61     | 1.50                     | 0.58              |
| 1:lA:703:G:C6      | 1:lA:744:A:N6      | 2.71                     | 0.58              |
| 1:lA:2669:A:H2'    | 1:lA:2670:U:C6     | 2.37                     | 0.58              |
| 1:lA:3329:U:H4'    | 1:lA:3411:U:H4'    | 1.85                     | 0.58              |
| 1:lA:3397:C:OP2    | 1:lA:3398:U:O2'    | 2.21                     | 0.58              |
| 75:sx:53:LYS:NZ    | 75:sx:55:SER:OG    | 2.34                     | 0.58              |
| 1:lA:789:C:H2'     | 1:lA:790:A:C8      | 2.39                     | 0.58              |
| 1:lA:1086:G:H1     | 1:lA:1240:C:H5     | 1.51                     | 0.58              |
| 3:lC:68:C:H42      | 3:lC:105:A:H61     | 1.51                     | 0.58              |
| 3:lC:75:G:H1       | 3:lC:99:U:H5       | 1.51                     | 0.58              |
| 4:lD:19:ARG:NH1    | 4:lD:189:TYR:O     | 2.35                     | 0.58              |
| 8:lH:56:ARG:NH1    | 36:lj:108:ILE:O    | 2.36                     | 0.58              |
| 9:ll:220:LEU:O     | 9:ll:223:ASN:ND2   | 2.36                     | 0.58              |
| 53:sa:330:A:O2'    | 65:sm:130:PRO:O    | 2.20                     | 0.58              |
| 53:sa:956:G:N1     | 53:sa:1003:A:O2'   | 2.31                     | 0.58              |
| 69:sr:36:GLU:HB2   | 69:sr:110:ILE:HD12 | 1.85                     | 0.58              |
| 1:lA:960:G:O2'     | 21:lU:131:GLN:OE1  | 2.20                     | 0.58              |
| 45:sB:34:LYS:NZ    | 53:sa:1940:G:O6    | 2.36                     | 0.58              |
| 53:sa:1886:U:O4    | 53:sa:1887:A:N6    | 2.36                     | 0.58              |
| 73:sv:19:TYR:OH    | 73:sv:130:ASP:OD2  | 2.12                     | 0.58              |
| 1:lA:3346:U:C2     | 1:lA:3347:A:C8     | 2.92                     | 0.58              |
| 6:lF:194:GLN:HG3   | 6:lF:197:MET:HE3   | 1.84                     | 0.58              |
| 53:sa:840:U:H2'    | 53:sa:841:U:C6     | 2.39                     | 0.58              |
| 2:lB:30:U:H2'      | 2:lB:31:C:C6       | 2.38                     | 0.58              |
| 3:lC:29:G:O6       | 3:lC:46:G:O6       | 2.21                     | 0.58              |
| 56:sd:137:MET:HA   | 56:sd:140:ILE:HD12 | 1.86                     | 0.58              |
| 60:sh:57:ASP:OD1   | 60:sh:58:LYS:N     | 2.36                     | 0.58              |
| 1:lA:1640:A:H2'    | 1:lA:1641:A:C8     | 2.39                     | 0.58              |
| 1:lA:1763:C:H2'    | 1:lA:1764:A:C8     | 2.39                     | 0.58              |
| 13:lM:151:ASP:N    | 13:lM:151:ASP:OD1  | 2.36                     | 0.58              |
| 24:lX:18:CYS:HB2   | 24:lX:54:ARG:HB3   | 1.86                     | 0.58              |
| 53:sa:579:A:H2'    | 53:sa:580:G:H8     | 1.66                     | 0.58              |
| 65:sm:4:GLN:NE2    | 65:sm:10:GLN:O     | 2.31                     | 0.58              |
| 73:sv:113:ILE:HG23 | 73:sv:114:VAL:HG13 | 1.85                     | 0.58              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:1A:3148:C:H2'   | 1:1A:3149:A:H8    | 1.68                     | 0.58              |
| 3:1C:109:G:H2'    | 3:1C:110:A:C8     | 2.39                     | 0.58              |
| 4:1D:242:ARG:NH1  | 4:1D:243:THR:O    | 2.37                     | 0.58              |
| 53:sa:1729:G:H4'  | 73:sv:42:MET:HE1  | 1.84                     | 0.58              |
| 53:sa:1827:U:H2'  | 53:sa:1828:A:C8   | 2.38                     | 0.58              |
| 56:sd:54:ARG:HG3  | 56:sd:63:ILE:HD13 | 1.86                     | 0.58              |
| 57:se:117:LYS:HG3 | 57:se:120:CYS:HB2 | 1.86                     | 0.58              |
| 62:sj:56:ARG:NH1  | 62:sj:210:GLY:O   | 2.33                     | 0.58              |
| 1:1A:78:U:H1'     | 1:1A:817:A:H8     | 1.69                     | 0.58              |
| 1:1A:492:U:H3     | 1:1A:580:A:H61    | 1.51                     | 0.58              |
| 1:1A:897:A:O2'    | 1:1A:899:A:N1     | 2.33                     | 0.58              |
| 53:sa:65:U:H1'    | 60:sh:177:LYS:HG3 | 1.84                     | 0.58              |
| 53:sa:1748:U:O2   | 53:sa:1780:A:N6   | 2.36                     | 0.58              |
| 64:sl:76:ARG:HH22 | 64:sl:86:VAL:HG22 | 1.69                     | 0.58              |
| 70:ss:62:LYS:HG3  | 70:ss:97:ARG:HD3  | 1.86                     | 0.58              |
| 1:1A:336:A:H5''   | 17:1Q:97:SER:HB3  | 1.85                     | 0.57              |
| 1:1A:1003:A:OP1   | 38:ll:5:THR:OG1   | 2.19                     | 0.57              |
| 1:1A:1841:G:N2    | 1:1A:1975:G:H1    | 1.97                     | 0.57              |
| 1:1A:2239:U:OP2   | 4:1D:234:LYS:NZ   | 2.35                     | 0.57              |
| 1:1A:3136:U:H2'   | 1:1A:3137:C:H6    | 1.68                     | 0.57              |
| 53:sa:632:U:OP2   | 69:sr:32:LYS:NZ   | 2.37                     | 0.57              |
| 53:sa:887:A:H2'   | 53:sa:888:A:C8    | 2.39                     | 0.57              |
| 1:1A:1293:U:H5'   | 9:II:199:LYS:HD3  | 1.85                     | 0.57              |
| 1:1A:3248:A:OP2   | 24:IX:15:ARG:NH2  | 2.33                     | 0.57              |
| 28:lb:10:VAL:O    | 28:lb:83:THR:OG1  | 2.22                     | 0.57              |
| 29:lc:6:ARG:HB2   | 29:lc:8:THR:HG22  | 1.86                     | 0.57              |
| 48:sE:21:CYS:HB3  | 48:sE:25:GLY:H    | 1.69                     | 0.57              |
| 56:sd:45:ALA:O    | 56:sd:68:ARG:NH1  | 2.37                     | 0.57              |
| 66:so:99:ARG:NH2  | 66:so:141:TYR:OH  | 2.37                     | 0.57              |
| 77:sz:17:VAL:HG13 | 77:sz:24:LYS:HG2  | 1.85                     | 0.57              |
| 1:1A:1994:G:OP1   | 28:lb:136:LYS:NZ  | 2.36                     | 0.57              |
| 1:1A:2418:U:OP1   | 1:1A:3243:C:O2'   | 2.22                     | 0.57              |
| 1:1A:2432:A:H61   | 1:1A:3126:C:H5    | 1.52                     | 0.57              |
| 33:lg:36:PRO:HG2  | 33:lg:44:ARG:HB3  | 1.86                     | 0.57              |
| 53:sa:258:A:OP1   | 60:sh:204:LYS:NZ  | 2.37                     | 0.57              |
| 53:sa:1440:A:N6   | 53:sa:1519:G:O2'  | 2.37                     | 0.57              |
| 56:sd:22:LYS:HG2  | 74:sw:61:LEU:HD11 | 1.86                     | 0.57              |
| 1:1A:772:C:N4     | 1:1A:773:G:O6     | 2.38                     | 0.57              |
| 1:1A:2721:G:H1    | 1:1A:2941:C:H5    | 1.51                     | 0.57              |
| 1:1A:2778:U:H2'   | 1:1A:2779:C:H6    | 1.69                     | 0.57              |
| 1:1A:3129:U:C2    | 1:1A:3130:A:C8    | 2.92                     | 0.57              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:1A:3149:A:H2'   | 1:1A:3150:A:C8     | 2.39                     | 0.57              |
| 72:su:81:PRO:HG2  | 72:su:84:PHE:HB2   | 1.85                     | 0.57              |
| 1:1A:9:G:H22      | 25:1Y:17:LYS:HE3   | 1.68                     | 0.57              |
| 1:1A:1107:G:H2'   | 1:1A:1108:A:C8     | 2.40                     | 0.57              |
| 1:1A:3426:U:O4    | 5:1E:121:LYS:NZ    | 2.37                     | 0.57              |
| 8:1H:43:THR:OG1   | 8:1H:85:LYS:NZ     | 2.37                     | 0.57              |
| 47:sD:62:GLU:HB3  | 67:sp:70:MET:HE1   | 1.87                     | 0.57              |
| 53:sa:919:A:H2'   | 53:sa:920:A:C8     | 2.39                     | 0.57              |
| 53:sa:936:U:OP1   | 53:sa:1097:C:O2'   | 2.22                     | 0.57              |
| 1:1A:1071:A:H4'   | 1:1A:1087:G:N2     | 2.20                     | 0.57              |
| 1:1A:1090:A:H2'   | 1:1A:1091:A:C8     | 2.40                     | 0.57              |
| 1:1A:1611:U:H2'   | 1:1A:1612:C:H6     | 1.68                     | 0.57              |
| 1:1A:1841:G:N2    | 1:1A:1975:G:H22    | 2.02                     | 0.57              |
| 2:1B:49:C:O2'     | 2:1B:63:A:O2'      | 2.19                     | 0.57              |
| 32:lf:25:LYS:HA   | 32:lf:28:LYS:HE3   | 1.86                     | 0.57              |
| 53:sa:584:C:H2'   | 53:sa:585:A:C8     | 2.39                     | 0.57              |
| 53:sa:1389:G:H2'  | 53:sa:1390:A:H8    | 1.69                     | 0.57              |
| 58:sf:183:GLY:HA3 | 58:sf:222:ASN:ND2  | 2.19                     | 0.57              |
| 1:1A:213:A:H2'    | 14:1N:127:VAL:HG21 | 1.87                     | 0.57              |
| 1:1A:1086:G:H2'   | 1:1A:1087:G:H8     | 1.69                     | 0.57              |
| 1:1A:1538:G:N2    | 1:1A:1541:A:OP2    | 2.31                     | 0.57              |
| 1:1A:3243:C:OP1   | 5:1E:224:LYS:NZ    | 2.36                     | 0.57              |
| 53:sa:932:C:H2'   | 53:sa:933:A:C8     | 2.39                     | 0.57              |
| 1:1A:826:A:O2'    | 1:1A:828:A:N7      | 2.37                     | 0.57              |
| 16:1P:25:ALA:HA   | 16:1P:40:GLY:HA3   | 1.85                     | 0.57              |
| 51:sJ:23:G:N7     | 51:sJ:47:G:O6      | 2.38                     | 0.57              |
| 53:sa:387:G:OP1   | 53:sa:1876:U:O2'   | 2.22                     | 0.57              |
| 53:sa:1382:C:H4'  | 73:sv:125:LYS:HD3  | 1.86                     | 0.57              |
| 70:ss:141:ALA:O   | 70:ss:143:LYS:NZ   | 2.38                     | 0.57              |
| 1:1A:322:U:H2'    | 1:1A:323:U:C6      | 2.40                     | 0.57              |
| 1:1A:1293:U:O4    | 1:1A:1454:G:O2'    | 2.19                     | 0.57              |
| 1:1A:3212:U:OP1   | 32:lf:55:HIS:NE2   | 2.37                     | 0.57              |
| 53:sa:1751:U:H3   | 53:sa:1777:A:H2    | 1.52                     | 0.57              |
| 57:se:73:ALA:HB2  | 57:se:82:GLY:HA2   | 1.87                     | 0.57              |
| 74:sw:26:SER:HB2  | 74:sw:110:VAL:HG13 | 1.87                     | 0.57              |
| 1:1A:2415:C:OP1   | 24:1X:54:ARG:NH2   | 2.37                     | 0.57              |
| 1:1A:2489:A:H2'   | 1:1A:2490:G:H8     | 1.69                     | 0.57              |
| 3:1C:2:G:O2'      | 3:1C:24:U:O2       | 2.22                     | 0.56              |
| 11:1K:101:ARG:NH1 | 11:1K:149:GLU:OE1  | 2.38                     | 0.56              |
| 37:lk:2:ALA:O     | 37:lk:4:GLY:N      | 2.37                     | 0.56              |
| 53:sa:1581:G:H2'  | 53:sa:1582:G:C8    | 2.39                     | 0.56              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 56:sd:219:PRO:O    | 71:st:20:TYR:OH    | 2.22                     | 0.56              |
| 58:sf:98:ARG:HB3   | 58:sf:110:VAL:HG22 | 1.87                     | 0.56              |
| 1:lA:1639:U:H2'    | 1:lA:1640:A:C8     | 2.41                     | 0.56              |
| 1:lA:2395:C:O2     | 1:lA:2397:C:N4     | 2.29                     | 0.56              |
| 5:lE:92:TYR:HB2    | 5:lE:159:VAL:HB    | 1.86                     | 0.56              |
| 12:lL:170:LYS:HA   | 12:lL:177:THR:HA   | 1.87                     | 0.56              |
| 28:lb:20:GLY:HA3   | 28:lb:139:PHE:HZ   | 1.70                     | 0.56              |
| 53:sa:203:C:H5     | 53:sa:255:G:H21    | 1.54                     | 0.56              |
| 53:sa:1221:A:OP2   | 53:sa:1571:G:N2    | 2.33                     | 0.56              |
| 63:sk:130:ARG:NH1  | 63:sk:142:ASP:O    | 2.31                     | 0.56              |
| 1:lA:445:G:H5''    | 1:lA:448:C:H1'     | 1.88                     | 0.56              |
| 1:lA:907:U:H2'     | 1:lA:908:A:H8      | 1.70                     | 0.56              |
| 1:lA:2257:G:OP1    | 4:lD:193:ARG:NH2   | 2.38                     | 0.56              |
| 1:lA:2732:A:H2'    | 1:lA:2733:A:H8     | 1.69                     | 0.56              |
| 1:lA:3211:A:H2     | 1:lA:3239:G:H21    | 1.53                     | 0.56              |
| 1:lA:3476:C:N4     | 1:lA:3479:A:OP1    | 2.38                     | 0.56              |
| 3:lC:29:G:N7       | 3:lC:46:G:N1       | 2.50                     | 0.56              |
| 6:lF:230:ASP:OD1   | 6:lF:250:ARG:NH2   | 2.38                     | 0.56              |
| 9:lI:109:ALA:HB2   | 22:lV:139:LYS:HB3  | 1.87                     | 0.56              |
| 53:sa:1182:C:H2'   | 53:sa:1183:A:H8    | 1.70                     | 0.56              |
| 56:sd:133:VAL:HG21 | 56:sd:152:ILE:HD11 | 1.86                     | 0.56              |
| 72:su:34:ILE:HG22  | 72:su:36:GLY:H     | 1.69                     | 0.56              |
| 1:lA:59:A:N3       | 1:lA:74:U:O2'      | 2.33                     | 0.56              |
| 1:lA:316:G:OP1     | 17:lQ:47:ARG:NE    | 2.35                     | 0.56              |
| 1:lA:705:U:N3      | 1:lA:743:G:N7      | 2.54                     | 0.56              |
| 1:lA:797:C:H2'     | 1:lA:798:U:C6      | 2.40                     | 0.56              |
| 1:lA:2971:G:OP2    | 12:lL:7:ARG:NH2    | 2.38                     | 0.56              |
| 3:lC:81:A:H2       | 3:lC:93:G:H1       | 1.53                     | 0.56              |
| 16:lP:49:ARG:NH2   | 16:lP:71:MET:O     | 2.34                     | 0.56              |
| 53:sa:1002:U:O4    | 53:sa:1003:A:N6    | 2.37                     | 0.56              |
| 53:sa:1134:G:OP2   | 53:sa:1134:G:N2    | 2.33                     | 0.56              |
| 73:sv:31:ILE:HG23  | 73:sv:35:VAL:HG11  | 1.87                     | 0.56              |
| 1:lA:1871:C:C2     | 1:lA:1872:U:C5     | 2.94                     | 0.56              |
| 27:la:21:ALA:O     | 27:la:26:ARG:NH1   | 2.36                     | 0.56              |
| 44:sA:85:LYS:NZ    | 53:sa:1698:A:OP1   | 2.39                     | 0.56              |
| 53:sa:69:G:H21     | 53:sa:80:A:H62     | 1.54                     | 0.56              |
| 53:sa:1719:G:N1    | 53:sa:1722:A:OP2   | 2.38                     | 0.56              |
| 57:se:30:GLU:HB3   | 57:se:32:TYR:CE1   | 2.40                     | 0.56              |
| 1:lA:828:A:OP1     | 17:lQ:202:ARG:NH2  | 2.39                     | 0.56              |
| 1:lA:868:A:H2'     | 1:lA:869:G:C8      | 2.40                     | 0.56              |
| 1:lA:3024:C:H2'    | 1:lA:3025:U:C6     | 2.40                     | 0.56              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 4:ID:193:ARG:HB2   | 4:ID:195:THR:HG23  | 1.88                     | 0.56              |
| 7:IG:50:ARG:NH1    | 7:IG:148:ASP:OD2   | 2.38                     | 0.56              |
| 10:IJ:96:LYS:HE3   | 10:IJ:100:ILE:HD11 | 1.88                     | 0.56              |
| 53:sa:858:G:H2'    | 53:sa:859:U:H6     | 1.71                     | 0.56              |
| 53:sa:1172:G:H2'   | 53:sa:1173:A:C8    | 2.40                     | 0.56              |
| 55:sc:47:VAL:HG21  | 55:sc:70:ILE:HG23  | 1.87                     | 0.56              |
| 3:IC:2:G:H2'       | 3:IC:3:G:H8        | 1.69                     | 0.56              |
| 13:IM:117:ASP:OD1  | 13:IM:117:ASP:N    | 2.37                     | 0.56              |
| 17:IQ:106:VAL:HG21 | 17:IQ:132:VAL:HG21 | 1.87                     | 0.56              |
| 53:sa:65:U:O2      | 60:sh:177:LYS:HB3  | 2.06                     | 0.56              |
| 53:sa:158:A:H2'    | 53:sa:159:A:H8     | 1.70                     | 0.56              |
| 53:sa:367:G:O2'    | 53:sa:605:C:N3     | 2.33                     | 0.56              |
| 53:sa:401:U:H2'    | 53:sa:402:A:H8     | 1.69                     | 0.56              |
| 53:sa:1589:U:O2'   | 70:ss:92:GLN:OE1   | 2.20                     | 0.56              |
| 58:sf:67:THR:HG23  | 58:sf:92:ARG:HE    | 1.70                     | 0.56              |
| 72:su:36:GLY:HA3   | 72:su:100:ILE:HA   | 1.87                     | 0.56              |
| 1:IA:1220:A:H2'    | 1:IA:1220:A:N3     | 2.20                     | 0.56              |
| 1:IA:1846:A:H2'    | 1:IA:1847:A:H8     | 1.70                     | 0.56              |
| 1:IA:2173:A:H2'    | 1:IA:2174:U:C6     | 2.40                     | 0.56              |
| 1:IA:3414:A:OP1    | 36:Ij:57:LYS:NZ    | 2.38                     | 0.56              |
| 1:IA:3469:A:N6     | 1:IA:3485:U:N3     | 2.51                     | 0.56              |
| 9:II:78:ARG:HH22   | 9:II:206:LYS:HG2   | 1.70                     | 0.56              |
| 51:sJ:47:G:O2'     | 51:sJ:48:U:O4'     | 2.24                     | 0.56              |
| 53:sa:13:C:H4'     | 53:sa:1323:U:H3    | 1.71                     | 0.56              |
| 53:sa:1558:U:H2'   | 53:sa:1559:U:H6    | 1.71                     | 0.56              |
| 54:sb:89:MET:HE3   | 54:sb:211:HIS:HB2  | 1.86                     | 0.56              |
| 1:IA:587:A:HO2'    | 1:IA:588:G:P       | 2.28                     | 0.56              |
| 1:IA:2958:G:N2     | 1:IA:2961:U:O2     | 2.37                     | 0.56              |
| 2:IB:93:C:OP1      | 38:Il:73:ARG:NH1   | 2.39                     | 0.56              |
| 4:ID:39:SER:OG     | 4:ID:40:THR:N      | 2.39                     | 0.56              |
| 45:sB:37:LYS:O     | 45:sB:38:ARG:NH1   | 2.38                     | 0.56              |
| 57:se:50:VAL:HG23  | 57:se:51:ASN:O     | 2.05                     | 0.56              |
| 1:IA:246:U:OP1     | 27:la:59:LYS:NZ    | 2.38                     | 0.56              |
| 1:IA:2731:G:H2'    | 1:IA:2732:A:H8     | 1.70                     | 0.56              |
| 12:IL:93:PRO:HB2   | 12:IL:125:SER:HB3  | 1.87                     | 0.56              |
| 28:lb:53:ILE:HD12  | 28:lb:62:GLN:HB3   | 1.88                     | 0.56              |
| 28:lb:92:PHE:HB3   | 28:lb:95:ILE:HD12  | 1.88                     | 0.56              |
| 51:sJ:23:G:O2'     | 51:sJ:24:C:OP1     | 2.22                     | 0.56              |
| 53:sa:752:A:OP1    | 63:sk:51:HIS:NE2   | 2.33                     | 0.56              |
| 53:sa:1188:A:N3    | 53:sa:1779:U:O2'   | 2.35                     | 0.56              |
| 60:sh:181:ILE:HB   | 60:sh:186:THR:HG21 | 1.87                     | 0.56              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 73:sv:108:LEU:HD22 | 73:sv:113:ILE:HG21 | 1.87                     | 0.56              |
| 1:lA:502:U:H2'     | 1:lA:503:A:H8      | 1.71                     | 0.55              |
| 1:lA:764:U:H2'     | 1:lA:765:A:H8      | 1.70                     | 0.55              |
| 1:lA:1508:U:H2'    | 1:lA:1509:A:C8     | 2.40                     | 0.55              |
| 1:lA:3476:C:H4'    | 1:lA:3476:C:OP1    | 2.06                     | 0.55              |
| 39:lm:85:ARG:NH2   | 53:sa:904:A:OP1    | 2.29                     | 0.55              |
| 53:sa:1594:A:H2'   | 53:sa:1595:G:C8    | 2.41                     | 0.55              |
| 70:ss:64:PHE:HA    | 70:ss:67:LEU:HD23  | 1.88                     | 0.55              |
| 1:lA:2767:A:H2'    | 1:lA:2768:G:C8     | 2.41                     | 0.55              |
| 8:lH:178:LYS:HE2   | 8:lH:184:LYS:HE3   | 1.87                     | 0.55              |
| 50:sI:15:G:N2      | 50:sI:59:G:N7      | 2.54                     | 0.55              |
| 53:sa:251:C:O2     | 62:sj:64:ASN:ND2   | 2.39                     | 0.55              |
| 53:sa:1356:A:H61   | 56:sd:175:GLY:HA2  | 1.72                     | 0.55              |
| 57:se:200:VAL:O    | 57:se:204:SER:OG   | 2.18                     | 0.55              |
| 68:sq:120:ILE:HD12 | 68:sq:121:THR:H    | 1.70                     | 0.55              |
| 1:lA:312:A:OP2     | 37:lk:28:THR:OG1   | 2.20                     | 0.55              |
| 1:lA:643:A:OP1     | 16:lP:91:LYS:NZ    | 2.37                     | 0.55              |
| 1:lA:822:C:H2'     | 1:lA:823:A:C8      | 2.41                     | 0.55              |
| 1:lA:2289:A:H2'    | 1:lA:2290:A:C8     | 2.41                     | 0.55              |
| 9:II:63:LEU:HB2    | 22:IV:147:ILE:HB   | 1.88                     | 0.55              |
| 13:IM:14:ILE:HD12  | 13:IM:129:VAL:HG13 | 1.88                     | 0.55              |
| 30:ld:36:ASN:HB3   | 30:ld:39:VAL:HB    | 1.87                     | 0.55              |
| 45:sB:5:ARG:NH2    | 53:sa:1942:U:OP2   | 2.39                     | 0.55              |
| 53:sa:136:A:N6     | 60:sh:192:HIS:HB3  | 2.22                     | 0.55              |
| 60:sh:78:ASP:OD1   | 60:sh:78:ASP:N     | 2.38                     | 0.55              |
| 70:ss:65:GLU:OE1   | 70:ss:97:ARG:NH1   | 2.39                     | 0.55              |
| 1:lA:191:A:H2'     | 1:lA:192:A:H8      | 1.70                     | 0.55              |
| 1:lA:836:C:H2'     | 1:lA:837:A:C8      | 2.40                     | 0.55              |
| 1:lA:2178:A:O2'    | 1:lA:2179:U:H6     | 1.88                     | 0.55              |
| 1:lA:2904:U:H2'    | 1:lA:2905:U:C6     | 2.41                     | 0.55              |
| 3:IC:22:C:H2'      | 3:IC:23:A:C8       | 2.40                     | 0.55              |
| 53:sa:1182:C:H2'   | 53:sa:1183:A:C8    | 2.42                     | 0.55              |
| 1:lA:760:A:H2'     | 1:lA:761:A:C8      | 2.40                     | 0.55              |
| 1:lA:873:U:H2'     | 1:lA:874:A:H8      | 1.72                     | 0.55              |
| 4:ID:108:PRO:O     | 4:ID:111:THR:OG1   | 2.24                     | 0.55              |
| 5:IE:232:ILE:HG13  | 5:IE:249:ARG:HB3   | 1.89                     | 0.55              |
| 8:lH:65:LEU:HD11   | 8:lH:79:PHE:HB2    | 1.88                     | 0.55              |
| 16:lP:39:ASP:OD2   | 16:lP:49:ARG:NH2   | 2.34                     | 0.55              |
| 53:sa:604:G:O2'    | 53:sa:607:G:O2'    | 2.20                     | 0.55              |
| 53:sa:1196:A:H2'   | 53:sa:1197:G:C8    | 2.41                     | 0.55              |
| 1:lA:547:A:H2'     | 1:lA:548:A:H8      | 1.72                     | 0.55              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:1A:979:G:C5     | 4:1D:181:LYS:HB3   | 2.42                     | 0.55              |
| 1:1A:2179:U:H2'   | 1:1A:2180:C:H6     | 1.72                     | 0.55              |
| 1:1A:2230:U:H2'   | 1:1A:2231:C:C6     | 2.42                     | 0.55              |
| 1:1A:3405:A:N6    | 8:1H:164:GLU:OE1   | 2.40                     | 0.55              |
| 7:1G:33:ARG:CZ    | 7:1G:37:ILE:HD11   | 2.36                     | 0.55              |
| 45:sB:2:THR:OG1   | 53:sa:1168:A:OP1   | 2.21                     | 0.55              |
| 47:sD:66:ARG:NE   | 47:sD:66:ARG:O     | 2.40                     | 0.55              |
| 53:sa:1227:A:N6   | 53:sa:1564:C:O5'   | 2.39                     | 0.55              |
| 73:sv:21:GLU:CD   | 73:sv:21:GLU:H     | 2.14                     | 0.55              |
| 1:1A:1112:G:O2'   | 1:1A:1172:G:O6     | 2.24                     | 0.55              |
| 1:1A:2433:A:H2'   | 1:1A:2434:A:C8     | 2.42                     | 0.55              |
| 21:1U:108:LYS:O   | 21:1U:112:THR:OG1  | 2.21                     | 0.55              |
| 54:sb:154:PHE:O   | 54:sb:172:ASN:ND2  | 2.35                     | 0.55              |
| 60:sh:138:ALA:HB1 | 60:sh:142:ARG:N    | 2.22                     | 0.55              |
| 60:sh:138:ALA:HB2 | 60:sh:181:ILE:HG22 | 1.88                     | 0.55              |
| 1:1A:2236:A:H2'   | 1:1A:2237:A:C8     | 2.42                     | 0.55              |
| 19:1S:35:LEU:O    | 19:1S:39:THR:OG1   | 2.22                     | 0.55              |
| 21:1U:28:GLU:OE2  | 21:1U:28:GLU:N     | 2.40                     | 0.55              |
| 53:sa:324:G:H5''  | 62:sj:98:LYS:HB3   | 1.89                     | 0.55              |
| 72:su:72:LEU:HD22 | 72:su:100:ILE:HG21 | 1.89                     | 0.55              |
| 1:1A:315:A:N7     | 17:1Q:12:ARG:NH1   | 2.55                     | 0.55              |
| 1:1A:965:A:H2'    | 1:1A:966:A:O4'     | 2.07                     | 0.55              |
| 1:1A:1474:A:OP2   | 19:1S:30:ARG:NH2   | 2.40                     | 0.55              |
| 1:1A:1520:A:H4'   | 1:1A:1521:A:O5'    | 2.07                     | 0.55              |
| 1:1A:2433:A:H2'   | 1:1A:2434:A:H8     | 1.71                     | 0.55              |
| 29:1c:85:ASP:OD1  | 29:1c:85:ASP:N     | 2.38                     | 0.55              |
| 53:sa:1302:G:OP1  | 56:sd:153:SER:OG   | 2.24                     | 0.55              |
| 58:sf:183:GLY:N   | 58:sf:187:MET:HB2  | 2.22                     | 0.55              |
| 1:1A:1974:A:H2'   | 1:1A:1975:G:C8     | 2.41                     | 0.55              |
| 1:1A:3103:C:H2'   | 1:1A:3104:G:C8     | 2.42                     | 0.55              |
| 4:1D:33:ASP:OD2   | 4:1D:67:ARG:NH2    | 2.35                     | 0.55              |
| 13:1M:141:ARG:NH2 | 13:1M:146:ASP:OD2  | 2.40                     | 0.55              |
| 53:sa:31:U:O2'    | 53:sa:588:A:N1     | 2.36                     | 0.55              |
| 53:sa:429:G:N1    | 53:sa:432:A:OP2    | 2.37                     | 0.55              |
| 54:sb:41:GLU:O    | 54:sb:58:LYS:NZ    | 2.36                     | 0.55              |
| 61:si:136:LEU:O   | 61:si:139:VAL:N    | 2.41                     | 0.55              |
| 71:st:5:ARG:HB2   | 71:st:10:LYS:HE3   | 1.89                     | 0.55              |
| 1:1A:699:A:H2'    | 1:1A:700:A:C8      | 2.42                     | 0.54              |
| 1:1A:869:G:C5     | 1:1A:870:A:H1'     | 2.42                     | 0.54              |
| 1:1A:2236:A:H61   | 1:1A:2250:C:N4     | 2.04                     | 0.54              |
| 2:1B:21:A:H2'     | 2:1B:22:G:C8       | 2.42                     | 0.54              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 2:1B:141:G:H2'    | 2:1B:142:A:C8      | 2.42                     | 0.54              |
| 11:1K:94:LYS:HE3  | 11:1K:192:LEU:HD22 | 1.89                     | 0.54              |
| 30:1d:7:ARG:NH2   | 30:1d:9:SER:OG     | 2.40                     | 0.54              |
| 57:se:72:LEU:HD22 | 57:se:76:MET:HG3   | 1.89                     | 0.54              |
| 3:1C:48:U:OP2     | 7:1G:221:ARG:NH2   | 2.40                     | 0.54              |
| 4:1D:36:GLU:OE1   | 4:1D:163:ARG:NH1   | 2.41                     | 0.54              |
| 11:1K:71:ASN:OD1  | 11:1K:71:ASN:N     | 2.40                     | 0.54              |
| 53:sa:151:A:H2'   | 53:sa:152:A:O4'    | 2.07                     | 0.54              |
| 53:sa:754:G:OP2   | 63:sk:79:ARG:NH2   | 2.40                     | 0.54              |
| 59:sg:177:ASP:O   | 59:sg:181:ASN:ND2  | 2.40                     | 0.54              |
| 65:sm:100:GLU:OE1 | 76:sy:9:ARG:NH2    | 2.41                     | 0.54              |
| 1:1A:40:U:H5''    | 17:1Q:85:ALA:HB2   | 1.89                     | 0.54              |
| 1:1A:1105:U:OP1   | 9:1I:113:LYS:NZ    | 2.40                     | 0.54              |
| 1:1A:1675:A:H2'   | 1:1A:1676:A:C8     | 2.42                     | 0.54              |
| 1:1A:1892:C:H2'   | 1:1A:1893:A:C8     | 2.42                     | 0.54              |
| 1:1A:802:A:H2'    | 1:1A:803:U:C6      | 2.42                     | 0.54              |
| 1:1A:983:C:C2     | 1:1A:984:A:C8      | 2.95                     | 0.54              |
| 1:1A:2846:U:H2'   | 1:1A:2847:A:H8     | 1.72                     | 0.54              |
| 1:1A:2958:G:O2'   | 1:1A:2959:G:OP1    | 2.24                     | 0.54              |
| 2:1B:21:A:H2'     | 2:1B:22:G:H8       | 1.72                     | 0.54              |
| 45:sB:48:ALA:O    | 67:sp:112:ARG:NH2  | 2.41                     | 0.54              |
| 45:sB:56:ASN:ND2  | 67:sp:119:MET:O    | 2.40                     | 0.54              |
| 60:sh:106:ILE:O   | 60:sh:108:VAL:N    | 2.41                     | 0.54              |
| 1:1A:221:U:H2'    | 1:1A:222:A:C8      | 2.41                     | 0.54              |
| 1:1A:1823:C:H2'   | 1:1A:1824:A:C4     | 2.42                     | 0.54              |
| 3:1C:11:C:OP2     | 3:1C:66:U:O2'      | 2.26                     | 0.54              |
| 11:1K:101:ARG:HE  | 42:lp:7:LEU:HD11   | 1.72                     | 0.54              |
| 53:sa:338:C:H2'   | 53:sa:339:A:H8     | 1.72                     | 0.54              |
| 53:sa:947:A:OP2   | 66:so:124:ARG:NH2  | 2.41                     | 0.54              |
| 53:sa:1292:A:HO2' | 53:sa:1555:A:HO2'  | 1.53                     | 0.54              |
| 54:sb:77:THR:OG1  | 54:sb:127:ARG:NH2  | 2.40                     | 0.54              |
| 1:1A:1115:A:O2'   | 3:1C:76:U:O2       | 2.26                     | 0.54              |
| 1:1A:1430:G:O6    | 1:1A:2442:C:O2'    | 2.24                     | 0.54              |
| 1:1A:2123:A:H2'   | 1:1A:2124:A:C8     | 2.42                     | 0.54              |
| 1:1A:2349:G:O2'   | 1:1A:2387:G:O6     | 2.23                     | 0.54              |
| 3:1C:104:G:H2'    | 3:1C:105:A:H8      | 1.72                     | 0.54              |
| 6:1F:212:TYR:HB2  | 6:1F:216:ASP:HB2   | 1.88                     | 0.54              |
| 11:1K:50:LYS:HB3  | 11:1K:59:LYS:HD3   | 1.90                     | 0.54              |
| 18:1R:53:ILE:HG13 | 18:1R:55:LYS:HG2   | 1.89                     | 0.54              |
| 53:sa:111:A:O2'   | 65:sm:66:ARG:NH1   | 2.40                     | 0.54              |
| 53:sa:948:U:OP1   | 53:sa:1013:U:O2'   | 2.26                     | 0.54              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 53:sa:1699:C:H4'   | 53:sa:1705:A:N6    | 2.23                     | 0.54              |
| 73:sv:113:ILE:HG13 | 73:sv:127:GLY:HA2  | 1.89                     | 0.54              |
| 1:lA:487:A:H2'     | 1:lA:488:A:C8      | 2.43                     | 0.54              |
| 1:lA:3410:A:H1'    | 1:lA:3411:U:H5     | 1.72                     | 0.54              |
| 1:lA:3476:C:H5''   | 1:lA:3477:U:H5     | 1.73                     | 0.54              |
| 48:sE:34:TYR:OH    | 53:sa:1594:A:OP1   | 2.22                     | 0.54              |
| 53:sa:111:A:H4'    | 65:sm:66:ARG:HB3   | 1.89                     | 0.54              |
| 55:sc:39:PRO:HG3   | 55:sc:69:GLN:HE22  | 1.73                     | 0.54              |
| 72:su:71:ILE:HG13  | 72:su:78:TYR:CD2   | 2.42                     | 0.54              |
| 1:lA:996:C:O2'     | 1:lA:999:G:O2'     | 2.21                     | 0.54              |
| 3:lC:35:A:H2       | 3:lC:40:G:H22      | 1.54                     | 0.54              |
| 6:lF:147:VAL:O     | 27:la:164:LYS:NZ   | 2.37                     | 0.54              |
| 11:lK:13:ILE:HD11  | 11:lK:63:VAL:HG23  | 1.89                     | 0.54              |
| 53:sa:389:U:H2'    | 53:sa:390:U:C6     | 2.43                     | 0.54              |
| 53:sa:1820:G:O2'   | 53:sa:1821:A:C8    | 2.51                     | 0.54              |
| 63:sk:60:LEU:HD11  | 63:sk:94:GLU:HG3   | 1.90                     | 0.54              |
| 74:sw:93:THR:OG1   | 74:sw:94:THR:N     | 2.39                     | 0.54              |
| 1:lA:705:U:H2'     | 1:lA:706:A:H8      | 1.72                     | 0.54              |
| 1:lA:1177:A:H2'    | 1:lA:1178:A:C8     | 2.42                     | 0.54              |
| 1:lA:1929:G:H2'    | 1:lA:1930:C:H6     | 1.73                     | 0.54              |
| 5:lE:222:VAL:O     | 5:lE:335:ARG:NH1   | 2.39                     | 0.54              |
| 8:lH:98:ASN:HD21   | 8:lH:187:MET:C     | 2.15                     | 0.54              |
| 27:la:109:LEU:HB2  | 27:la:114:GLU:OE2  | 2.08                     | 0.54              |
| 53:sa:1811:G:C2    | 53:sa:1812:C:C5    | 2.96                     | 0.54              |
| 59:sg:53:HIS:HB2   | 59:sg:92:MET:SD    | 2.48                     | 0.54              |
| 72:su:97:SER:OG    | 72:su:98:GLN:N     | 2.41                     | 0.54              |
| 1:lA:1086:G:H2'    | 1:lA:1087:G:C8     | 2.43                     | 0.54              |
| 1:lA:3193:G:H2'    | 1:lA:3194:U:C6     | 2.43                     | 0.54              |
| 6:lF:32:ILE:HG22   | 6:lF:248:MET:HE1   | 1.88                     | 0.54              |
| 18:lR:18:ARG:NH1   | 18:lR:20:ASP:OD1   | 2.39                     | 0.54              |
| 42:lp:21:CYS:HB3   | 42:lp:24:CYS:HB2   | 1.90                     | 0.54              |
| 60:sh:184:LEU:HG   | 60:sh:185:VAL:H    | 1.73                     | 0.54              |
| 62:sj:96:LEU:HD13  | 62:sj:215:VAL:HG21 | 1.89                     | 0.54              |
| 77:sz:29:ASP:OD1   | 77:sz:29:ASP:N     | 2.39                     | 0.54              |
| 1:lA:1019:G:H1'    | 1:lA:1737:A:N6     | 2.23                     | 0.53              |
| 1:lA:1090:A:H2'    | 1:lA:1091:A:H8     | 1.72                     | 0.53              |
| 1:lA:1582:U:OP1    | 18:lR:82:ARG:NH2   | 2.38                     | 0.53              |
| 1:lA:2767:A:H2'    | 1:lA:2768:G:H8     | 1.73                     | 0.53              |
| 1:lA:3393:A:H2'    | 1:lA:3394:A:C8     | 2.43                     | 0.53              |
| 17:lQ:17:ASP:OD1   | 17:lQ:17:ASP:N     | 2.36                     | 0.53              |
| 27:la:87:LYS:O     | 27:la:89:ASN:N     | 2.42                     | 0.53              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 51:sJ:42:C:H2'    | 51:sJ:43:G:H8      | 1.72                     | 0.53              |
| 53:sa:74:A:O2'    | 53:sa:75:G:O4'     | 2.19                     | 0.53              |
| 53:sa:1214:A:N3   | 53:sa:1219:A:O2'   | 2.38                     | 0.53              |
| 59:sg:94:VAL:HG11 | 59:sg:171:LEU:HD23 | 1.89                     | 0.53              |
| 62:sj:60:LEU:HD12 | 62:sj:215:VAL:HG23 | 1.90                     | 0.53              |
| 72:su:86:ASN:OD1  | 72:su:86:ASN:N     | 2.29                     | 0.53              |
| 1:lA:409:G:O2'    | 6:lF:80:SER:O      | 2.25                     | 0.53              |
| 1:lA:435:A:OP1    | 18:lR:4:TYR:OH     | 2.24                     | 0.53              |
| 1:lA:796:U:H2'    | 1:lA:797:C:C6      | 2.43                     | 0.53              |
| 1:lA:2207:A:N6    | 39:lm:17:ARG:O     | 2.37                     | 0.53              |
| 1:lA:2944:A:O2'   | 1:lA:2945:A:H2'    | 2.08                     | 0.53              |
| 53:sa:64:A:H2     | 53:sa:83:A:H62     | 1.56                     | 0.53              |
| 58:sf:181:MET:SD  | 58:sf:218:THR:HG21 | 2.48                     | 0.53              |
| 76:sy:66:LYS:HB3  | 76:sy:89:LEU:HD22  | 1.91                     | 0.53              |
| 1:lA:2632:A:O2'   | 28:lb:139:PHE:O    | 2.24                     | 0.53              |
| 1:lA:2701:U:H2'   | 1:lA:2702:G:H8     | 1.72                     | 0.53              |
| 1:lA:2857:A:H1'   | 1:lA:2858:A:H5''   | 1.91                     | 0.53              |
| 1:lA:3462:A:O4'   | 1:lA:3492:G:N2     | 2.41                     | 0.53              |
| 15:lO:13:HIS:ND1  | 15:lO:41:ASP:OD2   | 2.42                     | 0.53              |
| 1:lA:43:C:OP2     | 1:lA:44:A:O2'      | 2.17                     | 0.53              |
| 1:lA:220:A:H2'    | 1:lA:221:U:C6      | 2.43                     | 0.53              |
| 1:lA:452:A:C2     | 2:lB:19:A:H1'      | 2.42                     | 0.53              |
| 1:lA:759:U:H2'    | 1:lA:760:A:H8      | 1.72                     | 0.53              |
| 1:lA:1553:A:OP1   | 2:lB:22:G:O2'      | 2.24                     | 0.53              |
| 1:lA:3205:U:H2'   | 1:lA:3206:G:H8     | 1.74                     | 0.53              |
| 27:la:109:LEU:HA  | 27:la:113:ARG:HG3  | 1.89                     | 0.53              |
| 50:sI:22:G:N7     | 50:sI:46:G:N2      | 2.46                     | 0.53              |
| 53:sa:376:U:H2'   | 53:sa:377:C:H6     | 1.73                     | 0.53              |
| 53:sa:458:U:C2    | 53:sa:459:A:C8     | 2.96                     | 0.53              |
| 63:sk:85:ILE:HD13 | 63:sk:107:ARG:HG3  | 1.89                     | 0.53              |
| 1:lA:2346:A:H2'   | 1:lA:2347:A:C8     | 2.43                     | 0.53              |
| 12:lL:62:SER:HA   | 12:lL:65:MET:HG3   | 1.89                     | 0.53              |
| 17:lQ:143:ARG:NH2 | 35:li:82:ARG:O     | 2.39                     | 0.53              |
| 18:lR:57:ILE:HB   | 18:lR:72:GLN:HB2   | 1.90                     | 0.53              |
| 51:sJ:50:U:O2'    | 51:sJ:51:U:OP1     | 2.25                     | 0.53              |
| 53:sa:96:C:H2'    | 53:sa:97:U:C6      | 2.43                     | 0.53              |
| 77:sz:59:ILE:HG22 | 77:sz:79:ILE:HG22  | 1.90                     | 0.53              |
| 1:lA:336:A:H2     | 17:lQ:93:LYS:HD3   | 1.72                     | 0.53              |
| 1:lA:3453:C:H2'   | 1:lA:3454:G:C8     | 2.43                     | 0.53              |
| 7:lG:50:ARG:NH2   | 7:lG:72:ASP:OD2    | 2.42                     | 0.53              |
| 14:lN:82:LYS:NZ   | 14:lN:215:LYS:O    | 2.35                     | 0.53              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 16:IP:29:GLU:HG2  | 20:IT:68:VAL:HG21  | 1.90                     | 0.53              |
| 32:lf:16:GLU:O    | 32:lf:20:ALA:N     | 2.41                     | 0.53              |
| 53:sa:745:U:N3    | 53:sa:787:U:O4     | 2.37                     | 0.53              |
| 53:sa:1196:A:H2'  | 53:sa:1197:G:H8    | 1.73                     | 0.53              |
| 73:sv:29:LEU:HD12 | 73:sv:111:MET:HE1  | 1.91                     | 0.53              |
| 1:lA:703:G:H1     | 1:lA:744:A:N6      | 2.07                     | 0.53              |
| 1:lA:2745:C:OP2   | 1:lA:2746:A:O2'    | 2.27                     | 0.53              |
| 50:sI:2:G:H2'     | 50:sI:3:C:H6       | 1.74                     | 0.53              |
| 51:sJ:70:A:H2'    | 51:sJ:71:G:H8      | 1.72                     | 0.53              |
| 53:sa:623:U:C2    | 53:sa:624:A:C8     | 2.96                     | 0.53              |
| 54:sb:27:ARG:HD2  | 54:sb:30:ILE:HG13  | 1.91                     | 0.53              |
| 55:sc:118:LYS:HG2 | 55:sc:129:GLY:HA3  | 1.89                     | 0.53              |
| 57:se:106:LYS:HG3 | 57:se:216:LYS:HE2  | 1.90                     | 0.53              |
| 63:sk:59:MET:HA   | 63:sk:62:LYS:HE3   | 1.90                     | 0.53              |
| 1:lA:526:A:H5''   | 1:lA:538:A:N1      | 2.24                     | 0.53              |
| 2:lB:31:C:C2      | 2:lB:32:C:C5       | 2.96                     | 0.53              |
| 9:II:161:LEU:HD21 | 9:II:189:LYS:HG3   | 1.90                     | 0.53              |
| 10:IJ:72:THR:HG21 | 10:IJ:178:LYS:HG3  | 1.90                     | 0.53              |
| 14:lN:257:PHE:O   | 29:lc:139:LYS:NZ   | 2.39                     | 0.53              |
| 44:sA:64:SER:O    | 44:sA:111:ARG:NH2  | 2.42                     | 0.53              |
| 45:sB:44:ILE:O    | 67:sp:108:GLN:NE2  | 2.35                     | 0.53              |
| 53:sa:746:A:H2'   | 53:sa:747:A:C8     | 2.44                     | 0.53              |
| 57:se:72:LEU:CB   | 57:se:81:PHE:HB3   | 2.30                     | 0.53              |
| 1:lA:842:G:H2'    | 1:lA:843:A:C8      | 2.44                     | 0.53              |
| 1:lA:875:C:H2'    | 1:lA:876:A:H8      | 1.74                     | 0.53              |
| 20:IT:79:SER:OG   | 20:IT:84:HIS:NE2   | 2.33                     | 0.53              |
| 60:sh:184:LEU:O   | 60:sh:189:ARG:NH1  | 2.42                     | 0.53              |
| 1:lA:236:U:O4'    | 27:la:33:ARG:NH1   | 2.42                     | 0.53              |
| 1:lA:2179:U:H2'   | 1:lA:2180:C:C6     | 2.43                     | 0.53              |
| 1:lA:2730:U:H2'   | 1:lA:2731:G:H8     | 1.73                     | 0.53              |
| 4:ID:117:GLU:HG2  | 4:ID:124:GLY:H     | 1.72                     | 0.53              |
| 13:IM:116:TYR:O   | 72:su:102:ASN:ND2  | 2.42                     | 0.53              |
| 48:sE:41:ARG:O    | 53:sa:1540:G:N2    | 2.41                     | 0.53              |
| 53:sa:1594:A:H2'  | 53:sa:1595:G:H8    | 1.73                     | 0.53              |
| 57:se:108:THR:OG1 | 67:sp:125:GLU:OE1  | 2.27                     | 0.53              |
| 1:lA:208:U:H2'    | 1:lA:209:A:C8      | 2.44                     | 0.52              |
| 1:lA:382:A:N3     | 6:lF:50:GLN:NE2    | 2.56                     | 0.52              |
| 1:lA:1475:A:HO2'  | 27:la:185:ARG:HH22 | 1.56                     | 0.52              |
| 1:lA:1856:G:H2'   | 1:lA:1857:A:H8     | 1.74                     | 0.52              |
| 15:lO:2:SER:O     | 36:lj:98:ASN:ND2   | 2.36                     | 0.52              |
| 19:lS:36:ALA:HB1  | 19:lS:45:LYS:HG2   | 1.90                     | 0.52              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 44:sA:71:ALA:HB1   | 59:sg:169:LYS:HA   | 1.90                     | 0.52              |
| 53:sa:1754:U:O4    | 53:sa:1755:A:N6    | 2.42                     | 0.52              |
| 60:sh:149:GLN:HB2  | 60:sh:185:VAL:HG22 | 1.92                     | 0.52              |
| 68:sq:86:PRO:HA    | 68:sq:89:ILE:HB    | 1.91                     | 0.52              |
| 70:ss:41:LYS:NZ    | 70:ss:79:ASP:OD2   | 2.42                     | 0.52              |
| 1:lA:65:U:O2'      | 1:lA:97:A:O2'      | 2.27                     | 0.52              |
| 1:lA:233:A:N3      | 1:lA:254:C:O2'     | 2.40                     | 0.52              |
| 1:lA:2443:A:H2'    | 1:lA:2444:A:C8     | 2.44                     | 0.52              |
| 10:lJ:80:GLN:HE22  | 10:lJ:207:ALA:HB1  | 1.73                     | 0.52              |
| 62:sj:36:THR:O     | 62:sj:96:LEU:N     | 2.39                     | 0.52              |
| 1:lA:3329:U:H2'    | 1:lA:3330:A:C8     | 2.44                     | 0.52              |
| 2:lB:148:A:N3      | 10:lJ:45:TYR:OH    | 2.36                     | 0.52              |
| 22:IV:88:ARG:NH2   | 30:ld:28:ALA:O     | 2.30                     | 0.52              |
| 25:IY:57:ASP:OD1   | 25:IY:57:ASP:N     | 2.34                     | 0.52              |
| 54:sb:46:ARG:NH1   | 54:sb:52:CYS:SG    | 2.82                     | 0.52              |
| 55:sc:127:ILE:HG22 | 55:sc:131:MET:HE2  | 1.91                     | 0.52              |
| 55:sc:190:LEU:HD13 | 55:sc:198:VAL:HG11 | 1.91                     | 0.52              |
| 58:sf:39:CYS:HA    | 58:sf:83:GLY:HA2   | 1.90                     | 0.52              |
| 63:sk:133:MET:SD   | 63:sk:133:MET:N    | 2.81                     | 0.52              |
| 65:sm:74:VAL:HG12  | 65:sm:119:GLU:HA   | 1.90                     | 0.52              |
| 70:ss:20:LYS:NZ    | 70:ss:107:TYR:OH   | 2.38                     | 0.52              |
| 1:lA:550:A:H2'     | 1:lA:551:A:C8      | 2.44                     | 0.52              |
| 1:lA:886:A:H4'     | 30:ld:27:SER:HB2   | 1.92                     | 0.52              |
| 1:lA:2666:G:H2'    | 1:lA:2667:A:C8     | 2.45                     | 0.52              |
| 1:lA:3008:U:O2'    | 1:lA:3009:C:OP1    | 2.22                     | 0.52              |
| 3:lC:17:G:H1       | 3:lC:59:G:H22      | 1.57                     | 0.52              |
| 3:lC:33:A:N1       | 3:lC:45:U:O2'      | 2.41                     | 0.52              |
| 6:lF:136:LEU:HD11  | 27:la:178:LEU:HD12 | 1.90                     | 0.52              |
| 57:se:71:ASN:ND2   | 57:se:86:TYR:CG    | 2.78                     | 0.52              |
| 60:sh:69:THR:HG21  | 60:sh:73:VAL:HG22  | 1.92                     | 0.52              |
| 1:lA:703:G:H3'     | 1:lA:704:C:H6      | 1.75                     | 0.52              |
| 1:lA:2257:G:H5''   | 4:ld:193:ARG:NH1   | 2.25                     | 0.52              |
| 2:lB:145:U:H2'     | 2:lB:146:U:C6      | 2.45                     | 0.52              |
| 53:sa:125:U:O2'    | 53:sa:203:C:O2     | 2.27                     | 0.52              |
| 53:sa:1722:A:OP1   | 68:sq:114:TYR:OH   | 2.27                     | 0.52              |
| 53:sa:1776:G:N7    | 70:ss:29:LYS:NZ    | 2.57                     | 0.52              |
| 63:sk:106:GLU:O    | 63:sk:111:THR:OG1  | 2.21                     | 0.52              |
| 64:sl:88:SER:O     | 64:sl:88:SER:OG    | 2.26                     | 0.52              |
| 1:lA:2073:U:C2     | 1:lA:2074:U:C5     | 2.98                     | 0.52              |
| 1:lA:2904:U:H2'    | 1:lA:2905:U:H6     | 1.74                     | 0.52              |
| 1:lA:3302:U:H2'    | 1:lA:3303:A:H8     | 1.75                     | 0.52              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 5:1E:162:VAL:HG13 | 5:1E:185:ILE:HD11  | 1.90                     | 0.52              |
| 44:sA:80:THR:HG22 | 44:sA:82:SER:H     | 1.74                     | 0.52              |
| 51:sJ:15:G:N2     | 51:sJ:49:C:O2      | 2.43                     | 0.52              |
| 53:sa:387:G:OP1   | 62:sj:2:GLY:N      | 2.42                     | 0.52              |
| 53:sa:592:U:H2'   | 53:sa:593:A:H8     | 1.74                     | 0.52              |
| 53:sa:1819:C:H2'  | 53:sa:1820:G:O4'   | 2.10                     | 0.52              |
| 1:1A:227:A:H2'    | 1:1A:228:A:C8      | 2.45                     | 0.52              |
| 1:1A:713:G:H3'    | 1:1A:714:U:C5'     | 2.40                     | 0.52              |
| 1:1A:908:A:H2'    | 1:1A:909:A:C8      | 2.45                     | 0.52              |
| 1:1A:948:C:O2'    | 1:1A:949:G:N7      | 2.43                     | 0.52              |
| 1:1A:2419:C:H2'   | 1:1A:2420:U:H6     | 1.75                     | 0.52              |
| 16:1P:84:ALA:O    | 16:1P:88:ARG:HG3   | 2.09                     | 0.52              |
| 17:1Q:80:VAL:HB   | 17:1Q:82:ARG:HD2   | 1.90                     | 0.52              |
| 22:1V:124:LYS:HD3 | 22:1V:124:LYS:N    | 2.25                     | 0.52              |
| 27:1a:60:GLY:O    | 27:1a:63:LYS:NZ    | 2.41                     | 0.52              |
| 29:1c:51:ASP:OD1  | 29:1c:51:ASP:N     | 2.40                     | 0.52              |
| 53:sa:243:U:OP1   | 65:sm:33:TYR:OH    | 2.22                     | 0.52              |
| 53:sa:1241:C:O2'  | 53:sa:1551:A:N6    | 2.29                     | 0.52              |
| 53:sa:1666:U:OP1  | 73:sv:121:ARG:NH1  | 2.43                     | 0.52              |
| 71:st:27:ASP:OD2  | 71:st:30:THR:HG23  | 2.10                     | 0.52              |
| 1:1A:703:G:H3'    | 1:1A:704:C:C6      | 2.45                     | 0.52              |
| 1:1A:777:U:O2'    | 1:1A:1278:A:N1     | 2.35                     | 0.52              |
| 1:1A:1208:U:H4'   | 30:1d:43:THR:HG23  | 1.92                     | 0.52              |
| 1:1A:1253:U:OP1   | 12:1L:4:ARG:NH1    | 2.40                     | 0.52              |
| 1:1A:2250:C:OP2   | 4:1D:18:SER:OG     | 2.26                     | 0.52              |
| 1:1A:3336:G:O2'   | 15:1O:115:LYS:O    | 2.28                     | 0.52              |
| 6:1F:360:LYS:HB3  | 6:1F:400:THR:HG21  | 1.92                     | 0.52              |
| 8:1H:117:VAL:HG22 | 8:1H:176:GLU:HG3   | 1.91                     | 0.52              |
| 53:sa:78:G:P      | 60:sh:159:ARG:HH12 | 2.31                     | 0.52              |
| 55:sc:58:ILE:HG23 | 55:sc:63:ILE:HB    | 1.92                     | 0.52              |
| 58:sf:20:LYS:NZ   | 63:sk:5:LEU:O      | 2.34                     | 0.52              |
| 60:sh:153:VAL:HB  | 60:sh:156:PHE:HB2  | 1.92                     | 0.52              |
| 1:1A:505:A:H2'    | 1:1A:506:A:C8      | 2.44                     | 0.52              |
| 35:1i:-7:LEU:HD22 | 35:1i:42:ASP:HB3   | 1.92                     | 0.52              |
| 50:sI:63:U:H2'    | 50:sI:64:G:H8      | 1.74                     | 0.52              |
| 55:sc:228:THR:OG1 | 55:sc:230:ASP:OD1  | 2.26                     | 0.52              |
| 1:1A:542:U:C2     | 1:1A:543:A:C8      | 2.98                     | 0.52              |
| 1:1A:1490:U:C2    | 1:1A:1491:A:C8     | 2.98                     | 0.52              |
| 1:1A:3383:A:OP2   | 5:1E:148:ARG:NH2   | 2.31                     | 0.52              |
| 69:sr:102:LEU:HB2 | 69:sr:113:ASN:HB3  | 1.91                     | 0.52              |
| 1:1A:639:G:H1     | 1:1A:650:A:H2      | 1.58                     | 0.51              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:1A:720:U:H2'    | 1:1A:721:A:C8      | 2.42                     | 0.51              |
| 1:1A:2228:A:H2'   | 1:1A:2229:U:H6     | 1.75                     | 0.51              |
| 1:1A:3146:U:H4'   | 1:1A:3147:U:H5''   | 1.91                     | 0.51              |
| 5:1E:41:PRO:HA    | 5:1E:187:GLY:HA3   | 1.91                     | 0.51              |
| 5:1E:285:TYR:HB2  | 5:1E:324:MET:HB3   | 1.92                     | 0.51              |
| 6:1F:35:ASP:OD1   | 6:1F:35:ASP:N      | 2.40                     | 0.51              |
| 6:1F:237:LEU:HD22 | 6:1F:242:LEU:HD21  | 1.92                     | 0.51              |
| 20:1T:75:LEU:HD13 | 20:1T:117:ILE:HG23 | 1.92                     | 0.51              |
| 53:sa:1305:C:H2'  | 53:sa:1306:G:H8    | 1.75                     | 0.51              |
| 53:sa:1662:G:N2   | 53:sa:1679:G:H22   | 2.08                     | 0.51              |
| 55:sc:79:LYS:HG3  | 55:sc:109:HIS:CE1  | 2.44                     | 0.51              |
| 60:sh:138:ALA:HB3 | 60:sh:184:LEU:HD22 | 1.91                     | 0.51              |
| 1:1A:1105:U:H2'   | 1:1A:1106:U:C6     | 2.44                     | 0.51              |
| 5:1E:47:LEU:HD22  | 5:1E:166:THR:HG21  | 1.92                     | 0.51              |
| 7:1G:51:VAL:N     | 7:1G:146:ILE:O     | 2.36                     | 0.51              |
| 11:1K:51:LEU:HB3  | 11:1K:62:VAL:HG21  | 1.92                     | 0.51              |
| 32:1f:84:THR:OG1  | 32:1f:127:THR:OG1  | 2.29                     | 0.51              |
| 40:ln:10:GLN:O    | 40:ln:14:LEU:N     | 2.39                     | 0.51              |
| 53:sa:107:A:H2'   | 53:sa:108:G:C8     | 2.44                     | 0.51              |
| 53:sa:781:G:H4'   | 53:sa:782:A:H4'    | 1.91                     | 0.51              |
| 53:sa:1024:U:C2   | 53:sa:1025:U:C5    | 2.99                     | 0.51              |
| 53:sa:1327:U:C2   | 53:sa:1328:U:C5    | 2.98                     | 0.51              |
| 57:se:42:ARG:HB3  | 57:se:75:LEU:HD12  | 1.93                     | 0.51              |
| 72:su:138:LYS:O   | 72:su:142:ARG:NH2  | 2.42                     | 0.51              |
| 1:1A:473:U:O3'    | 36:lj:89:ASN:ND2   | 2.43                     | 0.51              |
| 1:1A:502:U:H2'    | 1:1A:503:A:C8      | 2.45                     | 0.51              |
| 1:1A:1093:G:OP1   | 19:1S:19:ARG:NH1   | 2.34                     | 0.51              |
| 1:1A:1121:A:N1    | 1:1A:1168:C:O2'    | 2.40                     | 0.51              |
| 1:1A:2946:A:H5'   | 43:1q:57:LYS:HE3   | 1.92                     | 0.51              |
| 1:1A:3129:U:N3    | 1:1A:3130:A:N7     | 2.58                     | 0.51              |
| 1:1A:3218:U:H2'   | 1:1A:3219:A:H8     | 1.74                     | 0.51              |
| 1:1A:3455:G:O6    | 1:1A:3500:A:N1     | 2.43                     | 0.51              |
| 1:1A:3463:A:H3'   | 1:1A:3464:G:N2     | 2.26                     | 0.51              |
| 2:1B:29:U:H2'     | 2:1B:30:U:C6       | 2.46                     | 0.51              |
| 18:1R:41:VAL:HG23 | 18:1R:95:LEU:HD22  | 1.92                     | 0.51              |
| 23:1W:29:SER:HA   | 23:1W:78:THR:HA    | 1.92                     | 0.51              |
| 23:1W:46:LEU:HD12 | 23:1W:75:VAL:HG21  | 1.91                     | 0.51              |
| 60:sh:149:GLN:HG2 | 60:sh:150:LYS:HD3  | 1.90                     | 0.51              |
| 61:si:101:ARG:HD2 | 61:si:122:ARG:HD3  | 1.90                     | 0.51              |
| 1:1A:547:A:H2'    | 1:1A:548:A:C8      | 2.44                     | 0.51              |
| 1:1A:626:A:N6     | 1:1A:663:G:O2'     | 2.37                     | 0.51              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:lA:1905:C:OP2   | 21:lU:103:ARG:NH1  | 2.43                     | 0.51              |
| 1:lA:2297:G:N7    | 37:lk:61:LYS:NZ    | 2.57                     | 0.51              |
| 1:lA:3432:A:O2'   | 1:lA:3433:U:OP1    | 2.28                     | 0.51              |
| 4:lD:61:VAL:HG11  | 4:lD:88:ILE:HD11   | 1.92                     | 0.51              |
| 10:lJ:97:LEU:HD23 | 10:lJ:100:ILE:HD12 | 1.92                     | 0.51              |
| 53:sa:753:G:OP2   | 63:sk:79:ARG:NH2   | 2.43                     | 0.51              |
| 53:sa:1353:G:OP1  | 56:sd:174:SER:N    | 2.39                     | 0.51              |
| 53:sa:1892:G:H2'  | 53:sa:1893:A:C8    | 2.45                     | 0.51              |
| 53:sa:1907:G:H1'  | 53:sa:1928:A:H2    | 1.75                     | 0.51              |
| 1:lA:724:A:O2'    | 1:lA:725:A:H5''    | 2.10                     | 0.51              |
| 1:lA:2846:U:H2'   | 1:lA:2847:A:C8     | 2.45                     | 0.51              |
| 1:lA:2937:G:H5'   | 51:sJ:77:A:H62     | 1.76                     | 0.51              |
| 1:lA:3300:A:H2'   | 1:lA:3301:A:H8     | 1.76                     | 0.51              |
| 9:II:86:LYS:HE3   | 9:II:117:LEU:HD13  | 1.91                     | 0.51              |
| 14:IN:9:ASN:HB2   | 19:IS:165:LYS:HB2  | 1.91                     | 0.51              |
| 51:sJ:42:C:H2'    | 51:sJ:43:G:C8      | 2.45                     | 0.51              |
| 57:se:201:ALA:O   | 57:se:202:LYS:HB2  | 2.11                     | 0.51              |
| 72:su:13:MET:SD   | 72:su:20:ASN:HB3   | 2.50                     | 0.51              |
| 73:sv:119:SER:O   | 73:sv:119:SER:OG   | 2.25                     | 0.51              |
| 76:sy:69:ARG:NH1  | 76:sy:80:THR:OG1   | 2.44                     | 0.51              |
| 1:lA:909:A:H2'    | 1:lA:910:A:H8      | 1.76                     | 0.51              |
| 1:lA:2112:C:C2    | 1:lA:2113:A:C8     | 2.99                     | 0.51              |
| 3:IC:79:G:O6      | 3:IC:95:A:N1       | 2.43                     | 0.51              |
| 50:sI:15:G:N1     | 50:sI:48:C:N3      | 2.52                     | 0.51              |
| 53:sa:210:U:H5''  | 65:sm:17:HIS:HE1   | 1.75                     | 0.51              |
| 53:sa:422:C:O2'   | 53:sa:454:G:N3     | 2.42                     | 0.51              |
| 53:sa:585:A:H2'   | 53:sa:586:A:C8     | 2.45                     | 0.51              |
| 53:sa:1756:U:H2'  | 53:sa:1757:C:H6    | 1.75                     | 0.51              |
| 1:lA:718:A:H2'    | 1:lA:719:U:C6      | 2.45                     | 0.51              |
| 1:lA:1611:U:H2'   | 1:lA:1612:C:C6     | 2.45                     | 0.51              |
| 1:lA:3498:U:H5''  | 32:lf:56:ALA:HB1   | 1.93                     | 0.51              |
| 9:II:68:ASP:HB3   | 22:IV:141:PRO:HB3  | 1.91                     | 0.51              |
| 19:IS:17:THR:OG1  | 19:IS:26:LYS:NZ    | 2.42                     | 0.51              |
| 51:sJ:5:U:H2'     | 51:sJ:6:C:C6       | 2.46                     | 0.51              |
| 51:sJ:68:G:O2'    | 51:sJ:69:A:O5'     | 2.26                     | 0.51              |
| 53:sa:1253:G:O2'  | 53:sa:1254:G:OP1   | 2.28                     | 0.51              |
| 53:sa:1789:C:C2   | 53:sa:1790:C:C5    | 2.99                     | 0.51              |
| 58:sf:9:ARG:HD2   | 58:sf:26:ALA:HB2   | 1.92                     | 0.51              |
| 60:sh:186:THR:HB  | 60:sh:187:PRO:HD2  | 1.93                     | 0.51              |
| 1:lA:487:A:H2'    | 1:lA:488:A:H8      | 1.76                     | 0.51              |
| 1:lA:1690:A:H2'   | 1:lA:1691:U:H6     | 1.75                     | 0.51              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:1A:2499:U:H2'    | 1:1A:2500:A:C8    | 2.44                     | 0.51              |
| 3:1C:84:G:H22      | 3:1C:91:G:N2      | 2.08                     | 0.51              |
| 53:sa:250:G:H21    | 62:sj:73:THR:HG21 | 1.75                     | 0.51              |
| 53:sa:301:U:H2'    | 53:sa:302:C:C6    | 2.46                     | 0.51              |
| 53:sa:319:U:OP1    | 65:sm:133:LYS:NZ  | 2.34                     | 0.51              |
| 53:sa:1107:A:H2'   | 53:sa:1108:G:H8   | 1.75                     | 0.51              |
| 53:sa:1711:A:OP1   | 72:su:132:VAL:N   | 2.43                     | 0.51              |
| 64:sl:21:ILE:HG21  | 64:sl:45:MET:HE1  | 1.93                     | 0.51              |
| 64:sl:23:CYS:SG    | 64:sl:24:HIS:N    | 2.84                     | 0.51              |
| 69:sr:102:LEU:HD23 | 69:sr:128:PHE:HB3 | 1.93                     | 0.51              |
| 72:su:85:LEU:HG    | 72:su:97:SER:HB3  | 1.93                     | 0.51              |
| 1:1A:732:U:O2'     | 1:1A:733:C:H6     | 1.94                     | 0.51              |
| 1:1A:897:A:H8      | 1:1A:898:U:O2'    | 1.94                     | 0.51              |
| 1:1A:1593:A:H2'    | 1:1A:1594:A:H8    | 1.76                     | 0.51              |
| 1:1A:1847:A:H2'    | 1:1A:1848:A:H8    | 1.75                     | 0.51              |
| 1:1A:3083:A:OP2    | 5:1E:2:SER:N      | 2.43                     | 0.51              |
| 2:1B:84:G:OP1      | 2:1B:85:U:O2'     | 2.18                     | 0.51              |
| 3:1C:14:G:H2'      | 3:1C:15:A:H8      | 1.74                     | 0.51              |
| 17:1Q:163:GLY:O    | 17:1Q:172:ARG:NH1 | 2.35                     | 0.51              |
| 53:sa:5:U:H2'      | 53:sa:6:G:H8      | 1.76                     | 0.51              |
| 53:sa:751:A:N1     | 53:sa:785:A:N6    | 2.59                     | 0.51              |
| 53:sa:933:A:H2'    | 53:sa:934:A:C8    | 2.46                     | 0.51              |
| 1:1A:1524:A:OP1    | 33:lg:102:SER:OG  | 2.22                     | 0.51              |
| 1:1A:1887:A:H2'    | 1:1A:1888:A:C8    | 2.45                     | 0.51              |
| 1:1A:2303:U:H2'    | 1:1A:2304:A:H8    | 1.75                     | 0.51              |
| 4:1D:216:HIS:O     | 4:1D:218:HIS:ND1  | 2.38                     | 0.51              |
| 6:1F:149:GLN:HB3   | 6:1F:151:PRO:HD2  | 1.92                     | 0.51              |
| 11:1K:120:ILE:HG12 | 11:1K:121:GLN:H   | 1.75                     | 0.51              |
| 53:sa:401:U:H2'    | 53:sa:402:A:C8    | 2.45                     | 0.51              |
| 53:sa:926:U:HO2'   | 53:sa:927:U:H6    | 1.56                     | 0.51              |
| 53:sa:1175:G:O2'   | 53:sa:1177:A:OP1  | 2.28                     | 0.51              |
| 53:sa:1870:U:H2'   | 53:sa:1871:G:H8   | 1.76                     | 0.51              |
| 75:sx:50:TYR:OH    | 75:sx:73:ASP:OD2  | 2.23                     | 0.51              |
| 1:1A:65:U:HO2'     | 1:1A:97:A:HO2'    | 1.55                     | 0.50              |
| 1:1A:76:U:H2'      | 1:1A:77:C:H6      | 1.76                     | 0.50              |
| 1:1A:598:A:H2'     | 1:1A:599:U:C6     | 2.47                     | 0.50              |
| 1:1A:2732:A:H2'    | 1:1A:2733:A:C8    | 2.45                     | 0.50              |
| 1:1A:2815:G:N2     | 1:1A:2818:A:OP2   | 2.36                     | 0.50              |
| 1:1A:2865:A:O2'    | 1:1A:2866:C:OP1   | 2.29                     | 0.50              |
| 1:1A:2972:U:N3     | 1:1A:2973:G:N7    | 2.59                     | 0.50              |
| 4:1D:2:GLY:HA2     | 4:1D:207:VAL:HG23 | 1.92                     | 0.50              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 5:lE:223:THR:OG1   | 5:lE:273:GLY:O    | 2.30                     | 0.50              |
| 16:lP:29:GLU:HB3   | 16:lP:37:LEU:HB3  | 1.93                     | 0.50              |
| 33:lg:97:ILE:HD12  | 33:lg:122:ASN:HB2 | 1.93                     | 0.50              |
| 44:sA:66:LYS:HE3   | 59:sg:104:LEU:HB3 | 1.94                     | 0.50              |
| 53:sa:1718:U:O2'   | 53:sa:1763:A:N3   | 2.36                     | 0.50              |
| 64:sl:19:GLY:HA2   | 64:sl:67:LEU:HD12 | 1.93                     | 0.50              |
| 76:sy:101:SER:O    | 76:sy:101:SER:OG  | 2.27                     | 0.50              |
| 1:lA:537:U:O2      | 1:lA:2861:U:N3    | 2.45                     | 0.50              |
| 1:lA:1479:A:H4'    | 1:lA:1480:U:O5'   | 2.10                     | 0.50              |
| 1:lA:1533:U:O2'    | 1:lA:1534:U:OP1   | 2.27                     | 0.50              |
| 8:lH:146:VAL:HG23  | 8:lH:147:GLU:H    | 1.77                     | 0.50              |
| 28:lb:48:ARG:HB3   | 28:lb:69:LYS:HB3  | 1.93                     | 0.50              |
| 53:sa:390:U:H3     | 53:sa:394:A:H62   | 1.59                     | 0.50              |
| 53:sa:1287:U:H2'   | 53:sa:1288:G:H8   | 1.76                     | 0.50              |
| 53:sa:1533:C:H3'   | 53:sa:1534:A:H4'  | 1.91                     | 0.50              |
| 58:sf:181:MET:HB3  | 58:sf:187:MET:HA  | 1.92                     | 0.50              |
| 1:lA:816:G:H22     | 1:lA:829:G:P      | 2.33                     | 0.50              |
| 1:lA:2236:A:H2'    | 1:lA:2237:A:H8    | 1.76                     | 0.50              |
| 1:lA:2241:U:OP1    | 4:lD:4:ARG:NH2    | 2.40                     | 0.50              |
| 1:lA:2395:C:O2'    | 1:lA:2396:A:H8    | 1.93                     | 0.50              |
| 1:lA:3041:G:OP2    | 11:lK:179:ARG:NH1 | 2.40                     | 0.50              |
| 1:lA:3148:C:H2'    | 1:lA:3149:A:C8    | 2.46                     | 0.50              |
| 1:lA:3474:U:H3     | 1:lA:3480:A:N6    | 1.99                     | 0.50              |
| 5:lE:146:ARG:O     | 5:lE:150:ILE:HG12 | 2.11                     | 0.50              |
| 7:lG:122:VAL:O     | 7:lG:244:ARG:NH2  | 2.45                     | 0.50              |
| 11:lK:41:HIS:HE1   | 11:lK:67:MET:HE1  | 1.75                     | 0.50              |
| 44:sA:69:THR:HG22  | 44:sA:72:VAL:HG12 | 1.93                     | 0.50              |
| 48:sE:14:TYR:HB3   | 53:sa:1763:A:C8   | 2.46                     | 0.50              |
| 53:sa:148:G:N2     | 60:sh:56:CYS:SG   | 2.84                     | 0.50              |
| 53:sa:327:U:OP1    | 62:sj:31:ARG:NH1  | 2.37                     | 0.50              |
| 53:sa:1433:A:H2'   | 53:sa:1434:A:C8   | 2.45                     | 0.50              |
| 53:sa:1776:G:OP1   | 59:sg:53:HIS:NE2  | 2.40                     | 0.50              |
| 53:sa:1822:U:H5'   | 53:sa:1823:U:H5'' | 1.93                     | 0.50              |
| 60:sh:76:LEU:HD23  | 60:sh:76:LEU:H    | 1.76                     | 0.50              |
| 1:lA:1749:U:OP2    | 21:lU:42:ARG:NH2  | 2.44                     | 0.50              |
| 1:lA:1764:A:H2'    | 1:lA:1765:A:C8    | 2.46                     | 0.50              |
| 1:lA:3168:A:H2'    | 1:lA:3169:C:C6    | 2.46                     | 0.50              |
| 1:lA:3249:C:H2'    | 1:lA:3250:G:H8    | 1.76                     | 0.50              |
| 13:lM:155:THR:HG22 | 13:lM:156:LYS:H   | 1.77                     | 0.50              |
| 37:lk:48:GLU:HG2   | 37:lk:84:ILE:HD11 | 1.92                     | 0.50              |
| 53:sa:345:A:H5''   | 53:sa:346:U:H3'   | 1.91                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 53:sa:1015:A:OP1   | 66:so:2:GLY:N      | 2.45                     | 0.50              |
| 53:sa:1439:C:H2'   | 53:sa:1440:A:H4'   | 1.93                     | 0.50              |
| 53:sa:1838:A:H2'   | 53:sa:1839:A:H8    | 1.75                     | 0.50              |
| 60:sh:145:PHE:CG   | 60:sh:145:PHE:O    | 2.64                     | 0.50              |
| 1:lA:882:C:O2      | 19:lS:137:ARG:NE   | 2.38                     | 0.50              |
| 1:lA:974:U:H4'     | 21:lU:95:TRP:CE2   | 2.47                     | 0.50              |
| 1:lA:1027:G:H4'    | 1:lA:1028:G:O5'    | 2.11                     | 0.50              |
| 1:lA:2183:A:H2'    | 1:lA:2184:A:H8     | 1.76                     | 0.50              |
| 1:lA:3287:U:C2     | 1:lA:3288:U:C5     | 3.00                     | 0.50              |
| 7:lG:39:GLN:NE2    | 7:lG:46:THR:O      | 2.45                     | 0.50              |
| 53:sa:1845:G:H21   | 53:sa:1869:A:H62   | 1.59                     | 0.50              |
| 55:sc:78:LEU:HD13  | 55:sc:106:ILE:HD12 | 1.93                     | 0.50              |
| 56:sd:149:GLU:OE1  | 56:sd:167:LYS:NZ   | 2.45                     | 0.50              |
| 58:sf:124:ILE:HA   | 58:sf:139:THR:HA   | 1.94                     | 0.50              |
| 64:sl:48:LEU:HB3   | 64:sl:54:VAL:HG22  | 1.93                     | 0.50              |
| 1:lA:191:A:H2'     | 1:lA:192:A:C8      | 2.47                     | 0.50              |
| 1:lA:2414:C:OP1    | 5:lE:238:ARG:NH1   | 2.36                     | 0.50              |
| 1:lA:2880:C:H1'    | 37:lk:29:LYS:HD3   | 1.94                     | 0.50              |
| 47:sD:25:ARG:HG2   | 53:sa:1785:C:C4    | 2.46                     | 0.50              |
| 50:sI:1:G:H1       | 50:sI:72:C:H42     | 1.60                     | 0.50              |
| 53:sa:1241:C:HO2'  | 53:sa:1551:A:H62   | 1.54                     | 0.50              |
| 53:sa:1301:U:OP1   | 56:sd:161:ALA:N    | 2.39                     | 0.50              |
| 53:sa:1862:U:H2'   | 53:sa:1863:A:C8    | 2.46                     | 0.50              |
| 54:sb:128:LEU:HD12 | 54:sb:150:PRO:HG2  | 1.93                     | 0.50              |
| 1:lA:564:A:H1'     | 1:lA:565:U:OP2     | 2.11                     | 0.50              |
| 1:lA:721:A:H2'     | 1:lA:722:A:H8      | 1.77                     | 0.50              |
| 1:lA:838:U:O2'     | 1:lA:907:U:OP1     | 2.28                     | 0.50              |
| 1:lA:1403:C:H2'    | 1:lA:1404:C:C6     | 2.47                     | 0.50              |
| 1:lA:1871:C:H2'    | 1:lA:1872:U:H6     | 1.75                     | 0.50              |
| 1:lA:2178:A:HO2'   | 1:lA:2179:U:H6     | 1.57                     | 0.50              |
| 1:lA:3285:A:C6     | 1:lA:3287:U:H1'    | 2.46                     | 0.50              |
| 37:lk:1:MET:HE3    | 37:lk:2:ALA:H      | 1.76                     | 0.50              |
| 44:sA:103:ASP:OD1  | 44:sA:105:HIS:N    | 2.35                     | 0.50              |
| 53:sa:1669:A:N1    | 53:sa:1673:A:N6    | 2.59                     | 0.50              |
| 53:sa:1701:U:H4'   | 53:sa:1702:G:O5'   | 2.11                     | 0.50              |
| 55:sc:154:HIS:CD2  | 55:sc:155:THR:HG23 | 2.47                     | 0.50              |
| 70:ss:46:VAL:HG22  | 70:ss:82:ILE:HD12  | 1.93                     | 0.50              |
| 1:lA:504:U:H2'     | 1:lA:505:A:H8      | 1.77                     | 0.50              |
| 1:lA:817:A:H2'     | 1:lA:818:A:C8      | 2.47                     | 0.50              |
| 1:lA:918:G:O2'     | 14:lN:16:TRP:NE1   | 2.42                     | 0.50              |
| 1:lA:1186:G:H21    | 1:lA:1220:A:H61    | 1.58                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:lA:1303:A:N3     | 1:lA:1453:U:O2'    | 2.44                     | 0.50              |
| 1:lA:1483:U:O2'    | 9:lI:149:MET:SD    | 2.69                     | 0.50              |
| 3:lC:28:U:C2       | 3:lC:29:G:C2       | 2.99                     | 0.50              |
| 3:lC:78:C:H2'      | 3:lC:79:G:H8       | 1.77                     | 0.50              |
| 14:lN:106:CYS:SG   | 14:lN:109:ARG:NH2  | 2.85                     | 0.50              |
| 42:lp:24:CYS:HA    | 42:lp:40:CYS:HB3   | 1.94                     | 0.50              |
| 47:sD:16:THR:OG1   | 47:sD:17:GLU:OE1   | 2.24                     | 0.50              |
| 48:sE:2:GLY:N      | 53:sa:1259:A:OP1   | 2.45                     | 0.50              |
| 53:sa:1876:U:O2'   | 62:sj:2:GLY:N      | 2.45                     | 0.50              |
| 1:lA:500:G:O6      | 1:lA:573:A:N6      | 2.45                     | 0.50              |
| 1:lA:1244:C:H2'    | 1:lA:1245:A:H8     | 1.77                     | 0.50              |
| 1:lA:1593:A:OP1    | 32:lf:75:ARG:NH2   | 2.35                     | 0.50              |
| 1:lA:3129:U:O2     | 1:lA:3130:A:C8     | 2.64                     | 0.50              |
| 1:lA:3452:U:H3     | 1:lA:3503:G:N2     | 2.07                     | 0.50              |
| 53:sa:1381:G:H2'   | 53:sa:1382:C:C6    | 2.46                     | 0.50              |
| 53:sa:1390:A:H2'   | 53:sa:1391:C:H6    | 1.77                     | 0.50              |
| 53:sa:1688:A:H2'   | 53:sa:1689:A:H5''  | 1.94                     | 0.50              |
| 65:sm:108:VAL:HG11 | 65:sm:125:ILE:HG21 | 1.93                     | 0.50              |
| 67:sp:49:ILE:HD11  | 67:sp:51:ILE:HD11  | 1.94                     | 0.50              |
| 1:lA:338:A:OP1     | 17:lQ:68:ARG:NH1   | 2.42                     | 0.49              |
| 1:lA:495:A:N7      | 1:lA:577:G:O2'     | 2.42                     | 0.49              |
| 1:lA:677:A:H2'     | 1:lA:678:A:H8      | 1.77                     | 0.49              |
| 1:lA:709:U:O2'     | 1:lA:710:A:OP1     | 2.29                     | 0.49              |
| 1:lA:2863:A:H1'    | 1:lA:2864:A:C8     | 2.47                     | 0.49              |
| 3:lC:109:G:H2'     | 3:lC:110:A:H8      | 1.77                     | 0.49              |
| 40:ln:45:TYR:HE1   | 40:ln:47:CYS:HB3   | 1.76                     | 0.49              |
| 50:sI:14:A:H3'     | 50:sI:15:G:H8      | 1.77                     | 0.49              |
| 53:sa:134:A:O4'    | 53:sa:136:A:H5''   | 2.12                     | 0.49              |
| 73:sv:7:ILE:HG12   | 73:sv:66:TYR:CE1   | 2.47                     | 0.49              |
| 73:sv:26:SER:HB3   | 73:sv:28:LYS:HE2   | 1.94                     | 0.49              |
| 1:lA:1534:U:H2'    | 1:lA:1535:A:C8     | 2.47                     | 0.49              |
| 1:lA:3207:G:H2'    | 1:lA:3208:A:C8     | 2.47                     | 0.49              |
| 3:lC:21:C:N4       | 3:lC:52:G:O2'      | 2.43                     | 0.49              |
| 3:lC:32:A:H2'      | 3:lC:33:A:C8       | 2.47                     | 0.49              |
| 22:IV:148:LYS:H    | 22:IV:148:LYS:HD2  | 1.76                     | 0.49              |
| 45:sB:6:ARG:NH1    | 53:sa:1115:C:OP1   | 2.45                     | 0.49              |
| 53:sa:295:A:N6     | 58:sf:38:GLU:HG2   | 2.26                     | 0.49              |
| 53:sa:1021:G:H2'   | 53:sa:1022:G:C8    | 2.46                     | 0.49              |
| 56:sd:4:LEU:HD12   | 64:sl:37:PRO:HB3   | 1.94                     | 0.49              |
| 76:sy:65:ARG:HB3   | 76:sy:82:PHE:HE1   | 1.77                     | 0.49              |
| 1:lA:466:G:O2'     | 1:lA:2441:U:OP2    | 2.21                     | 0.49              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:lA:811:A:N1     | 1:lA:839:G:O2'    | 2.41                     | 0.49              |
| 1:lA:884:A:H2'    | 1:lA:885:U:C6     | 2.47                     | 0.49              |
| 1:lA:1466:U:H2'   | 1:lA:1467:U:H6    | 1.76                     | 0.49              |
| 1:lA:1634:G:O6    | 41:lo:2:THR:N     | 2.45                     | 0.49              |
| 1:lA:2766:A:H2'   | 1:lA:2767:A:C8    | 2.46                     | 0.49              |
| 1:lA:2865:A:H4'   | 37:lk:21:ALA:HA   | 1.94                     | 0.49              |
| 2:lB:153:C:O2'    | 10:lJ:182:ARG:NH1 | 2.40                     | 0.49              |
| 47:sD:21:ARG:HG3  | 47:sD:29:LEU:HG   | 1.94                     | 0.49              |
| 51:sJ:70:A:C2     | 51:sJ:71:G:C5     | 3.00                     | 0.49              |
| 53:sa:78:G:OP2    | 60:sh:159:ARG:NH1 | 2.41                     | 0.49              |
| 53:sa:1381:G:O6   | 53:sa:1392:A:N6   | 2.46                     | 0.49              |
| 53:sa:1391:C:H2'  | 53:sa:1392:A:C8   | 2.43                     | 0.49              |
| 53:sa:1392:A:C2   | 53:sa:1393:G:C5   | 3.00                     | 0.49              |
| 53:sa:1775:U:H5'  | 70:ss:90:VAL:HB   | 1.92                     | 0.49              |
| 54:sb:19:ASP:OD2  | 54:sb:187:ARG:NH2 | 2.40                     | 0.49              |
| 1:lA:116:A:N6     | 10:lJ:124:GLU:O   | 2.44                     | 0.49              |
| 1:lA:1206:A:H2'   | 1:lA:1207:C:C6    | 2.46                     | 0.49              |
| 1:lA:1554:C:OP2   | 6:lF:196:LYS:NZ   | 2.42                     | 0.49              |
| 1:lA:1736:A:C6    | 41:lo:4:HIS:HB3   | 2.48                     | 0.49              |
| 1:lA:2670:U:C2    | 1:lA:2671:A:C8    | 3.00                     | 0.49              |
| 1:lA:2701:U:H2'   | 1:lA:2702:G:C8    | 2.47                     | 0.49              |
| 3:lC:80:G:H22     | 3:lC:94:U:H3      | 1.60                     | 0.49              |
| 10:lJ:222:ASN:HB3 | 10:lJ:225:MET:HB3 | 1.94                     | 0.49              |
| 14:lN:45:PHE:CD1  | 14:lN:229:GLN:HB3 | 2.47                     | 0.49              |
| 28:lb:78:ASN:OD1  | 31:le:39:ARG:NH2  | 2.46                     | 0.49              |
| 53:sa:301:U:H5''  | 65:sm:136:ARG:HD2 | 1.95                     | 0.49              |
| 53:sa:1196:A:O2'  | 53:sa:1736:A:N3   | 2.42                     | 0.49              |
| 55:sc:218:ASP:OD1 | 55:sc:221:ARG:NH1 | 2.46                     | 0.49              |
| 56:sd:54:ARG:HG2  | 74:sw:108:PRO:HG3 | 1.93                     | 0.49              |
| 1:lA:330:A:N6     | 29:lc:61:PHE:HB3  | 2.28                     | 0.49              |
| 1:lA:580:A:C4     | 1:lA:581:U:C5     | 3.00                     | 0.49              |
| 1:lA:671:A:H5''   | 6:lF:399:ALA:HB2  | 1.93                     | 0.49              |
| 1:lA:721:A:H2'    | 1:lA:722:A:C8     | 2.47                     | 0.49              |
| 1:lA:1921:A:H2'   | 1:lA:1922:U:O2    | 2.12                     | 0.49              |
| 1:lA:2632:A:OP2   | 4:lD:87:TYR:OH    | 2.23                     | 0.49              |
| 1:lA:2839:A:H5''  | 43:lq:78:LYS:HD2  | 1.94                     | 0.49              |
| 1:lA:3090:G:N3    | 5:lE:252:ALA:HB1  | 2.27                     | 0.49              |
| 1:lA:3369:U:H2'   | 1:lA:3370:A:H8    | 1.77                     | 0.49              |
| 4:lD:126:ILE:HG21 | 4:lD:150:LEU:HD22 | 1.94                     | 0.49              |
| 5:lE:190:ILE:HD13 | 5:lE:193:LYS:HE3  | 1.93                     | 0.49              |
| 14:lN:248:LYS:NZ  | 29:lc:146:GLU:OE2 | 2.43                     | 0.49              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 23:IW:56:VAL:HG11 | 23:IW:66:ILE:HD11  | 1.94                     | 0.49              |
| 44:sA:73:VAL:HG22 | 44:sA:77:MET:HE1   | 1.94                     | 0.49              |
| 53:sa:941:C:C2    | 53:sa:942:C:C5     | 3.01                     | 0.49              |
| 53:sa:1171:U:C2   | 53:sa:1172:G:C8    | 3.00                     | 0.49              |
| 53:sa:1863:A:H2'  | 53:sa:1864:G:C8    | 2.48                     | 0.49              |
| 59:sg:178:GLU:OE2 | 59:sg:189:SER:OG   | 2.29                     | 0.49              |
| 72:su:62:PRO:HA   | 72:su:65:ILE:HG12  | 1.95                     | 0.49              |
| 76:sy:53:LEU:N    | 76:sy:67:CYS:O     | 2.40                     | 0.49              |
| 1:lA:5:U:H2'      | 1:lA:6:U:C6        | 2.47                     | 0.49              |
| 1:lA:17:A:H2      | 2:lB:137:A:H61     | 1.60                     | 0.49              |
| 1:lA:227:A:H2'    | 1:lA:228:A:H8      | 1.77                     | 0.49              |
| 1:lA:301:A:H2'    | 1:lA:302:U:C6      | 2.47                     | 0.49              |
| 1:lA:765:A:H2'    | 1:lA:766:U:C6      | 2.48                     | 0.49              |
| 1:lA:1467:U:H2'   | 1:lA:1468:A:C8     | 2.47                     | 0.49              |
| 1:lA:1830:U:H2'   | 1:lA:1831:U:C6     | 2.47                     | 0.49              |
| 1:lA:1844:U:H2'   | 1:lA:1845:G:H8     | 1.77                     | 0.49              |
| 1:lA:2721:G:H5''  | 1:lA:2722:U:O4'    | 2.13                     | 0.49              |
| 5:lE:184:GLN:NE2  | 5:lE:186:ASN:OD1   | 2.44                     | 0.49              |
| 9:lI:185:GLU:OE1  | 9:lI:185:GLU:N     | 2.42                     | 0.49              |
| 10:lJ:219:TYR:HD1 | 10:lJ:225:MET:HE1  | 1.76                     | 0.49              |
| 25:lY:72:THR:O    | 25:lY:76:LYS:HG3   | 2.12                     | 0.49              |
| 44:sA:97:ILE:HG12 | 44:sA:109:TYR:HB3  | 1.95                     | 0.49              |
| 50:sI:2:G:H2'     | 50:sI:3:C:C6       | 2.46                     | 0.49              |
| 50:sI:52:G:HO2'   | 50:sI:53:G:H8      | 1.59                     | 0.49              |
| 53:sa:375:A:C6    | 63:sk:2:GLY:HA3    | 2.46                     | 0.49              |
| 53:sa:1591:G:H2'  | 53:sa:1592:A:C8    | 2.47                     | 0.49              |
| 55:sc:154:HIS:CE1 | 55:sc:176:ARG:HG2  | 2.48                     | 0.49              |
| 57:se:38:LYS:HA   | 57:se:43:ARG:HD3   | 1.95                     | 0.49              |
| 59:sg:18:PRO:HG2  | 59:sg:48:GLN:HB3   | 1.94                     | 0.49              |
| 61:si:163:VAL:HA  | 61:si:198:PRO:HD3  | 1.94                     | 0.49              |
| 1:lA:686:A:H5'    | 9:lI:134:LYS:HE3   | 1.94                     | 0.49              |
| 1:lA:1859:G:N7    | 23:IW:87:ARG:NH2   | 2.60                     | 0.49              |
| 1:lA:2907:C:C2    | 1:lA:2908:U:C5     | 3.00                     | 0.49              |
| 1:lA:3124:U:OP2   | 5:lE:246:ARG:NH2   | 2.46                     | 0.49              |
| 1:lA:3198:A:H4'   | 5:lE:13:SER:HB2    | 1.95                     | 0.49              |
| 2:lB:12:A:H2'     | 2:lB:13:C:C6       | 2.47                     | 0.49              |
| 5:lE:224:LYS:HB2  | 5:lE:332:ILE:HG23  | 1.94                     | 0.49              |
| 6:lF:305:ARG:NH1  | 19:lS:37:ARG:O     | 2.46                     | 0.49              |
| 14:lN:40:LYS:HD3  | 14:lN:48:THR:HB    | 1.95                     | 0.49              |
| 53:sa:242:G:O2'   | 53:sa:243:U:OP1    | 2.26                     | 0.49              |
| 54:sb:115:PHE:HB3 | 54:sb:147:ILE:HD13 | 1.94                     | 0.49              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 71:st:20:TYR:O    | 71:st:24:LEU:HG    | 2.13                     | 0.49              |
| 74:sw:56:ILE:HB   | 74:sw:86:LYS:HB3   | 1.94                     | 0.49              |
| 1:lA:332:G:C6     | 43:lq:43:ARG:HD3   | 2.48                     | 0.49              |
| 1:lA:538:A:OP2    | 14:lN:167:LYS:NZ   | 2.39                     | 0.49              |
| 1:lA:1157:A:H5'   | 7:lG:5:LYS:HE2     | 1.95                     | 0.49              |
| 1:lA:1476:G:O2'   | 1:lA:1477:A:N3     | 2.44                     | 0.49              |
| 3:lC:2:G:H2'      | 3:lC:3:G:C8        | 2.47                     | 0.49              |
| 5:lE:137:TYR:O    | 5:lE:146:ARG:NH2   | 2.45                     | 0.49              |
| 53:sa:959:A:H4'   | 53:sa:1933:G:N2    | 2.28                     | 0.49              |
| 58:sf:95:GLU:HG3  | 58:sf:97:PHE:HE1   | 1.77                     | 0.49              |
| 1:lA:103:A:O2'    | 1:lA:370:A:N3      | 2.41                     | 0.49              |
| 1:lA:764:U:H2'    | 1:lA:765:A:C8      | 2.47                     | 0.49              |
| 1:lA:1745:A:H2'   | 1:lA:1746:G:C8     | 2.48                     | 0.49              |
| 1:lA:2205:C:H2'   | 1:lA:2206:G:H8     | 1.77                     | 0.49              |
| 1:lA:2378:G:N2    | 53:sa:1892:G:N2    | 2.61                     | 0.49              |
| 1:lA:3356:U:OP2   | 1:lA:3357:U:O2'    | 2.28                     | 0.49              |
| 5:lE:48:GLY:HA3   | 5:lE:81:THR:HG22   | 1.94                     | 0.49              |
| 9:II:225:LEU:HD11 | 9:II:229:MET:HE3   | 1.94                     | 0.49              |
| 10:IJ:83:LYS:HE3  | 10:IJ:84:ILE:HG13  | 1.94                     | 0.49              |
| 22:IV:4:SER:O     | 22:IV:9:ARG:HD3    | 2.12                     | 0.49              |
| 24:IX:123:LYS:N   | 24:IX:140:VAL:O    | 2.44                     | 0.49              |
| 28:lb:11:VAL:HG12 | 28:lb:82:PRO:HA    | 1.94                     | 0.49              |
| 53:sa:1558:U:H2'  | 53:sa:1559:U:C6    | 2.48                     | 0.49              |
| 54:sb:15:PRO:HG3  | 54:sb:60:TRP:CD1   | 2.48                     | 0.49              |
| 54:sb:142:ARG:NH1 | 54:sb:146:TYR:OH   | 2.45                     | 0.49              |
| 57:se:30:GLU:HB3  | 57:se:32:TYR:HE1   | 1.78                     | 0.49              |
| 65:sm:130:PRO:HB3 | 65:sm:136:ARG:HH11 | 1.78                     | 0.49              |
| 75:sx:38:ASN:HB3  | 75:sx:44:LEU:HD21  | 1.94                     | 0.49              |
| 1:lA:2137:G:H2'   | 1:lA:2138:A:H8     | 1.77                     | 0.49              |
| 1:lA:2991:G:OP1   | 42:lp:25:TYR:OH    | 2.31                     | 0.49              |
| 3:lC:103:U:H2'    | 3:lC:104:G:C8      | 2.48                     | 0.49              |
| 23:IW:33:ASP:HA   | 23:IW:74:LYS:HD2   | 1.95                     | 0.49              |
| 27:la:38:LEU:HD22 | 27:la:42:TYR:HE2   | 1.77                     | 0.49              |
| 28:lb:23:ALA:HB1  | 28:lb:43:VAL:HB    | 1.95                     | 0.49              |
| 48:sE:30:LEU:HA   | 48:sE:39:CYS:HA    | 1.94                     | 0.49              |
| 50:sI:27:C:H2'    | 50:sI:28:G:H8      | 1.77                     | 0.49              |
| 60:sh:149:GLN:HG2 | 60:sh:150:LYS:N    | 2.28                     | 0.49              |
| 68:sq:88:MET:N    | 68:sq:88:MET:SD    | 2.86                     | 0.49              |
| 1:lA:404:G:N2     | 1:lA:407:A:OP2     | 2.31                     | 0.48              |
| 1:lA:677:A:OP1    | 6:lF:351:LYS:NZ    | 2.45                     | 0.48              |
| 1:lA:1327:A:H2'   | 1:lA:1328:A:C8     | 2.47                     | 0.48              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:1A:2780:A:H2'    | 1:1A:2781:U:C6    | 2.48                     | 0.48              |
| 1:1A:2955:C:H2'    | 1:1A:2956:A:H8    | 1.78                     | 0.48              |
| 18:1R:61:ARG:O     | 18:1R:64:ASN:ND2  | 2.46                     | 0.48              |
| 27:1a:81:ASP:OD1   | 27:1a:82:LYS:N    | 2.46                     | 0.48              |
| 53:sa:1305:C:H2'   | 53:sa:1306:G:C8   | 2.48                     | 0.48              |
| 54:sb:44:TYR:CD1   | 54:sb:45:GLU:HB2  | 2.48                     | 0.48              |
| 59:sg:38:LEU:HD12  | 59:sg:145:PRO:HB2 | 1.95                     | 0.48              |
| 69:sr:86:PHE:O     | 69:sr:90:GLU:HG2  | 2.13                     | 0.48              |
| 1:1A:804:G:H2'     | 1:1A:805:G:C8     | 2.48                     | 0.48              |
| 1:1A:1633:G:H1'    | 1:1A:2044:C:H5''  | 1.94                     | 0.48              |
| 1:1A:2445:G:H2'    | 1:1A:2446:G:C8    | 2.48                     | 0.48              |
| 1:1A:3025:U:H2'    | 1:1A:3026:U:C6    | 2.48                     | 0.48              |
| 1:1A:3349:G:OP2    | 16:1P:5:ARG:NH2   | 2.39                     | 0.48              |
| 2:1B:48:G:OP2      | 41:1o:15:LYS:NZ   | 2.39                     | 0.48              |
| 27:1a:22:ASN:N     | 27:1a:22:ASN:OD1  | 2.40                     | 0.48              |
| 53:sa:324:G:H2'    | 53:sa:325:U:H6    | 1.78                     | 0.48              |
| 53:sa:444:U:H2'    | 53:sa:445:C:C6    | 2.48                     | 0.48              |
| 58:sf:129:LEU:HA   | 58:sf:135:PRO:HA  | 1.95                     | 0.48              |
| 59:sg:19:LYS:HB2   | 59:sg:22:ASN:HA   | 1.94                     | 0.48              |
| 74:sw:101:ILE:HG22 | 74:sw:103:SER:HB2 | 1.95                     | 0.48              |
| 76:sy:22:ASP:HB3   | 76:sy:25:TRP:HB3  | 1.95                     | 0.48              |
| 1:1A:101:A:C2      | 1:1A:102:A:N7     | 2.81                     | 0.48              |
| 1:1A:1414:A:H2'    | 1:1A:1415:A:H8    | 1.76                     | 0.48              |
| 1:1A:2660:U:H2'    | 1:1A:2661:U:C6    | 2.48                     | 0.48              |
| 1:1A:3074:U:H5''   | 24:1X:43:LYS:HD3  | 1.95                     | 0.48              |
| 3:1C:76:U:H2'      | 3:1C:77:U:O4'     | 2.13                     | 0.48              |
| 14:1N:44:VAL:HG22  | 14:1N:46:PRO:HD2  | 1.94                     | 0.48              |
| 25:1Y:95:LEU:HD22  | 41:1o:10:LYS:HE3  | 1.94                     | 0.48              |
| 53:sa:902:U:H2'    | 53:sa:903:A:H8    | 1.74                     | 0.48              |
| 53:sa:1693:A:HO2'  | 53:sa:1694:A:P    | 2.35                     | 0.48              |
| 60:sh:191:GLN:O    | 60:sh:196:LYS:HD2 | 2.14                     | 0.48              |
| 68:sq:56:VAL:HA    | 68:sq:59:LEU:HB2  | 1.94                     | 0.48              |
| 1:1A:835:A:H2'     | 1:1A:836:C:O4'    | 2.13                     | 0.48              |
| 1:1A:1847:A:H2'    | 1:1A:1848:A:C8    | 2.47                     | 0.48              |
| 1:1A:2236:A:N6     | 1:1A:2250:C:H42   | 2.07                     | 0.48              |
| 1:1A:2731:G:H2'    | 1:1A:2732:A:C8    | 2.48                     | 0.48              |
| 1:1A:2864:A:C4     | 1:1A:2865:A:C2    | 3.00                     | 0.48              |
| 5:1E:122:TRP:CZ2   | 5:1E:127:LYS:HG2  | 2.48                     | 0.48              |
| 42:lp:4:GLU:OE2    | 42:lp:4:GLU:N     | 2.35                     | 0.48              |
| 51:sJ:25:U:H2'     | 51:sJ:26:C:C6     | 2.49                     | 0.48              |
| 53:sa:752:A:P      | 63:sk:51:HIS:HE2  | 2.35                     | 0.48              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 53:sa:1863:A:H2'  | 53:sa:1864:G:H8    | 1.78                     | 0.48              |
| 54:sb:156:ASN:HB2 | 54:sb:172:ASN:HD21 | 1.78                     | 0.48              |
| 76:sy:31:VAL:HA   | 76:sy:33:ARG:HH21  | 1.79                     | 0.48              |
| 1:lA:573:A:H2'    | 1:lA:574:U:C6      | 2.47                     | 0.48              |
| 1:lA:674:A:OP1    | 6:lF:357:LYS:NZ    | 2.46                     | 0.48              |
| 1:lA:1569:A:H5''  | 1:lA:1570:U:O5'    | 2.14                     | 0.48              |
| 3:lC:6:G:O3'      | 7:lG:33:ARG:NH2    | 2.47                     | 0.48              |
| 6:lF:156:SER:OG   | 6:lF:256:GLU:OE1   | 2.25                     | 0.48              |
| 8:lH:67:ILE:O     | 8:lH:74:GLY:N      | 2.35                     | 0.48              |
| 10:lJ:209:GLU:O   | 10:lJ:213:GLN:NE2  | 2.46                     | 0.48              |
| 18:lR:127:ARG:HB2 | 18:lR:139:PHE:HB3  | 1.95                     | 0.48              |
| 24:lX:87:THR:HG21 | 26:lZ:21:ARG:HD3   | 1.94                     | 0.48              |
| 31:le:22:THR:HG22 | 31:le:27:TYR:HE2   | 1.79                     | 0.48              |
| 44:sA:104:ASN:HB2 | 53:sa:1696:G:N2    | 2.26                     | 0.48              |
| 51:sJ:55:U:C2     | 51:sJ:59:A:N7      | 2.82                     | 0.48              |
| 53:sa:399:G:O2'   | 60:sh:91:GLU:OE2   | 2.31                     | 0.48              |
| 55:sc:165:GLY:O   | 55:sc:168:ARG:NH1  | 2.46                     | 0.48              |
| 60:sh:154:LYS:NZ  | 60:sh:187:PRO:HG3  | 2.28                     | 0.48              |
| 65:sm:32:ARG:NH2  | 65:sm:52:TYR:O     | 2.46                     | 0.48              |
| 69:sr:94:LEU:HD22 | 69:sr:100:GLY:HA3  | 1.96                     | 0.48              |
| 72:su:143:ARG:HD3 | 72:su:143:ARG:HA   | 1.68                     | 0.48              |
| 1:lA:453:A:N3     | 1:lA:789:C:O2'     | 2.38                     | 0.48              |
| 1:lA:1107:G:H2'   | 1:lA:1108:A:H8     | 1.78                     | 0.48              |
| 1:lA:1247:G:H1    | 3:lC:92:U:H5       | 1.61                     | 0.48              |
| 1:lA:1404:C:C2    | 1:lA:1405:U:C5     | 3.01                     | 0.48              |
| 1:lA:1535:A:H2'   | 1:lA:1536:A:H8     | 1.79                     | 0.48              |
| 1:lA:2129:G:C8    | 39:lm:16:THR:HB    | 2.48                     | 0.48              |
| 3:lC:1:A:H61      | 3:lC:116:C:H42     | 1.62                     | 0.48              |
| 53:sa:17:C:O2'    | 53:sa:1163:A:N1    | 2.43                     | 0.48              |
| 57:se:41:LYS:HE3  | 57:se:191:ARG:HH22 | 1.78                     | 0.48              |
| 57:se:202:LYS:HB2 | 57:se:202:LYS:HE2  | 1.61                     | 0.48              |
| 69:sr:69:LEU:HD11 | 69:sr:129:PHE:HB2  | 1.95                     | 0.48              |
| 1:lA:1593:A:H2'   | 1:lA:1594:A:C8     | 2.49                     | 0.48              |
| 1:lA:1596:A:H2'   | 1:lA:1597:A:C8     | 2.49                     | 0.48              |
| 1:lA:3128:C:H2'   | 1:lA:3129:U:C6     | 2.47                     | 0.48              |
| 4:lD:209:HIS:CD2  | 4:lD:210:PRO:HD2   | 2.48                     | 0.48              |
| 15:lO:85:VAL:HG11 | 15:lO:103:LEU:HD22 | 1.95                     | 0.48              |
| 36:lj:61:ASN:OD1  | 36:lj:61:ASN:N     | 2.46                     | 0.48              |
| 53:sa:43:U:OP2    | 53:sa:432:A:N6     | 2.45                     | 0.48              |
| 53:sa:301:U:O2    | 65:sm:68:ARG:NH2   | 2.35                     | 0.48              |
| 53:sa:562:G:H4'   | 76:sy:86:ASP:HB2   | 1.94                     | 0.48              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 53:sa:1516:G:N2    | 53:sa:1519:G:OP2  | 2.47                     | 0.48              |
| 65:sm:55:LYS:O     | 65:sm:61:SER:OG   | 2.30                     | 0.48              |
| 1:lA:425:C:H2'     | 1:lA:426:U:C6     | 2.46                     | 0.48              |
| 1:lA:489:U:H2'     | 1:lA:490:A:C8     | 2.48                     | 0.48              |
| 1:lA:1848:A:H2'    | 1:lA:1849:A:H8    | 1.79                     | 0.48              |
| 1:lA:2488:G:H2'    | 1:lA:2489:A:C8    | 2.49                     | 0.48              |
| 1:lA:2753:U:H2'    | 1:lA:2754:C:C6    | 2.49                     | 0.48              |
| 7:lG:216:LYS:HE3   | 7:lG:216:LYS:HB3  | 1.62                     | 0.48              |
| 14:lN:163:ILE:HG22 | 14:lN:167:LYS:HD2 | 1.95                     | 0.48              |
| 23:lW:63:THR:HA    | 23:lW:66:ILE:HD13 | 1.96                     | 0.48              |
| 46:sC:21:LYS:NZ    | 66:so:13:ARG:O    | 2.39                     | 0.48              |
| 53:sa:5:U:OP2      | 55:sc:206:THR:OG1 | 2.29                     | 0.48              |
| 53:sa:746:A:H2'    | 53:sa:747:A:H8    | 1.79                     | 0.48              |
| 53:sa:860:G:OP1    | 66:so:107:LYS:NZ  | 2.41                     | 0.48              |
| 53:sa:1662:G:H1    | 53:sa:1679:G:H1   | 1.60                     | 0.48              |
| 53:sa:1891:A:O3'   | 53:sa:1892:G:H8   | 1.96                     | 0.48              |
| 56:sd:141:MET:HG3  | 56:sd:168:GLU:HG2 | 1.96                     | 0.48              |
| 69:sr:119:LYS:HE3  | 69:sr:119:LYS:HB2 | 1.59                     | 0.48              |
| 1:lA:907:U:H2'     | 1:lA:908:A:C8     | 2.48                     | 0.48              |
| 1:lA:1485:A:H2'    | 1:lA:1486:C:O4'   | 2.14                     | 0.48              |
| 1:lA:2041:U:H4'    | 1:lA:2042:A:H5''  | 1.96                     | 0.48              |
| 1:lA:3149:A:H2'    | 1:lA:3150:A:H8    | 1.77                     | 0.48              |
| 2:lB:24:U:OP2      | 6:lF:197:MET:HG2  | 2.14                     | 0.48              |
| 60:sh:188:ARG:HD3  | 60:sh:190:LEU:H   | 1.77                     | 0.48              |
| 1:lA:239:G:H2'     | 1:lA:240:A:C8     | 2.49                     | 0.48              |
| 1:lA:401:A:N1      | 6:lF:84:SER:HB3   | 2.28                     | 0.48              |
| 1:lA:503:A:H2'     | 1:lA:504:U:C6     | 2.48                     | 0.48              |
| 1:lA:842:G:H2'     | 1:lA:843:A:H8     | 1.79                     | 0.48              |
| 1:lA:1434:G:HO2'   | 1:lA:2456:U:HO2'  | 1.48                     | 0.48              |
| 1:lA:3150:A:H2'    | 1:lA:3151:A:C8    | 2.46                     | 0.48              |
| 14:lN:246:GLU:HG2  | 29:lc:101:VAL:HB  | 1.95                     | 0.48              |
| 53:sa:469:C:H2'    | 53:sa:470:A:H5''  | 1.95                     | 0.48              |
| 53:sa:592:U:H2'    | 53:sa:593:A:C8    | 2.49                     | 0.48              |
| 53:sa:868:A:H2'    | 53:sa:869:A:C8    | 2.48                     | 0.48              |
| 53:sa:1223:G:OP1   | 53:sa:1224:G:O2'  | 2.22                     | 0.48              |
| 53:sa:1283:U:H1'   | 53:sa:1284:U:H5   | 1.78                     | 0.48              |
| 58:sf:85:MET:HB2   | 58:sf:98:ARG:HE   | 1.78                     | 0.48              |
| 71:st:21:TYR:HE2   | 71:st:73:LEU:HD23 | 1.79                     | 0.48              |
| 1:lA:315:A:OP2     | 17:lQ:12:ARG:NH2  | 2.47                     | 0.47              |
| 1:lA:1071:A:H4'    | 1:lA:1087:G:H21   | 1.78                     | 0.47              |
| 1:lA:1476:G:H2'    | 1:lA:1476:G:N3    | 2.28                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:lA:2085:A:OP1    | 32:lf:72:LYS:NZ    | 2.47                     | 0.47              |
| 1:lA:3102:C:H2'    | 1:lA:3103:C:H6     | 1.79                     | 0.47              |
| 1:lA:3386:G:H2'    | 1:lA:3387:G:H8     | 1.78                     | 0.47              |
| 25:lY:70:ASN:OD1   | 25:lY:70:ASN:N     | 2.47                     | 0.47              |
| 53:sa:32:G:H22     | 53:sa:463:A:H5'    | 1.79                     | 0.47              |
| 59:sg:80:GLN:O     | 59:sg:84:ASN:ND2   | 2.35                     | 0.47              |
| 75:sx:4:ASN:OD1    | 75:sx:5:LYS:NZ     | 2.34                     | 0.47              |
| 1:lA:1877:A:H2'    | 1:lA:1878:A:C8     | 2.49                     | 0.47              |
| 1:lA:3384:A:O2'    | 1:lA:3385:G:O5'    | 2.31                     | 0.47              |
| 7:lG:21:ARG:NH1    | 7:lG:25:GLU:OE2    | 2.47                     | 0.47              |
| 18:lR:116:HIS:HB3  | 18:lR:149:ILE:HB   | 1.96                     | 0.47              |
| 34:lh:67:LYS:HD3   | 34:lh:70:ARG:NH2   | 2.29                     | 0.47              |
| 36:lj:48:VAL:HG22  | 36:lj:101:VAL:HG22 | 1.96                     | 0.47              |
| 39:lm:47:VAL:HG11  | 39:lm:71:LEU:HD22  | 1.95                     | 0.47              |
| 53:sa:1007:A:OP1   | 53:sa:1936:G:O2'   | 2.31                     | 0.47              |
| 53:sa:1425:A:H8    | 53:sa:1425:A:O5'   | 1.97                     | 0.47              |
| 55:sc:208:THR:HG22 | 55:sc:211:ASN:H    | 1.78                     | 0.47              |
| 73:sv:41:GLY:HA2   | 73:sv:97:SER:HB2   | 1.96                     | 0.47              |
| 74:sw:107:GLU:N    | 74:sw:107:GLU:OE2  | 2.48                     | 0.47              |
| 1:lA:205:C:H3'     | 1:lA:206:U:H5''    | 1.96                     | 0.47              |
| 1:lA:623:A:H2'     | 1:lA:624:U:C6      | 2.49                     | 0.47              |
| 1:lA:804:G:H22     | 1:lA:911:U:H3      | 1.62                     | 0.47              |
| 1:lA:920:A:P       | 29:lc:27:LYS:HZ1   | 2.37                     | 0.47              |
| 1:lA:1414:A:H2'    | 1:lA:1415:A:C8     | 2.50                     | 0.47              |
| 1:lA:2101:G:O2'    | 1:lA:2410:U:O4     | 2.24                     | 0.47              |
| 1:lA:2633:C:H2'    | 1:lA:2634:A:O4'    | 2.14                     | 0.47              |
| 1:lA:3481:U:H2'    | 1:lA:3482:C:H6     | 1.79                     | 0.47              |
| 10:lJ:30:VAL:HG12  | 10:lJ:31:ALA:H     | 1.79                     | 0.47              |
| 13:lM:111:ASP:HB3  | 13:lM:112:LEU:H    | 1.47                     | 0.47              |
| 24:lX:43:LYS:HE3   | 24:lX:108:MET:HE3  | 1.96                     | 0.47              |
| 53:sa:395:G:H5''   | 62:sj:25:LYS:HA    | 1.96                     | 0.47              |
| 53:sa:934:A:OP1    | 66:so:6:ASN:ND2    | 2.47                     | 0.47              |
| 60:sh:189:ARG:HD3  | 60:sh:192:HIS:HB2  | 1.95                     | 0.47              |
| 64:sl:76:ARG:NH2   | 64:sl:85:ALA:O     | 2.40                     | 0.47              |
| 1:lA:940:U:H2'     | 1:lA:941:A:H8      | 1.79                     | 0.47              |
| 1:lA:1631:A:O2'    | 38:ll:12:HIS:O     | 2.25                     | 0.47              |
| 1:lA:1649:U:OP1    | 18:lR:127:ARG:NH2  | 2.33                     | 0.47              |
| 1:lA:2779:C:H2'    | 1:lA:2780:A:H8     | 1.79                     | 0.47              |
| 1:lA:3165:A:N1     | 1:lA:3197:C:O2'    | 2.42                     | 0.47              |
| 3:lC:44:C:H2'      | 3:lC:45:U:H6       | 1.79                     | 0.47              |
| 11:lK:102:VAL:HG21 | 11:lK:111:LEU:HD11 | 1.96                     | 0.47              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 23:IW:97:LEU:HD22 | 23:IW:103:ARG:HA   | 1.95                     | 0.47              |
| 27:la:31:SER:HA   | 27:la:48:PRO:HA    | 1.97                     | 0.47              |
| 53:sa:412:A:H4'   | 53:sa:413:G:O5'    | 2.14                     | 0.47              |
| 53:sa:558:G:C5    | 53:sa:572:U:H1'    | 2.50                     | 0.47              |
| 53:sa:750:U:C4    | 53:sa:751:A:N6     | 2.82                     | 0.47              |
| 54:sb:175:ARG:HG3 | 54:sb:176:LEU:HD22 | 1.96                     | 0.47              |
| 58:sf:69:LYS:HG2  | 58:sf:74:ILE:HB    | 1.96                     | 0.47              |
| 61:si:53:LYS:HG3  | 61:si:65:VAL:HB    | 1.95                     | 0.47              |
| 1:lA:735:C:H2'    | 1:lA:736:G:O4'     | 2.15                     | 0.47              |
| 1:lA:761:A:H2'    | 1:lA:762:A:C8      | 2.50                     | 0.47              |
| 1:lA:1466:U:H2'   | 1:lA:1467:U:C6     | 2.49                     | 0.47              |
| 1:lA:1982:U:H2'   | 4:lD:50:HIS:CD2    | 2.50                     | 0.47              |
| 1:lA:3364:U:H2'   | 1:lA:3365:C:C6     | 2.50                     | 0.47              |
| 3:lC:103:U:H2'    | 3:lC:104:G:H8      | 1.79                     | 0.47              |
| 6:lF:429:ILE:O    | 20:lT:24:ARG:NH1   | 2.46                     | 0.47              |
| 31:le:14:VAL:HA   | 31:le:17:LYS:HB2   | 1.95                     | 0.47              |
| 40:ln:45:TYR:CE1  | 40:ln:47:CYS:HB3   | 2.49                     | 0.47              |
| 53:sa:1112:A:H2'  | 53:sa:1113:A:C8    | 2.50                     | 0.47              |
| 53:sa:1574:C:O2'  | 73:sv:88:TYR:O     | 2.27                     | 0.47              |
| 1:lA:450:U:H4'    | 1:lA:1550:G:H4'    | 1.97                     | 0.47              |
| 1:lA:3265:C:H2'   | 1:lA:3266:U:C6     | 2.49                     | 0.47              |
| 2:lB:58:G:H2'     | 2:lB:59:C:O4'      | 2.14                     | 0.47              |
| 13:lM:108:GLU:HG2 | 13:lM:122:ILE:HD12 | 1.95                     | 0.47              |
| 28:lb:46:VAL:HG13 | 28:lb:68:VAL:HG13  | 1.96                     | 0.47              |
| 53:sa:1231:U:OP2  | 53:sa:1232:U:O2'   | 2.29                     | 0.47              |
| 53:sa:1266:A:H1'  | 68:sq:78:HIS:HB3   | 1.96                     | 0.47              |
| 53:sa:1357:C:OP1  | 71:st:43:THR:HG21  | 2.15                     | 0.47              |
| 54:sb:163:ASN:O   | 75:sx:57:ARG:NH2   | 2.46                     | 0.47              |
| 64:sl:9:ILE:O     | 64:sl:13:LYS:HG2   | 2.14                     | 0.47              |
| 1:lA:496:A:H2'    | 1:lA:497:U:O4'     | 2.15                     | 0.47              |
| 1:lA:574:U:H2'    | 1:lA:575:A:C8      | 2.50                     | 0.47              |
| 1:lA:1346:G:N2    | 1:lA:1409:G:O2'    | 2.42                     | 0.47              |
| 1:lA:2141:A:H2'   | 1:lA:2142:G:H8     | 1.79                     | 0.47              |
| 1:lA:2483:C:H2'   | 1:lA:2484:U:H6     | 1.80                     | 0.47              |
| 1:lA:3170:A:H2'   | 1:lA:3171:A:C8     | 2.48                     | 0.47              |
| 12:lL:27:PRO:HA   | 50:sI:64:G:H4'     | 1.96                     | 0.47              |
| 16:lP:108:THR:H   | 16:lP:111:ASP:HB2  | 1.80                     | 0.47              |
| 28:lb:20:GLY:HA3  | 28:lb:139:PHE:CZ   | 2.48                     | 0.47              |
| 53:sa:619:C:H2'   | 53:sa:620:U:H6     | 1.79                     | 0.47              |
| 53:sa:1170:U:H2'  | 53:sa:1171:U:H6    | 1.73                     | 0.47              |
| 53:sa:1246:A:N6   | 53:sa:1247:G:O6    | 2.48                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 53:sa:1356:A:H61   | 56:sd:175:GLY:CA   | 2.28                     | 0.47              |
| 53:sa:1394:A:O2'   | 53:sa:1395:A:O4'   | 2.33                     | 0.47              |
| 56:sd:75:ASP:OD1   | 56:sd:75:ASP:N     | 2.47                     | 0.47              |
| 57:se:125:THR:OG1  | 57:se:126:SER:N    | 2.48                     | 0.47              |
| 58:sf:208:ILE:HB   | 58:sf:216:PHE:CE1  | 2.50                     | 0.47              |
| 72:su:100:ILE:H    | 72:su:100:ILE:HD12 | 1.79                     | 0.47              |
| 1:lA:732:U:HO2'    | 1:lA:733:C:P       | 2.36                     | 0.47              |
| 1:lA:1006:A:H2'    | 1:lA:1007:C:C6     | 2.50                     | 0.47              |
| 1:lA:1686:G:N2     | 1:lA:1689:A:OP2    | 2.48                     | 0.47              |
| 1:lA:2304:A:H2'    | 1:lA:2305:C:C6     | 2.50                     | 0.47              |
| 1:lA:2348:G:N2     | 1:lA:2348:G:OP2    | 2.45                     | 0.47              |
| 1:lA:3196:U:H2'    | 1:lA:3197:C:C6     | 2.49                     | 0.47              |
| 1:lA:3223:G:C2     | 1:lA:3224:A:C8     | 3.03                     | 0.47              |
| 11:lK:19:ILE:HD11  | 11:lK:89:ILE:HD11  | 1.95                     | 0.47              |
| 12:lL:30:ARG:HG3   | 12:lL:63:GLU:HG3   | 1.97                     | 0.47              |
| 17:lQ:70:ASN:ND2   | 17:lQ:92:ILE:O     | 2.29                     | 0.47              |
| 24:lX:42:VAL:HG22  | 24:lX:61:VAL:HG12  | 1.96                     | 0.47              |
| 44:sA:50:PHE:CE2   | 44:sA:87:LEU:HD21  | 2.50                     | 0.47              |
| 57:se:84:TYR:O     | 57:se:85:ASN:ND2   | 2.45                     | 0.47              |
| 60:sh:154:LYS:H    | 60:sh:154:LYS:HD2  | 1.80                     | 0.47              |
| 70:ss:55:ASN:O     | 70:ss:57:PRO:HD3   | 2.15                     | 0.47              |
| 1:lA:208:U:H2'     | 1:lA:209:A:H8      | 1.80                     | 0.47              |
| 1:lA:386:U:OP2     | 6:lF:198:ARG:NH2   | 2.33                     | 0.47              |
| 1:lA:2504:U:H2'    | 1:lA:2505:A:C8     | 2.49                     | 0.47              |
| 1:lA:2900:G:O2'    | 1:lA:2901:U:OP1    | 2.28                     | 0.47              |
| 1:lA:3303:A:H2'    | 1:lA:3304:C:C6     | 2.50                     | 0.47              |
| 1:lA:3412:U:H5''   | 1:lA:3413:U:OP2    | 2.15                     | 0.47              |
| 3:lC:30:U:H2'      | 3:lC:31:G:C8       | 2.50                     | 0.47              |
| 3:lC:85:G:H22      | 3:lC:90:G:H1       | 1.63                     | 0.47              |
| 6:lF:115:THR:HB    | 6:lF:120:ARG:HD2   | 1.97                     | 0.47              |
| 13:lM:35:LYS:HA    | 13:lM:35:LYS:HD2   | 1.66                     | 0.47              |
| 19:lS:18:ALA:HB3   | 19:lS:26:LYS:HD3   | 1.97                     | 0.47              |
| 27:la:2:LYS:HE3    | 27:la:2:LYS:HB3    | 1.64                     | 0.47              |
| 35:li:69:PRO:HD2   | 35:li:72:LEU:HD12  | 1.96                     | 0.47              |
| 53:sa:96:C:H2'     | 53:sa:97:U:H6      | 1.80                     | 0.47              |
| 53:sa:900:U:O2'    | 53:sa:901:A:OP1    | 2.30                     | 0.47              |
| 53:sa:903:A:H2'    | 53:sa:904:A:C8     | 2.50                     | 0.47              |
| 53:sa:1734:G:H4'   | 53:sa:1735:A:O5'   | 2.13                     | 0.47              |
| 53:sa:1880:U:H2'   | 53:sa:1881:C:H6    | 1.79                     | 0.47              |
| 56:sd:152:ILE:HD12 | 56:sd:166:PHE:HE1  | 1.80                     | 0.47              |
| 63:sk:66:ASP:OD2   | 63:sk:69:ARG:N     | 2.48                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:1A:1105:U:H2'    | 1:1A:1106:U:H6     | 1.79                     | 0.47              |
| 1:1A:1534:U:H2'    | 1:1A:1535:A:H8     | 1.78                     | 0.47              |
| 1:1A:3447:A:H2'    | 1:1A:3448:G:O4'    | 2.15                     | 0.47              |
| 3:1C:26:U:O2       | 3:1C:52:G:N2       | 2.45                     | 0.47              |
| 3:1C:84:G:H1       | 3:1C:91:G:N2       | 2.12                     | 0.47              |
| 8:1H:98:ASN:HB3    | 8:1H:100:VAL:HG23  | 1.97                     | 0.47              |
| 17:1Q:66:ILE:HD12  | 17:1Q:102:ALA:HB2  | 1.96                     | 0.47              |
| 17:1Q:114:ARG:HD3  | 17:1Q:151:ILE:HG12 | 1.96                     | 0.47              |
| 20:1T:78:VAL:HG22  | 20:1T:83:ILE:HG12  | 1.97                     | 0.47              |
| 40:1n:13:LYS:HA    | 40:1n:16:LYS:HG2   | 1.97                     | 0.47              |
| 44:sA:54:THR:HA    | 44:sA:57:LYS:HG2   | 1.97                     | 0.47              |
| 53:sa:389:U:H3     | 53:sa:396:A:N6     | 1.91                     | 0.47              |
| 53:sa:392:A:OP2    | 62:sj:47:ARG:NH2   | 2.43                     | 0.47              |
| 53:sa:1355:G:C2    | 53:sa:1356:A:H1'   | 2.50                     | 0.47              |
| 53:sa:1438:A:N6    | 53:sa:1516:G:H21   | 2.13                     | 0.47              |
| 53:sa:1512:A:H2'   | 53:sa:1513:A:C8    | 2.50                     | 0.47              |
| 57:se:33:ASN:ND2   | 57:se:35:LYS:HE2   | 2.30                     | 0.47              |
| 67:sp:90:ILE:HB    | 67:sp:124:ILE:HG23 | 1.97                     | 0.47              |
| 1:1A:1519:A:H5'    | 1:1A:1521:A:H61    | 1.79                     | 0.46              |
| 1:1A:2091:G:OP1    | 5:1E:248:LEU:N     | 2.38                     | 0.46              |
| 1:1A:3040:A:H5''   | 42:lp:50:LYS:HG3   | 1.98                     | 0.46              |
| 1:1A:3370:A:H2'    | 1:1A:3371:U:C6     | 2.50                     | 0.46              |
| 6:1F:2:SER:O       | 6:1F:2:SER:OG      | 2.28                     | 0.46              |
| 9:1I:163:ASP:OD1   | 9:1I:163:ASP:N     | 2.48                     | 0.46              |
| 13:1M:18:VAL:HG13  | 13:1M:70:THR:HG22  | 1.96                     | 0.46              |
| 53:sa:1892:G:N2    | 53:sa:1893:A:H62   | 2.13                     | 0.46              |
| 69:sr:32:LYS:O     | 69:sr:36:GLU:HG2   | 2.15                     | 0.46              |
| 73:sv:57:ARG:NH1   | 73:sv:101:ASN:OD1  | 2.45                     | 0.46              |
| 1:1A:343:A:H62     | 17:1Q:12:ARG:HH12  | 1.62                     | 0.46              |
| 1:1A:381:A:H2'     | 1:1A:382:A:H8      | 1.79                     | 0.46              |
| 1:1A:2230:U:H2'    | 1:1A:2231:C:H6     | 1.79                     | 0.46              |
| 1:1A:2383:G:O2'    | 1:1A:2386:U:OP2    | 2.33                     | 0.46              |
| 1:1A:3274:U:H4'    | 42:lp:29:PRO:HG3   | 1.96                     | 0.46              |
| 1:1A:3369:U:H2'    | 1:1A:3370:A:C8     | 2.50                     | 0.46              |
| 1:1A:3372:U:O2'    | 1:1A:3374:C:OP2    | 2.26                     | 0.46              |
| 6:1F:100:HIS:ND1   | 6:1F:101:MET:O     | 2.38                     | 0.46              |
| 6:1F:398:LYS:HA    | 6:1F:398:LYS:HD3   | 1.80                     | 0.46              |
| 11:1K:174:ARG:HA   | 11:1K:174:ARG:HD3  | 1.79                     | 0.46              |
| 19:1S:16:LYS:HE3   | 19:1S:16:LYS:HB2   | 1.75                     | 0.46              |
| 22:1V:117:LYS:O    | 22:1V:120:ILE:HG12 | 2.15                     | 0.46              |
| 32:1f:118:ILE:HD12 | 32:1f:124:LYS:HB3  | 1.97                     | 0.46              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 38:ll:18:LEU:HD11 | 41:lo:51:MET:HE3  | 1.96                     | 0.46              |
| 50:sI:27:C:H2'    | 50:sI:28:G:C8     | 2.50                     | 0.46              |
| 53:sa:335:U:H2'   | 53:sa:336:A:C8    | 2.45                     | 0.46              |
| 53:sa:1195:G:C2   | 53:sa:1196:A:C8   | 3.03                     | 0.46              |
| 53:sa:1204:G:H21  | 53:sa:1567:A:H62  | 1.61                     | 0.46              |
| 55:sc:181:VAL:O   | 55:sc:200:THR:OG1 | 2.30                     | 0.46              |
| 56:sd:56:ASN:HD21 | 56:sd:59:LYS:HB3  | 1.80                     | 0.46              |
| 70:ss:65:GLU:O    | 70:ss:69:ILE:HG12 | 2.15                     | 0.46              |
| 76:sy:51:GLU:O    | 76:sy:69:ARG:N    | 2.40                     | 0.46              |
| 1:lA:1403:C:H2'   | 1:lA:1404:C:H6    | 1.81                     | 0.46              |
| 1:lA:1512:G:OP2   | 6:lF:191:ARG:NH1  | 2.48                     | 0.46              |
| 1:lA:1940:A:H2'   | 1:lA:1941:A:H8    | 1.80                     | 0.46              |
| 1:lA:2287:U:OP1   | 51:sJ:3:C:O2'     | 2.34                     | 0.46              |
| 1:lA:2427:U:H2'   | 1:lA:2428:A:H8    | 1.80                     | 0.46              |
| 1:lA:3156:U:O2'   | 5:lE:182:GLU:OE2  | 2.25                     | 0.46              |
| 1:lA:3356:U:H5'   | 15:lO:6:LYS:HG3   | 1.98                     | 0.46              |
| 1:lA:3360:U:OP1   | 16:lP:120:ARG:NH1 | 2.49                     | 0.46              |
| 42:lp:14:TYR:O    | 42:lp:18:LYS:NZ   | 2.47                     | 0.46              |
| 53:sa:328:C:C5    | 62:sj:49:ARG:HD2  | 2.50                     | 0.46              |
| 53:sa:1536:G:H2'  | 53:sa:1537:U:C6   | 2.50                     | 0.46              |
| 53:sa:1756:U:H2'  | 53:sa:1757:C:C6   | 2.51                     | 0.46              |
| 56:sd:39:LEU:HB2  | 56:sd:43:LEU:HD13 | 1.96                     | 0.46              |
| 57:se:73:ALA:HB2  | 57:se:82:GLY:CA   | 2.45                     | 0.46              |
| 60:sh:98:ARG:HH21 | 60:sh:105:ASP:HB2 | 1.81                     | 0.46              |
| 77:sz:24:LYS:HD2  | 77:sz:79:ILE:HD11 | 1.97                     | 0.46              |
| 1:lA:587:A:O2'    | 1:lA:588:G:O5'    | 2.30                     | 0.46              |
| 1:lA:2482:C:H2'   | 1:lA:2483:C:H6    | 1.80                     | 0.46              |
| 1:lA:3332:A:H1'   | 1:lA:3375:U:O2'   | 2.16                     | 0.46              |
| 5:lE:40:LYS:HD3   | 5:lE:41:PRO:N     | 2.30                     | 0.46              |
| 31:le:13:GLY:O    | 31:le:16:SER:N    | 2.48                     | 0.46              |
| 53:sa:1391:C:C2   | 53:sa:1392:A:N7   | 2.84                     | 0.46              |
| 53:sa:1690:A:O2'  | 53:sa:1691:A:H8   | 1.98                     | 0.46              |
| 55:sc:71:VAL:HG11 | 55:sc:138:MET:HE3 | 1.97                     | 0.46              |
| 62:sj:57:ALA:HB1  | 62:sj:60:LEU:HD21 | 1.97                     | 0.46              |
| 1:lA:866:G:H2'    | 1:lA:867:U:C6     | 2.50                     | 0.46              |
| 1:lA:1406:A:H2'   | 1:lA:1407:U:C6    | 2.50                     | 0.46              |
| 1:lA:1752:U:H2'   | 1:lA:1753:A:O4'   | 2.15                     | 0.46              |
| 1:lA:1888:A:H2'   | 1:lA:1889:U:C6    | 2.51                     | 0.46              |
| 1:lA:2978:C:H2'   | 1:lA:2979:C:O2    | 2.15                     | 0.46              |
| 1:lA:3091:C:H5''  | 5:lE:245:HIS:HB3  | 1.98                     | 0.46              |
| 1:lA:3481:U:H2'   | 1:lA:3482:C:C6    | 2.50                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 6:1F:101:MET:HG3   | 6:1F:102:PHE:O     | 2.15                     | 0.46              |
| 6:1F:305:ARG:HE    | 6:1F:308:ILE:HG13  | 1.79                     | 0.46              |
| 14:1N:101:GLU:HB3  | 37:1k:18:MET:HE2   | 1.97                     | 0.46              |
| 15:1O:107:GLU:H    | 15:1O:107:GLU:HG2  | 1.56                     | 0.46              |
| 31:1e:47:ILE:HG12  | 31:1e:72:VAL:HB    | 1.97                     | 0.46              |
| 53:sa:853:U:H2'    | 53:sa:854:U:C6     | 2.50                     | 0.46              |
| 53:sa:1749:U:H5''  | 70:ss:150:ARG:HH22 | 1.80                     | 0.46              |
| 53:sa:1776:G:H5''  | 59:sg:88:LYS:HB2   | 1.97                     | 0.46              |
| 53:sa:1815:C:H2'   | 53:sa:1816:U:C6    | 2.50                     | 0.46              |
| 56:sd:138:ARG:NH2  | 56:sd:142:ASP:OD2  | 2.47                     | 0.46              |
| 58:sf:121:LEU:HD21 | 58:sf:233:LEU:HD22 | 1.97                     | 0.46              |
| 1:1A:739:A:H2'     | 1:1A:740:A:H8      | 1.80                     | 0.46              |
| 1:1A:1474:A:O2'    | 27:1a:176:GLU:OE2  | 2.29                     | 0.46              |
| 1:1A:2225:A:O2'    | 4:1D:179:ILE:O     | 2.28                     | 0.46              |
| 1:1A:2590:A:OP2    | 1:1A:2591:U:H5     | 1.98                     | 0.46              |
| 1:1A:3455:G:C6     | 1:1A:3500:A:N1     | 2.84                     | 0.46              |
| 3:1C:106:U:H2'     | 3:1C:107:A:H8      | 1.80                     | 0.46              |
| 7:1G:106:ALA:HB2   | 7:1G:167:MET:HA    | 1.97                     | 0.46              |
| 11:1K:100:MET:HE1  | 11:1K:167:ILE:HB   | 1.98                     | 0.46              |
| 18:1R:46:GLU:OE1   | 18:1R:46:GLU:N     | 2.48                     | 0.46              |
| 31:1e:40:ASP:HB2   | 31:1e:42:LYS:HG2   | 1.98                     | 0.46              |
| 53:sa:5:U:H2'      | 53:sa:6:G:C8       | 2.50                     | 0.46              |
| 53:sa:887:A:H2'    | 53:sa:888:A:H8     | 1.79                     | 0.46              |
| 53:sa:1391:C:C2    | 53:sa:1392:A:C8    | 3.04                     | 0.46              |
| 53:sa:1682:A:H4'   | 53:sa:1684:A:N7    | 2.31                     | 0.46              |
| 57:se:38:LYS:H     | 57:se:38:LYS:HD2   | 1.81                     | 0.46              |
| 58:sf:251:ASN:OD1  | 58:sf:251:ASN:N    | 2.49                     | 0.46              |
| 60:sh:199:ALA:HB3  | 60:sh:203:HIS:HB2  | 1.97                     | 0.46              |
| 1:1A:564:A:H4'     | 1:1A:565:U:O5'     | 2.16                     | 0.46              |
| 1:1A:1057:C:OP2    | 29:1c:26:ARG:NH1   | 2.45                     | 0.46              |
| 1:1A:1605:A:H2     | 1:1A:3430:U:N3     | 2.12                     | 0.46              |
| 1:1A:2505:A:H2'    | 1:1A:2506:U:C6     | 2.51                     | 0.46              |
| 1:1A:3033:C:O2'    | 1:1A:3076:A:N3     | 2.41                     | 0.46              |
| 1:1A:3323:C:O2'    | 1:1A:3419:A:N1     | 2.47                     | 0.46              |
| 3:1C:61:A:OP1      | 7:1G:271:ARG:HG3   | 2.16                     | 0.46              |
| 4:1D:105:GLY:HA3   | 4:1D:160:SER:HB2   | 1.97                     | 0.46              |
| 10:1J:125:LYS:HD2  | 10:1J:126:PRO:HD2  | 1.96                     | 0.46              |
| 11:1K:100:MET:HE2  | 11:1K:152:LEU:HD11 | 1.98                     | 0.46              |
| 21:1U:92:LYS:O     | 21:1U:96:ILE:HG13  | 2.16                     | 0.46              |
| 36:1j:34:VAL:HG13  | 36:1j:39:ASP:HB2   | 1.98                     | 0.46              |
| 48:sE:52:PHE:HB3   | 74:sw:80:TYR:HB3   | 1.96                     | 0.46              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 53:sa:443:U:H2'   | 53:sa:444:U:C6    | 2.51                     | 0.46              |
| 53:sa:1115:C:N4   | 53:sa:1116:U:O4   | 2.49                     | 0.46              |
| 53:sa:1441:C:O2'  | 53:sa:1442:A:O5'  | 2.30                     | 0.46              |
| 59:sg:51:LEU:HD12 | 70:ss:62:LYS:HB2  | 1.97                     | 0.46              |
| 70:ss:54:ILE:HG12 | 70:ss:56:PRO:HD2  | 1.97                     | 0.46              |
| 1:lA:255:A:H4'    | 1:lA:257:A:N7     | 2.30                     | 0.46              |
| 1:lA:548:A:H2'    | 1:lA:549:U:C6     | 2.51                     | 0.46              |
| 1:lA:1985:A:H2'   | 1:lA:1986:A:C8    | 2.51                     | 0.46              |
| 1:lA:2209:U:O4    | 1:lA:2223:A:H2    | 1.99                     | 0.46              |
| 1:lA:2601:U:O2'   | 1:lA:2659:A:OP1   | 2.30                     | 0.46              |
| 1:lA:2863:A:N1    | 37:lk:16:HIS:HB3  | 2.30                     | 0.46              |
| 1:lA:3278:A:C2    | 1:lA:3279:A:C8    | 3.04                     | 0.46              |
| 2:lB:143:U:H2'    | 2:lB:144:A:C8     | 2.51                     | 0.46              |
| 3:lC:14:G:H2'     | 3:lC:15:A:C8      | 2.51                     | 0.46              |
| 5:lE:80:GLU:OE1   | 5:lE:315:TYR:OH   | 2.31                     | 0.46              |
| 6:lF:4:ARG:NH2    | 6:lF:263:ASN:HD21 | 2.14                     | 0.46              |
| 30:ld:2:SER:O     | 30:ld:2:SER:OG    | 2.26                     | 0.46              |
| 45:sB:51:ARG:O    | 45:sB:54:SER:OG   | 2.25                     | 0.46              |
| 53:sa:5:U:O2'     | 53:sa:547:G:H4'   | 2.16                     | 0.46              |
| 53:sa:69:G:N2     | 53:sa:80:A:H62    | 2.13                     | 0.46              |
| 53:sa:466:A:O2'   | 63:sk:9:SER:O     | 2.26                     | 0.46              |
| 53:sa:1731:U:H2'  | 53:sa:1732:U:C6   | 2.51                     | 0.46              |
| 60:sh:138:ALA:O   | 60:sh:142:ARG:HB2 | 2.16                     | 0.46              |
| 63:sk:57:LYS:HB2  | 63:sk:57:LYS:HE3  | 1.67                     | 0.46              |
| 66:so:18:TYR:OH   | 69:sr:54:ASP:OD2  | 2.25                     | 0.46              |
| 69:sr:28:ARG:HB3  | 69:sr:29:PRO:HD3  | 1.98                     | 0.46              |
| 1:lA:243:G:O2'    | 1:lA:264:G:N2     | 2.49                     | 0.46              |
| 1:lA:662:U:HO2'   | 1:lA:663:G:P      | 2.39                     | 0.46              |
| 1:lA:1809:A:C6    | 28:lb:64:MET:HE3  | 2.50                     | 0.46              |
| 1:lA:1922:U:H2'   | 1:lA:1923:U:C6    | 2.51                     | 0.46              |
| 1:lA:3500:A:H2'   | 1:lA:3501:A:H8    | 1.80                     | 0.46              |
| 24:lX:60:MET:HE3  | 24:lX:108:MET:HE2 | 1.97                     | 0.46              |
| 28:lb:91:GLN:HG2  | 28:lb:129:LYS:HE3 | 1.98                     | 0.46              |
| 53:sa:64:A:OP1    | 60:sh:182:GLN:NE2 | 2.34                     | 0.46              |
| 53:sa:253:A:H2'   | 53:sa:253:A:N3    | 2.30                     | 0.46              |
| 53:sa:390:U:O4    | 53:sa:394:A:N7    | 2.49                     | 0.46              |
| 53:sa:1931:C:H2'  | 53:sa:1932:U:C6   | 2.51                     | 0.46              |
| 69:sr:82:THR:HG22 | 69:sr:84:SER:H    | 1.81                     | 0.46              |
| 73:sv:99:LYS:NZ   | 73:sv:103:TYR:HB2 | 2.30                     | 0.46              |
| 1:lA:18:G:H1'     | 2:lB:102:A:N3     | 2.31                     | 0.46              |
| 1:lA:871:A:H2'    | 1:lA:872:A:O4'    | 2.16                     | 0.46              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:1A:1840:A:H2'   | 1:1A:1841:G:C8     | 2.51                     | 0.46              |
| 1:1A:1922:U:H2'   | 1:1A:1923:U:H6     | 1.81                     | 0.46              |
| 1:1A:2276:U:C2    | 1:1A:2277:G:C8     | 3.04                     | 0.46              |
| 1:1A:3026:U:H2'   | 1:1A:3027:C:H6     | 1.81                     | 0.46              |
| 3:1C:69:U:H2'     | 3:1C:70:U:C6       | 2.51                     | 0.46              |
| 19:1S:156:LYS:HD2 | 19:1S:156:LYS:HA   | 1.78                     | 0.46              |
| 19:1S:160:LYS:HD3 | 19:1S:160:LYS:HA   | 1.57                     | 0.46              |
| 24:1X:85:ARG:HE   | 24:1X:85:ARG:HB2   | 1.62                     | 0.46              |
| 33:lg:38:GLY:O    | 33:lg:44:ARG:HD3   | 2.16                     | 0.46              |
| 33:lg:88:MET:SD   | 33:lg:88:MET:N     | 2.82                     | 0.46              |
| 42:lp:4:GLU:H     | 42:lp:4:GLU:CD     | 2.22                     | 0.46              |
| 42:lp:33:THR:O    | 42:lp:33:THR:OG1   | 2.33                     | 0.46              |
| 48:sE:20:THR:HG22 | 48:sE:27:ARG:HD3   | 1.98                     | 0.46              |
| 53:sa:14:C:H2'    | 53:sa:15:U:C6      | 2.51                     | 0.46              |
| 53:sa:73:A:H1'    | 53:sa:74:A:C8      | 2.52                     | 0.46              |
| 53:sa:1690:A:N1   | 53:sa:1774:A:H1'   | 2.31                     | 0.46              |
| 53:sa:1882:U:H2'  | 53:sa:1883:C:C6    | 2.51                     | 0.46              |
| 56:sd:205:ASP:O   | 56:sd:208:PRO:HD2  | 2.16                     | 0.46              |
| 58:sf:67:THR:HG21 | 77:sz:20:LEU:HD11  | 1.98                     | 0.46              |
| 63:sk:64:ALA:HA   | 63:sk:69:ARG:HD3   | 1.97                     | 0.46              |
| 76:sy:52:LYS:HA   | 76:sy:68:VAL:HA    | 1.98                     | 0.46              |
| 77:sz:18:ASN:OD1  | 77:sz:25:GLN:NE2   | 2.47                     | 0.46              |
| 1:1A:255:A:N3     | 6:1F:225:ASN:ND2   | 2.61                     | 0.45              |
| 1:1A:542:U:H2'    | 1:1A:543:A:H8      | 1.81                     | 0.45              |
| 1:1A:832:A:O2'    | 1:1A:833:U:OP1     | 2.30                     | 0.45              |
| 1:1A:2205:C:H2'   | 1:1A:2206:G:C8     | 2.51                     | 0.45              |
| 1:1A:3352:G:H4'   | 1:1A:3353:U:H5''   | 1.97                     | 0.45              |
| 11:1K:136:MET:HE3 | 11:1K:136:MET:HB3  | 1.75                     | 0.45              |
| 27:la:85:LYS:HB2  | 27:la:95:ILE:HD11  | 1.98                     | 0.45              |
| 34:lh:46:ASP:OD1  | 34:lh:46:ASP:N     | 2.49                     | 0.45              |
| 38:ll:51:TYR:HA   | 38:ll:54:LEU:HD12  | 1.99                     | 0.45              |
| 53:sa:243:U:H4'   | 53:sa:244:U:OP2    | 2.16                     | 0.45              |
| 53:sa:1364:C:O2   | 53:sa:1366:A:N6    | 2.50                     | 0.45              |
| 53:sa:1374:G:H2'  | 53:sa:1375:U:H6    | 1.81                     | 0.45              |
| 53:sa:1545:G:H2'  | 53:sa:1546:C:H6    | 1.81                     | 0.45              |
| 63:sk:69:ARG:HE   | 63:sk:93:LEU:HD12  | 1.81                     | 0.45              |
| 68:sq:92:VAL:HG13 | 68:sq:103:THR:HG23 | 1.97                     | 0.45              |
| 1:1A:480:U:H2'    | 1:1A:481:A:O4'     | 2.16                     | 0.45              |
| 1:1A:874:A:H2'    | 1:1A:875:C:C6      | 2.52                     | 0.45              |
| 1:1A:993:U:N3     | 1:1A:3121:U:OP1    | 2.27                     | 0.45              |
| 1:1A:1131:G:H2'   | 1:1A:1132:U:C6     | 2.51                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:lA:1627:G:H21    | 34:lh:6:THR:HG22   | 1.81                     | 0.45              |
| 1:lA:1756:U:C2     | 1:lA:1757:C:C5     | 3.03                     | 0.45              |
| 1:lA:2637:A:H2'    | 1:lA:2638:A:H8     | 1.81                     | 0.45              |
| 1:lA:3008:U:HO2'   | 1:lA:3009:C:P      | 2.39                     | 0.45              |
| 1:lA:3223:G:N3     | 1:lA:3224:A:C8     | 2.85                     | 0.45              |
| 2:lb:143:U:H2'     | 2:lb:144:A:H8      | 1.81                     | 0.45              |
| 3:lC:36:U:H2'      | 3:lC:37:A:C8       | 2.51                     | 0.45              |
| 5:IE:286:ARG:NH2   | 5:IE:296:LYS:O     | 2.49                     | 0.45              |
| 11:lK:113:ILE:HG12 | 11:lK:120:ILE:HG13 | 1.98                     | 0.45              |
| 12:IL:32:LYS:HB3   | 12:IL:32:LYS:HE3   | 1.81                     | 0.45              |
| 53:sa:403:C:C2     | 53:sa:404:C:C5     | 3.04                     | 0.45              |
| 53:sa:840:U:H2'    | 53:sa:841:U:H6     | 1.81                     | 0.45              |
| 53:sa:1433:A:OP1   | 74:sw:87:ARG:NH2   | 2.33                     | 0.45              |
| 57:se:192:GLU:OE2  | 57:se:196:PRO:HD3  | 2.15                     | 0.45              |
| 71:st:82:ASP:OD1   | 71:st:82:ASP:N     | 2.47                     | 0.45              |
| 72:su:96:ASP:OD1   | 72:su:97:SER:N     | 2.50                     | 0.45              |
| 1:lA:228:A:H2'     | 1:lA:229:A:C8      | 2.51                     | 0.45              |
| 1:lA:1047:U:H2'    | 1:lA:1048:A:C8     | 2.51                     | 0.45              |
| 2:lb:73:A:H5'      | 27:la:73:ARG:HH22  | 1.82                     | 0.45              |
| 6:lF:411:MET:HE3   | 6:lF:411:MET:HB3   | 1.81                     | 0.45              |
| 11:lK:94:LYS:HE3   | 11:lK:94:LYS:HB2   | 1.82                     | 0.45              |
| 28:lb:124:GLU:OE1  | 28:lb:129:LYS:HD3  | 2.16                     | 0.45              |
| 48:sE:14:TYR:HB3   | 53:sa:1763:A:H8    | 1.80                     | 0.45              |
| 48:sE:17:GLY:N     | 53:sa:1230:C:O2    | 2.48                     | 0.45              |
| 53:sa:1662:G:O2'   | 53:sa:1687:C:N4    | 2.44                     | 0.45              |
| 56:sd:37:GLU:OE1   | 64:sl:60:TRP:NE1   | 2.39                     | 0.45              |
| 57:se:50:VAL:HG21  | 57:se:58:ILE:HG23  | 1.98                     | 0.45              |
| 57:se:108:THR:HG23 | 57:se:111:LYS:H    | 1.81                     | 0.45              |
| 73:sv:6:ASN:HB2    | 73:sv:66:TYR:OH    | 2.16                     | 0.45              |
| 1:lA:661:G:H2'     | 1:lA:662:U:C6      | 2.51                     | 0.45              |
| 1:lA:709:U:HO2'    | 1:lA:710:A:P       | 2.38                     | 0.45              |
| 1:lA:1071:A:H5''   | 30:ld:15:LYS:HD3   | 1.99                     | 0.45              |
| 1:lA:2297:G:N2     | 1:lA:2300:A:OP2    | 2.44                     | 0.45              |
| 1:lA:3332:A:H2'    | 1:lA:3333:A:C8     | 2.52                     | 0.45              |
| 11:lK:140:VAL:HG13 | 11:lK:160:VAL:HG22 | 1.98                     | 0.45              |
| 14:lN:72:GLY:HA2   | 14:lN:94:ALA:C     | 2.41                     | 0.45              |
| 14:lN:72:GLY:HA3   | 14:lN:96:ASP:HB2   | 1.98                     | 0.45              |
| 14:lN:124:LEU:HD21 | 35:li:109:PHE:HE1  | 1.81                     | 0.45              |
| 28:lb:33:THR:OG1   | 28:lb:35:ASP:OD1   | 2.30                     | 0.45              |
| 31:le:8:LYS:HA     | 31:le:8:LYS:HD2    | 1.53                     | 0.45              |
| 42:lp:35:CYS:O     | 42:lp:42:HIS:HA    | 2.16                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 50:sI:63:U:H2'     | 50:sI:64:G:C8      | 2.51                     | 0.45              |
| 53:sa:77:A:H4'     | 60:sh:159:ARG:HH22 | 1.81                     | 0.45              |
| 53:sa:1377:U:H2'   | 53:sa:1378:U:H6    | 1.82                     | 0.45              |
| 72:su:68:ILE:O     | 72:su:71:ILE:HG22  | 2.16                     | 0.45              |
| 1:lA:258:G:C8      | 6:lF:227:PRO:HG3   | 2.51                     | 0.45              |
| 1:lA:1310:A:N3     | 20:lT:108:SER:OG   | 2.47                     | 0.45              |
| 1:lA:2482:C:H2'    | 1:lA:2483:C:C6     | 2.51                     | 0.45              |
| 1:lA:3026:U:H2'    | 1:lA:3027:C:C6     | 2.52                     | 0.45              |
| 3:lC:79:G:C6       | 3:lC:95:A:N1       | 2.84                     | 0.45              |
| 14:lN:15:ASP:OD2   | 14:lN:18:SER:OG    | 2.30                     | 0.45              |
| 23:lW:47:VAL:HA    | 23:lW:68:VAL:HG11  | 1.97                     | 0.45              |
| 47:sD:33:CYS:O     | 47:sD:42:ILE:N     | 2.44                     | 0.45              |
| 53:sa:60:A:H2'     | 53:sa:61:A:H5''    | 1.99                     | 0.45              |
| 53:sa:1590:A:H2'   | 53:sa:1591:G:C8    | 2.51                     | 0.45              |
| 56:sd:8:LYS:HG2    | 64:sl:24:HIS:CD2   | 2.52                     | 0.45              |
| 57:se:66:ARG:NH2   | 57:se:87:LYS:HE2   | 2.31                     | 0.45              |
| 75:sx:23:ALA:HB3   | 75:sx:26:ASP:HB2   | 1.99                     | 0.45              |
| 1:lA:34:U:H2'      | 1:lA:35:A:O4'      | 2.17                     | 0.45              |
| 1:lA:97:A:H2'      | 1:lA:98:A:O4'      | 2.16                     | 0.45              |
| 1:lA:797:C:C2      | 1:lA:798:U:C5      | 3.04                     | 0.45              |
| 1:lA:2593:U:H5     | 1:lA:2659:A:N1     | 2.15                     | 0.45              |
| 4:lD:59:ALA:HB2    | 4:lD:78:CYS:SG     | 2.57                     | 0.45              |
| 37:lk:73:THR:HB    | 37:lk:76:ARG:HB2   | 1.99                     | 0.45              |
| 46:sC:20:HIS:HB3   | 46:sC:23:LYS:HG3   | 1.98                     | 0.45              |
| 53:sa:164:A:C4     | 53:sa:166:A:C8     | 3.05                     | 0.45              |
| 53:sa:889:U:C2     | 53:sa:890:C:C5     | 3.04                     | 0.45              |
| 53:sa:1374:G:H2'   | 53:sa:1375:U:C6    | 2.52                     | 0.45              |
| 56:sd:119:ILE:HD11 | 56:sd:136:VAL:HG11 | 1.98                     | 0.45              |
| 60:sh:98:ARG:HH22  | 60:sh:103:ALA:HB3  | 1.81                     | 0.45              |
| 65:sm:57:CYS:O     | 65:sm:61:SER:HB3   | 2.17                     | 0.45              |
| 73:sv:29:LEU:HD22  | 73:sv:55:TYR:HE1   | 1.82                     | 0.45              |
| 73:sv:97:SER:HB3   | 73:sv:100:VAL:HG22 | 1.97                     | 0.45              |
| 77:sz:21:LEU:HD12  | 77:sz:23:ARG:HE    | 1.80                     | 0.45              |
| 1:lA:10:U:H2'      | 1:lA:11:A:H8       | 1.82                     | 0.45              |
| 1:lA:424:A:OP2     | 1:lA:438:G:H1'     | 2.17                     | 0.45              |
| 1:lA:631:G:N2      | 1:lA:632:G:N3      | 2.64                     | 0.45              |
| 1:lA:670:A:H2      | 6:lF:397:LEU:HD23  | 1.81                     | 0.45              |
| 1:lA:2835:C:O3'    | 43:lq:37:GLY:HA3   | 2.16                     | 0.45              |
| 1:lA:2857:A:H4'    | 1:lA:2858:A:OP1    | 2.17                     | 0.45              |
| 1:lA:3455:G:H21    | 5:lE:310:GLY:HA2   | 1.82                     | 0.45              |
| 7:lG:30:TYR:O      | 7:lG:34:ARG:HG3    | 2.17                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 8:lH:167:LYS:HA    | 8:lH:167:LYS:HD2   | 1.61                     | 0.45              |
| 21:lU:109:TYR:HD2  | 21:lU:142:ILE:HD13 | 1.82                     | 0.45              |
| 42:lp:37:LYS:HA    | 42:lp:37:LYS:HD3   | 1.83                     | 0.45              |
| 50:sI:23:A:H2'     | 50:sI:24:G:C8      | 2.52                     | 0.45              |
| 53:sa:76:U:O2      | 60:sh:159:ARG:NH1  | 2.50                     | 0.45              |
| 53:sa:555:G:H2'    | 53:sa:556:G:C8     | 2.52                     | 0.45              |
| 53:sa:1818:C:H2'   | 53:sa:1819:C:C6    | 2.51                     | 0.45              |
| 54:sb:177:SER:O    | 54:sb:181:MET:HG2  | 2.17                     | 0.45              |
| 56:sd:76:LYS:HE2   | 56:sd:76:LYS:HB2   | 1.80                     | 0.45              |
| 1:lA:342:A:OP2     | 17:lQ:15:GLN:NE2   | 2.48                     | 0.45              |
| 1:lA:579:A:H2'     | 1:lA:580:A:O4'     | 2.17                     | 0.45              |
| 1:lA:1091:A:H2'    | 1:lA:1092:A:H8     | 1.82                     | 0.45              |
| 1:lA:1912:A:N6     | 39:lm:42:CYS:HA    | 2.31                     | 0.45              |
| 1:lA:2669:A:C4     | 1:lA:2670:U:C5     | 3.05                     | 0.45              |
| 1:lA:2730:U:H2'    | 1:lA:2731:G:C8     | 2.50                     | 0.45              |
| 1:lA:2841:A:O2'    | 1:lA:2842:U:OP2    | 2.29                     | 0.45              |
| 1:lA:2890:A:H2'    | 1:lA:2891:G:C8     | 2.51                     | 0.45              |
| 1:lA:3312:U:H2'    | 1:lA:3313:U:C6     | 2.52                     | 0.45              |
| 6:lF:47:ASN:HA     | 6:lF:112:GLN:HG3   | 1.99                     | 0.45              |
| 10:lJ:183:LEU:HB2  | 10:lJ:192:ALA:HB3  | 1.98                     | 0.45              |
| 32:lf:58:LEU:HD11  | 32:lf:70:ALA:HB2   | 1.99                     | 0.45              |
| 42:lp:13:LYS:HA    | 42:lp:17:ASP:HB2   | 1.99                     | 0.45              |
| 42:lp:40:CYS:O     | 42:lp:43:SER:OG    | 2.35                     | 0.45              |
| 44:sA:51:ASP:N     | 44:sA:51:ASP:OD1   | 2.49                     | 0.45              |
| 53:sa:294:G:H1'    | 53:sa:296:G:C8     | 2.52                     | 0.45              |
| 53:sa:839:A:N3     | 53:sa:839:A:H2'    | 2.32                     | 0.45              |
| 53:sa:1880:U:H2'   | 53:sa:1881:C:C6    | 2.52                     | 0.45              |
| 55:sc:121:LYS:HE2  | 55:sc:121:LYS:HB2  | 1.77                     | 0.45              |
| 55:sc:155:THR:HG21 | 55:sc:174:ALA:O    | 2.17                     | 0.45              |
| 60:sh:63:MET:HA    | 60:sh:98:ARG:HB3   | 1.98                     | 0.45              |
| 76:sy:72:LEU:H     | 76:sy:72:LEU:HD12  | 1.82                     | 0.45              |
| 1:lA:619:A:O2'     | 1:lA:620:U:O5'     | 2.33                     | 0.45              |
| 1:lA:1244:C:H2'    | 1:lA:1245:A:C8     | 2.51                     | 0.45              |
| 1:lA:1831:U:H2'    | 1:lA:1832:U:C6     | 2.52                     | 0.45              |
| 1:lA:1886:A:H2'    | 1:lA:1887:A:C8     | 2.51                     | 0.45              |
| 1:lA:2429:G:H5''   | 18:lR:86:LYS:HB2   | 1.97                     | 0.45              |
| 1:lA:2486:U:H5     | 1:lA:2944:A:N1     | 2.14                     | 0.45              |
| 1:lA:2666:G:H2'    | 1:lA:2667:A:H8     | 1.82                     | 0.45              |
| 1:lA:2774:A:O2'    | 1:lA:2775:A:O5'    | 2.32                     | 0.45              |
| 1:lA:2847:A:H61    | 1:lA:2912:U:H3     | 1.64                     | 0.45              |
| 7:lG:282:LEU:HD23  | 7:lG:282:LEU:HA    | 1.77                     | 0.45              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 14:IN:104:LYS:HB2 | 37:lk:16:HIS:HB2   | 1.99                     | 0.45              |
| 34:lh:16:LYS:HA   | 34:lh:16:LYS:HD3   | 1.69                     | 0.45              |
| 53:sa:28:U:H2'    | 53:sa:29:G:H8      | 1.81                     | 0.45              |
| 53:sa:403:C:H2'   | 53:sa:404:C:H6     | 1.82                     | 0.45              |
| 53:sa:794:U:H2'   | 53:sa:795:G:H8     | 1.81                     | 0.45              |
| 53:sa:1173:A:O2'  | 53:sa:1802:C:OP2   | 2.34                     | 0.45              |
| 53:sa:1185:A:H2'  | 53:sa:1186:C:C6    | 2.52                     | 0.45              |
| 53:sa:1319:G:C6   | 53:sa:1320:G:N7    | 2.84                     | 0.45              |
| 53:sa:1864:G:H2'  | 53:sa:1865:A:C8    | 2.52                     | 0.45              |
| 55:sc:247:LYS:HA  | 55:sc:247:LYS:HD2  | 1.73                     | 0.45              |
| 57:se:45:VAL:HG22 | 57:se:75:LEU:HD13  | 1.99                     | 0.45              |
| 59:sg:35:LEU:HD22 | 59:sg:149:ILE:HD11 | 1.99                     | 0.45              |
| 70:ss:69:ILE:HG22 | 70:ss:70:VAL:HG13  | 1.98                     | 0.45              |
| 1:lA:713:G:H3'    | 1:lA:714:U:H5''    | 1.98                     | 0.45              |
| 1:lA:733:C:O2'    | 1:lA:734:C:OP1     | 2.29                     | 0.45              |
| 1:lA:1482:U:H2'   | 1:lA:1483:U:C6     | 2.52                     | 0.45              |
| 1:lA:1858:A:OP2   | 23:IW:87:ARG:NH1   | 2.48                     | 0.45              |
| 1:lA:2368:U:H2'   | 1:lA:2369:C:C6     | 2.51                     | 0.45              |
| 1:lA:2432:A:H2    | 18:IR:131:ARG:HH22 | 1.65                     | 0.45              |
| 1:lA:3207:G:H2'   | 1:lA:3208:A:H8     | 1.82                     | 0.45              |
| 1:lA:3361:A:H2'   | 1:lA:3362:U:C6     | 2.51                     | 0.45              |
| 1:lA:3468:U:H3'   | 1:lA:3469:A:C5'    | 2.46                     | 0.45              |
| 2:IB:48:G:N3      | 2:IB:63:A:H2       | 2.15                     | 0.45              |
| 6:IF:94:ASN:HA    | 6:IF:100:HIS:O     | 2.16                     | 0.45              |
| 14:IN:175:LYS:HE2 | 14:IN:175:LYS:HB2  | 1.75                     | 0.45              |
| 51:sJ:24:C:H2'    | 51:sJ:25:U:C6      | 2.52                     | 0.45              |
| 53:sa:1301:U:H5'  | 56:sd:161:ALA:HB2  | 1.99                     | 0.45              |
| 53:sa:1308:U:OP2  | 53:sa:1309:C:O2'   | 2.19                     | 0.45              |
| 53:sa:1545:G:H2'  | 53:sa:1546:C:C6    | 2.52                     | 0.45              |
| 63:sk:152:SER:HA  | 63:sk:155:LEU:HD12 | 1.98                     | 0.45              |
| 70:ss:97:ARG:NH2  | 70:ss:128:ASP:OD2  | 2.50                     | 0.45              |
| 1:lA:518:A:H2'    | 1:lA:519:A:O4'     | 2.18                     | 0.44              |
| 1:lA:606:A:H2'    | 1:lA:607:U:C6      | 2.52                     | 0.44              |
| 1:lA:857:U:H2'    | 1:lA:858:A:H8      | 1.82                     | 0.44              |
| 1:lA:1876:U:H2'   | 1:lA:1936:A:H61    | 1.82                     | 0.44              |
| 1:lA:2303:U:H2'   | 1:lA:2304:A:C8     | 2.52                     | 0.44              |
| 1:lA:2913:A:H2'   | 1:lA:2914:A:C8     | 2.52                     | 0.44              |
| 5:IE:153:ILE:O    | 5:IE:157:CYS:HB2   | 2.18                     | 0.44              |
| 13:IM:63:ASP:OD1  | 13:IM:63:ASP:N     | 2.36                     | 0.44              |
| 47:sD:51:ARG:HG3  | 47:sD:54:ASP:OD1   | 2.16                     | 0.44              |
| 53:sa:605:C:H5'   | 76:sy:11:MET:HE3   | 1.99                     | 0.44              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 53:sa:1097:C:H2'  | 53:sa:1098:A:C8   | 2.52                     | 0.44              |
| 58:sf:13:PRO:HG3  | 58:sf:37:LYS:HG2  | 1.99                     | 0.44              |
| 64:sl:52:LYS:HD2  | 64:sl:52:LYS:HA   | 1.78                     | 0.44              |
| 67:sp:29:TYR:HB3  | 67:sp:36:PHE:HB2  | 1.98                     | 0.44              |
| 70:ss:108:ASN:HA  | 70:ss:112:VAL:HB  | 1.98                     | 0.44              |
| 74:sw:98:VAL:HG13 | 74:sw:99:LYS:N    | 2.32                     | 0.44              |
| 1:lA:184:A:H2'    | 1:lA:185:G:O4'    | 2.17                     | 0.44              |
| 1:lA:230:U:H2'    | 1:lA:231:U:C6     | 2.53                     | 0.44              |
| 1:lA:467:A:C2     | 1:lA:2439:A:H4'   | 2.52                     | 0.44              |
| 1:lA:720:U:O2'    | 1:lA:721:A:OP1    | 2.31                     | 0.44              |
| 1:lA:919:G:H22    | 6:lF:103:SER:HA   | 1.81                     | 0.44              |
| 1:lA:1095:A:H2    | 1:lA:1099:A:H2    | 1.66                     | 0.44              |
| 1:lA:1569:A:H4'   | 1:lA:1570:U:OP2   | 2.18                     | 0.44              |
| 1:lA:1681:C:C2    | 1:lA:1682:A:C8    | 3.05                     | 0.44              |
| 1:lA:1858:A:H2'   | 1:lA:1859:G:C8    | 2.52                     | 0.44              |
| 1:lA:2414:C:O2    | 24:lX:21:ASN:ND2  | 2.35                     | 0.44              |
| 1:lA:2416:U:OP2   | 5:lE:239:HIS:ND1  | 2.50                     | 0.44              |
| 1:lA:2730:U:OP1   | 1:lA:2820:G:O2'   | 2.36                     | 0.44              |
| 1:lA:3243:C:H2'   | 1:lA:3244:U:O4'   | 2.17                     | 0.44              |
| 2:lB:9:A:H2'      | 2:lB:10:U:C6      | 2.52                     | 0.44              |
| 4:lD:219:VAL:HG11 | 4:lD:223:THR:HG22 | 1.99                     | 0.44              |
| 13:lM:27:GLY:O    | 13:lM:29:ARG:N    | 2.51                     | 0.44              |
| 20:lT:38:TRP:CE2  | 20:lT:49:LYS:HG3  | 2.53                     | 0.44              |
| 22:lV:62:GLY:HA3  | 22:lV:76:VAL:HG12 | 1.99                     | 0.44              |
| 31:le:49:SER:OG   | 31:le:50:SER:N    | 2.50                     | 0.44              |
| 53:sa:1848:U:C2'  | 53:sa:1849:U:H5'  | 2.47                     | 0.44              |
| 53:sa:1850:C:H2'  | 53:sa:1851:U:C6   | 2.52                     | 0.44              |
| 53:sa:1864:G:H2'  | 53:sa:1865:A:H8   | 1.81                     | 0.44              |
| 53:sa:1892:G:H8   | 53:sa:1892:G:P    | 2.40                     | 0.44              |
| 69:sr:87:ASP:OD1  | 69:sr:87:ASP:N    | 2.51                     | 0.44              |
| 1:lA:228:A:H2'    | 1:lA:229:A:H8     | 1.82                     | 0.44              |
| 1:lA:1883:A:N6    | 1:lA:1931:U:H3    | 2.12                     | 0.44              |
| 1:lA:2257:G:H5''  | 4:lD:193:ARG:HH12 | 1.81                     | 0.44              |
| 1:lA:2739:U:H2'   | 1:lA:2740:G:H8    | 1.82                     | 0.44              |
| 3:lC:16:C:H2'     | 3:lC:17:G:O4'     | 2.17                     | 0.44              |
| 3:lC:17:G:H1      | 3:lC:59:G:N2      | 2.16                     | 0.44              |
| 47:sD:12:TYR:HB2  | 47:sD:36:MET:HE1  | 1.98                     | 0.44              |
| 53:sa:89:C:O2'    | 53:sa:446:G:H5''  | 2.17                     | 0.44              |
| 53:sa:1426:C:H6   | 53:sa:1426:C:O5'  | 2.00                     | 0.44              |
| 53:sa:1660:C:H2'  | 53:sa:1661:C:C5   | 2.52                     | 0.44              |
| 56:sd:78:ARG:HB2  | 64:sl:89:THR:HB   | 1.98                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 58:sf:160:LEU:HD23 | 58:sf:160:LEU:HA   | 1.81                     | 0.44              |
| 59:sg:77:CYS:O     | 59:sg:161:ARG:NH2  | 2.46                     | 0.44              |
| 60:sh:155:LYS:HD3  | 60:sh:155:LYS:H    | 1.82                     | 0.44              |
| 1:lA:82:G:O2'      | 1:lA:94:G:O6       | 2.27                     | 0.44              |
| 1:lA:222:A:H2'     | 1:lA:223:A:H8      | 1.83                     | 0.44              |
| 1:lA:531:U:H2'     | 1:lA:532:A:C8      | 2.52                     | 0.44              |
| 1:lA:953:U:H2'     | 1:lA:954:G:O4'     | 2.17                     | 0.44              |
| 1:lA:1035:G:H5'    | 1:lA:1036:A:OP1    | 2.18                     | 0.44              |
| 1:lA:1207:C:H2'    | 1:lA:1208:U:O4'    | 2.17                     | 0.44              |
| 1:lA:1343:A:H2'    | 1:lA:1410:A:H2     | 1.82                     | 0.44              |
| 1:lA:1624:G:C8     | 1:lA:1626:G:C8     | 3.05                     | 0.44              |
| 1:lA:1745:A:H2'    | 1:lA:1746:G:H8     | 1.82                     | 0.44              |
| 1:lA:2273:C:H4'    | 1:lA:2274:A:O5'    | 2.18                     | 0.44              |
| 1:lA:2353:C:H5'    | 1:lA:2393:A:H4'    | 1.99                     | 0.44              |
| 2:lB:116:U:H2'     | 2:lB:117:A:H8      | 1.83                     | 0.44              |
| 20:lT:5:TYR:HB2    | 20:lT:60:ILE:HD11  | 1.99                     | 0.44              |
| 21:lU:108:LYS:HE3  | 21:lU:108:LYS:HB3  | 1.80                     | 0.44              |
| 34:lh:65:LEU:O     | 34:lh:70:ARG:NH1   | 2.50                     | 0.44              |
| 53:sa:27:A:H2'     | 53:sa:28:U:C6      | 2.52                     | 0.44              |
| 53:sa:79:G:N7      | 60:sh:175:ARG:NH1  | 2.60                     | 0.44              |
| 53:sa:138:G:H2'    | 53:sa:139:G:C8     | 2.52                     | 0.44              |
| 53:sa:375:A:H2'    | 53:sa:375:A:N3     | 2.32                     | 0.44              |
| 53:sa:403:C:N3     | 53:sa:404:C:C5     | 2.85                     | 0.44              |
| 53:sa:457:G:C5     | 53:sa:458:U:C5     | 3.05                     | 0.44              |
| 54:sb:39:MET:HE2   | 54:sb:161:LEU:HD11 | 1.98                     | 0.44              |
| 58:sf:9:ARG:HD2    | 58:sf:9:ARG:HA     | 1.85                     | 0.44              |
| 1:lA:207:A:H2'     | 1:lA:208:U:H6      | 1.82                     | 0.44              |
| 1:lA:239:G:H2'     | 1:lA:240:A:H8      | 1.81                     | 0.44              |
| 1:lA:397:A:N6      | 41:lo:35:ILE:HG23  | 2.33                     | 0.44              |
| 1:lA:503:A:H2'     | 1:lA:504:U:H6      | 1.82                     | 0.44              |
| 1:lA:711:A:H2'     | 1:lA:712:G:O4'     | 2.17                     | 0.44              |
| 1:lA:875:C:H2'     | 1:lA:876:A:C8      | 2.52                     | 0.44              |
| 1:lA:1340:C:H2'    | 1:lA:1341:A:H8     | 1.83                     | 0.44              |
| 1:lA:1451:A:H2'    | 1:lA:1452:C:O4'    | 2.18                     | 0.44              |
| 1:lA:1670:A:OP2    | 1:lA:1740:G:N2     | 2.45                     | 0.44              |
| 1:lA:2294:A:H2'    | 1:lA:2295:A:H8     | 1.83                     | 0.44              |
| 5:lE:29:VAL:HG11   | 5:lE:340:ARG:HD3   | 1.99                     | 0.44              |
| 17:lQ:170:LYS:HG2  | 17:lQ:175:THR:HG22 | 1.98                     | 0.44              |
| 18:lR:70:LYS:HA    | 18:lR:70:LYS:HD3   | 1.77                     | 0.44              |
| 27:la:75:LYS:HB2   | 27:la:77:VAL:HG22  | 2.00                     | 0.44              |
| 47:sD:24:SER:OG    | 47:sD:25:ARG:N     | 2.49                     | 0.44              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 53:sa:104:A:OP1   | 62:sj:12:ARG:NE   | 2.50                     | 0.44              |
| 53:sa:449:U:O2    | 58:sf:61:MET:HA   | 2.17                     | 0.44              |
| 53:sa:1391:C:O2   | 53:sa:1392:A:C8   | 2.71                     | 0.44              |
| 53:sa:1671:A:N3   | 53:sa:1729:G:O2'  | 2.43                     | 0.44              |
| 53:sa:1699:C:H4'  | 53:sa:1705:A:C6   | 2.53                     | 0.44              |
| 54:sb:29:HIS:HD2  | 54:sb:53:ILE:HG23 | 1.82                     | 0.44              |
| 68:sq:86:PRO:HA   | 68:sq:89:ILE:HD13 | 1.99                     | 0.44              |
| 1:lA:678:A:H2'    | 1:lA:679:U:C6     | 2.52                     | 0.44              |
| 1:lA:1544:U:H2'   | 1:lA:1545:A:C8    | 2.53                     | 0.44              |
| 1:lA:2224:U:H2'   | 1:lA:2225:A:C8    | 2.53                     | 0.44              |
| 1:lA:2983:C:H2'   | 1:lA:2984:G:O4'   | 2.18                     | 0.44              |
| 1:lA:3139:G:H1'   | 2:lB:1:A:H2       | 1.82                     | 0.44              |
| 7:lG:278:LYS:HB2  | 7:lG:278:LYS:HE3  | 1.75                     | 0.44              |
| 8:lH:48:PRO:HA    | 8:lH:84:ILE:HB    | 2.00                     | 0.44              |
| 9:lI:143:LYS:HB2  | 9:lI:143:LYS:HE3  | 1.76                     | 0.44              |
| 10:lJ:22:LYS:HB3  | 10:lJ:22:LYS:HE3  | 1.76                     | 0.44              |
| 10:lJ:23:LYS:HA   | 10:lJ:23:LYS:HD2  | 1.66                     | 0.44              |
| 11:lK:41:HIS:CE1  | 11:lK:77:VAL:HG11 | 2.52                     | 0.44              |
| 12:lL:55:LEU:HD21 | 12:lL:164:LYS:HE2 | 1.98                     | 0.44              |
| 17:lQ:71:ARG:HD3  | 17:lQ:71:ARG:HA   | 1.83                     | 0.44              |
| 39:lm:24:LYS:HA   | 39:lm:24:LYS:HD3  | 1.81                     | 0.44              |
| 48:sE:22:ARG:NH1  | 48:sE:36:LEU:O    | 2.51                     | 0.44              |
| 53:sa:468:A:H2'   | 53:sa:469:C:O4'   | 2.18                     | 0.44              |
| 53:sa:1776:G:P    | 59:sg:53:HIS:HE2  | 2.41                     | 0.44              |
| 57:se:42:ARG:HG2  | 57:se:77:GLU:OE2  | 2.17                     | 0.44              |
| 58:sf:181:MET:HA  | 58:sf:181:MET:HE2 | 1.99                     | 0.44              |
| 72:su:16:VAL:HG22 | 72:su:17:CYS:SG   | 2.58                     | 0.44              |
| 1:lA:62:A:N6      | 1:lA:72:G:H1'     | 2.33                     | 0.44              |
| 1:lA:285:A:H4'    | 1:lA:286:U:C5'    | 2.47                     | 0.44              |
| 1:lA:601:A:H2'    | 1:lA:602:U:C6     | 2.53                     | 0.44              |
| 1:lA:645:A:H61    | 16:lP:82:GLN:HA   | 1.83                     | 0.44              |
| 1:lA:730:A:C2     | 1:lA:731:A:C5     | 3.06                     | 0.44              |
| 1:lA:1219:A:H4'   | 1:lA:1220:A:H5'   | 2.00                     | 0.44              |
| 1:lA:1688:A:H2'   | 1:lA:1689:A:C8    | 2.53                     | 0.44              |
| 1:lA:1980:C:OP2   | 39:lm:49:ARG:NH2  | 2.34                     | 0.44              |
| 1:lA:2100:G:O2'   | 24:lX:24:SER:OG   | 2.27                     | 0.44              |
| 1:lA:3033:C:H2'   | 1:lA:3034:A:C8    | 2.52                     | 0.44              |
| 2:lB:28:U:H2'     | 2:lB:29:U:C6      | 2.53                     | 0.44              |
| 5:lE:273:GLY:O    | 5:lE:275:PHE:N    | 2.50                     | 0.44              |
| 13:lM:125:MET:HE2 | 13:lM:125:MET:HB2 | 1.91                     | 0.44              |
| 28:lb:36:ARG:HG3  | 28:lb:38:TYR:CZ   | 2.53                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 32:lf:15:ARG:HD3   | 32:lf:15:ARG:HA    | 1.65                     | 0.44              |
| 53:sa:548:C:H1'    | 53:sa:549:A:N7     | 2.33                     | 0.44              |
| 53:sa:1342:C:H2'   | 53:sa:1343:G:O4'   | 2.18                     | 0.44              |
| 53:sa:1578:A:OP1   | 59:sg:166:ARG:NH1  | 2.50                     | 0.44              |
| 53:sa:1662:G:H22   | 53:sa:1679:G:H22   | 1.65                     | 0.44              |
| 53:sa:1691:A:C8    | 53:sa:1692:G:C8    | 3.05                     | 0.44              |
| 53:sa:1693:A:H2'   | 53:sa:1694:A:C8    | 2.53                     | 0.44              |
| 55:sc:106:ILE:HD11 | 55:sc:138:MET:HE1  | 2.00                     | 0.44              |
| 64:sl:54:VAL:HG12  | 64:sl:67:LEU:HA    | 2.00                     | 0.44              |
| 75:sx:77:LYS:HA    | 75:sx:77:LYS:HD3   | 1.77                     | 0.44              |
| 1:lA:94:G:N7       | 14:lN:11:HIS:NE2   | 2.58                     | 0.44              |
| 1:lA:270:C:H2'     | 1:lA:271:U:C6      | 2.52                     | 0.44              |
| 1:lA:859:U:H2'     | 1:lA:860:G:O4'     | 2.18                     | 0.44              |
| 1:lA:1502:A:H3'    | 1:lA:1502:A:N3     | 2.33                     | 0.44              |
| 1:lA:1855:G:H2'    | 1:lA:1856:G:O4'    | 2.17                     | 0.44              |
| 1:lA:2504:U:H2'    | 1:lA:2505:A:H8     | 1.83                     | 0.44              |
| 3:lC:7:A:H5''      | 22:lV:27:THR:HB    | 2.00                     | 0.44              |
| 38:ll:52:LYS:O     | 38:ll:56:ARG:HG3   | 2.18                     | 0.44              |
| 53:sa:77:A:H5'     | 60:sh:154:LYS:HZ2  | 1.83                     | 0.44              |
| 53:sa:380:A:H2'    | 53:sa:381:G:C8     | 2.53                     | 0.44              |
| 53:sa:586:A:O2'    | 53:sa:590:U:OP1    | 2.36                     | 0.44              |
| 58:sf:177:ASN:HD22 | 58:sf:225:VAL:HG22 | 1.82                     | 0.44              |
| 59:sg:20:LEU:HD21  | 59:sg:71:VAL:HG21  | 1.99                     | 0.44              |
| 67:sp:56:ARG:HA    | 67:sp:56:ARG:HD3   | 1.68                     | 0.44              |
| 72:su:115:LEU:HA   | 72:su:118:MET:HG2  | 2.00                     | 0.44              |
| 1:lA:336:A:C2      | 17:lQ:93:LYS:HD3   | 2.51                     | 0.44              |
| 1:lA:349:G:H5''    | 1:lA:350:A:H5''    | 1.98                     | 0.44              |
| 1:lA:504:U:H2'     | 1:lA:505:A:C8      | 2.53                     | 0.44              |
| 1:lA:586:A:H5''    | 8:lH:130:LYS:HB3   | 2.00                     | 0.44              |
| 1:lA:982:U:H2'     | 1:lA:983:C:H6      | 1.82                     | 0.44              |
| 1:lA:1327:A:H2'    | 1:lA:1328:A:H8     | 1.83                     | 0.44              |
| 1:lA:2034:G:O2'    | 41:lo:3:GLY:O      | 2.36                     | 0.44              |
| 1:lA:2959:G:N7     | 1:lA:3013:C:H5'    | 2.33                     | 0.44              |
| 1:lA:3309:U:P      | 32:lf:15:ARG:HH22  | 2.41                     | 0.44              |
| 3:lC:85:G:N2       | 3:lC:90:G:H22      | 2.14                     | 0.44              |
| 51:sJ:50:U:HO2'    | 51:sJ:51:U:P       | 2.41                     | 0.44              |
| 53:sa:106:C:H2'    | 53:sa:107:A:C8     | 2.53                     | 0.44              |
| 53:sa:908:G:O2'    | 53:sa:925:U:H5'    | 2.18                     | 0.44              |
| 53:sa:1250:G:H21   | 53:sa:1255:A:H1'   | 1.83                     | 0.44              |
| 57:se:28:LYS:O     | 67:sp:17:GLY:HA2   | 2.18                     | 0.44              |
| 59:sg:58:TYR:HB3   | 59:sg:65:LYS:HA    | 2.00                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 63:sk:48:MET:HE2   | 63:sk:48:MET:HA    | 2.00                     | 0.44              |
| 70:ss:42:GLY:O     | 73:sv:1:MET:N      | 2.51                     | 0.44              |
| 73:sv:130:ASP:HA   | 73:sv:133:LYS:HZ1  | 1.82                     | 0.44              |
| 1:lA:592:A:H2'     | 1:lA:593:A:C8      | 2.53                     | 0.43              |
| 1:lA:2443:A:H2'    | 1:lA:2444:A:H8     | 1.83                     | 0.43              |
| 1:lA:2869:A:H61    | 1:lA:2884:U:H3     | 1.64                     | 0.43              |
| 1:lA:2887:G:H2'    | 1:lA:2888:U:O4'    | 2.18                     | 0.43              |
| 1:lA:3300:A:H2'    | 1:lA:3301:A:C8     | 2.52                     | 0.43              |
| 30:ld:38:GLN:NE2   | 30:ld:42:ASN:OD1   | 2.49                     | 0.43              |
| 37:lk:55:LEU:HD12  | 37:lk:84:ILE:HG22  | 2.00                     | 0.43              |
| 51:sJ:70:A:H2'     | 51:sJ:71:G:C8      | 2.52                     | 0.43              |
| 53:sa:1511:A:H2'   | 53:sa:1512:A:N3    | 2.32                     | 0.43              |
| 58:sf:192:VAL:HG21 | 58:sf:230:THR:HG22 | 2.00                     | 0.43              |
| 60:sh:98:ARG:NH1   | 60:sh:101:ILE:O    | 2.51                     | 0.43              |
| 68:sq:33:VAL:HG11  | 68:sq:44:TYR:CD1   | 2.52                     | 0.43              |
| 1:lA:112:G:OP1     | 17:lQ:5:LYS:HB3    | 2.18                     | 0.43              |
| 1:lA:431:A:H2'     | 1:lA:432:A:C8      | 2.53                     | 0.43              |
| 1:lA:2183:A:C2     | 1:lA:2184:A:C5     | 3.06                     | 0.43              |
| 1:lA:2419:C:H2'    | 1:lA:2420:U:C6     | 2.53                     | 0.43              |
| 1:lA:2876:U:O2'    | 1:lA:2877:U:O4'    | 2.30                     | 0.43              |
| 2:lB:15:U:H5'      | 18:lR:2:VAL:HG13   | 2.00                     | 0.43              |
| 9:lI:21:CYS:HG     | 9:lI:22:LYS:H      | 1.65                     | 0.43              |
| 14:lN:157:ALA:O    | 14:lN:161:LYS:HG3  | 2.18                     | 0.43              |
| 15:lO:50:MET:O     | 15:lO:54:GLN:HG2   | 2.17                     | 0.43              |
| 25:lY:69:ALA:O     | 25:lY:99:LYS:NZ    | 2.41                     | 0.43              |
| 28:lb:34:LYS:HD3   | 28:lb:34:LYS:HA    | 1.79                     | 0.43              |
| 44:sA:85:LYS:O     | 44:sA:89:LYS:HG2   | 2.18                     | 0.43              |
| 44:sA:91:LEU:HB3   | 44:sA:97:ILE:HG22  | 2.00                     | 0.43              |
| 50:sI:65:C:H2'     | 50:sI:66:U:C6      | 2.46                     | 0.43              |
| 53:sa:85:A:H1'     | 53:sa:143:G:H1'    | 1.98                     | 0.43              |
| 53:sa:156:U:OP1    | 60:sh:85:LYS:HG2   | 2.19                     | 0.43              |
| 53:sa:753:G:P      | 63:sk:79:ARG:HH22  | 2.41                     | 0.43              |
| 53:sa:1514:A:H2'   | 53:sa:1515:G:C8    | 2.54                     | 0.43              |
| 55:sc:39:PRO:HG3   | 55:sc:69:GLN:NE2   | 2.32                     | 0.43              |
| 57:se:32:TYR:OH    | 57:se:58:ILE:HG21  | 2.19                     | 0.43              |
| 58:sf:209:LYS:NZ   | 58:sf:213:GLY:O    | 2.51                     | 0.43              |
| 73:sv:148:PRO:HG2  | 73:sv:151:LEU:HD12 | 2.00                     | 0.43              |
| 1:lA:220:A:H2'     | 1:lA:221:U:H6      | 1.82                     | 0.43              |
| 1:lA:328:G:O6      | 17:lQ:182:ASN:ND2  | 2.41                     | 0.43              |
| 1:lA:869:G:N2      | 1:lA:872:A:C5      | 2.86                     | 0.43              |
| 1:lA:940:U:H2'     | 1:lA:941:A:C8      | 2.54                     | 0.43              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:1A:1452:C:H2'   | 1:1A:1453:U:H6     | 1.83                     | 0.43              |
| 1:1A:2079:A:H3'   | 1:1A:2079:A:N3     | 2.33                     | 0.43              |
| 1:1A:2150:G:H5'   | 21:1U:101:VAL:HG11 | 2.00                     | 0.43              |
| 1:1A:2848:A:N1    | 1:1A:2911:U:H5     | 2.17                     | 0.43              |
| 1:1A:3345:A:C5    | 1:1A:3346:U:C5     | 3.06                     | 0.43              |
| 2:1B:68:A:H2'     | 2:1B:69:U:C6       | 2.53                     | 0.43              |
| 7:1G:41:LYS:HD2   | 7:1G:41:LYS:HA     | 1.73                     | 0.43              |
| 16:1P:89:PHE:HZ   | 16:1P:98:ILE:HD12  | 1.83                     | 0.43              |
| 21:1U:116:ASP:OD1 | 21:1U:116:ASP:N    | 2.40                     | 0.43              |
| 27:1a:75:LYS:HB3  | 27:1a:75:LYS:HE3   | 1.80                     | 0.43              |
| 32:1f:146:GLU:OE1 | 32:1f:146:GLU:N    | 2.51                     | 0.43              |
| 35:1i:2:SER:OG    | 35:1i:3:LYS:N      | 2.51                     | 0.43              |
| 53:sa:85:A:H2'    | 53:sa:86:C:H6      | 1.82                     | 0.43              |
| 53:sa:1757:C:H2'  | 53:sa:1758:G:H8    | 1.84                     | 0.43              |
| 53:sa:1843:U:H2'  | 53:sa:1844:A:C8    | 2.54                     | 0.43              |
| 55:sc:41:THR:OG1  | 55:sc:67:GLU:OE2   | 2.32                     | 0.43              |
| 58:sf:52:TYR:OH   | 58:sf:95:GLU:OE2   | 2.27                     | 0.43              |
| 61:si:53:LYS:HE3  | 61:si:53:LYS:HB2   | 1.72                     | 0.43              |
| 61:si:128:HIS:ND1 | 61:si:191:GLU:OE2  | 2.51                     | 0.43              |
| 65:sm:96:TYR:HE2  | 76:sy:12:LEU:HD13  | 1.82                     | 0.43              |
| 1:1A:540:U:O4     | 1:1A:541:A:N6      | 2.51                     | 0.43              |
| 1:1A:813:U:O2     | 1:1A:907:U:O2'     | 2.34                     | 0.43              |
| 1:1A:1278:A:H2'   | 1:1A:1279:A:C8     | 2.54                     | 0.43              |
| 1:1A:1848:A:H2'   | 1:1A:1849:A:C8     | 2.54                     | 0.43              |
| 1:1A:2207:A:C8    | 1:1A:2264:A:C8     | 3.06                     | 0.43              |
| 2:1B:73:A:H4'     | 2:1B:74:A:H5'      | 2.01                     | 0.43              |
| 3:1C:16:C:OP1     | 13:1M:150:ARG:NH1  | 2.48                     | 0.43              |
| 6:1F:299:GLU:HG2  | 6:1F:304:LEU:HD12  | 2.01                     | 0.43              |
| 15:1O:33:LYS:HA   | 15:1O:102:ASN:HB3  | 2.01                     | 0.43              |
| 26:1Z:62:LYS:HE3  | 26:1Z:62:LYS:HB3   | 1.73                     | 0.43              |
| 53:sa:626:U:H4'   | 76:sy:7:ALA:HB2    | 2.00                     | 0.43              |
| 53:sa:907:U:O2    | 67:sp:133:ASP:HB2  | 2.18                     | 0.43              |
| 53:sa:1375:U:H2'  | 53:sa:1376:U:H6    | 1.83                     | 0.43              |
| 53:sa:1381:G:C6   | 53:sa:1392:A:C6    | 3.06                     | 0.43              |
| 53:sa:1507:A:H2'  | 53:sa:1508:A:C8    | 2.53                     | 0.43              |
| 53:sa:1668:G:N7   | 73:sv:102:ARG:NH2  | 2.65                     | 0.43              |
| 60:sh:72:ARG:NH1  | 60:sh:105:ASP:OD2  | 2.52                     | 0.43              |
| 60:sh:199:ALA:C   | 60:sh:202:LEU:HB3  | 2.43                     | 0.43              |
| 1:1A:207:A:H2'    | 1:1A:208:U:C6      | 2.53                     | 0.43              |
| 1:1A:2142:G:H2'   | 1:1A:2143:C:H6     | 1.84                     | 0.43              |
| 1:1A:2466:G:N2    | 5:1E:228:TYR:OH    | 2.27                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 11:IK:112:VAL:HB   | 11:IK:121:GLN:HB2  | 2.01                     | 0.43              |
| 12:IL:186:LYS:HE2  | 12:IL:186:LYS:HB3  | 1.79                     | 0.43              |
| 20:IT:106:LEU:HD13 | 20:IT:110:TYR:HD2  | 1.82                     | 0.43              |
| 21:IU:74:ARG:HD3   | 21:IU:74:ARG:HA    | 1.75                     | 0.43              |
| 30:ld:7:ARG:HG2    | 30:ld:8:SER:N      | 2.32                     | 0.43              |
| 33:lg:41:ASN:O     | 33:lg:45:ARG:HG3   | 2.19                     | 0.43              |
| 37:lk:68:LYS:HD3   | 37:lk:74:HIS:HA    | 2.01                     | 0.43              |
| 48:sE:37:ASP:OD1   | 48:sE:37:ASP:N     | 2.52                     | 0.43              |
| 53:sa:113:A:N1     | 53:sa:241:A:H2'    | 2.33                     | 0.43              |
| 53:sa:138:G:P      | 60:sh:142:ARG:HH21 | 2.41                     | 0.43              |
| 54:sb:14:LYS:HE3   | 54:sb:14:LYS:HB3   | 1.75                     | 0.43              |
| 55:sc:145:TYR:CZ   | 55:sc:149:THR:HG23 | 2.54                     | 0.43              |
| 62:sj:83:TYR:O     | 62:sj:101:ILE:N    | 2.51                     | 0.43              |
| 66:so:91:LEU:HD12  | 66:so:91:LEU:HA    | 1.84                     | 0.43              |
| 74:sw:30:LYS:HE3   | 74:sw:30:LYS:HB2   | 1.81                     | 0.43              |
| 1:IA:336:A:H2'     | 1:IA:337:A:C8      | 2.54                     | 0.43              |
| 1:IA:377:C:H2'     | 1:IA:378:A:H8      | 1.84                     | 0.43              |
| 1:IA:559:U:C2      | 1:IA:560:U:C5      | 3.05                     | 0.43              |
| 1:IA:719:U:O2'     | 1:IA:720:U:OP1     | 2.29                     | 0.43              |
| 1:IA:1177:A:H4'    | 1:IA:2708:A:C4     | 2.53                     | 0.43              |
| 1:IA:2438:C:H2'    | 1:IA:2439:A:O4'    | 2.18                     | 0.43              |
| 1:IA:2681:U:H2'    | 1:IA:2682:U:C6     | 2.53                     | 0.43              |
| 3:IC:89:G:H4'      | 12:IL:11:LEU:HD22  | 2.00                     | 0.43              |
| 3:IC:117:C:N3      | 7:IG:257:HIS:HB2   | 2.34                     | 0.43              |
| 8:IH:77:VAL:HB     | 8:IH:91:VAL:HB     | 1.99                     | 0.43              |
| 48:sE:21:CYS:HB3   | 48:sE:25:GLY:N     | 2.34                     | 0.43              |
| 53:sa:397:U:OP1    | 58:sf:1:ARG:NH2    | 2.52                     | 0.43              |
| 53:sa:782:A:O2'    | 53:sa:783:A:OP1    | 2.32                     | 0.43              |
| 53:sa:1317:G:H2'   | 53:sa:1318:U:C6    | 2.54                     | 0.43              |
| 53:sa:1730:U:H2'   | 53:sa:1731:U:C6    | 2.54                     | 0.43              |
| 58:sf:172:LYS:HB3  | 58:sf:172:LYS:HE3  | 1.68                     | 0.43              |
| 58:sf:204:GLU:HB2  | 58:sf:220:LEU:HD22 | 2.01                     | 0.43              |
| 59:sg:31:SER:OG    | 59:sg:32:ASP:N     | 2.52                     | 0.43              |
| 59:sg:69:PRO:HB2   | 59:sg:72:GLU:HB2   | 2.00                     | 0.43              |
| 62:sj:28:THR:O     | 62:sj:28:THR:OG1   | 2.36                     | 0.43              |
| 65:sm:37:ILE:HD12  | 65:sm:37:ILE:HA    | 1.83                     | 0.43              |
| 68:sq:53:GLU:HA    | 68:sq:56:VAL:HG22  | 2.01                     | 0.43              |
| 74:sw:46:LYS:HE3   | 74:sw:46:LYS:HB2   | 1.78                     | 0.43              |
| 75:sx:76:LEU:HD23  | 75:sx:76:LEU:HA    | 1.88                     | 0.43              |
| 1:IA:76:U:H2'      | 1:IA:77:C:C6       | 2.52                     | 0.43              |
| 1:IA:311:A:H5'     | 37:lk:30:ARG:HB2   | 2.00                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:1A:575:A:H3'     | 1:1A:576:A:H8      | 1.84                     | 0.43              |
| 1:1A:721:A:O2'     | 1:1A:722:A:OP1     | 2.36                     | 0.43              |
| 1:1A:1440:A:OP2    | 15:1O:134:ARG:HD3  | 2.17                     | 0.43              |
| 1:1A:1491:A:H4'    | 29:1c:21:ARG:HG3   | 2.00                     | 0.43              |
| 1:1A:2452:G:H2'    | 1:1A:2453:G:C8     | 2.54                     | 0.43              |
| 1:1A:2806:A:O2'    | 22:1V:68:ASN:ND2   | 2.52                     | 0.43              |
| 1:1A:3176:G:O2'    | 1:1A:3185:G:O6     | 2.32                     | 0.43              |
| 2:1B:140:U:H2'     | 2:1B:141:G:C8      | 2.53                     | 0.43              |
| 14:1N:45:PHE:CG    | 14:1N:229:GLN:HB3  | 2.54                     | 0.43              |
| 15:1O:77:PRO:O     | 15:1O:81:VAL:HG23  | 2.19                     | 0.43              |
| 34:1h:55:ARG:O     | 34:1h:62:TYR:OH    | 2.34                     | 0.43              |
| 46:sC:27:PRO:HG2   | 69:sr:57:ARG:NH2   | 2.33                     | 0.43              |
| 53:sa:940:U:H2'    | 53:sa:941:C:H6     | 1.84                     | 0.43              |
| 53:sa:1835:U:H2'   | 53:sa:1836:G:O4'   | 2.19                     | 0.43              |
| 54:sb:62:LYS:HD2   | 54:sb:62:LYS:HA    | 1.72                     | 0.43              |
| 58:sf:208:ILE:HD11 | 58:sf:218:THR:HG22 | 2.00                     | 0.43              |
| 61:si:63:ALA:HA    | 61:si:94:PRO:HD2   | 1.99                     | 0.43              |
| 62:sj:98:LYS:HG3   | 62:sj:206:SER:HA   | 2.00                     | 0.43              |
| 68:sq:87:ASN:OD1   | 68:sq:88:MET:HE1   | 2.19                     | 0.43              |
| 73:sv:66:TYR:HD1   | 73:sv:67:LEU:HD23  | 1.83                     | 0.43              |
| 73:sv:105:LEU:HD23 | 73:sv:105:LEU:HA   | 1.86                     | 0.43              |
| 1:1A:565:U:H2'     | 1:1A:566:U:C6      | 2.53                     | 0.43              |
| 1:1A:591:C:H2'     | 1:1A:592:A:H8      | 1.84                     | 0.43              |
| 1:1A:723:U:O2'     | 1:1A:724:A:H5'     | 2.19                     | 0.43              |
| 1:1A:1219:A:H4'    | 1:1A:1220:A:OP2    | 2.18                     | 0.43              |
| 1:1A:1869:U:H2'    | 1:1A:1870:U:C6     | 2.54                     | 0.43              |
| 1:1A:2251:A:N7     | 4:1D:20:SER:OG     | 2.35                     | 0.43              |
| 1:1A:2259:A:O2'    | 4:1D:236:GLY:N     | 2.52                     | 0.43              |
| 6:1F:431:PHE:HE1   | 20:1T:5:TYR:HE1    | 1.66                     | 0.43              |
| 10:1J:225:MET:HE2  | 10:1J:226:TYR:CZ   | 2.54                     | 0.43              |
| 31:1e:57:ARG:O     | 31:1e:61:GLU:HG2   | 2.18                     | 0.43              |
| 35:1i:-9:ALA:HA    | 35:1i:38:VAL:HG13  | 2.01                     | 0.43              |
| 43:1q:61:LYS:HD2   | 43:1q:85:ARG:NH2   | 2.33                     | 0.43              |
| 53:sa:16:G:H2'     | 53:sa:17:C:C6      | 2.54                     | 0.43              |
| 53:sa:260:U:H2'    | 53:sa:261:U:C6     | 2.53                     | 0.43              |
| 53:sa:1200:U:H2'   | 53:sa:1201:G:C8    | 2.53                     | 0.43              |
| 53:sa:1512:A:H2'   | 53:sa:1513:A:H8    | 1.84                     | 0.43              |
| 62:sj:43:VAL:HG22  | 62:sj:57:ALA:HA    | 2.01                     | 0.43              |
| 63:sk:156:ILE:H    | 63:sk:156:ILE:HD12 | 1.84                     | 0.43              |
| 72:su:68:ILE:HA    | 72:su:71:ILE:HG22  | 2.01                     | 0.43              |
| 1:1A:474:A:H2'     | 1:1A:475:A:H8      | 1.84                     | 0.43              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:lA:566:U:H2'    | 1:lA:567:U:C6      | 2.54                     | 0.43              |
| 1:lA:1857:A:OP1   | 23:lW:86:LYS:HB2   | 2.19                     | 0.43              |
| 1:lA:3203:A:C6    | 5:lE:75:PRO:HB3    | 2.54                     | 0.43              |
| 5:lE:170:LEU:O    | 5:lE:320:ASN:ND2   | 2.49                     | 0.43              |
| 11:lK:144:LYS:HA  | 11:lK:150:ILE:HG22 | 1.99                     | 0.43              |
| 15:lO:45:CYS:HB2  | 15:lO:130:PHE:CZ   | 2.54                     | 0.43              |
| 16:lP:124:ALA:O   | 16:lP:128:ILE:HG12 | 2.19                     | 0.43              |
| 21:lU:114:LYS:HE2 | 21:lU:114:LYS:HB3  | 1.83                     | 0.43              |
| 25:lY:108:ASP:OD1 | 25:lY:108:ASP:N    | 2.51                     | 0.43              |
| 26:lZ:61:ASN:OD1  | 26:lZ:61:ASN:N     | 2.52                     | 0.43              |
| 33:lg:92:LYS:HD3  | 33:lg:93:TYR:CE2   | 2.54                     | 0.43              |
| 53:sa:601:G:N1    | 53:sa:607:G:H5'    | 2.34                     | 0.43              |
| 53:sa:841:U:H2'   | 53:sa:842:A:C5     | 2.53                     | 0.43              |
| 53:sa:859:U:H2'   | 53:sa:860:G:H8     | 1.84                     | 0.43              |
| 53:sa:912:G:OP2   | 57:se:157:TYR:OH   | 2.29                     | 0.43              |
| 53:sa:1310:U:H1'  | 53:sa:1311:U:OP2   | 2.17                     | 0.43              |
| 53:sa:1344:G:H2'  | 53:sa:1345:U:O4'   | 2.19                     | 0.43              |
| 53:sa:1346:A:H4'  | 53:sa:1347:A:O5'   | 2.18                     | 0.43              |
| 53:sa:1802:C:O2   | 53:sa:1912:A:N6    | 2.51                     | 0.43              |
| 54:sb:161:LEU:O   | 75:sx:60:GLY:HA2   | 2.17                     | 0.43              |
| 58:sf:120:LYS:NZ  | 58:sf:141:ASP:OD2  | 2.41                     | 0.43              |
| 60:sh:57:ASP:HB3  | 60:sh:61:PHE:HB2   | 2.00                     | 0.43              |
| 60:sh:150:LYS:HD3 | 60:sh:150:LYS:H    | 1.83                     | 0.43              |
| 62:sj:95:THR:HG22 | 62:sj:97:VAL:HG13  | 2.00                     | 0.43              |
| 75:sx:17:VAL:HG12 | 75:sx:18:THR:HG23  | 2.00                     | 0.43              |
| 1:lA:58:G:N2      | 1:lA:75:U:H4'      | 2.33                     | 0.43              |
| 1:lA:292:G:H1'    | 1:lA:294:A:N6      | 2.33                     | 0.43              |
| 1:lA:406:G:N3     | 1:lA:933:U:O2'     | 2.51                     | 0.43              |
| 1:lA:983:C:N3     | 1:lA:984:A:N7      | 2.67                     | 0.43              |
| 1:lA:1434:G:O2'   | 1:lA:2456:U:O2'    | 2.22                     | 0.43              |
| 1:lA:2485:G:O2'   | 1:lA:2487:U:H5''   | 2.19                     | 0.43              |
| 1:lA:2634:A:O2'   | 10:lJ:30:VAL:HG13  | 2.18                     | 0.43              |
| 1:lA:2864:A:O2'   | 1:lA:2865:A:O5'    | 2.36                     | 0.43              |
| 1:lA:3391:U:H2'   | 1:lA:3392:G:C8     | 2.54                     | 0.43              |
| 1:lA:3476:C:H6    | 1:lA:3476:C:H2'    | 1.54                     | 0.43              |
| 2:lB:58:G:H21     | 2:lB:64:A:H5'      | 1.84                     | 0.43              |
| 7:lG:204:MET:HB3  | 7:lG:215:TYR:HE1   | 1.84                     | 0.43              |
| 29:lc:36:GLY:HA3  | 29:lc:40:HIS:CE1   | 2.53                     | 0.43              |
| 44:sA:46:ASN:O    | 44:sA:79:ILE:HA    | 2.19                     | 0.43              |
| 44:sA:50:PHE:CZ   | 44:sA:87:LEU:HD21  | 2.53                     | 0.43              |
| 51:sJ:24:C:H2'    | 51:sJ:25:U:H6      | 1.82                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 53:sa:341:G:H5'    | 65:sm:78:HIS:HB3   | 2.01                     | 0.43              |
| 53:sa:966:G:H2'    | 53:sa:967:G:O4'    | 2.19                     | 0.43              |
| 53:sa:1378:U:H2'   | 53:sa:1379:C:H6    | 1.84                     | 0.43              |
| 63:sk:29:LYS:HE2   | 63:sk:29:LYS:HB2   | 1.81                     | 0.43              |
| 63:sk:108:ARG:NH2  | 63:sk:110:GLN:HG3  | 2.34                     | 0.43              |
| 77:sz:80:TYR:HB3   | 77:sz:86:LEU:HB2   | 2.00                     | 0.43              |
| 1:lA:222:A:H2'     | 1:lA:223:A:C8      | 2.54                     | 0.42              |
| 1:lA:237:C:H2'     | 1:lA:238:A:H8      | 1.83                     | 0.42              |
| 1:lA:661:G:H2'     | 1:lA:662:U:H6      | 1.84                     | 0.42              |
| 1:lA:1203:U:H3'    | 1:lA:1204:A:H2     | 1.83                     | 0.42              |
| 1:lA:1266:C:O2'    | 1:lA:1278:A:N3     | 2.48                     | 0.42              |
| 1:lA:1690:A:H2'    | 1:lA:1691:U:C6     | 2.53                     | 0.42              |
| 1:lA:1889:U:H2'    | 1:lA:1890:U:C6     | 2.53                     | 0.42              |
| 1:lA:2489:A:H2'    | 1:lA:2490:G:C8     | 2.53                     | 0.42              |
| 1:lA:2907:C:N3     | 1:lA:2908:U:C5     | 2.86                     | 0.42              |
| 1:lA:3236:U:H2'    | 1:lA:3237:G:H8     | 1.83                     | 0.42              |
| 1:lA:3475:U:N3     | 1:lA:3479:A:N6     | 2.58                     | 0.42              |
| 3:lC:17:G:H22      | 3:lC:59:G:N2       | 2.17                     | 0.42              |
| 3:lC:104:G:H2'     | 3:lC:105:A:C8      | 2.52                     | 0.42              |
| 8:lH:43:THR:HB     | 8:lH:47:LYS:HD3    | 2.01                     | 0.42              |
| 14:lN:179:LYS:HA   | 14:lN:179:LYS:HD2  | 1.72                     | 0.42              |
| 31:le:94:LEU:HD21  | 31:le:96:ILE:HD11  | 2.00                     | 0.42              |
| 51:sJ:25:U:H2'     | 51:sJ:26:C:H6      | 1.83                     | 0.42              |
| 53:sa:859:U:H2'    | 53:sa:860:G:C8     | 2.53                     | 0.42              |
| 53:sa:1359:G:H2'   | 53:sa:1360:A:H8    | 1.83                     | 0.42              |
| 53:sa:1395:A:H2'   | 53:sa:1396:A:O4'   | 2.18                     | 0.42              |
| 57:se:52:LYS:HA    | 57:se:58:ILE:HD11  | 2.01                     | 0.42              |
| 57:se:66:ARG:HH12  | 57:se:103:HIS:CE1  | 2.37                     | 0.42              |
| 58:sf:99:LEU:HD12  | 58:sf:99:LEU:HA    | 1.81                     | 0.42              |
| 59:sg:54:THR:HG22  | 59:sg:72:GLU:HG3   | 2.01                     | 0.42              |
| 70:ss:104:LEU:HD21 | 70:ss:120:LEU:HD13 | 2.01                     | 0.42              |
| 1:lA:542:U:H2'     | 1:lA:543:A:C8      | 2.54                     | 0.42              |
| 1:lA:867:U:H2'     | 1:lA:868:A:O4'     | 2.18                     | 0.42              |
| 1:lA:979:G:H3'     | 1:lA:979:G:N3      | 2.33                     | 0.42              |
| 1:lA:1235:U:H2'    | 1:lA:1236:G:O4'    | 2.19                     | 0.42              |
| 1:lA:1524:A:O2'    | 1:lA:1552:A:N1     | 2.48                     | 0.42              |
| 1:lA:3079:A:H2'    | 1:lA:3080:G:C8     | 2.54                     | 0.42              |
| 1:lA:3084:A:H8     | 1:lA:3084:A:OP2    | 2.02                     | 0.42              |
| 2:lB:10:U:H2'      | 2:lB:11:U:C6       | 2.54                     | 0.42              |
| 27:la:174:MET:O    | 27:la:178:LEU:HG   | 2.19                     | 0.42              |
| 28:lb:109:TYR:CD1  | 28:lb:110:PRO:HD2  | 2.54                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 53:sa:149:U:H2'    | 53:sa:150:G:C8     | 2.54                     | 0.42              |
| 53:sa:845:A:OP1    | 69:sr:28:ARG:NH2   | 2.49                     | 0.42              |
| 53:sa:1107:A:H2'   | 53:sa:1108:G:C8    | 2.54                     | 0.42              |
| 53:sa:1513:A:H2'   | 53:sa:1514:A:H8    | 1.84                     | 0.42              |
| 56:sd:146:LYS:HD3  | 56:sd:146:LYS:HA   | 1.86                     | 0.42              |
| 1:lA:475:A:H2'     | 1:lA:476:U:C6      | 2.54                     | 0.42              |
| 1:lA:1251:G:N2     | 12:lL:116:ARG:HH12 | 2.18                     | 0.42              |
| 1:lA:1641:A:C4     | 1:lA:1642:A:C8     | 3.07                     | 0.42              |
| 1:lA:1856:G:H2'    | 1:lA:1857:A:C8     | 2.53                     | 0.42              |
| 1:lA:2492:U:H2'    | 1:lA:2493:U:C6     | 2.54                     | 0.42              |
| 1:lA:3154:A:H5''   | 5:lE:120:LYS:HE3   | 2.02                     | 0.42              |
| 1:lA:3361:A:H2'    | 1:lA:3362:U:H6     | 1.84                     | 0.42              |
| 1:lA:3501:A:O3'    | 5:lE:316:GLY:HA2   | 2.19                     | 0.42              |
| 7:lG:124:ASP:OD1   | 7:lG:124:ASP:N     | 2.50                     | 0.42              |
| 13:lM:29:ARG:NE    | 13:lM:123:TYR:OH   | 2.51                     | 0.42              |
| 13:lM:109:HIS:CE1  | 13:lM:123:TYR:H    | 2.36                     | 0.42              |
| 21:lU:99:MET:HE2   | 21:lU:99:MET:HB3   | 1.83                     | 0.42              |
| 24:lX:87:THR:HA    | 24:lX:97:TYR:HB3   | 2.01                     | 0.42              |
| 48:sE:8:ASN:HB3    | 56:sd:4:LEU:HD21   | 2.00                     | 0.42              |
| 53:sa:240:G:C2     | 65:sm:39:MET:HE2   | 2.54                     | 0.42              |
| 54:sb:13:LEU:H     | 54:sb:13:LEU:HD12  | 1.83                     | 0.42              |
| 58:sf:9:ARG:HE     | 58:sf:18:LEU:HB3   | 1.84                     | 0.42              |
| 61:si:154:LYS:HB2  | 61:si:154:LYS:HE3  | 1.67                     | 0.42              |
| 72:su:70:ASP:OD1   | 72:su:74:ASN:ND2   | 2.53                     | 0.42              |
| 1:lA:45:A:H5'      | 17:lQ:192:LEU:HD21 | 2.01                     | 0.42              |
| 1:lA:606:A:H2'     | 1:lA:607:U:H6      | 1.85                     | 0.42              |
| 1:lA:773:G:OP1     | 33:lg:41:ASN:ND2   | 2.44                     | 0.42              |
| 1:lA:1205:C:H2'    | 1:lA:1206:A:H8     | 1.83                     | 0.42              |
| 1:lA:1494:G:P      | 29:lc:10:ARG:HH22  | 2.42                     | 0.42              |
| 1:lA:2304:A:H2'    | 1:lA:2305:C:H6     | 1.84                     | 0.42              |
| 1:lA:2395:C:O2'    | 1:lA:2396:A:O5'    | 2.34                     | 0.42              |
| 1:lA:2779:C:H2'    | 1:lA:2780:A:C8     | 2.53                     | 0.42              |
| 1:lA:2865:A:OP2    | 37:lk:21:ALA:HB2   | 2.18                     | 0.42              |
| 1:lA:3169:C:H2'    | 1:lA:3170:A:H8     | 1.84                     | 0.42              |
| 6:lF:157:LYS:HE3   | 27:la:145:VAL:HG12 | 2.01                     | 0.42              |
| 15:lO:55:TRP:NE1   | 15:lO:59:GLN:OE1   | 2.52                     | 0.42              |
| 16:lP:8:GLU:OE2    | 16:lP:11:ARG:NH2   | 2.45                     | 0.42              |
| 19:lS:78:ALA:HB1   | 19:lS:136:ILE:HD12 | 2.02                     | 0.42              |
| 21:lU:146:LEU:HD23 | 21:lU:146:LEU:HA   | 1.93                     | 0.42              |
| 29:lc:138:ILE:O    | 29:lc:141:VAL:HG12 | 2.18                     | 0.42              |
| 30:ld:32:THR:O     | 30:ld:32:THR:OG1   | 2.35                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 40:ln:69:ILE:HG23  | 40:ln:74:PRO:HD3   | 2.00                     | 0.42              |
| 53:sa:392:A:H2'    | 53:sa:393:C:C6     | 2.53                     | 0.42              |
| 53:sa:1199:C:O2'   | 53:sa:1221:A:N6    | 2.52                     | 0.42              |
| 53:sa:1243:A:N1    | 53:sa:1551:A:H2'   | 2.34                     | 0.42              |
| 55:sc:57:GLN:NE2   | 55:sc:241:PRO:HG3  | 2.35                     | 0.42              |
| 73:sv:99:LYS:HD2   | 73:sv:99:LYS:HA    | 1.72                     | 0.42              |
| 75:sx:61:ILE:HD13  | 75:sx:61:ILE:HA    | 1.78                     | 0.42              |
| 1:lA:95:A:OP1      | 17:lQ:195:ARG:NH1  | 2.42                     | 0.42              |
| 1:lA:464:G:OP2     | 1:lA:464:G:N2      | 2.35                     | 0.42              |
| 1:lA:597:A:N3      | 8:lH:51:ASN:ND2    | 2.66                     | 0.42              |
| 1:lA:1310:A:H2'    | 1:lA:1311:C:C6     | 2.55                     | 0.42              |
| 1:lA:1320:U:O2'    | 3:lC:83:G:N2       | 2.52                     | 0.42              |
| 1:lA:1757:C:H2'    | 1:lA:1758:U:C6     | 2.54                     | 0.42              |
| 1:lA:1904:U:O2'    | 1:lA:1906:A:N7     | 2.45                     | 0.42              |
| 1:lA:1978:U:H2'    | 1:lA:1979:U:C6     | 2.54                     | 0.42              |
| 1:lA:2590:A:H5'    | 17:lQ:28:TRP:HE1   | 1.84                     | 0.42              |
| 1:lA:2779:C:C2     | 1:lA:2780:A:N7     | 2.87                     | 0.42              |
| 1:lA:3484:A:H3'    | 1:lA:3485:U:H6     | 1.84                     | 0.42              |
| 2:lB:154:C:OP1     | 10:lJ:75:LYS:HE3   | 2.20                     | 0.42              |
| 4:lD:96:LEU:HD23   | 39:lm:83:VAL:HG13  | 2.00                     | 0.42              |
| 25:lY:72:THR:HG22  | 25:lY:76:LYS:HE3   | 2.02                     | 0.42              |
| 32:lf:144:THR:HG22 | 32:lf:146:GLU:OE1  | 2.19                     | 0.42              |
| 35:li:60:LYS:HE2   | 35:li:60:LYS:HB2   | 1.83                     | 0.42              |
| 47:sD:29:LEU:HD22  | 47:sD:50:ILE:HG22  | 2.01                     | 0.42              |
| 53:sa:124:U:H2'    | 53:sa:125:U:C6     | 2.54                     | 0.42              |
| 53:sa:325:U:H2'    | 53:sa:326:A:C8     | 2.54                     | 0.42              |
| 53:sa:740:U:H2'    | 53:sa:741:U:C6     | 2.55                     | 0.42              |
| 53:sa:1392:A:C2    | 53:sa:1393:G:N7    | 2.88                     | 0.42              |
| 53:sa:1668:G:H2'   | 53:sa:1669:A:H5'   | 2.01                     | 0.42              |
| 53:sa:1722:A:H2'   | 68:sq:39:ARG:HH21  | 1.84                     | 0.42              |
| 55:sc:68:TYR:HB3   | 55:sc:132:ILE:HG23 | 2.02                     | 0.42              |
| 55:sc:244:LYS:HB2  | 55:sc:244:LYS:HE3  | 1.66                     | 0.42              |
| 56:sd:130:ARG:HB3  | 56:sd:130:ARG:HH11 | 1.84                     | 0.42              |
| 60:sh:69:THR:H     | 60:sh:99:GLY:HA3   | 1.85                     | 0.42              |
| 60:sh:138:ALA:N    | 60:sh:184:LEU:HB2  | 2.34                     | 0.42              |
| 60:sh:197:LEU:O    | 60:sh:197:LEU:HD13 | 2.19                     | 0.42              |
| 62:sj:105:ASP:OD1  | 62:sj:105:ASP:N    | 2.39                     | 0.42              |
| 65:sm:14:PHE:HD2   | 65:sm:33:TYR:CZ    | 2.38                     | 0.42              |
| 1:lA:487:A:OP2     | 1:lA:588:G:N2      | 2.37                     | 0.42              |
| 1:lA:531:U:H2'     | 1:lA:532:A:H8      | 1.84                     | 0.42              |
| 1:lA:580:A:C5      | 1:lA:581:U:C5      | 3.08                     | 0.42              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:lA:1261:A:OP1   | 30:ld:7:ARG:NH1    | 2.48                     | 0.42              |
| 1:lA:2274:A:C2    | 1:lA:2275:G:C8     | 3.08                     | 0.42              |
| 1:lA:2495:A:H2'   | 1:lA:2496:C:C6     | 2.55                     | 0.42              |
| 1:lA:2974:G:H2'   | 1:lA:2975:C:C6     | 2.55                     | 0.42              |
| 25:IY:84:VAL:HG12 | 25:IY:109:VAL:HG11 | 2.01                     | 0.42              |
| 43:lq:11:TYR:OH   | 43:lq:16:ASP:OD1   | 2.29                     | 0.42              |
| 45:sB:10:ARG:NH1  | 53:sa:1937:A:OP1   | 2.50                     | 0.42              |
| 53:sa:204:A:H3'   | 53:sa:205:A:H8     | 1.83                     | 0.42              |
| 53:sa:1906:C:H2'  | 53:sa:1907:G:C8    | 2.55                     | 0.42              |
| 55:sc:172:VAL:HB  | 55:sc:199:PHE:HB2  | 2.00                     | 0.42              |
| 59:sg:83:LYS:HB2  | 59:sg:83:LYS:HE3   | 1.62                     | 0.42              |
| 59:sg:181:ASN:OD1 | 59:sg:186:ASN:ND2  | 2.52                     | 0.42              |
| 60:sh:74:ARG:HA   | 60:sh:95:LYS:O     | 2.20                     | 0.42              |
| 62:sj:22:GLN:HG2  | 62:sj:23:LYS:O     | 2.20                     | 0.42              |
| 65:sm:81:ARG:HE   | 65:sm:112:PRO:HG3  | 1.84                     | 0.42              |
| 1:lA:90:G:H2'     | 1:lA:91:A:C8       | 2.55                     | 0.42              |
| 1:lA:355:A:H2'    | 1:lA:356:U:C6      | 2.55                     | 0.42              |
| 1:lA:474:A:H2'    | 1:lA:475:A:C8      | 2.55                     | 0.42              |
| 1:lA:581:U:H2'    | 1:lA:582:U:C6      | 2.54                     | 0.42              |
| 1:lA:598:A:H2'    | 1:lA:599:U:H6      | 1.81                     | 0.42              |
| 1:lA:1249:C:H2'   | 1:lA:1250:U:C6     | 2.53                     | 0.42              |
| 1:lA:1495:A:H1'   | 29:lc:5:PHE:O      | 2.20                     | 0.42              |
| 1:lA:1930:C:C2    | 1:lA:1931:U:C5     | 3.07                     | 0.42              |
| 1:lA:2357:A:H8    | 1:lA:3117:U:H1'    | 1.84                     | 0.42              |
| 1:lA:2505:A:H2'   | 1:lA:2506:U:H6     | 1.85                     | 0.42              |
| 1:lA:2583:U:H2'   | 1:lA:2584:U:C6     | 2.55                     | 0.42              |
| 1:lA:3024:C:H2'   | 1:lA:3025:U:H6     | 1.85                     | 0.42              |
| 2:lB:29:U:H2'     | 2:lB:30:U:H6       | 1.83                     | 0.42              |
| 3:lC:114:U:H2'    | 3:lC:115:A:N3      | 2.35                     | 0.42              |
| 11:lK:116:ASP:OD1 | 11:lK:117:GLY:N    | 2.53                     | 0.42              |
| 20:lT:6:ILE:HD11  | 20:lT:33:ALA:HB1   | 2.02                     | 0.42              |
| 20:lT:70:ASN:OD1  | 20:lT:91:ARG:NH1   | 2.50                     | 0.42              |
| 23:lW:67:GLU:OE1  | 23:lW:67:GLU:N     | 2.53                     | 0.42              |
| 23:lW:93:MET:HE1  | 23:lW:118:LEU:HD11 | 2.01                     | 0.42              |
| 25:IY:112:MET:HE3 | 25:IY:112:MET:HB3  | 1.91                     | 0.42              |
| 31:le:101:ASP:N   | 31:le:101:ASP:OD1  | 2.53                     | 0.42              |
| 37:lk:39:ARG:HA   | 37:lk:39:ARG:HD3   | 1.78                     | 0.42              |
| 53:sa:325:U:C2    | 53:sa:326:A:C8     | 3.08                     | 0.42              |
| 53:sa:1381:G:H2'  | 53:sa:1382:C:H6    | 1.85                     | 0.42              |
| 53:sa:1590:A:H4'  | 70:ss:86:GLY:HA2   | 2.02                     | 0.42              |
| 53:sa:1804:G:H2'  | 53:sa:1805:C:O4'   | 2.20                     | 0.42              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 53:sa:1932:U:H2'  | 53:sa:1933:G:H8   | 1.85                     | 0.42              |
| 58:sf:79:ARG:HE   | 58:sf:79:ARG:HB2  | 1.57                     | 0.42              |
| 60:sh:149:GLN:HG2 | 60:sh:150:LYS:H   | 1.84                     | 0.42              |
| 68:sq:54:ARG:O    | 68:sq:58:LYS:HG3  | 2.20                     | 0.42              |
| 69:sr:78:ARG:HB3  | 69:sr:124:ARG:HB3 | 2.00                     | 0.42              |
| 76:sy:66:LYS:HB2  | 76:sy:83:VAL:HG21 | 2.01                     | 0.42              |
| 77:sz:15:LEU:HG   | 77:sz:26:VAL:HG23 | 2.02                     | 0.42              |
| 1:lA:118:A:N6     | 1:lA:189:G:O2'    | 2.44                     | 0.42              |
| 1:lA:605:C:H2'    | 1:lA:606:A:H8     | 1.84                     | 0.42              |
| 1:lA:873:U:O2'    | 1:lA:874:A:O5'    | 2.30                     | 0.42              |
| 1:lA:3104:G:H2'   | 1:lA:3105:U:C6    | 2.54                     | 0.42              |
| 1:lA:3460:G:H8    | 1:lA:3460:G:OP2   | 2.02                     | 0.42              |
| 3:lC:6:G:H1       | 3:lC:111:A:H2     | 1.68                     | 0.42              |
| 3:lC:10:A:N6      | 7:lG:16:TYR:O     | 2.51                     | 0.42              |
| 5:lE:37:ALA:HA    | 5:lE:187:GLY:O    | 2.19                     | 0.42              |
| 8:lH:187:MET:HE3  | 8:lH:187:MET:HB3  | 1.82                     | 0.42              |
| 21:lU:76:THR:O    | 21:lU:76:THR:OG1  | 2.36                     | 0.42              |
| 36:lj:3:LYS:HD3   | 36:lj:3:LYS:HA    | 1.92                     | 0.42              |
| 53:sa:51:U:H2'    | 53:sa:52:G:C8     | 2.55                     | 0.42              |
| 53:sa:69:G:H21    | 53:sa:80:A:N6     | 2.15                     | 0.42              |
| 53:sa:135:C:O4'   | 60:sh:193:LYS:NZ  | 2.51                     | 0.42              |
| 53:sa:293:U:O2'   | 53:sa:294:G:C8    | 2.71                     | 0.42              |
| 53:sa:340:A:H1'   | 53:sa:341:G:C8    | 2.55                     | 0.42              |
| 53:sa:1290:G:H2'  | 53:sa:1291:U:O4'  | 2.19                     | 0.42              |
| 53:sa:1373:A:H2'  | 53:sa:1374:G:C8   | 2.55                     | 0.42              |
| 54:sb:182:TRP:O   | 54:sb:186:THR:OG1 | 2.26                     | 0.42              |
| 56:sd:63:ILE:HG22 | 56:sd:65:ARG:HD3  | 2.00                     | 0.42              |
| 62:sj:41:ILE:HD13 | 62:sj:60:LEU:HA   | 2.01                     | 0.42              |
| 74:sw:32:VAL:O    | 74:sw:36:CYS:N    | 2.50                     | 0.42              |
| 75:sx:17:VAL:HG11 | 75:sx:56:VAL:HG11 | 2.01                     | 0.42              |
| 1:lA:105:A:N1     | 1:lA:368:U:O2'    | 2.49                     | 0.42              |
| 1:lA:546:U:H2'    | 1:lA:547:A:C8     | 2.54                     | 0.42              |
| 1:lA:624:U:H2'    | 1:lA:625:A:O4'    | 2.20                     | 0.42              |
| 1:lA:841:A:H4'    | 1:lA:842:G:H5'    | 2.02                     | 0.42              |
| 1:lA:1348:C:H2'   | 1:lA:1349:A:H8    | 1.85                     | 0.42              |
| 1:lA:1469:A:H2'   | 1:lA:1470:A:H8    | 1.85                     | 0.42              |
| 1:lA:1871:C:H2'   | 1:lA:1872:U:C6    | 2.53                     | 0.42              |
| 1:lA:1889:U:H2'   | 1:lA:1890:U:H6    | 1.84                     | 0.42              |
| 1:lA:2866:C:O2'   | 1:lA:2867:A:H2    | 2.03                     | 0.42              |
| 1:lA:3380:C:H2'   | 1:lA:3381:A:O4'   | 2.20                     | 0.42              |
| 2:lB:50:A:O2'     | 2:lB:53:G:N2      | 2.53                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 3:IC:80:G:H2'      | 3:IC:81:A:C8       | 2.55                     | 0.42              |
| 4:ID:32:ILE:HD12   | 4:ID:36:GLU:HB3    | 2.02                     | 0.42              |
| 4:ID:62:VAL:HG22   | 4:ID:73:LYS:HG2    | 2.01                     | 0.42              |
| 5:IE:304:LYS:NZ    | 5:IE:372:GLN:OE1   | 2.52                     | 0.42              |
| 6:IF:9:ILE:HD13    | 6:IF:256:GLU:HG3   | 2.00                     | 0.42              |
| 6:IF:208:PRO:HG2   | 6:IF:229:VAL:HG22  | 2.02                     | 0.42              |
| 8:IH:144:LYS:HA    | 8:IH:144:LYS:HD2   | 1.77                     | 0.42              |
| 13:IM:23:VAL:HG22  | 13:IM:30:LEU:HD13  | 2.02                     | 0.42              |
| 15:IO:62:ARG:HD2   | 15:IO:67:PRO:HB3   | 2.01                     | 0.42              |
| 18:IR:55:LYS:HA    | 18:IR:55:LYS:HD3   | 1.87                     | 0.42              |
| 19:IS:81:VAL:HG22  | 19:IS:120:PHE:CZ   | 2.55                     | 0.42              |
| 23:IW:72:ASP:HB3   | 23:IW:73:LYS:H     | 1.67                     | 0.42              |
| 42:lp:25:TYR:HD1   | 42:lp:25:TYR:HA    | 1.77                     | 0.42              |
| 45:sB:37:LYS:HG3   | 45:sB:70:LYS:HE3   | 2.02                     | 0.42              |
| 46:sC:2:PRO:HB2    | 46:sC:3:LEU:H      | 1.74                     | 0.42              |
| 53:sa:383:G:OP2    | 53:sa:418:G:O2'    | 2.38                     | 0.42              |
| 53:sa:444:U:H2'    | 53:sa:445:C:H6     | 1.85                     | 0.42              |
| 53:sa:1288:G:H2'   | 53:sa:1289:G:O4'   | 2.20                     | 0.42              |
| 53:sa:1375:U:H2'   | 53:sa:1376:U:C6    | 2.55                     | 0.42              |
| 53:sa:1669:A:H62   | 73:sv:102:ARG:HH12 | 1.67                     | 0.42              |
| 53:sa:1821:A:N6    | 53:sa:1892:G:C6    | 2.88                     | 0.42              |
| 53:sa:1866:A:H2'   | 53:sa:1867:A:O4'   | 2.20                     | 0.42              |
| 55:sc:60:GLU:HG2   | 75:sx:10:TYR:CD2   | 2.55                     | 0.42              |
| 58:sf:103:THR:HG21 | 58:sf:242:ILE:O    | 2.20                     | 0.42              |
| 61:si:175:LYS:HB2  | 61:si:175:LYS:HE3  | 1.85                     | 0.42              |
| 62:sj:59:ARG:O     | 62:sj:60:LEU:HD23  | 2.20                     | 0.42              |
| 65:sm:37:ILE:HG21  | 65:sm:41:PHE:HB2   | 2.02                     | 0.42              |
| 65:sm:81:ARG:O     | 65:sm:109:HIS:ND1  | 2.53                     | 0.42              |
| 71:st:66:VAL:HG22  | 71:st:68:GLY:H     | 1.85                     | 0.42              |
| 1:IA:387:G:OP2     | 6:IF:194:GLN:NE2   | 2.44                     | 0.42              |
| 1:IA:451:G:OP1     | 1:IA:1549:U:O2'    | 2.34                     | 0.42              |
| 1:IA:1292:A:N6     | 1:IA:1457:A:H61    | 2.13                     | 0.42              |
| 1:IA:1627:G:N2     | 34:lh:6:THR:HG22   | 2.35                     | 0.42              |
| 1:IA:2118:U:H2'    | 1:IA:2119:C:H6     | 1.84                     | 0.42              |
| 1:IA:2142:G:H2'    | 1:IA:2143:C:C6     | 2.55                     | 0.42              |
| 1:IA:2253:U:H2'    | 4:ID:128:ARG:HB2   | 2.01                     | 0.42              |
| 1:IA:2588:U:H1'    | 1:IA:2589:C:H2'    | 2.02                     | 0.42              |
| 1:IA:2649:G:OP2    | 1:IA:2650:A:O2'    | 2.32                     | 0.42              |
| 1:IA:2966:G:C4     | 1:IA:2967:G:C8     | 3.08                     | 0.42              |
| 4:ID:104:ILE:HD12  | 4:ID:104:ILE:HA    | 1.89                     | 0.42              |
| 5:IE:25:VAL:HG22   | 5:IE:274:PHE:HZ    | 1.84                     | 0.42              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 5:IE:53:MET:HG2   | 5:IE:76:VAL:O     | 2.19                     | 0.42              |
| 5:IE:315:TYR:HD1  | 5:IE:334:ARG:HG2  | 1.84                     | 0.42              |
| 11:IK:46:ILE:HG23 | 11:IK:65:ILE:HG13 | 2.02                     | 0.42              |
| 15:IO:63:VAL:HG23 | 15:IO:70:GLY:HA2  | 2.02                     | 0.42              |
| 30:ld:23:LYS:HB2  | 30:ld:23:LYS:HE3  | 1.71                     | 0.42              |
| 44:sa:81:CYS:SG   | 53:sa:1700:A:O2'  | 2.58                     | 0.42              |
| 46:sC:18:LYS:O    | 53:sa:1095:U:O2'  | 2.38                     | 0.42              |
| 51:sJ:6:C:H2'     | 51:sJ:7:A:C8      | 2.55                     | 0.42              |
| 53:sa:159:A:N3    | 53:sa:160:G:C8    | 2.88                     | 0.42              |
| 53:sa:159:A:H2'   | 53:sa:160:G:H8    | 1.85                     | 0.42              |
| 53:sa:376:U:H2'   | 53:sa:377:C:C6    | 2.53                     | 0.42              |
| 53:sa:1668:G:N2   | 53:sa:1673:A:H2   | 2.15                     | 0.42              |
| 58:sf:186:GLY:O   | 58:sf:189:ARG:HB2 | 2.19                     | 0.42              |
| 59:sg:50:PHE:HD2  | 70:ss:65:GLU:HG2  | 1.85                     | 0.42              |
| 68:sq:123:LYS:HE2 | 68:sq:123:LYS:HB3 | 1.84                     | 0.42              |
| 70:ss:46:VAL:O    | 70:ss:49:VAL:HG22 | 2.20                     | 0.42              |
| 1:IA:206:U:O4     | 1:IA:303:G:O6     | 2.37                     | 0.41              |
| 1:IA:463:U:O2'    | 1:IA:464:G:H5'    | 2.20                     | 0.41              |
| 1:IA:739:A:H2'    | 1:IA:740:A:C8     | 2.55                     | 0.41              |
| 1:IA:857:U:C2     | 1:IA:887:G:N2     | 2.88                     | 0.41              |
| 1:IA:1157:A:H4'   | 7:IG:5:LYS:H      | 1.85                     | 0.41              |
| 1:IA:1186:G:N2    | 1:IA:1220:A:H61   | 2.18                     | 0.41              |
| 1:IA:2114:U:H2'   | 1:IA:2115:A:O4'   | 2.19                     | 0.41              |
| 5:IE:283:LYS:NZ   | 5:IE:351:ALA:O    | 2.42                     | 0.41              |
| 6:IF:271:LYS:HB2  | 6:IF:271:LYS:HE3  | 1.81                     | 0.41              |
| 8:IH:93:GLY:O     | 8:IH:98:ASN:HB2   | 2.20                     | 0.41              |
| 10:IJ:73:LEU:HD22 | 10:IJ:175:CYS:HB2 | 2.02                     | 0.41              |
| 11:IK:13:ILE:HG22 | 11:IK:17:VAL:HG23 | 2.02                     | 0.41              |
| 21:IU:21:LYS:HA   | 21:IU:21:LYS:HD3  | 1.89                     | 0.41              |
| 31:le:64:ALA:O    | 31:le:68:LYS:N    | 2.53                     | 0.41              |
| 32:lf:51:THR:HG22 | 32:lf:110:ARG:HD2 | 2.01                     | 0.41              |
| 32:lf:142:THR:O   | 32:lf:142:THR:OG1 | 2.38                     | 0.41              |
| 46:sC:31:SER:O    | 53:sa:939:G:N2    | 2.53                     | 0.41              |
| 53:sa:164:A:OP1   | 60:sh:139:SER:HB3 | 2.20                     | 0.41              |
| 53:sa:313:A:O2'   | 53:sa:348:A:N1    | 2.49                     | 0.41              |
| 53:sa:738:C:H2'   | 53:sa:739:U:O4'   | 2.21                     | 0.41              |
| 53:sa:1111:A:H2'  | 53:sa:1112:A:C8   | 2.55                     | 0.41              |
| 53:sa:1189:G:H2'  | 53:sa:1190:G:H8   | 1.86                     | 0.41              |
| 56:sd:219:PRO:HD2 | 71:st:38:VAL:O    | 2.20                     | 0.41              |
| 57:se:71:ASN:ND2  | 57:se:86:TYR:CD2  | 2.89                     | 0.41              |
| 58:sf:227:GLY:HA3 | 58:sf:231:GLU:O   | 2.20                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 63:sk:92:LYS:HE3   | 63:sk:95:PHE:CE2   | 2.55                     | 0.41              |
| 63:sk:94:GLU:OE1   | 63:sk:94:GLU:N     | 2.49                     | 0.41              |
| 1:lA:270:C:H2'     | 1:lA:271:U:H6      | 1.85                     | 0.41              |
| 1:lA:747:C:H1'     | 8:lH:51:ASN:HD22   | 1.85                     | 0.41              |
| 1:lA:941:A:H2'     | 1:lA:942:C:C6      | 2.55                     | 0.41              |
| 1:lA:1882:A:H1'    | 1:lA:1883:A:H2     | 1.85                     | 0.41              |
| 1:lA:2150:G:C2     | 1:lA:2176:G:C2     | 3.08                     | 0.41              |
| 1:lA:2779:C:C2     | 1:lA:2780:A:C8     | 3.08                     | 0.41              |
| 1:lA:3476:C:C4     | 1:lA:3477:U:H1'    | 2.55                     | 0.41              |
| 4:lD:188:MET:HE3   | 4:lD:188:MET:HB2   | 1.75                     | 0.41              |
| 10:lJ:37:THR:HG22  | 10:lJ:38:ARG:H     | 1.85                     | 0.41              |
| 12:lL:44:ASP:OD1   | 12:lL:44:ASP:C     | 2.63                     | 0.41              |
| 20:lT:158:ARG:O    | 36:lJ:35:ASN:ND2   | 2.47                     | 0.41              |
| 20:lT:172:LEU:HD23 | 20:lT:172:LEU:HA   | 1.89                     | 0.41              |
| 26:lZ:55:ALA:O     | 26:lZ:59:GLN:HG2   | 2.21                     | 0.41              |
| 44:sA:77:MET:SD    | 44:sA:79:ILE:HG12  | 2.60                     | 0.41              |
| 53:sa:301:U:OP1    | 65:sm:136:ARG:NE   | 2.51                     | 0.41              |
| 56:sd:10:LEU:HD12  | 56:sd:90:ARG:HD2   | 2.01                     | 0.41              |
| 57:se:58:ILE:C     | 57:se:60:SER:H     | 2.28                     | 0.41              |
| 58:sf:54:LEU:N     | 58:sf:58:GLU:OE1   | 2.48                     | 0.41              |
| 62:sj:81:VAL:HA    | 62:sj:102:ILE:HG22 | 2.01                     | 0.41              |
| 67:sp:55:MET:O     | 67:sp:56:ARG:NH1   | 2.50                     | 0.41              |
| 1:lA:206:U:H2'     | 1:lA:207:A:H8      | 1.85                     | 0.41              |
| 1:lA:360:U:H2'     | 1:lA:361:C:C6      | 2.54                     | 0.41              |
| 1:lA:485:A:OP2     | 8:lH:31:LYS:NZ     | 2.36                     | 0.41              |
| 1:lA:714:U:OP1     | 6:lF:339:LYS:NZ    | 2.52                     | 0.41              |
| 1:lA:1030:C:OP1    | 4:lD:14:SER:OG     | 2.37                     | 0.41              |
| 1:lA:1181:A:H5''   | 1:lA:1182:A:H5'    | 2.01                     | 0.41              |
| 1:lA:2670:U:H2'    | 1:lA:2671:A:H8     | 1.85                     | 0.41              |
| 1:lA:2883:A:H2'    | 1:lA:2884:U:C6     | 2.49                     | 0.41              |
| 1:lA:3047:U:H2'    | 1:lA:3048:U:H6     | 1.85                     | 0.41              |
| 1:lA:3168:A:H2'    | 1:lA:3169:C:H6     | 1.84                     | 0.41              |
| 4:lD:103:PRO:HG2   | 4:lD:106:GLN:HG2   | 2.01                     | 0.41              |
| 5:lE:231:VAL:HG11  | 5:lE:251:VAL:HG23  | 2.02                     | 0.41              |
| 8:lH:146:VAL:HG23  | 8:lH:147:GLU:N     | 2.34                     | 0.41              |
| 23:lW:45:LYS:HB2   | 23:lW:45:LYS:HE3   | 1.69                     | 0.41              |
| 46:sC:9:LEU:HD12   | 46:sC:9:LEU:HA     | 1.88                     | 0.41              |
| 47:sD:21:ARG:HD3   | 53:sa:1782:G:O2'   | 2.20                     | 0.41              |
| 51:sJ:48:U:H5'     | 51:sJ:49:C:OP1     | 2.21                     | 0.41              |
| 53:sa:353:U:O2'    | 53:sa:355:A:OP1    | 2.37                     | 0.41              |
| 53:sa:1245:C:H2'   | 53:sa:1246:A:C8    | 2.54                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 53:sa:1377:U:H2'   | 53:sa:1378:U:C6    | 2.55                     | 0.41              |
| 53:sa:1510:A:OP1   | 71:st:3:GLY:N      | 2.54                     | 0.41              |
| 55:sc:51:LYS:HB3   | 55:sc:245:TYR:CD2  | 2.56                     | 0.41              |
| 58:sf:17:MET:HB2   | 58:sf:49:ARG:HH12  | 1.84                     | 0.41              |
| 62:sj:107:ALA:HB3  | 62:sj:108:PRO:HD3  | 2.02                     | 0.41              |
| 1:lA:380:G:H2'     | 1:lA:381:A:C8      | 2.55                     | 0.41              |
| 1:lA:785:G:H4'     | 1:lA:1570:U:H5''   | 2.02                     | 0.41              |
| 1:lA:860:G:O2'     | 1:lA:1097:U:OP1    | 2.38                     | 0.41              |
| 1:lA:1406:A:H2'    | 1:lA:1407:U:H6     | 1.84                     | 0.41              |
| 1:lA:1571:C:O2     | 1:lA:1571:C:H2'    | 2.20                     | 0.41              |
| 1:lA:1850:U:O2'    | 1:lA:2061:G:OP1    | 2.28                     | 0.41              |
| 1:lA:2118:U:H2'    | 1:lA:2119:C:C6     | 2.55                     | 0.41              |
| 1:lA:3287:U:H2'    | 1:lA:3288:U:C6     | 2.55                     | 0.41              |
| 2:lB:95:A:OP1      | 35:li:59:ARG:NH2   | 2.42                     | 0.41              |
| 5:lE:257:TRP:CD1   | 5:lE:257:TRP:C     | 2.99                     | 0.41              |
| 15:lO:185:LYS:HE3  | 15:lO:185:LYS:HB3  | 1.92                     | 0.41              |
| 19:lS:148:HIS:ND1  | 19:lS:160:LYS:HB3  | 2.34                     | 0.41              |
| 51:sJ:28:U:H2'     | 51:sJ:29:C:C6      | 2.55                     | 0.41              |
| 53:sa:77:A:N7      | 60:sh:187:PRO:HG2  | 2.35                     | 0.41              |
| 53:sa:156:U:O3'    | 60:sh:62:PRO:HG3   | 2.20                     | 0.41              |
| 54:sb:158:ASP:OD1  | 54:sb:158:ASP:N    | 2.53                     | 0.41              |
| 55:sc:141:VAL:HG11 | 55:sc:193:ALA:HB1  | 2.01                     | 0.41              |
| 58:sf:67:THR:HB    | 58:sf:68:ILE:HD12  | 2.02                     | 0.41              |
| 58:sf:123:LYS:O    | 58:sf:140:HIS:N    | 2.53                     | 0.41              |
| 61:si:123:THR:HG23 | 61:si:126:ALA:H    | 1.84                     | 0.41              |
| 69:sr:76:SER:O     | 69:sr:77:PRO:C     | 2.64                     | 0.41              |
| 73:sv:19:TYR:OH    | 73:sv:113:ILE:HD11 | 2.20                     | 0.41              |
| 1:lA:581:U:H2'     | 1:lA:582:U:H6      | 1.84                     | 0.41              |
| 1:lA:819:U:H2'     | 1:lA:820:A:H8      | 1.86                     | 0.41              |
| 1:lA:889:A:H5'     | 30:ld:44:LYS:HE3   | 2.02                     | 0.41              |
| 1:lA:1074:U:OP1    | 30:ld:7:ARG:HG3    | 2.21                     | 0.41              |
| 1:lA:1678:U:H2'    | 1:lA:1679:U:C6     | 2.55                     | 0.41              |
| 1:lA:2109:C:O2     | 5:lE:242:ARG:NH2   | 2.51                     | 0.41              |
| 1:lA:2778:U:H2'    | 1:lA:2779:C:C6     | 2.52                     | 0.41              |
| 1:lA:2844:U:H2'    | 1:lA:2845:U:C6     | 2.55                     | 0.41              |
| 1:lA:2996:G:O2'    | 12:lL:158:LYS:O    | 2.35                     | 0.41              |
| 1:lA:3311:U:H2'    | 1:lA:3312:U:C6     | 2.55                     | 0.41              |
| 1:lA:3362:U:H2'    | 1:lA:3363:C:H6     | 1.85                     | 0.41              |
| 3:lC:39:U:H2'      | 3:lC:41:G:N7       | 2.35                     | 0.41              |
| 12:lL:103:LEU:HB3  | 12:lL:113:THR:HG21 | 2.02                     | 0.41              |
| 19:lS:25:MET:HE3   | 19:lS:25:MET:HB3   | 1.84                     | 0.41              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 19:IS:132:LYS:HA  | 19:IS:132:LYS:HD2 | 1.87                     | 0.41              |
| 38:IL:65:ARG:HD2  | 38:IL:66:HIS:NE2  | 2.35                     | 0.41              |
| 53:sa:412:A:H5'   | 53:sa:413:G:C4    | 2.55                     | 0.41              |
| 53:sa:443:U:H2'   | 53:sa:444:U:H6    | 1.85                     | 0.41              |
| 53:sa:1011:U:H4'  | 53:sa:1012:G:OP2  | 2.20                     | 0.41              |
| 53:sa:1129:C:H2'  | 53:sa:1130:U:C6   | 2.56                     | 0.41              |
| 53:sa:1668:G:C2'  | 53:sa:1669:A:H5'  | 2.51                     | 0.41              |
| 60:sh:186:THR:HG1 | 60:sh:189:ARG:NH2 | 2.17                     | 0.41              |
| 63:sk:86:LEU:HD12 | 63:sk:87:PRO:HD2  | 2.01                     | 0.41              |
| 1:IA:197:U:H3     | 1:IA:302:U:H5'    | 1.84                     | 0.41              |
| 1:IA:237:C:H2'    | 1:IA:238:A:C8     | 2.55                     | 0.41              |
| 1:IA:301:A:O2'    | 1:IA:302:U:O5'    | 2.32                     | 0.41              |
| 1:IA:743:G:H3'    | 1:IA:743:G:N3     | 2.36                     | 0.41              |
| 1:IA:968:C:H2'    | 1:IA:969:U:C6     | 2.55                     | 0.41              |
| 1:IA:1206:A:OP1   | 22:IV:35:LYS:NZ   | 2.46                     | 0.41              |
| 1:IA:2264:A:C5    | 1:IA:2265:U:C5    | 3.09                     | 0.41              |
| 1:IA:2395:C:HO2'  | 1:IA:2396:A:P     | 2.43                     | 0.41              |
| 1:IA:3129:U:C2    | 1:IA:3130:A:N7    | 2.89                     | 0.41              |
| 3:IC:79:G:H22     | 3:IC:95:A:H2      | 1.68                     | 0.41              |
| 7:IG:85:ARG:NH2   | 7:IG:86:TYR:OH    | 2.54                     | 0.41              |
| 18:IR:40:LYS:HA   | 18:IR:113:THR:HA  | 2.02                     | 0.41              |
| 28:lb:94:LEU:O    | 28:lb:97:GLN:NE2  | 2.36                     | 0.41              |
| 29:lc:75:VAL:HG22 | 29:lc:115:LYS:H   | 1.86                     | 0.41              |
| 53:sa:240:G:N2    | 65:sm:39:MET:HE2  | 2.35                     | 0.41              |
| 53:sa:756:G:O2'   | 53:sa:758:U:H4'   | 2.20                     | 0.41              |
| 53:sa:872:A:H2'   | 53:sa:873:A:C8    | 2.55                     | 0.41              |
| 53:sa:1565:G:N3   | 53:sa:1565:G:H2'  | 2.36                     | 0.41              |
| 53:sa:1807:C:H2'  | 53:sa:1808:G:C8   | 2.56                     | 0.41              |
| 54:sb:95:LEU:HD21 | 54:sb:107:ALA:HB2 | 2.03                     | 0.41              |
| 65:sm:39:MET:HE3  | 65:sm:41:PHE:HE2  | 1.85                     | 0.41              |
| 72:su:29:TYR:HE1  | 72:su:39:ARG:HD3  | 1.86                     | 0.41              |
| 73:sv:13:ILE:HG13 | 73:sv:17:LYS:HE3  | 2.02                     | 0.41              |
| 1:IA:216:A:H2'    | 1:IA:217:G:O4'    | 2.21                     | 0.41              |
| 1:IA:765:A:C2     | 36:lj:92:PRO:HG2  | 2.56                     | 0.41              |
| 1:IA:796:U:H2'    | 1:IA:797:C:H6     | 1.86                     | 0.41              |
| 1:IA:941:A:H2'    | 1:IA:942:C:H6     | 1.86                     | 0.41              |
| 1:IA:1091:A:H2'   | 1:IA:1092:A:C8    | 2.56                     | 0.41              |
| 1:IA:2137:G:H2'   | 1:IA:2138:A:C8    | 2.55                     | 0.41              |
| 1:IA:2299:A:H2'   | 1:IA:2300:A:C8    | 2.55                     | 0.41              |
| 1:IA:2308:A:H2'   | 1:IA:2309:A:C8    | 2.56                     | 0.41              |
| 1:IA:2508:A:H5''  | 1:IA:2509:U:OP2   | 2.20                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:1A:3154:A:H2'    | 1:1A:3155:U:C6     | 2.55                     | 0.41              |
| 1:1A:3464:G:N2     | 1:1A:3464:G:OP2    | 2.48                     | 0.41              |
| 5:1E:219:VAL:HG12  | 5:1E:339:LEU:HD23  | 2.03                     | 0.41              |
| 7:1G:41:LYS:HB2    | 22:1V:68:ASN:O     | 2.21                     | 0.41              |
| 13:1M:112:LEU:HD21 | 13:1M:114:LEU:HB2  | 2.01                     | 0.41              |
| 18:1R:61:ARG:HH22  | 18:1R:76:LEU:HB3   | 1.86                     | 0.41              |
| 31:1e:53:PRO:HA    | 31:1e:54:PRO:HD3   | 1.96                     | 0.41              |
| 32:1f:21:ARG:O     | 32:1f:25:LYS:HG2   | 2.21                     | 0.41              |
| 53:sa:139:G:O6     | 53:sa:140:A:N6     | 2.54                     | 0.41              |
| 53:sa:203:C:N4     | 53:sa:255:G:O2'    | 2.53                     | 0.41              |
| 53:sa:436:A:H2'    | 53:sa:437:C:C6     | 2.55                     | 0.41              |
| 53:sa:549:A:H1'    | 53:sa:584:C:O2'    | 2.20                     | 0.41              |
| 53:sa:900:U:H4'    | 57:se:66:ARG:HD3   | 2.02                     | 0.41              |
| 53:sa:1224:G:OP1   | 53:sa:1225:G:H8    | 2.04                     | 0.41              |
| 53:sa:1350:A:C2    | 53:sa:1351:A:C8    | 3.09                     | 0.41              |
| 53:sa:1548:C:H2'   | 53:sa:1549:U:H6    | 1.85                     | 0.41              |
| 53:sa:1708:G:O2'   | 53:sa:1709:A:OP2   | 2.36                     | 0.41              |
| 59:sg:70:ILE:HD13  | 59:sg:70:ILE:HA    | 1.87                     | 0.41              |
| 64:sl:15:LEU:HD13  | 64:sl:21:ILE:HG22  | 2.03                     | 0.41              |
| 64:sl:76:ARG:NH2   | 64:sl:86:VAL:HG22  | 2.36                     | 0.41              |
| 65:sm:62:ASP:O     | 65:sm:62:ASP:CG    | 2.64                     | 0.41              |
| 66:so:88:LEU:O     | 66:so:92:MET:HG3   | 2.21                     | 0.41              |
| 1:1A:226:U:H2'     | 1:1A:227:A:C8      | 2.56                     | 0.41              |
| 1:1A:250:G:H2'     | 1:1A:251:A:C8      | 2.56                     | 0.41              |
| 1:1A:621:U:H4'     | 6:1F:392:VAL:HB    | 2.02                     | 0.41              |
| 1:1A:957:G:N7      | 39:1m:4:ARG:NH2    | 2.66                     | 0.41              |
| 1:1A:1158:U:H2'    | 1:1A:1159:C:C6     | 2.55                     | 0.41              |
| 1:1A:1483:U:H2'    | 1:1A:1484:A:C8     | 2.56                     | 0.41              |
| 1:1A:1830:U:H2'    | 1:1A:1831:U:H6     | 1.86                     | 0.41              |
| 1:1A:1912:A:H5'    | 31:1e:31:THR:HG22  | 2.03                     | 0.41              |
| 1:1A:2250:C:OP1    | 4:1D:193:ARG:NH1   | 2.54                     | 0.41              |
| 1:1A:2378:G:O2'    | 53:sa:1821:A:C4    | 2.70                     | 0.41              |
| 1:1A:2379:A:O4'    | 53:sa:1821:A:H2    | 2.03                     | 0.41              |
| 1:1A:2503:U:H2'    | 1:1A:2504:U:C6     | 2.55                     | 0.41              |
| 1:1A:3379:U:H2'    | 1:1A:3380:C:C6     | 2.56                     | 0.41              |
| 3:1C:85:G:N2       | 3:1C:90:G:H1       | 2.19                     | 0.41              |
| 7:1G:164:LEU:HD21  | 7:1G:176:HIS:CG    | 2.56                     | 0.41              |
| 9:1I:30:LYS:HD3    | 9:1I:30:LYS:HA     | 1.72                     | 0.41              |
| 10:1J:62:PRO:HG2   | 17:1Q:18:VAL:HA    | 2.03                     | 0.41              |
| 12:1L:185:LYS:HA   | 12:1L:190:ILE:HB   | 2.02                     | 0.41              |
| 13:1M:170:ILE:H    | 13:1M:170:ILE:HG13 | 1.58                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 45:sB:68:TYR:HB2   | 57:se:113:ARG:HB3  | 2.03                     | 0.41              |
| 46:sC:8:LEU:HD12   | 69:sr:24:GLN:HG3   | 2.02                     | 0.41              |
| 47:sD:38:GLU:OE1   | 47:sD:38:GLU:N     | 2.53                     | 0.41              |
| 51:sJ:9:G:O2'      | 51:sJ:10:G:N7      | 2.46                     | 0.41              |
| 53:sa:247:G:OP1    | 58:sf:132:GLY:N    | 2.34                     | 0.41              |
| 53:sa:436:A:H2'    | 53:sa:437:C:H6     | 1.86                     | 0.41              |
| 53:sa:550:A:N3     | 53:sa:584:C:H1'    | 2.36                     | 0.41              |
| 53:sa:875:G:H21    | 67:sp:47:THR:HG21  | 1.84                     | 0.41              |
| 55:sc:128:LYS:O    | 55:sc:131:MET:HB2  | 2.20                     | 0.41              |
| 56:sd:86:LEU:HG    | 64:sl:20:CYS:SG    | 2.60                     | 0.41              |
| 57:se:57:ARG:HG2   | 57:se:59:ALA:H     | 1.85                     | 0.41              |
| 57:se:66:ARG:HH12  | 57:se:103:HIS:CG   | 2.39                     | 0.41              |
| 61:si:101:ARG:HD3  | 61:si:102:VAL:H    | 1.85                     | 0.41              |
| 64:sl:37:PRO:HG2   | 64:sl:40:GLN:HG3   | 2.02                     | 0.41              |
| 64:sl:48:LEU:O     | 64:sl:53:CYS:N     | 2.52                     | 0.41              |
| 68:sq:49:LYS:HA    | 68:sq:49:LYS:HD3   | 1.92                     | 0.41              |
| 70:ss:28:LYS:HG3   | 70:ss:29:LYS:H     | 1.85                     | 0.41              |
| 1:lA:13:C:OP1      | 25:lY:27:ARG:NH2   | 2.50                     | 0.41              |
| 1:lA:773:G:H2'     | 1:lA:774:U:O4'     | 2.21                     | 0.41              |
| 1:lA:823:A:H2'     | 1:lA:824:G:H2'     | 2.03                     | 0.41              |
| 1:lA:846:A:H2'     | 1:lA:847:A:C8      | 2.56                     | 0.41              |
| 1:lA:1407:U:H2'    | 1:lA:1408:C:O4'    | 2.21                     | 0.41              |
| 1:lA:1437:A:O3'    | 15:lO:18:GLY:HA3   | 2.21                     | 0.41              |
| 1:lA:1858:A:H2'    | 1:lA:1859:G:H8     | 1.84                     | 0.41              |
| 1:lA:1872:U:C2     | 1:lA:1873:U:C5     | 3.09                     | 0.41              |
| 1:lA:2262:U:OP2    | 4:lD:200:ARG:HD2   | 2.20                     | 0.41              |
| 1:lA:2591:U:C2     | 1:lA:2592:U:C5     | 3.09                     | 0.41              |
| 1:lA:2660:U:H2'    | 1:lA:2661:U:H6     | 1.85                     | 0.41              |
| 1:lA:2747:G:H2'    | 1:lA:2747:G:N3     | 2.36                     | 0.41              |
| 1:lA:2955:C:H2'    | 1:lA:2956:A:C8     | 2.56                     | 0.41              |
| 1:lA:3295:A:H2'    | 1:lA:3296:G:O4'    | 2.21                     | 0.41              |
| 1:lA:3338:A:H2'    | 1:lA:3339:A:C8     | 2.56                     | 0.41              |
| 3:lC:48:U:OP1      | 7:lG:221:ARG:HB2   | 2.21                     | 0.41              |
| 5:lE:185:ILE:O     | 5:lE:193:LYS:HD3   | 2.20                     | 0.41              |
| 6:lF:102:PHE:O     | 6:lF:103:SER:C     | 2.63                     | 0.41              |
| 10:lJ:204:ASP:OD1  | 10:lJ:204:ASP:N    | 2.52                     | 0.41              |
| 11:lK:5:LEU:HA     | 11:lK:69:TYR:HD1   | 1.86                     | 0.41              |
| 11:lK:24:LYS:HB2   | 11:lK:24:LYS:HE2   | 1.87                     | 0.41              |
| 11:lK:134:ILE:HD13 | 11:lK:167:ILE:HG23 | 2.02                     | 0.41              |
| 13:lM:30:LEU:HD12  | 13:lM:30:LEU:HA    | 1.87                     | 0.41              |
| 14:lN:197:LYS:HB3  | 14:lN:197:LYS:HE2  | 1.77                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 22:IV:34:TYR:HB2   | 22:IV:72:ILE:HD12  | 2.03                     | 0.41              |
| 22:IV:124:LYS:HD3  | 22:IV:124:LYS:H    | 1.84                     | 0.41              |
| 26:IZ:54:THR:HG22  | 26:IZ:56:ILE:H     | 1.86                     | 0.41              |
| 27:la:150:ASN:O    | 27:la:153:ILE:HG12 | 2.21                     | 0.41              |
| 31:le:38:ILE:HG21  | 31:le:63:TYR:HB3   | 2.02                     | 0.41              |
| 34:lh:62:TYR:O     | 34:lh:70:ARG:NH1   | 2.54                     | 0.41              |
| 53:sa:117:U:H1'    | 62:sj:50:TYR:CD1   | 2.56                     | 0.41              |
| 53:sa:601:G:H4'    | 53:sa:604:G:N2     | 2.33                     | 0.41              |
| 53:sa:867:A:H2'    | 53:sa:868:A:C8     | 2.56                     | 0.41              |
| 53:sa:958:A:H2'    | 53:sa:959:A:O4'    | 2.21                     | 0.41              |
| 53:sa:1133:A:H2'   | 53:sa:1134:G:N3    | 2.36                     | 0.41              |
| 53:sa:1212:U:H2'   | 53:sa:1213:G:H8    | 1.86                     | 0.41              |
| 53:sa:1265:U:H2'   | 53:sa:1266:A:H5''  | 2.03                     | 0.41              |
| 53:sa:1350:A:C2    | 53:sa:1351:A:N7    | 2.89                     | 0.41              |
| 53:sa:1358:U:H2'   | 53:sa:1359:G:H8    | 1.86                     | 0.41              |
| 53:sa:1383:C:O2'   | 73:sv:132:ASP:OD2  | 2.39                     | 0.41              |
| 54:sb:119:ILE:HD13 | 54:sb:119:ILE:HA   | 1.86                     | 0.41              |
| 55:sc:77:GLY:O     | 55:sc:79:LYS:NZ    | 2.53                     | 0.41              |
| 55:sc:154:HIS:CG   | 55:sc:155:THR:HG23 | 2.56                     | 0.41              |
| 56:sd:39:LEU:HD11  | 56:sd:51:VAL:HG22  | 2.02                     | 0.41              |
| 56:sd:204:LEU:HD13 | 56:sd:208:PRO:HG2  | 2.02                     | 0.41              |
| 57:se:70:VAL:CG2   | 67:sp:123:ARG:HD2  | 2.50                     | 0.41              |
| 59:sg:57:ARG:HD3   | 70:ss:137:ARG:HD3  | 2.02                     | 0.41              |
| 60:sh:75:LEU:O     | 60:sh:77:LEU:HG    | 2.21                     | 0.41              |
| 61:si:54:LYS:HE2   | 61:si:54:LYS:HB3   | 1.84                     | 0.41              |
| 61:si:140:GLU:H    | 61:si:165:VAL:C    | 2.29                     | 0.41              |
| 63:sk:59:MET:SD    | 63:sk:69:ARG:HA    | 2.60                     | 0.41              |
| 64:sl:16:PHE:CD2   | 64:sl:75:LEU:HB3   | 2.56                     | 0.41              |
| 65:sm:79:MET:HE3   | 65:sm:82:THR:HG22  | 2.03                     | 0.41              |
| 68:sq:84:ILE:H     | 68:sq:84:ILE:HG13  | 1.57                     | 0.41              |
| 73:sv:19:TYR:HB3   | 73:sv:59:ALA:HB1   | 2.02                     | 0.41              |
| 1:lA:101:A:N3      | 1:lA:102:A:C8      | 2.89                     | 0.41              |
| 1:lA:290:U:H2'     | 1:lA:291:U:C6      | 2.56                     | 0.41              |
| 1:lA:1845:G:N2     | 1:lA:1924:U:O2'    | 2.54                     | 0.41              |
| 1:lA:1933:U:H2'    | 1:lA:1934:G:H8     | 1.85                     | 0.41              |
| 1:lA:2485:G:H3'    | 1:lA:2486:U:H4'    | 2.03                     | 0.41              |
| 1:lA:3237:G:H2'    | 1:lA:3238:A:C8     | 2.56                     | 0.41              |
| 2:lB:4:A:H8        | 2:lB:4:A:OP2       | 2.03                     | 0.41              |
| 6:lF:60:LYS:HA     | 6:lF:92:PHE:HD1    | 1.85                     | 0.41              |
| 7:lG:125:ALA:HA    | 7:lG:128:LEU:HG    | 2.03                     | 0.41              |
| 11:lK:54:LYS:HB3   | 11:lK:57:GLY:HA3   | 2.02                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 23:IW:51:ARG:O     | 23:IW:63:THR:OG1   | 2.22                     | 0.41              |
| 34:Ih:25:THR:N     | 34:Ih:29:ASN:O     | 2.54                     | 0.41              |
| 41:lo:49:MET:HG3   | 41:lo:51:MET:HG2   | 2.02                     | 0.41              |
| 47:sD:21:ARG:NH1   | 47:sD:29:LEU:HD11  | 2.36                     | 0.41              |
| 53:sa:136:A:H61    | 60:sh:192:HIS:HB3  | 1.84                     | 0.41              |
| 53:sa:212:C:H2'    | 53:sa:213:A:O4'    | 2.21                     | 0.41              |
| 53:sa:860:G:H2'    | 53:sa:861:A:C8     | 2.56                     | 0.41              |
| 53:sa:1349:G:C6    | 53:sa:1350:A:N7    | 2.88                     | 0.41              |
| 53:sa:1712:A:O2'   | 53:sa:1713:A:OP1   | 2.32                     | 0.41              |
| 74:sw:36:CYS:SG    | 74:sw:89:LEU:HD21  | 2.61                     | 0.41              |
| 1:lA:943:U:H2'     | 1:lA:944:U:C6      | 2.56                     | 0.40              |
| 1:lA:1168:C:H2'    | 1:lA:1169:U:C6     | 2.55                     | 0.40              |
| 1:lA:1186:G:H21    | 1:lA:1220:A:N6     | 2.19                     | 0.40              |
| 1:lA:1469:A:H2'    | 1:lA:1470:A:C8     | 2.56                     | 0.40              |
| 1:lA:3456:U:H5''   | 5:lE:309:MET:HE2   | 2.03                     | 0.40              |
| 4:lD:242:ARG:NH2   | 4:lD:246:ILE:HG12  | 2.36                     | 0.40              |
| 7:lG:262:THR:OG1   | 7:lG:263:SER:N     | 2.53                     | 0.40              |
| 11:lK:111:LEU:O    | 11:lK:144:LYS:NZ   | 2.37                     | 0.40              |
| 17:lQ:102:ALA:O    | 17:lQ:106:VAL:HG23 | 2.21                     | 0.40              |
| 51:sJ:34:U:P       | 70:ss:158:ARG:HH22 | 2.44                     | 0.40              |
| 53:sa:140:A:HO2'   | 53:sa:141:U:H6     | 1.66                     | 0.40              |
| 53:sa:442:U:H2'    | 53:sa:443:U:C6     | 2.56                     | 0.40              |
| 53:sa:611:U:H5'    | 53:sa:1011:U:O4'   | 2.21                     | 0.40              |
| 53:sa:747:A:H1'    | 58:sf:10:LEU:O     | 2.21                     | 0.40              |
| 53:sa:1173:A:H2'   | 53:sa:1174:C:C6    | 2.57                     | 0.40              |
| 53:sa:1315:U:H2'   | 53:sa:1316:G:C2    | 2.56                     | 0.40              |
| 53:sa:1441:C:HO2'  | 53:sa:1442:A:C5'   | 2.33                     | 0.40              |
| 55:sc:37:TRP:N     | 55:sc:69:GLN:OE1   | 2.54                     | 0.40              |
| 58:sf:255:LYS:HE2  | 58:sf:255:LYS:HB2  | 1.79                     | 0.40              |
| 60:sh:61:PHE:HB3   | 60:sh:97:VAL:HA    | 2.02                     | 0.40              |
| 60:sh:157:VAL:HG21 | 60:sh:181:ILE:HD12 | 2.03                     | 0.40              |
| 61:si:140:GLU:OE2  | 61:si:142:ALA:HB2  | 2.21                     | 0.40              |
| 69:sr:66:ASN:N     | 69:sr:66:ASN:OD1   | 2.54                     | 0.40              |
| 72:su:115:LEU:O    | 72:su:119:ARG:N    | 2.54                     | 0.40              |
| 75:sx:21:LEU:HD23  | 75:sx:21:LEU:HA    | 1.88                     | 0.40              |
| 1:lA:47:A:C4       | 1:lA:48:A:C8       | 3.09                     | 0.40              |
| 1:lA:101:A:C2      | 1:lA:102:A:C5      | 3.09                     | 0.40              |
| 1:lA:190:U:C2      | 1:lA:191:A:C8      | 3.10                     | 0.40              |
| 1:lA:360:U:H2'     | 1:lA:361:C:H6      | 1.85                     | 0.40              |
| 1:lA:381:A:H2'     | 1:lA:382:A:C8      | 2.55                     | 0.40              |
| 1:lA:1156:C:H1'    | 7:lG:3:PHE:HD1     | 1.85                     | 0.40              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:1A:1308:A:OP1    | 16:1P:55:ASN:ND2   | 2.53                     | 0.40              |
| 1:1A:1842:U:H2'    | 1:1A:1843:G:H8     | 1.85                     | 0.40              |
| 1:1A:2116:G:N2     | 21:1U:81:ARG:O     | 2.42                     | 0.40              |
| 1:1A:2792:A:OP1    | 19:1S:156:LYS:NZ   | 2.54                     | 0.40              |
| 1:1A:2837:U:H2'    | 1:1A:2838:A:H8     | 1.85                     | 0.40              |
| 1:1A:3057:G:N3     | 1:1A:3077:A:H2     | 2.18                     | 0.40              |
| 1:1A:3287:U:H2'    | 1:1A:3288:U:H6     | 1.85                     | 0.40              |
| 1:1A:3370:A:H2'    | 1:1A:3371:U:H6     | 1.86                     | 0.40              |
| 1:1A:3435:G:H2'    | 1:1A:3436:A:H5''   | 2.02                     | 0.40              |
| 5:1E:27:ALA:HB1    | 5:1E:276:LYS:HD2   | 2.03                     | 0.40              |
| 6:1F:328:LYS:NZ    | 9:1I:152:THR:O     | 2.54                     | 0.40              |
| 11:1K:171:ASN:HD22 | 11:1K:185:VAL:HG23 | 1.86                     | 0.40              |
| 23:1W:101:ASN:OD1  | 23:1W:101:ASN:N    | 2.54                     | 0.40              |
| 34:1h:15:THR:HG22  | 34:1h:16:LYS:H     | 1.86                     | 0.40              |
| 53:sa:102:A:H4'    | 53:sa:103:U:O5'    | 2.22                     | 0.40              |
| 53:sa:584:C:C2     | 53:sa:585:A:N7     | 2.88                     | 0.40              |
| 53:sa:882:G:H2'    | 53:sa:883:U:C6     | 2.57                     | 0.40              |
| 53:sa:1172:G:H2'   | 53:sa:1173:A:H8    | 1.84                     | 0.40              |
| 53:sa:1444:U:H2'   | 53:sa:1445:U:C6    | 2.55                     | 0.40              |
| 54:sb:84:VAL:HG22  | 54:sb:131:VAL:HG12 | 2.02                     | 0.40              |
| 56:sd:84:THR:O     | 56:sd:88:ILE:HG12  | 2.20                     | 0.40              |
| 58:sf:152:LEU:HD21 | 58:sf:170:PHE:HB2  | 2.03                     | 0.40              |
| 64:sl:87:PRO:HB3   | 64:sl:91:LYS:HB2   | 2.01                     | 0.40              |
| 1:1A:662:U:H3'     | 1:1A:663:G:H8      | 1.86                     | 0.40              |
| 1:1A:790:A:H2'     | 1:1A:791:A:C8      | 2.56                     | 0.40              |
| 1:1A:1030:C:H5''   | 4:1D:15:ILE:HD13   | 2.03                     | 0.40              |
| 1:1A:1618:A:H2'    | 1:1A:1619:C:C6     | 2.56                     | 0.40              |
| 1:1A:1968:U:H2'    | 1:1A:1969:U:C6     | 2.56                     | 0.40              |
| 1:1A:2128:A:H2'    | 39:1m:7:LYS:HE3    | 2.03                     | 0.40              |
| 1:1A:2759:A:N3     | 1:1A:2759:A:H2'    | 2.35                     | 0.40              |
| 1:1A:3061:G:C2     | 1:1A:3062:A:N7     | 2.89                     | 0.40              |
| 1:1A:3090:G:OP2    | 1:1A:3090:G:H4'    | 2.21                     | 0.40              |
| 1:1A:3469:A:H62    | 1:1A:3485:U:H3     | 1.66                     | 0.40              |
| 14:1N:49:ILE:HA    | 14:1N:231:LEU:O    | 2.20                     | 0.40              |
| 14:1N:198:LYS:HB3  | 14:1N:198:LYS:HE3  | 1.81                     | 0.40              |
| 15:1O:63:VAL:HG12  | 15:1O:66:ASN:H     | 1.86                     | 0.40              |
| 16:1P:12:VAL:HG22  | 16:1P:26:VAL:HG22  | 2.03                     | 0.40              |
| 23:1W:84:LEU:HD12  | 23:1W:89:MET:HE1   | 2.04                     | 0.40              |
| 27:1a:181:LYS:HB2  | 27:1a:182:PRO:HD3  | 2.02                     | 0.40              |
| 28:1b:50:PRO:HD3   | 28:1b:68:VAL:HG22  | 2.02                     | 0.40              |
| 34:1h:67:LYS:H     | 34:1h:67:LYS:HG2   | 1.59                     | 0.40              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 40:ln:25:VAL:HG23  | 40:ln:68:GLU:OE2  | 2.21                     | 0.40              |
| 44:sA:93:LYS:HE3   | 44:sA:93:LYS:HA   | 2.02                     | 0.40              |
| 45:sB:84:VAL:HB    | 53:sa:1944:A:N6   | 2.36                     | 0.40              |
| 53:sa:159:A:C2     | 53:sa:160:G:C8    | 3.10                     | 0.40              |
| 53:sa:579:A:H2'    | 53:sa:580:G:C8    | 2.52                     | 0.40              |
| 53:sa:1096:U:C2    | 53:sa:1097:C:C5   | 3.09                     | 0.40              |
| 60:sh:141:ILE:HD11 | 60:sh:180:LYS:HZ3 | 1.87                     | 0.40              |
| 61:si:61:LYS:HB3   | 61:si:61:LYS:HE3  | 1.89                     | 0.40              |
| 65:sm:61:SER:OG    | 65:sm:62:ASP:N    | 2.55                     | 0.40              |
| 70:ss:22:VAL:HG23  | 70:ss:37:CYS:HB3  | 2.04                     | 0.40              |
| 1:lA:278:U:H2'     | 1:lA:279:U:H6     | 1.86                     | 0.40              |
| 1:lA:805:G:O6      | 1:lA:806:A:N6     | 2.54                     | 0.40              |
| 1:lA:897:A:H4'     | 1:lA:898:U:OP1    | 2.22                     | 0.40              |
| 1:lA:1544:U:H2'    | 1:lA:1545:A:H8    | 1.87                     | 0.40              |
| 1:lA:1940:A:H2'    | 1:lA:1941:A:C8    | 2.57                     | 0.40              |
| 1:lA:2497:U:O2'    | 43:lq:50:GLY:HA3  | 2.20                     | 0.40              |
| 1:lA:3004:U:H2'    | 1:lA:3005:U:O4'   | 2.21                     | 0.40              |
| 6:lF:4:ARG:NE      | 6:lF:24:LEU:O     | 2.45                     | 0.40              |
| 6:lF:262:LEU:HD23  | 6:lF:262:LEU:HA   | 1.92                     | 0.40              |
| 7:lG:5:LYS:HA      | 7:lG:5:LYS:HD3    | 1.71                     | 0.40              |
| 22:lV:123:LYS:HD2  | 22:lV:124:LYS:NZ  | 2.35                     | 0.40              |
| 28:lb:91:GLN:O     | 28:lb:91:GLN:NE2  | 2.54                     | 0.40              |
| 33:lg:127:ILE:HG23 | 33:lg:128:LYS:O   | 2.22                     | 0.40              |
| 37:lk:55:LEU:HD23  | 37:lk:55:LEU:HA   | 1.90                     | 0.40              |
| 50:sI:5:C:H2'      | 50:sI:6:C:C6      | 2.57                     | 0.40              |
| 53:sa:1277:C:N4    | 53:sa:1278:A:H62  | 2.20                     | 0.40              |
| 53:sa:1350:A:N3    | 53:sa:1351:A:C8   | 2.89                     | 0.40              |
| 53:sa:1429:C:H1'   | 70:ss:34:VAL:HG21 | 2.03                     | 0.40              |
| 53:sa:1758:G:C4    | 53:sa:1759:A:C8   | 3.08                     | 0.40              |
| 53:sa:1824:G:O6    | 53:sa:1890:U:C4   | 2.75                     | 0.40              |
| 53:sa:1905:U:N3    | 53:sa:1906:C:C5   | 2.89                     | 0.40              |
| 56:sd:171:MET:HG3  | 56:sd:203:MET:HB2 | 2.04                     | 0.40              |
| 66:so:106:LYS:HE2  | 66:so:106:LYS:HB2 | 1.78                     | 0.40              |
| 73:sv:36:ASP:OD1   | 73:sv:36:ASP:N    | 2.51                     | 0.40              |
| 1:lA:280:U:H2'     | 1:lA:281:A:C8     | 2.56                     | 0.40              |
| 1:lA:1194:A:O2'    | 1:lA:1195:G:H5'   | 2.21                     | 0.40              |
| 1:lA:2393:A:H2'    | 1:lA:2394:U:O4'   | 2.21                     | 0.40              |
| 1:lA:3375:U:H2'    | 1:lA:3376:C:H6    | 1.86                     | 0.40              |
| 1:lA:3457:G:N2     | 1:lA:3495:U:O2    | 2.48                     | 0.40              |
| 3:lC:90:G:H4'      | 12:lL:57:ARG:HB3  | 2.03                     | 0.40              |
| 5:lE:56:VAL:HG12   | 5:lE:360:ILE:HA   | 2.03                     | 0.40              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 5:IE:210:VAL:O     | 5:IE:341:LYS:NZ    | 2.43                     | 0.40              |
| 5:IE:219:VAL:HG22  | 5:IE:282:LYS:HG3   | 2.04                     | 0.40              |
| 8:IH:147:GLU:HA    | 8:IH:150:PHE:HE1   | 1.87                     | 0.40              |
| 11:IK:103:VAL:HG22 | 42:lp:7:LEU:HG     | 2.04                     | 0.40              |
| 19:IS:6:ASP:OD1    | 19:IS:6:ASP:N      | 2.54                     | 0.40              |
| 37:lk:36:ASP:O     | 37:lk:40:GLU:HG2   | 2.21                     | 0.40              |
| 44:sA:72:VAL:HG22  | 44:sA:76:ARG:HH21  | 1.86                     | 0.40              |
| 48:sE:12:ARG:NH2   | 53:sa:1558:U:OP1   | 2.52                     | 0.40              |
| 53:sa:782:A:C2     | 58:sf:246:LEU:HD11 | 2.50                     | 0.40              |
| 53:sa:1359:G:H2'   | 53:sa:1360:A:C8    | 2.56                     | 0.40              |
| 53:sa:1590:A:N3    | 53:sa:1773:G:O2'   | 2.50                     | 0.40              |
| 53:sa:1779:U:OP1   | 59:sg:73:ARG:NH2   | 2.49                     | 0.40              |
| 56:sd:56:ASN:O     | 74:sw:103:SER:OG   | 2.33                     | 0.40              |
| 56:sd:211:LYS:NZ   | 71:st:40:VAL:HG13  | 2.36                     | 0.40              |
| 58:sf:108:CYS:SG   | 58:sf:237:PRO:HB3  | 2.61                     | 0.40              |
| 62:sj:208:ARG:HH11 | 62:sj:211:GLN:HG3  | 1.86                     | 0.40              |
| 63:sk:128:LEU:HA   | 63:sk:133:MET:HG2  | 2.04                     | 0.40              |
| 68:sq:111:LEU:O    | 68:sq:113:HIS:N    | 2.55                     | 0.40              |
| 70:ss:70:VAL:O     | 70:ss:74:ASN:ND2   | 2.46                     | 0.40              |
| 73:sv:84:TYR:CE1   | 73:sv:86:LYS:HG3   | 2.56                     | 0.40              |
| 76:sy:10:LYS:HB2   | 76:sy:10:LYS:HE2   | 1.92                     | 0.40              |
| 77:sz:87:LYS:HD2   | 77:sz:87:LYS:HA    | 1.74                     | 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 |     |
|-----|-------|---------------|-----------|---------|----------|-------------|-----|
| 4   | ID    | 244/257 (95%) | 233 (96%) | 11 (4%) | 0        | 100         | 100 |
| 5   | IE    | 385/402 (96%) | 378 (98%) | 7 (2%)  | 0        | 100         | 100 |
| 6   | IF    | 420/431 (97%) | 400 (95%) | 20 (5%) | 0        | 100         | 100 |

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| Mol | Chain | Analysed      | Favoured  | Allowed  | Outliers | Percentiles |     |
|-----|-------|---------------|-----------|----------|----------|-------------|-----|
| 7   | IG    | 278/286 (97%) | 261 (94%) | 17 (6%)  | 0        | 100         | 100 |
| 8   | IH    | 201/204 (98%) | 181 (90%) | 19 (10%) | 1 (0%)   | 24          | 57  |
| 9   | II    | 208/230 (90%) | 203 (98%) | 5 (2%)   | 0        | 100         | 100 |
| 10  | IJ    | 209/286 (73%) | 199 (95%) | 10 (5%)  | 0        | 100         | 100 |
| 11  | IK    | 191/197 (97%) | 185 (97%) | 5 (3%)   | 1 (0%)   | 24          | 57  |
| 12  | IL    | 196/210 (93%) | 187 (95%) | 9 (5%)   | 0        | 100         | 100 |
| 13  | IM    | 166/174 (95%) | 160 (96%) | 6 (4%)   | 0        | 100         | 100 |
| 14  | IN    | 261/291 (90%) | 252 (97%) | 9 (3%)   | 0        | 100         | 100 |
| 15  | IO    | 202/205 (98%) | 196 (97%) | 6 (3%)   | 0        | 100         | 100 |
| 16  | IP    | 128/135 (95%) | 126 (98%) | 2 (2%)   | 0        | 100         | 100 |
| 17  | IQ    | 202/205 (98%) | 195 (96%) | 7 (4%)   | 0        | 100         | 100 |
| 18  | IR    | 156/179 (87%) | 153 (98%) | 3 (2%)   | 0        | 100         | 100 |
| 19  | IS    | 165/168 (98%) | 152 (92%) | 13 (8%)  | 0        | 100         | 100 |
| 20  | IT    | 171/173 (99%) | 165 (96%) | 6 (4%)   | 0        | 100         | 100 |
| 21  | IU    | 148/198 (75%) | 146 (99%) | 2 (1%)   | 0        | 100         | 100 |
| 22  | IV    | 163/166 (98%) | 158 (97%) | 5 (3%)   | 0        | 100         | 100 |
| 23  | IW    | 91/137 (66%)  | 84 (92%)  | 7 (8%)   | 0        | 100         | 100 |
| 24  | IX    | 131/140 (94%) | 126 (96%) | 5 (4%)   | 0        | 100         | 100 |
| 25  | IY    | 114/121 (94%) | 111 (97%) | 3 (3%)   | 0        | 100         | 100 |
| 26  | IZ    | 55/163 (34%)  | 54 (98%)  | 1 (2%)   | 0        | 100         | 100 |
| 27  | la    | 208/213 (98%) | 202 (97%) | 6 (3%)   | 0        | 100         | 100 |
| 28  | lb    | 135/139 (97%) | 134 (99%) | 1 (1%)   | 0        | 100         | 100 |
| 29  | lc    | 146/149 (98%) | 141 (97%) | 5 (3%)   | 0        | 100         | 100 |
| 30  | ld    | 58/64 (91%)   | 54 (93%)  | 4 (7%)   | 0        | 100         | 100 |
| 31  | le    | 101/109 (93%) | 92 (91%)  | 9 (9%)   | 0        | 100         | 100 |
| 32  | lf    | 144/150 (96%) | 137 (95%) | 7 (5%)   | 0        | 100         | 100 |
| 33  | lg    | 127/134 (95%) | 120 (94%) | 7 (6%)   | 0        | 100         | 100 |
| 34  | lh    | 103/137 (75%) | 100 (97%) | 3 (3%)   | 0        | 100         | 100 |
| 35  | li    | 120/122 (98%) | 117 (98%) | 2 (2%)   | 1 (1%)   | 16          | 47  |
| 36  | lj    | 104/108 (96%) | 100 (96%) | 4 (4%)   | 0        | 100         | 100 |
| 37  | lk    | 83/104 (80%)  | 83 (100%) | 0        | 0        | 100         | 100 |

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| Mol | Chain | Analysed      | Favoured  | Allowed  | Outliers | Percentiles |     |
|-----|-------|---------------|-----------|----------|----------|-------------|-----|
| 38  | ll    | 70/77 (91%)   | 64 (91%)  | 4 (6%)   | 2 (3%)   | 3           | 19  |
| 39  | lm    | 88/93 (95%)   | 83 (94%)  | 5 (6%)   | 0        | 100         | 100 |
| 40  | ln    | 71/77 (92%)   | 67 (94%)  | 4 (6%)   | 0        | 100         | 100 |
| 41  | lo    | 48/51 (94%)   | 47 (98%)  | 1 (2%)   | 0        | 100         | 100 |
| 42  | lp    | 51/56 (91%)   | 50 (98%)  | 1 (2%)   | 0        | 100         | 100 |
| 43  | lq    | 90/98 (92%)   | 89 (99%)  | 1 (1%)   | 0        | 100         | 100 |
| 44  | sA    | 67/137 (49%)  | 62 (92%)  | 5 (8%)   | 0        | 100         | 100 |
| 45  | sB    | 96/144 (67%)  | 94 (98%)  | 2 (2%)   | 0        | 100         | 100 |
| 46  | sC    | 31/84 (37%)   | 30 (97%)  | 1 (3%)   | 0        | 100         | 100 |
| 47  | sD    | 58/69 (84%)   | 54 (93%)  | 4 (7%)   | 0        | 100         | 100 |
| 48  | sE    | 53/56 (95%)   | 49 (92%)  | 4 (8%)   | 0        | 100         | 100 |
| 54  | sb    | 203/254 (80%) | 193 (95%) | 10 (5%)  | 0        | 100         | 100 |
| 55  | sc    | 213/255 (84%) | 205 (96%) | 7 (3%)   | 1 (0%)   | 24          | 57  |
| 56  | sd    | 215/244 (88%) | 202 (94%) | 13 (6%)  | 0        | 100         | 100 |
| 57  | se    | 155/256 (60%) | 127 (82%) | 27 (17%) | 1 (1%)   | 21          | 52  |
| 58  | sf    | 254/326 (78%) | 243 (96%) | 11 (4%)  | 0        | 100         | 100 |
| 59  | sg    | 177/206 (86%) | 168 (95%) | 9 (5%)   | 0        | 100         | 100 |
| 60  | sh    | 113/266 (42%) | 88 (78%)  | 22 (20%) | 3 (3%)   | 4           | 20  |
| 61  | si    | 102/201 (51%) | 96 (94%)  | 5 (5%)   | 1 (1%)   | 12          | 41  |
| 62  | sj    | 123/237 (52%) | 120 (98%) | 3 (2%)   | 0        | 100         | 100 |
| 63  | sk    | 160/185 (86%) | 158 (99%) | 2 (1%)   | 0        | 100         | 100 |
| 64  | sl    | 89/127 (70%)  | 87 (98%)  | 2 (2%)   | 0        | 100         | 100 |
| 65  | sm    | 137/156 (88%) | 126 (92%) | 11 (8%)  | 0        | 100         | 100 |
| 66  | so    | 68/151 (45%)  | 68 (100%) | 0        | 0        | 100         | 100 |
| 67  | sp    | 131/146 (90%) | 125 (95%) | 6 (5%)   | 0        | 100         | 100 |
| 68  | sq    | 101/144 (70%) | 90 (89%)  | 10 (10%) | 1 (1%)   | 12          | 41  |
| 69  | sr    | 127/130 (98%) | 116 (91%) | 11 (9%)  | 0        | 100         | 100 |
| 70  | ss    | 139/158 (88%) | 134 (96%) | 5 (4%)   | 0        | 100         | 100 |
| 71  | st    | 79/117 (68%)  | 79 (100%) | 0        | 0        | 100         | 100 |
| 72  | su    | 133/155 (86%) | 121 (91%) | 12 (9%)  | 0        | 100         | 100 |
| 73  | sv    | 149/155 (96%) | 144 (97%) | 5 (3%)   | 0        | 100         | 100 |

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| Mol | Chain | Analysed         | Favoured   | Allowed  | Outliers | Percentiles |     |
|-----|-------|------------------|------------|----------|----------|-------------|-----|
| 74  | sw    | 96/118 (81%)     | 93 (97%)   | 1 (1%)   | 2 (2%)   | 5           | 25  |
| 75  | sx    | 81/86 (94%)      | 80 (99%)   | 1 (1%)   | 0        | 100         | 100 |
| 76  | sy    | 104/141 (74%)    | 99 (95%)   | 5 (5%)   | 0        | 100         | 100 |
| 77  | sz    | 52/140 (37%)     | 49 (94%)   | 3 (6%)   | 0        | 100         | 100 |
| All | All   | 9738/11683 (83%) | 9285 (95%) | 439 (4%) | 14 (0%)  | 49          | 78  |

All (14) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 38  | ll    | 40  | PRO  |
| 60  | sh    | 107 | SER  |
| 60  | sh    | 149 | GLN  |
| 60  | sh    | 202 | LEU  |
| 74  | sw    | 93  | THR  |
| 57  | se    | 202 | LYS  |
| 35  | li    | -6  | LYS  |
| 55  | sc    | 152 | GLU  |
| 38  | ll    | 39  | TYR  |
| 8   | lH    | 119 | VAL  |
| 11  | lK    | 134 | ILE  |
| 61  | si    | 163 | VAL  |
| 74  | sw    | 100 | GLU  |
| 68  | sq    | 112 | GLY  |

### 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 |     |
|-----|-------|---------------|------------|----------|-------------|-----|
| 4   | ID    | 195/201 (97%) | 190 (97%)  | 5 (3%)   | 40          | 68  |
| 5   | lE    | 330/343 (96%) | 327 (99%)  | 3 (1%)   | 70          | 80  |
| 6   | lF    | 332/345 (96%) | 332 (100%) | 0        | 100         | 100 |
| 7   | lG    | 227/231 (98%) | 225 (99%)  | 2 (1%)   | 70          | 80  |
| 8   | lH    | 172/173 (99%) | 169 (98%)  | 3 (2%)   | 53          | 74  |

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| Mol | Chain | Analysed       | Rotameric  | Outliers | Percentiles |     |
|-----|-------|----------------|------------|----------|-------------|-----|
| 9   | II    | 178/195 (91%)  | 176 (99%)  | 2 (1%)   | 65          | 78  |
| 10  | IJ    | 186/242 (77%)  | 182 (98%)  | 4 (2%)   | 45          | 71  |
| 11  | IK    | 171/174 (98%)  | 165 (96%)  | 6 (4%)   | 32          | 62  |
| 12  | IL    | 169/176 (96%)  | 168 (99%)  | 1 (1%)   | 78          | 83  |
| 13  | IM    | 144/147 (98%)  | 141 (98%)  | 3 (2%)   | 47          | 71  |
| 14  | IN    | 222/243 (91%)  | 221 (100%) | 1 (0%)   | 81          | 85  |
| 15  | IO    | 167/168 (99%)  | 164 (98%)  | 3 (2%)   | 51          | 73  |
| 16  | IP    | 113/118 (96%)  | 112 (99%)  | 1 (1%)   | 70          | 80  |
| 17  | IQ    | 171/172 (99%)  | 170 (99%)  | 1 (1%)   | 78          | 83  |
| 18  | IR    | 129/147 (88%)  | 128 (99%)  | 1 (1%)   | 73          | 81  |
| 19  | IS    | 141/143 (99%)  | 138 (98%)  | 3 (2%)   | 47          | 71  |
| 20  | IT    | 156/156 (100%) | 155 (99%)  | 1 (1%)   | 78          | 83  |
| 21  | IU    | 132/174 (76%)  | 130 (98%)  | 2 (2%)   | 57          | 75  |
| 22  | IV    | 144/145 (99%)  | 142 (99%)  | 2 (1%)   | 59          | 76  |
| 23  | IW    | 85/125 (68%)   | 84 (99%)   | 1 (1%)   | 63          | 78  |
| 24  | IX    | 109/113 (96%)  | 108 (99%)  | 1 (1%)   | 70          | 80  |
| 25  | IY    | 99/102 (97%)   | 97 (98%)   | 2 (2%)   | 48          | 72  |
| 26  | IZ    | 52/137 (38%)   | 52 (100%)  | 0        | 100         | 100 |
| 27  | la    | 177/179 (99%)  | 173 (98%)  | 4 (2%)   | 44          | 70  |
| 28  | lb    | 121/123 (98%)  | 120 (99%)  | 1 (1%)   | 73          | 81  |
| 29  | lc    | 120/121 (99%)  | 119 (99%)  | 1 (1%)   | 73          | 81  |
| 30  | ld    | 50/54 (93%)    | 50 (100%)  | 0        | 100         | 100 |
| 31  | le    | 86/92 (94%)    | 85 (99%)   | 1 (1%)   | 63          | 78  |
| 32  | lf    | 125/128 (98%)  | 124 (99%)  | 1 (1%)   | 73          | 81  |
| 33  | lg    | 112/116 (97%)  | 110 (98%)  | 2 (2%)   | 51          | 73  |
| 34  | lh    | 86/116 (74%)   | 83 (96%)   | 3 (4%)   | 32          | 62  |
| 35  | li    | 103/103 (100%) | 102 (99%)  | 1 (1%)   | 68          | 79  |
| 36  | lj    | 89/91 (98%)    | 87 (98%)   | 2 (2%)   | 45          | 71  |
| 37  | lk    | 71/82 (87%)    | 71 (100%)  | 0        | 100         | 100 |
| 38  | ll    | 60/64 (94%)    | 60 (100%)  | 0        | 100         | 100 |
| 39  | lm    | 72/75 (96%)    | 72 (100%)  | 0        | 100         | 100 |

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| Mol | Chain | Analysed      | Rotameric  | Outliers | Percentiles |     |
|-----|-------|---------------|------------|----------|-------------|-----|
| 40  | ln    | 63/66 (96%)   | 62 (98%)   | 1 (2%)   | 55          | 75  |
| 41  | lo    | 44/45 (98%)   | 44 (100%)  | 0        | 100         | 100 |
| 42  | lp    | 45/48 (94%)   | 45 (100%)  | 0        | 100         | 100 |
| 43  | lq    | 85/91 (93%)   | 84 (99%)   | 1 (1%)   | 63          | 78  |
| 44  | sA    | 64/112 (57%)  | 64 (100%)  | 0        | 100         | 100 |
| 45  | sB    | 87/127 (68%)  | 86 (99%)   | 1 (1%)   | 65          | 78  |
| 46  | sC    | 29/73 (40%)   | 28 (97%)   | 1 (3%)   | 32          | 63  |
| 47  | sD    | 50/59 (85%)   | 49 (98%)   | 1 (2%)   | 48          | 72  |
| 48  | sE    | 45/46 (98%)   | 44 (98%)   | 1 (2%)   | 45          | 71  |
| 54  | sb    | 178/218 (82%) | 177 (99%)  | 1 (1%)   | 78          | 83  |
| 55  | sc    | 172/199 (86%) | 170 (99%)  | 2 (1%)   | 63          | 78  |
| 56  | sd    | 183/206 (89%) | 178 (97%)  | 5 (3%)   | 39          | 67  |
| 57  | se    | 149/225 (66%) | 140 (94%)  | 9 (6%)   | 17          | 47  |
| 58  | sf    | 223/283 (79%) | 218 (98%)  | 5 (2%)   | 45          | 71  |
| 59  | sg    | 162/178 (91%) | 159 (98%)  | 3 (2%)   | 50          | 73  |
| 60  | sh    | 101/220 (46%) | 87 (86%)   | 14 (14%) | 3           | 15  |
| 61  | si    | 93/167 (56%)  | 90 (97%)   | 3 (3%)   | 34          | 64  |
| 62  | sj    | 106/205 (52%) | 103 (97%)  | 3 (3%)   | 38          | 66  |
| 63  | sk    | 144/164 (88%) | 142 (99%)  | 2 (1%)   | 59          | 76  |
| 64  | sl    | 81/111 (73%)  | 80 (99%)   | 1 (1%)   | 63          | 78  |
| 65  | sm    | 126/138 (91%) | 126 (100%) | 0        | 100         | 100 |
| 66  | so    | 68/129 (53%)  | 68 (100%)  | 0        | 100         | 100 |
| 67  | sp    | 103/114 (90%) | 99 (96%)   | 4 (4%)   | 28          | 60  |
| 68  | sq    | 94/127 (74%)  | 93 (99%)   | 1 (1%)   | 65          | 78  |
| 69  | sr    | 112/113 (99%) | 110 (98%)  | 2 (2%)   | 51          | 73  |
| 70  | ss    | 114/128 (89%) | 112 (98%)  | 2 (2%)   | 51          | 73  |
| 71  | st    | 73/106 (69%)  | 70 (96%)   | 3 (4%)   | 27          | 59  |
| 72  | su    | 114/130 (88%) | 111 (97%)  | 3 (3%)   | 40          | 68  |
| 73  | sv    | 128/132 (97%) | 126 (98%)  | 2 (2%)   | 55          | 75  |
| 74  | sw    | 89/107 (83%)  | 89 (100%)  | 0        | 100         | 100 |
| 75  | sX    | 75/77 (97%)   | 73 (97%)   | 2 (3%)   | 39          | 67  |

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| Mol | Chain | Analysed        | Rotameric  | Outliers | Percentiles |
|-----|-------|-----------------|------------|----------|-------------|
| 76  | sy    | 86/114 (75%)    | 85 (99%)   | 1 (1%)   | 63 78       |
| 77  | sz    | 49/125 (39%)    | 46 (94%)   | 3 (6%)   | 17 46       |
| All | All   | 8431/9897 (85%) | 8290 (98%) | 141 (2%) | 52 74       |

All (141) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 4   | ID    | 30  | ARG  |
| 4   | ID    | 193 | ARG  |
| 4   | ID    | 237 | LYS  |
| 4   | ID    | 243 | THR  |
| 4   | ID    | 246 | ILE  |
| 5   | IE    | 90  | VAL  |
| 5   | IE    | 192 | GLU  |
| 5   | IE    | 350 | THR  |
| 7   | IG    | 3   | PHE  |
| 7   | IG    | 94  | ASN  |
| 8   | IH    | 117 | VAL  |
| 8   | IH    | 122 | VAL  |
| 8   | IH    | 155 | TYR  |
| 9   | II    | 130 | GLU  |
| 9   | II    | 207 | ILE  |
| 10  | IJ    | 19  | VAL  |
| 10  | IJ    | 85  | LEU  |
| 10  | IJ    | 195 | VAL  |
| 10  | IJ    | 228 | GLU  |
| 11  | IK    | 8   | THR  |
| 11  | IK    | 18  | ASN  |
| 11  | IK    | 53  | VAL  |
| 11  | IK    | 115 | ASP  |
| 11  | IK    | 140 | VAL  |
| 11  | IK    | 142 | VAL  |
| 12  | IL    | 143 | GLN  |
| 13  | IM    | 19  | LEU  |
| 13  | IM    | 44  | THR  |
| 13  | IM    | 170 | ILE  |
| 14  | IN    | 162 | THR  |
| 15  | IO    | 5   | ASN  |
| 15  | IO    | 133 | THR  |
| 15  | IO    | 172 | LYS  |
| 16  | IP    | 94  | THR  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 17  | lQ    | 39  | VAL  |
| 18  | lR    | 139 | PHE  |
| 19  | lS    | 10  | VAL  |
| 19  | lS    | 17  | THR  |
| 19  | lS    | 56  | VAL  |
| 20  | lT    | 54  | LEU  |
| 21  | lU    | 112 | THR  |
| 21  | lU    | 134 | ASN  |
| 22  | lV    | 46  | SER  |
| 22  | lV    | 129 | LEU  |
| 23  | lW    | 70  | VAL  |
| 24  | lX    | 17  | THR  |
| 25  | lY    | 70  | ASN  |
| 25  | lY    | 120 | LEU  |
| 27  | la    | 36  | LYS  |
| 27  | la    | 109 | LEU  |
| 27  | la    | 162 | THR  |
| 27  | la    | 194 | HIS  |
| 28  | lb    | 64  | MET  |
| 29  | lc    | 141 | VAL  |
| 31  | le    | 40  | ASP  |
| 32  | lf    | 46  | ILE  |
| 33  | lg    | 15  | THR  |
| 33  | lg    | 88  | MET  |
| 34  | lh    | 15  | THR  |
| 34  | lh    | 56  | HIS  |
| 34  | lh    | 100 | LEU  |
| 35  | li    | 76  | THR  |
| 36  | lj    | 36  | THR  |
| 36  | lj    | 61  | ASN  |
| 40  | ln    | 36  | VAL  |
| 43  | lq    | 73  | THR  |
| 45  | sB    | 59  | LEU  |
| 46  | sC    | 33  | PHE  |
| 47  | sD    | 57  | THR  |
| 48  | sE    | 36  | LEU  |
| 54  | sb    | 204 | VAL  |
| 55  | sc    | 80  | GLU  |
| 55  | sc    | 220 | VAL  |
| 56  | sd    | 80  | ILE  |
| 56  | sd    | 133 | VAL  |
| 56  | sd    | 156 | LEU  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 56  | sd    | 195 | ILE  |
| 56  | sd    | 206 | THR  |
| 57  | se    | 36  | VAL  |
| 57  | se    | 49  | VAL  |
| 57  | se    | 63  | LEU  |
| 57  | se    | 67  | VAL  |
| 57  | se    | 70  | VAL  |
| 57  | se    | 87  | LYS  |
| 57  | se    | 110 | ASP  |
| 57  | se    | 195 | LEU  |
| 57  | se    | 207 | PHE  |
| 58  | sf    | 82  | VAL  |
| 58  | sf    | 198 | VAL  |
| 58  | sf    | 208 | ILE  |
| 58  | sf    | 246 | LEU  |
| 58  | sf    | 251 | ASN  |
| 59  | sg    | 41  | ILE  |
| 59  | sg    | 116 | ASP  |
| 59  | sg    | 153 | LEU  |
| 60  | sh    | 52  | ILE  |
| 60  | sh    | 63  | MET  |
| 60  | sh    | 106 | ILE  |
| 60  | sh    | 150 | LYS  |
| 60  | sh    | 154 | LYS  |
| 60  | sh    | 160 | ARG  |
| 60  | sh    | 162 | VAL  |
| 60  | sh    | 176 | SER  |
| 60  | sh    | 177 | LYS  |
| 60  | sh    | 181 | ILE  |
| 60  | sh    | 182 | GLN  |
| 60  | sh    | 189 | ARG  |
| 60  | sh    | 201 | LYS  |
| 60  | sh    | 207 | MET  |
| 61  | si    | 136 | LEU  |
| 61  | si    | 140 | GLU  |
| 61  | si    | 160 | THR  |
| 62  | sj    | 28  | THR  |
| 62  | sj    | 29  | MET  |
| 62  | sj    | 52  | ILE  |
| 63  | sk    | 59  | MET  |
| 63  | sk    | 143 | VAL  |
| 64  | sl    | 8   | ILE  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 67  | sp    | 52  | THR  |
| 67  | sp    | 75  | ASP  |
| 67  | sp    | 78  | LYS  |
| 67  | sp    | 83  | LEU  |
| 68  | sq    | 27  | MET  |
| 69  | sr    | 65  | LEU  |
| 69  | sr    | 87  | ASP  |
| 70  | ss    | 41  | LYS  |
| 70  | ss    | 113 | ASP  |
| 71  | st    | 6   | THR  |
| 71  | st    | 9   | VAL  |
| 71  | st    | 66  | VAL  |
| 72  | su    | 11  | GLN  |
| 72  | su    | 51  | ILE  |
| 72  | su    | 86  | ASN  |
| 73  | sv    | 73  | VAL  |
| 73  | sv    | 146 | VAL  |
| 75  | sx    | 37  | VAL  |
| 75  | sx    | 86  | ILE  |
| 76  | sy    | 103 | PHE  |
| 77  | sz    | 29  | ASP  |
| 77  | sz    | 60  | VAL  |
| 77  | sz    | 64  | PHE  |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (62) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 4   | ID    | 140 | ASN  |
| 6   | IF    | 342 | GLN  |
| 6   | IF    | 347 | GLN  |
| 7   | IG    | 94  | ASN  |
| 8   | IH    | 98  | ASN  |
| 8   | IH    | 115 | GLN  |
| 9   | II    | 98  | GLN  |
| 9   | II    | 145 | ASN  |
| 9   | II    | 174 | HIS  |
| 10  | IJ    | 144 | GLN  |
| 10  | IJ    | 185 | GLN  |
| 10  | IJ    | 234 | ASN  |
| 10  | IJ    | 238 | HIS  |
| 11  | IK    | 41  | HIS  |
| 11  | IK    | 171 | ASN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 14  | lN    | 35  | GLN  |
| 14  | lN    | 268 | ASN  |
| 18  | lR    | 21  | ASN  |
| 19  | lS    | 9   | HIS  |
| 19  | lS    | 96  | ASN  |
| 20  | lT    | 16  | ASN  |
| 20  | lT    | 18  | ASN  |
| 20  | lT    | 101 | GLN  |
| 20  | lT    | 118 | GLN  |
| 20  | lT    | 136 | HIS  |
| 21  | lU    | 134 | ASN  |
| 22  | lV    | 32  | HIS  |
| 22  | lV    | 121 | GLN  |
| 27  | la    | 198 | ASN  |
| 30  | ld    | 10  | HIS  |
| 34  | lh    | 11  | HIS  |
| 34  | lh    | 40  | ASN  |
| 34  | lh    | 82  | HIS  |
| 35  | li    | 7   | ASN  |
| 35  | li    | 102 | HIS  |
| 36  | lj    | 76  | HIS  |
| 37  | lk    | 50  | HIS  |
| 41  | lo    | 18  | HIS  |
| 42  | lp    | 15  | ASN  |
| 43  | lq    | 36  | GLN  |
| 43  | lq    | 88  | HIS  |
| 47  | sD    | 41  | GLN  |
| 48  | sE    | 13  | ASN  |
| 55  | sc    | 69  | GLN  |
| 55  | sc    | 73  | HIS  |
| 55  | sc    | 91  | GLN  |
| 55  | sc    | 109 | HIS  |
| 55  | sc    | 201 | GLN  |
| 55  | sc    | 222 | GLN  |
| 56  | sd    | 40  | GLN  |
| 56  | sd    | 56  | ASN  |
| 57  | se    | 47  | GLN  |
| 58  | sf    | 155 | ASN  |
| 58  | sf    | 199 | HIS  |
| 58  | sf    | 221 | ASN  |
| 64  | sl    | 40  | GLN  |
| 65  | sm    | 97  | GLN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 65  | sm    | 116 | GLN  |
| 65  | sm    | 138 | ASN  |
| 71  | st    | 31  | ASN  |
| 72  | su    | 98  | GLN  |
| 73  | sv    | 68  | ASN  |

### 5.3.3 RNA ⓘ

| Mol | Chain | Analysed        | Backbone Outliers | Pucker Outliers |
|-----|-------|-----------------|-------------------|-----------------|
| 1   | lA    | 3131/3503 (89%) | 564 (18%)         | 0               |
| 2   | lB    | 143/155 (92%)   | 30 (20%)          | 0               |
| 3   | lC    | 116/117 (99%)   | 19 (16%)          | 0               |
| 50  | sI    | 68/76 (89%)     | 11 (16%)          | 0               |
| 51  | sJ    | 76/77 (98%)     | 23 (30%)          | 0               |
| 52  | sK    | 9/10 (90%)      | 0                 | 0               |
| 53  | sa    | 1417/1947 (72%) | 308 (21%)         | 0               |
| All | All   | 4960/5885 (84%) | 955 (19%)         | 0               |

All (955) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | lA    | 18  | G    |
| 1   | lA    | 22  | A    |
| 1   | lA    | 29  | U    |
| 1   | lA    | 30  | A    |
| 1   | lA    | 36  | A    |
| 1   | lA    | 39  | A    |
| 1   | lA    | 45  | A    |
| 1   | lA    | 54  | G    |
| 1   | lA    | 55  | G    |
| 1   | lA    | 56  | A    |
| 1   | lA    | 62  | A    |
| 1   | lA    | 65  | U    |
| 1   | lA    | 70  | A    |
| 1   | lA    | 71  | U    |
| 1   | lA    | 73  | A    |
| 1   | lA    | 88  | G    |
| 1   | lA    | 105 | A    |
| 1   | lA    | 106 | G    |
| 1   | lA    | 108 | C    |
| 1   | lA    | 115 | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | lA    | 116 | A    |
| 1   | lA    | 117 | U    |
| 1   | lA    | 185 | G    |
| 1   | lA    | 186 | A    |
| 1   | lA    | 189 | G    |
| 1   | lA    | 199 | G    |
| 1   | lA    | 200 | A    |
| 1   | lA    | 206 | U    |
| 1   | lA    | 213 | A    |
| 1   | lA    | 214 | A    |
| 1   | lA    | 221 | U    |
| 1   | lA    | 233 | A    |
| 1   | lA    | 237 | C    |
| 1   | lA    | 246 | U    |
| 1   | lA    | 256 | G    |
| 1   | lA    | 264 | G    |
| 1   | lA    | 266 | A    |
| 1   | lA    | 267 | A    |
| 1   | lA    | 283 | A    |
| 1   | lA    | 285 | A    |
| 1   | lA    | 286 | U    |
| 1   | lA    | 289 | C    |
| 1   | lA    | 293 | A    |
| 1   | lA    | 294 | A    |
| 1   | lA    | 302 | U    |
| 1   | lA    | 303 | G    |
| 1   | lA    | 311 | A    |
| 1   | lA    | 316 | G    |
| 1   | lA    | 332 | G    |
| 1   | lA    | 333 | U    |
| 1   | lA    | 342 | A    |
| 1   | lA    | 344 | A    |
| 1   | lA    | 345 | A    |
| 1   | lA    | 346 | G    |
| 1   | lA    | 350 | A    |
| 1   | lA    | 369 | A    |
| 1   | lA    | 383 | A    |
| 1   | lA    | 385 | C    |
| 1   | lA    | 396 | G    |
| 1   | lA    | 416 | U    |
| 1   | lA    | 422 | G    |
| 1   | lA    | 423 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | lA    | 424 | A    |
| 1   | lA    | 425 | C    |
| 1   | lA    | 444 | A    |
| 1   | lA    | 446 | A    |
| 1   | lA    | 447 | G    |
| 1   | lA    | 448 | C    |
| 1   | lA    | 452 | A    |
| 1   | lA    | 467 | A    |
| 1   | lA    | 474 | A    |
| 1   | lA    | 483 | G    |
| 1   | lA    | 494 | G    |
| 1   | lA    | 495 | A    |
| 1   | lA    | 496 | A    |
| 1   | lA    | 500 | G    |
| 1   | lA    | 501 | U    |
| 1   | lA    | 510 | A    |
| 1   | lA    | 517 | G    |
| 1   | lA    | 535 | A    |
| 1   | lA    | 536 | G    |
| 1   | lA    | 538 | A    |
| 1   | lA    | 539 | G    |
| 1   | lA    | 550 | A    |
| 1   | lA    | 561 | G    |
| 1   | lA    | 562 | A    |
| 1   | lA    | 564 | A    |
| 1   | lA    | 565 | U    |
| 1   | lA    | 567 | U    |
| 1   | lA    | 577 | G    |
| 1   | lA    | 580 | A    |
| 1   | lA    | 581 | U    |
| 1   | lA    | 583 | A    |
| 1   | lA    | 586 | A    |
| 1   | lA    | 587 | A    |
| 1   | lA    | 588 | G    |
| 1   | lA    | 589 | A    |
| 1   | lA    | 600 | U    |
| 1   | lA    | 610 | A    |
| 1   | lA    | 612 | A    |
| 1   | lA    | 613 | G    |
| 1   | lA    | 614 | U    |
| 1   | lA    | 615 | G    |
| 1   | lA    | 619 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | lA    | 620 | U    |
| 1   | lA    | 625 | A    |
| 1   | lA    | 626 | A    |
| 1   | lA    | 627 | A    |
| 1   | lA    | 630 | A    |
| 1   | lA    | 631 | G    |
| 1   | lA    | 632 | G    |
| 1   | lA    | 636 | U    |
| 1   | lA    | 637 | U    |
| 1   | lA    | 644 | A    |
| 1   | lA    | 645 | A    |
| 1   | lA    | 646 | U    |
| 1   | lA    | 647 | C    |
| 1   | lA    | 649 | U    |
| 1   | lA    | 652 | U    |
| 1   | lA    | 658 | A    |
| 1   | lA    | 663 | G    |
| 1   | lA    | 675 | A    |
| 1   | lA    | 685 | A    |
| 1   | lA    | 686 | A    |
| 1   | lA    | 696 | G    |
| 1   | lA    | 699 | A    |
| 1   | lA    | 701 | A    |
| 1   | lA    | 703 | G    |
| 1   | lA    | 704 | C    |
| 1   | lA    | 710 | A    |
| 1   | lA    | 714 | U    |
| 1   | lA    | 716 | A    |
| 1   | lA    | 720 | U    |
| 1   | lA    | 721 | A    |
| 1   | lA    | 722 | A    |
| 1   | lA    | 724 | A    |
| 1   | lA    | 725 | A    |
| 1   | lA    | 727 | U    |
| 1   | lA    | 728 | U    |
| 1   | lA    | 733 | C    |
| 1   | lA    | 734 | C    |
| 1   | lA    | 740 | A    |
| 1   | lA    | 743 | G    |
| 1   | lA    | 744 | A    |
| 1   | lA    | 746 | A    |
| 1   | lA    | 747 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | lA    | 755  | G    |
| 1   | lA    | 770  | C    |
| 1   | lA    | 771  | C    |
| 1   | lA    | 783  | A    |
| 1   | lA    | 794  | A    |
| 1   | lA    | 811  | A    |
| 1   | lA    | 816  | G    |
| 1   | lA    | 817  | A    |
| 1   | lA    | 818  | A    |
| 1   | lA    | 825  | G    |
| 1   | lA    | 833  | U    |
| 1   | lA    | 834  | A    |
| 1   | lA    | 841  | A    |
| 1   | lA    | 843  | A    |
| 1   | lA    | 849  | C    |
| 1   | lA    | 853  | A    |
| 1   | lA    | 855  | A    |
| 1   | lA    | 871  | A    |
| 1   | lA    | 872  | A    |
| 1   | lA    | 874  | A    |
| 1   | lA    | 875  | C    |
| 1   | lA    | 881  | G    |
| 1   | lA    | 882  | C    |
| 1   | lA    | 889  | A    |
| 1   | lA    | 898  | U    |
| 1   | lA    | 904  | A    |
| 1   | lA    | 905  | A    |
| 1   | lA    | 911  | U    |
| 1   | lA    | 918  | G    |
| 1   | lA    | 925  | A    |
| 1   | lA    | 934  | G    |
| 1   | lA    | 936  | A    |
| 1   | lA    | 964  | G    |
| 1   | lA    | 968  | C    |
| 1   | lA    | 980  | A    |
| 1   | lA    | 993  | U    |
| 1   | lA    | 994  | A    |
| 1   | lA    | 998  | U    |
| 1   | lA    | 1013 | A    |
| 1   | lA    | 1026 | G    |
| 1   | lA    | 1028 | G    |
| 1   | lA    | 1033 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | lA    | 1035 | G    |
| 1   | lA    | 1036 | A    |
| 1   | lA    | 1042 | C    |
| 1   | lA    | 1043 | G    |
| 1   | lA    | 1056 | G    |
| 1   | lA    | 1063 | C    |
| 1   | lA    | 1073 | A    |
| 1   | lA    | 1078 | C    |
| 1   | lA    | 1079 | U    |
| 1   | lA    | 1092 | A    |
| 1   | lA    | 1096 | U    |
| 1   | lA    | 1097 | U    |
| 1   | lA    | 1098 | A    |
| 1   | lA    | 1099 | A    |
| 1   | lA    | 1112 | G    |
| 1   | lA    | 1119 | U    |
| 1   | lA    | 1120 | A    |
| 1   | lA    | 1123 | G    |
| 1   | lA    | 1154 | A    |
| 1   | lA    | 1156 | C    |
| 1   | lA    | 1166 | A    |
| 1   | lA    | 1168 | C    |
| 1   | lA    | 1183 | G    |
| 1   | lA    | 1184 | A    |
| 1   | lA    | 1210 | C    |
| 1   | lA    | 1211 | A    |
| 1   | lA    | 1219 | A    |
| 1   | lA    | 1220 | A    |
| 1   | lA    | 1221 | A    |
| 1   | lA    | 1222 | U    |
| 1   | lA    | 1242 | G    |
| 1   | lA    | 1248 | U    |
| 1   | lA    | 1256 | G    |
| 1   | lA    | 1275 | A    |
| 1   | lA    | 1278 | A    |
| 1   | lA    | 1284 | A    |
| 1   | lA    | 1292 | A    |
| 1   | lA    | 1306 | A    |
| 1   | lA    | 1312 | A    |
| 1   | lA    | 1315 | A    |
| 1   | lA    | 1316 | C    |
| 1   | lA    | 1325 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | lA    | 1343 | A    |
| 1   | lA    | 1344 | U    |
| 1   | lA    | 1345 | U    |
| 1   | lA    | 1347 | A    |
| 1   | lA    | 1409 | G    |
| 1   | lA    | 1410 | A    |
| 1   | lA    | 1411 | A    |
| 1   | lA    | 1417 | G    |
| 1   | lA    | 1431 | G    |
| 1   | lA    | 1433 | U    |
| 1   | lA    | 1437 | A    |
| 1   | lA    | 1440 | A    |
| 1   | lA    | 1441 | U    |
| 1   | lA    | 1443 | A    |
| 1   | lA    | 1447 | C    |
| 1   | lA    | 1450 | A    |
| 1   | lA    | 1455 | A    |
| 1   | lA    | 1474 | A    |
| 1   | lA    | 1475 | A    |
| 1   | lA    | 1476 | G    |
| 1   | lA    | 1477 | A    |
| 1   | lA    | 1478 | C    |
| 1   | lA    | 1480 | U    |
| 1   | lA    | 1495 | A    |
| 1   | lA    | 1499 | G    |
| 1   | lA    | 1500 | A    |
| 1   | lA    | 1503 | U    |
| 1   | lA    | 1505 | G    |
| 1   | lA    | 1516 | A    |
| 1   | lA    | 1517 | C    |
| 1   | lA    | 1518 | A    |
| 1   | lA    | 1521 | A    |
| 1   | lA    | 1522 | G    |
| 1   | lA    | 1527 | A    |
| 1   | lA    | 1534 | U    |
| 1   | lA    | 1553 | A    |
| 1   | lA    | 1568 | G    |
| 1   | lA    | 1570 | U    |
| 1   | lA    | 1571 | C    |
| 1   | lA    | 1580 | A    |
| 1   | lA    | 1584 | G    |
| 1   | lA    | 1602 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | lA    | 1603 | A    |
| 1   | lA    | 1606 | A    |
| 1   | lA    | 1622 | A    |
| 1   | lA    | 1624 | G    |
| 1   | lA    | 1636 | U    |
| 1   | lA    | 1649 | U    |
| 1   | lA    | 1664 | G    |
| 1   | lA    | 1674 | U    |
| 1   | lA    | 1690 | A    |
| 1   | lA    | 1729 | G    |
| 1   | lA    | 1735 | A    |
| 1   | lA    | 1737 | A    |
| 1   | lA    | 1738 | G    |
| 1   | lA    | 1744 | A    |
| 1   | lA    | 1752 | U    |
| 1   | lA    | 1753 | A    |
| 1   | lA    | 1754 | G    |
| 1   | lA    | 1766 | G    |
| 1   | lA    | 1810 | A    |
| 1   | lA    | 1818 | C    |
| 1   | lA    | 1821 | A    |
| 1   | lA    | 1822 | U    |
| 1   | lA    | 1823 | C    |
| 1   | lA    | 1864 | C    |
| 1   | lA    | 1865 | U    |
| 1   | lA    | 1897 | A    |
| 1   | lA    | 1898 | A    |
| 1   | lA    | 1907 | A    |
| 1   | lA    | 1913 | G    |
| 1   | lA    | 1925 | A    |
| 1   | lA    | 1926 | U    |
| 1   | lA    | 1928 | G    |
| 1   | lA    | 1936 | A    |
| 1   | lA    | 1937 | A    |
| 1   | lA    | 1938 | G    |
| 1   | lA    | 1958 | A    |
| 1   | lA    | 1959 | U    |
| 1   | lA    | 1961 | G    |
| 1   | lA    | 1965 | U    |
| 1   | lA    | 1972 | G    |
| 1   | lA    | 1975 | G    |
| 1   | lA    | 1984 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | lA    | 1995 | G    |
| 1   | lA    | 2040 | A    |
| 1   | lA    | 2043 | A    |
| 1   | lA    | 2044 | C    |
| 1   | lA    | 2050 | C    |
| 1   | lA    | 2051 | A    |
| 1   | lA    | 2067 | A    |
| 1   | lA    | 2079 | A    |
| 1   | lA    | 2080 | A    |
| 1   | lA    | 2081 | A    |
| 1   | lA    | 2083 | A    |
| 1   | lA    | 2095 | G    |
| 1   | lA    | 2108 | G    |
| 1   | lA    | 2110 | A    |
| 1   | lA    | 2129 | G    |
| 1   | lA    | 2150 | G    |
| 1   | lA    | 2178 | A    |
| 1   | lA    | 2179 | U    |
| 1   | lA    | 2190 | A    |
| 1   | lA    | 2193 | G    |
| 1   | lA    | 2197 | G    |
| 1   | lA    | 2198 | G    |
| 1   | lA    | 2207 | A    |
| 1   | lA    | 2210 | G    |
| 1   | lA    | 2216 | U    |
| 1   | lA    | 2218 | A    |
| 1   | lA    | 2234 | A    |
| 1   | lA    | 2235 | U    |
| 1   | lA    | 2236 | A    |
| 1   | lA    | 2245 | A    |
| 1   | lA    | 2246 | G    |
| 1   | lA    | 2252 | U    |
| 1   | lA    | 2263 | G    |
| 1   | lA    | 2274 | A    |
| 1   | lA    | 2281 | U    |
| 1   | lA    | 2282 | G    |
| 1   | lA    | 2285 | U    |
| 1   | lA    | 2286 | G    |
| 1   | lA    | 2299 | A    |
| 1   | lA    | 2334 | U    |
| 1   | lA    | 2340 | U    |
| 1   | lA    | 2341 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | lA    | 2342 | U    |
| 1   | lA    | 2343 | C    |
| 1   | lA    | 2344 | U    |
| 1   | lA    | 2346 | A    |
| 1   | lA    | 2349 | G    |
| 1   | lA    | 2350 | U    |
| 1   | lA    | 2352 | G    |
| 1   | lA    | 2360 | C    |
| 1   | lA    | 2374 | U    |
| 1   | lA    | 2383 | G    |
| 1   | lA    | 2384 | C    |
| 1   | lA    | 2386 | U    |
| 1   | lA    | 2389 | A    |
| 1   | lA    | 2390 | U    |
| 1   | lA    | 2391 | G    |
| 1   | lA    | 2395 | C    |
| 1   | lA    | 2396 | A    |
| 1   | lA    | 2410 | U    |
| 1   | lA    | 2411 | G    |
| 1   | lA    | 2412 | U    |
| 1   | lA    | 2423 | A    |
| 1   | lA    | 2439 | A    |
| 1   | lA    | 2441 | U    |
| 1   | lA    | 2449 | A    |
| 1   | lA    | 2450 | C    |
| 1   | lA    | 2451 | G    |
| 1   | lA    | 2461 | G    |
| 1   | lA    | 2462 | G    |
| 1   | lA    | 2470 | G    |
| 1   | lA    | 2473 | A    |
| 1   | lA    | 2478 | A    |
| 1   | lA    | 2479 | G    |
| 1   | lA    | 2480 | A    |
| 1   | lA    | 2487 | U    |
| 1   | lA    | 2494 | G    |
| 1   | lA    | 2509 | U    |
| 1   | lA    | 2589 | C    |
| 1   | lA    | 2590 | A    |
| 1   | lA    | 2594 | C    |
| 1   | lA    | 2595 | G    |
| 1   | lA    | 2596 | U    |
| 1   | lA    | 2597 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | lA    | 2598 | A    |
| 1   | lA    | 2629 | A    |
| 1   | lA    | 2637 | A    |
| 1   | lA    | 2651 | A    |
| 1   | lA    | 2655 | G    |
| 1   | lA    | 2656 | G    |
| 1   | lA    | 2659 | A    |
| 1   | lA    | 2663 | A    |
| 1   | lA    | 2676 | G    |
| 1   | lA    | 2677 | G    |
| 1   | lA    | 2684 | G    |
| 1   | lA    | 2689 | G    |
| 1   | lA    | 2696 | A    |
| 1   | lA    | 2715 | G    |
| 1   | lA    | 2722 | U    |
| 1   | lA    | 2726 | A    |
| 1   | lA    | 2727 | A    |
| 1   | lA    | 2744 | A    |
| 1   | lA    | 2747 | G    |
| 1   | lA    | 2759 | A    |
| 1   | lA    | 2761 | A    |
| 1   | lA    | 2764 | A    |
| 1   | lA    | 2766 | A    |
| 1   | lA    | 2773 | U    |
| 1   | lA    | 2784 | G    |
| 1   | lA    | 2791 | G    |
| 1   | lA    | 2797 | A    |
| 1   | lA    | 2798 | G    |
| 1   | lA    | 2799 | U    |
| 1   | lA    | 2805 | C    |
| 1   | lA    | 2811 | C    |
| 1   | lA    | 2822 | U    |
| 1   | lA    | 2823 | G    |
| 1   | lA    | 2825 | C    |
| 1   | lA    | 2832 | A    |
| 1   | lA    | 2836 | C    |
| 1   | lA    | 2842 | U    |
| 1   | lA    | 2843 | U    |
| 1   | lA    | 2858 | A    |
| 1   | lA    | 2859 | U    |
| 1   | lA    | 2860 | U    |
| 1   | lA    | 2861 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | lA    | 2862 | A    |
| 1   | lA    | 2864 | A    |
| 1   | lA    | 2865 | A    |
| 1   | lA    | 2866 | C    |
| 1   | lA    | 2867 | A    |
| 1   | lA    | 2868 | U    |
| 1   | lA    | 2889 | G    |
| 1   | lA    | 2890 | A    |
| 1   | lA    | 2901 | U    |
| 1   | lA    | 2902 | G    |
| 1   | lA    | 2903 | A    |
| 1   | lA    | 2905 | U    |
| 1   | lA    | 2907 | C    |
| 1   | lA    | 2920 | U    |
| 1   | lA    | 2921 | A    |
| 1   | lA    | 2925 | A    |
| 1   | lA    | 2926 | U    |
| 1   | lA    | 2931 | C    |
| 1   | lA    | 2939 | G    |
| 1   | lA    | 2940 | U    |
| 1   | lA    | 2943 | G    |
| 1   | lA    | 2944 | A    |
| 1   | lA    | 2945 | A    |
| 1   | lA    | 2946 | A    |
| 1   | lA    | 2951 | A    |
| 1   | lA    | 2953 | C    |
| 1   | lA    | 2959 | G    |
| 1   | lA    | 2960 | A    |
| 1   | lA    | 2977 | G    |
| 1   | lA    | 2985 | C    |
| 1   | lA    | 2988 | A    |
| 1   | lA    | 2993 | G    |
| 1   | lA    | 3009 | C    |
| 1   | lA    | 3015 | A    |
| 1   | lA    | 3018 | U    |
| 1   | lA    | 3030 | A    |
| 1   | lA    | 3032 | C    |
| 1   | lA    | 3041 | G    |
| 1   | lA    | 3047 | U    |
| 1   | lA    | 3066 | U    |
| 1   | lA    | 3070 | C    |
| 1   | lA    | 3073 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | lA    | 3078 | U    |
| 1   | lA    | 3079 | A    |
| 1   | lA    | 3084 | A    |
| 1   | lA    | 3085 | C    |
| 1   | lA    | 3090 | G    |
| 1   | lA    | 3114 | A    |
| 1   | lA    | 3126 | C    |
| 1   | lA    | 3133 | G    |
| 1   | lA    | 3141 | A    |
| 1   | lA    | 3142 | G    |
| 1   | lA    | 3143 | A    |
| 1   | lA    | 3144 | U    |
| 1   | lA    | 3147 | U    |
| 1   | lA    | 3151 | A    |
| 1   | lA    | 3159 | G    |
| 1   | lA    | 3166 | G    |
| 1   | lA    | 3200 | G    |
| 1   | lA    | 3210 | U    |
| 1   | lA    | 3212 | U    |
| 1   | lA    | 3213 | U    |
| 1   | lA    | 3223 | G    |
| 1   | lA    | 3232 | G    |
| 1   | lA    | 3233 | U    |
| 1   | lA    | 3240 | A    |
| 1   | lA    | 3246 | A    |
| 1   | lA    | 3247 | C    |
| 1   | lA    | 3254 | U    |
| 1   | lA    | 3277 | C    |
| 1   | lA    | 3278 | A    |
| 1   | lA    | 3284 | G    |
| 1   | lA    | 3285 | A    |
| 1   | lA    | 3286 | A    |
| 1   | lA    | 3287 | U    |
| 1   | lA    | 3299 | G    |
| 1   | lA    | 3309 | U    |
| 1   | lA    | 3327 | A    |
| 1   | lA    | 3332 | A    |
| 1   | lA    | 3334 | U    |
| 1   | lA    | 3335 | U    |
| 1   | lA    | 3336 | G    |
| 1   | lA    | 3337 | A    |
| 1   | lA    | 3338 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | lA    | 3344 | U    |
| 1   | lA    | 3345 | A    |
| 1   | lA    | 3351 | U    |
| 1   | lA    | 3353 | U    |
| 1   | lA    | 3354 | A    |
| 1   | lA    | 3359 | U    |
| 1   | lA    | 3360 | U    |
| 1   | lA    | 3361 | A    |
| 1   | lA    | 3366 | G    |
| 1   | lA    | 3367 | U    |
| 1   | lA    | 3383 | A    |
| 1   | lA    | 3384 | A    |
| 1   | lA    | 3385 | G    |
| 1   | lA    | 3398 | U    |
| 1   | lA    | 3399 | G    |
| 1   | lA    | 3405 | A    |
| 1   | lA    | 3406 | C    |
| 1   | lA    | 3409 | A    |
| 1   | lA    | 3410 | A    |
| 1   | lA    | 3411 | U    |
| 1   | lA    | 3413 | U    |
| 1   | lA    | 3414 | A    |
| 1   | lA    | 3419 | A    |
| 1   | lA    | 3423 | C    |
| 1   | lA    | 3431 | U    |
| 1   | lA    | 3433 | U    |
| 1   | lA    | 3436 | A    |
| 1   | lA    | 3447 | A    |
| 1   | lA    | 3451 | A    |
| 1   | lA    | 3466 | U    |
| 1   | lA    | 3469 | A    |
| 1   | lA    | 3476 | C    |
| 1   | lA    | 3477 | U    |
| 1   | lA    | 3478 | U    |
| 1   | lA    | 3479 | A    |
| 1   | lA    | 3491 | C    |
| 1   | lA    | 3492 | G    |
| 1   | lA    | 3498 | U    |
| 1   | lA    | 3499 | G    |
| 1   | lA    | 3500 | A    |
| 2   | lB    | 5    | A    |
| 2   | lB    | 34   | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2   | 1B    | 36  | G    |
| 2   | 1B    | 53  | G    |
| 2   | 1B    | 54  | A    |
| 2   | 1B    | 61  | A    |
| 2   | 1B    | 62  | U    |
| 2   | 1B    | 64  | A    |
| 2   | 1B    | 65  | G    |
| 2   | 1B    | 72  | G    |
| 2   | 1B    | 73  | A    |
| 2   | 1B    | 74  | A    |
| 2   | 1B    | 80  | A    |
| 2   | 1B    | 81  | A    |
| 2   | 1B    | 82  | A    |
| 2   | 1B    | 85  | U    |
| 2   | 1B    | 86  | G    |
| 2   | 1B    | 92  | C    |
| 2   | 1B    | 95  | A    |
| 2   | 1B    | 102 | A    |
| 2   | 1B    | 103 | A    |
| 2   | 1B    | 104 | U    |
| 2   | 1B    | 106 | C    |
| 2   | 1B    | 109 | G    |
| 2   | 1B    | 110 | A    |
| 2   | 1B    | 113 | G    |
| 2   | 1B    | 131 | A    |
| 2   | 1B    | 147 | C    |
| 2   | 1B    | 150 | U    |
| 2   | 1B    | 151 | A    |
| 3   | 1C    | 17  | G    |
| 3   | 1C    | 18  | U    |
| 3   | 1C    | 19  | U    |
| 3   | 1C    | 22  | C    |
| 3   | 1C    | 32  | A    |
| 3   | 1C    | 37  | A    |
| 3   | 1C    | 41  | G    |
| 3   | 1C    | 49  | C    |
| 3   | 1C    | 52  | G    |
| 3   | 1C    | 53  | C    |
| 3   | 1C    | 55  | C    |
| 3   | 1C    | 62  | U    |
| 3   | 1C    | 63  | C    |
| 3   | 1C    | 72  | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3   | lC    | 73  | G    |
| 3   | lC    | 84  | G    |
| 3   | lC    | 90  | G    |
| 3   | lC    | 99  | U    |
| 3   | lC    | 109 | G    |
| 50  | sI    | 10  | G    |
| 50  | sI    | 15  | G    |
| 50  | sI    | 18  | A    |
| 50  | sI    | 22  | G    |
| 50  | sI    | 46  | G    |
| 50  | sI    | 49  | G    |
| 50  | sI    | 53  | G    |
| 50  | sI    | 59  | G    |
| 50  | sI    | 68  | G    |
| 50  | sI    | 74  | C    |
| 50  | sI    | 76  | A    |
| 51  | sJ    | 14  | A    |
| 51  | sJ    | 16  | C    |
| 51  | sJ    | 17  | C    |
| 51  | sJ    | 18  | C    |
| 51  | sJ    | 19  | G    |
| 51  | sJ    | 23  | G    |
| 51  | sJ    | 24  | C    |
| 51  | sJ    | 47  | G    |
| 51  | sJ    | 48  | U    |
| 51  | sJ    | 49  | C    |
| 51  | sJ    | 50  | U    |
| 51  | sJ    | 51  | U    |
| 51  | sJ    | 53  | G    |
| 51  | sJ    | 55  | U    |
| 51  | sJ    | 56  | U    |
| 51  | sJ    | 58  | A    |
| 51  | sJ    | 61  | U    |
| 51  | sJ    | 65  | G    |
| 51  | sJ    | 66  | C    |
| 51  | sJ    | 67  | C    |
| 51  | sJ    | 68  | G    |
| 51  | sJ    | 69  | A    |
| 51  | sJ    | 77  | A    |
| 53  | sa    | 4   | C    |
| 53  | sa    | 17  | C    |
| 53  | sa    | 24  | U    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 53  | sa    | 26  | U    |
| 53  | sa    | 33  | A    |
| 53  | sa    | 41  | G    |
| 53  | sa    | 42  | A    |
| 53  | sa    | 44  | U    |
| 53  | sa    | 46  | A    |
| 53  | sa    | 56  | G    |
| 53  | sa    | 59  | U    |
| 53  | sa    | 61  | A    |
| 53  | sa    | 62  | G    |
| 53  | sa    | 64  | A    |
| 53  | sa    | 65  | U    |
| 53  | sa    | 66  | A    |
| 53  | sa    | 67  | A    |
| 53  | sa    | 68  | A    |
| 53  | sa    | 69  | G    |
| 53  | sa    | 70  | A    |
| 53  | sa    | 72  | C    |
| 53  | sa    | 73  | A    |
| 53  | sa    | 74  | A    |
| 53  | sa    | 75  | G    |
| 53  | sa    | 76  | U    |
| 53  | sa    | 77  | A    |
| 53  | sa    | 78  | G    |
| 53  | sa    | 79  | G    |
| 53  | sa    | 99  | A    |
| 53  | sa    | 103 | U    |
| 53  | sa    | 113 | A    |
| 53  | sa    | 114 | G    |
| 53  | sa    | 115 | U    |
| 53  | sa    | 135 | C    |
| 53  | sa    | 136 | A    |
| 53  | sa    | 139 | G    |
| 53  | sa    | 141 | U    |
| 53  | sa    | 148 | G    |
| 53  | sa    | 152 | A    |
| 53  | sa    | 154 | G    |
| 53  | sa    | 157 | A    |
| 53  | sa    | 168 | U    |
| 53  | sa    | 171 | A    |
| 53  | sa    | 204 | A    |
| 53  | sa    | 213 | A    |

*Continued on next page...*

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 53  | sa    | 243 | U    |
| 53  | sa    | 244 | U    |
| 53  | sa    | 246 | G    |
| 53  | sa    | 252 | C    |
| 53  | sa    | 253 | A    |
| 53  | sa    | 259 | A    |
| 53  | sa    | 260 | U    |
| 53  | sa    | 262 | G    |
| 53  | sa    | 263 | U    |
| 53  | sa    | 264 | A    |
| 53  | sa    | 287 | A    |
| 53  | sa    | 288 | A    |
| 53  | sa    | 294 | G    |
| 53  | sa    | 295 | A    |
| 53  | sa    | 296 | G    |
| 53  | sa    | 299 | U    |
| 53  | sa    | 310 | U    |
| 53  | sa    | 311 | C    |
| 53  | sa    | 313 | A    |
| 53  | sa    | 317 | G    |
| 53  | sa    | 328 | C    |
| 53  | sa    | 332 | G    |
| 53  | sa    | 333 | A    |
| 53  | sa    | 345 | A    |
| 53  | sa    | 347 | A    |
| 53  | sa    | 354 | A    |
| 53  | sa    | 355 | A    |
| 53  | sa    | 356 | C    |
| 53  | sa    | 385 | G    |
| 53  | sa    | 394 | A    |
| 53  | sa    | 395 | G    |
| 53  | sa    | 397 | U    |
| 53  | sa    | 399 | G    |
| 53  | sa    | 411 | A    |
| 53  | sa    | 413 | G    |
| 53  | sa    | 417 | G    |
| 53  | sa    | 419 | C    |
| 53  | sa    | 420 | A    |
| 53  | sa    | 421 | G    |
| 53  | sa    | 429 | G    |
| 53  | sa    | 434 | U    |
| 53  | sa    | 439 | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 53  | sa    | 440 | A    |
| 53  | sa    | 442 | U    |
| 53  | sa    | 451 | G    |
| 53  | sa    | 455 | A    |
| 53  | sa    | 463 | A    |
| 53  | sa    | 470 | A    |
| 53  | sa    | 545 | G    |
| 53  | sa    | 549 | A    |
| 53  | sa    | 553 | C    |
| 53  | sa    | 555 | G    |
| 53  | sa    | 558 | G    |
| 53  | sa    | 559 | C    |
| 53  | sa    | 561 | A    |
| 53  | sa    | 562 | G    |
| 53  | sa    | 568 | G    |
| 53  | sa    | 572 | U    |
| 53  | sa    | 576 | U    |
| 53  | sa    | 579 | A    |
| 53  | sa    | 584 | C    |
| 53  | sa    | 588 | A    |
| 53  | sa    | 589 | G    |
| 53  | sa    | 600 | A    |
| 53  | sa    | 602 | U    |
| 53  | sa    | 605 | C    |
| 53  | sa    | 613 | A    |
| 53  | sa    | 614 | A    |
| 53  | sa    | 616 | A    |
| 53  | sa    | 617 | C    |
| 53  | sa    | 618 | G    |
| 53  | sa    | 628 | G    |
| 53  | sa    | 742 | G    |
| 53  | sa    | 746 | A    |
| 53  | sa    | 752 | A    |
| 53  | sa    | 753 | G    |
| 53  | sa    | 756 | G    |
| 53  | sa    | 757 | U    |
| 53  | sa    | 759 | U    |
| 53  | sa    | 762 | A    |
| 53  | sa    | 765 | A    |
| 53  | sa    | 782 | A    |
| 53  | sa    | 783 | A    |
| 53  | sa    | 784 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 53  | sa    | 785  | A    |
| 53  | sa    | 786  | U    |
| 53  | sa    | 787  | U    |
| 53  | sa    | 803  | G    |
| 53  | sa    | 804  | C    |
| 53  | sa    | 843  | A    |
| 53  | sa    | 844  | A    |
| 53  | sa    | 845  | A    |
| 53  | sa    | 856  | G    |
| 53  | sa    | 894  | G    |
| 53  | sa    | 901  | A    |
| 53  | sa    | 904  | A    |
| 53  | sa    | 913  | A    |
| 53  | sa    | 915  | A    |
| 53  | sa    | 922  | G    |
| 53  | sa    | 927  | U    |
| 53  | sa    | 939  | G    |
| 53  | sa    | 940  | U    |
| 53  | sa    | 946  | A    |
| 53  | sa    | 950  | A    |
| 53  | sa    | 951  | A    |
| 53  | sa    | 972  | A    |
| 53  | sa    | 973  | A    |
| 53  | sa    | 984  | U    |
| 53  | sa    | 985  | A    |
| 53  | sa    | 1006 | A    |
| 53  | sa    | 1008 | C    |
| 53  | sa    | 1012 | G    |
| 53  | sa    | 1033 | A    |
| 53  | sa    | 1091 | C    |
| 53  | sa    | 1101 | A    |
| 53  | sa    | 1106 | A    |
| 53  | sa    | 1118 | G    |
| 53  | sa    | 1122 | U    |
| 53  | sa    | 1123 | U    |
| 53  | sa    | 1135 | G    |
| 53  | sa    | 1140 | G    |
| 53  | sa    | 1164 | A    |
| 53  | sa    | 1169 | A    |
| 53  | sa    | 1176 | G    |
| 53  | sa    | 1177 | A    |
| 53  | sa    | 1184 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 53  | sa    | 1185 | A    |
| 53  | sa    | 1188 | A    |
| 53  | sa    | 1192 | G    |
| 53  | sa    | 1210 | U    |
| 53  | sa    | 1219 | A    |
| 53  | sa    | 1221 | A    |
| 53  | sa    | 1224 | G    |
| 53  | sa    | 1225 | G    |
| 53  | sa    | 1227 | A    |
| 53  | sa    | 1232 | U    |
| 53  | sa    | 1239 | A    |
| 53  | sa    | 1242 | G    |
| 53  | sa    | 1243 | A    |
| 53  | sa    | 1253 | G    |
| 53  | sa    | 1254 | G    |
| 53  | sa    | 1260 | C    |
| 53  | sa    | 1266 | A    |
| 53  | sa    | 1269 | A    |
| 53  | sa    | 1270 | G    |
| 53  | sa    | 1271 | U    |
| 53  | sa    | 1276 | U    |
| 53  | sa    | 1277 | C    |
| 53  | sa    | 1281 | A    |
| 53  | sa    | 1282 | U    |
| 53  | sa    | 1283 | U    |
| 53  | sa    | 1284 | U    |
| 53  | sa    | 1287 | U    |
| 53  | sa    | 1290 | G    |
| 53  | sa    | 1299 | C    |
| 53  | sa    | 1310 | U    |
| 53  | sa    | 1311 | U    |
| 53  | sa    | 1312 | A    |
| 53  | sa    | 1316 | G    |
| 53  | sa    | 1317 | G    |
| 53  | sa    | 1323 | U    |
| 53  | sa    | 1326 | U    |
| 53  | sa    | 1331 | C    |
| 53  | sa    | 1332 | A    |
| 53  | sa    | 1337 | A    |
| 53  | sa    | 1339 | U    |
| 53  | sa    | 1346 | A    |
| 53  | sa    | 1365 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 53  | sa    | 1369 | A    |
| 53  | sa    | 1379 | C    |
| 53  | sa    | 1383 | C    |
| 53  | sa    | 1388 | A    |
| 53  | sa    | 1389 | G    |
| 53  | sa    | 1395 | A    |
| 53  | sa    | 1396 | A    |
| 53  | sa    | 1438 | A    |
| 53  | sa    | 1440 | A    |
| 53  | sa    | 1442 | A    |
| 53  | sa    | 1520 | C    |
| 53  | sa    | 1522 | U    |
| 53  | sa    | 1534 | A    |
| 53  | sa    | 1540 | G    |
| 53  | sa    | 1543 | A    |
| 53  | sa    | 1551 | A    |
| 53  | sa    | 1552 | G    |
| 53  | sa    | 1553 | A    |
| 53  | sa    | 1565 | G    |
| 53  | sa    | 1566 | C    |
| 53  | sa    | 1567 | A    |
| 53  | sa    | 1578 | A    |
| 53  | sa    | 1580 | U    |
| 53  | sa    | 1581 | G    |
| 53  | sa    | 1588 | C    |
| 53  | sa    | 1597 | A    |
| 53  | sa    | 1669 | A    |
| 53  | sa    | 1671 | A    |
| 53  | sa    | 1676 | U    |
| 53  | sa    | 1678 | A    |
| 53  | sa    | 1683 | A    |
| 53  | sa    | 1687 | C    |
| 53  | sa    | 1689 | A    |
| 53  | sa    | 1690 | A    |
| 53  | sa    | 1691 | A    |
| 53  | sa    | 1694 | A    |
| 53  | sa    | 1696 | G    |
| 53  | sa    | 1697 | U    |
| 53  | sa    | 1700 | A    |
| 53  | sa    | 1701 | U    |
| 53  | sa    | 1702 | G    |
| 53  | sa    | 1703 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 53  | sa    | 1706 | G    |
| 53  | sa    | 1708 | G    |
| 53  | sa    | 1712 | A    |
| 53  | sa    | 1713 | A    |
| 53  | sa    | 1714 | U    |
| 53  | sa    | 1717 | U    |
| 53  | sa    | 1723 | U    |
| 53  | sa    | 1725 | A    |
| 53  | sa    | 1735 | A    |
| 53  | sa    | 1736 | A    |
| 53  | sa    | 1750 | G    |
| 53  | sa    | 1767 | A    |
| 53  | sa    | 1773 | G    |
| 53  | sa    | 1775 | U    |
| 53  | sa    | 1777 | A    |
| 53  | sa    | 1780 | A    |
| 53  | sa    | 1781 | C    |
| 53  | sa    | 1782 | G    |
| 53  | sa    | 1785 | C    |
| 53  | sa    | 1788 | G    |
| 53  | sa    | 1797 | A    |
| 53  | sa    | 1800 | C    |
| 53  | sa    | 1801 | A    |
| 53  | sa    | 1809 | U    |
| 53  | sa    | 1821 | A    |
| 53  | sa    | 1822 | U    |
| 53  | sa    | 1824 | G    |
| 53  | sa    | 1825 | A    |
| 53  | sa    | 1831 | G    |
| 53  | sa    | 1832 | A    |
| 53  | sa    | 1846 | G    |
| 53  | sa    | 1849 | U    |
| 53  | sa    | 1850 | C    |
| 53  | sa    | 1852 | G    |
| 53  | sa    | 1863 | A    |
| 53  | sa    | 1883 | C    |
| 53  | sa    | 1885 | U    |
| 53  | sa    | 1887 | A    |
| 53  | sa    | 1893 | A    |
| 53  | sa    | 1894 | G    |
| 53  | sa    | 1902 | A    |
| 53  | sa    | 1904 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 53  | sa    | 1907 | G    |
| 53  | sa    | 1909 | A    |
| 53  | sa    | 1916 | U    |
| 53  | sa    | 1927 | G    |
| 53  | sa    | 1929 | A    |
| 53  | sa    | 1930 | C    |
| 53  | sa    | 1939 | G    |
| 53  | sa    | 1940 | G    |
| 53  | sa    | 1941 | A    |
| 53  | sa    | 1942 | U    |
| 53  | sa    | 1943 | C    |

There are no RNA pucker outliers to report.

#### 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](#)

There are no chain breaks in this entry.

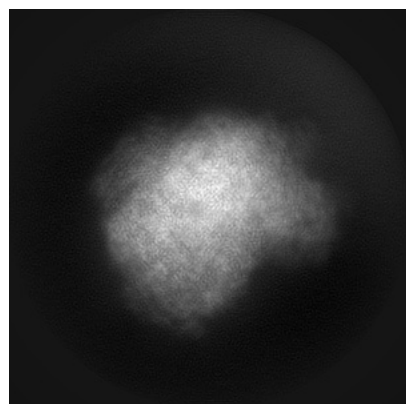
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-64716. These allow visual inspection of the internal detail of the map and identification of artifacts.

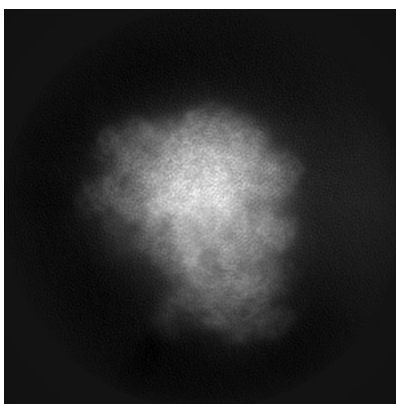
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

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

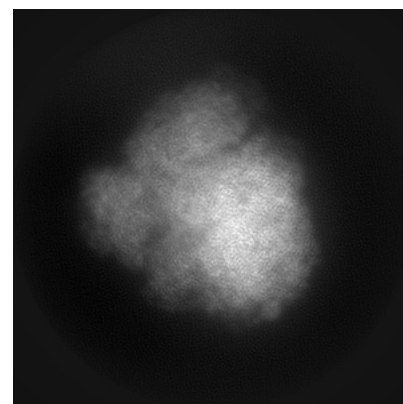
#### 6.1.1 Primary map



X

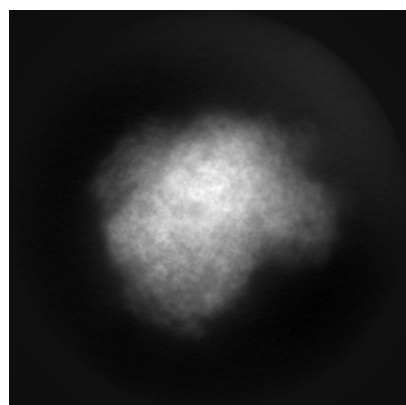


Y

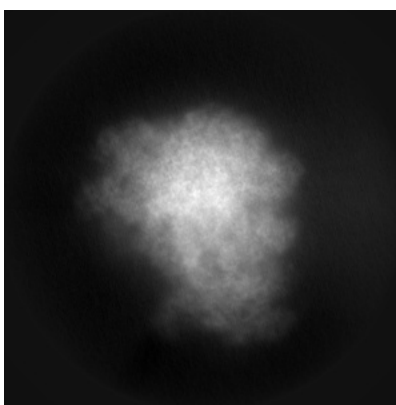


Z

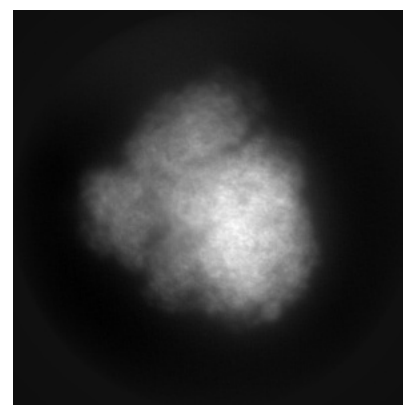
#### 6.1.2 Raw map



X



Y

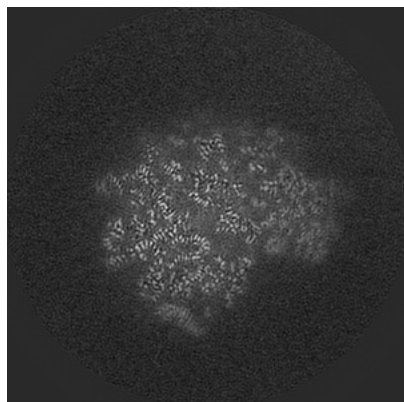


Z

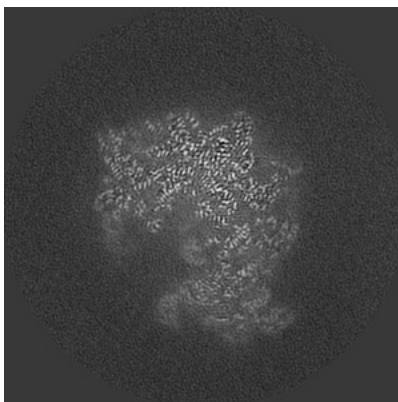
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

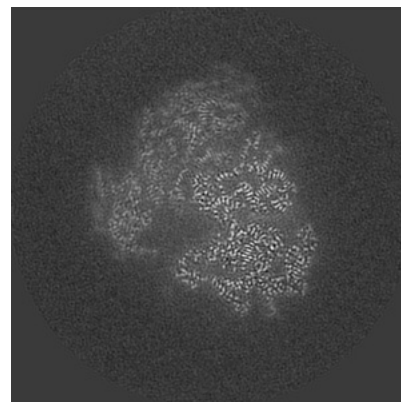
### 6.2.1 Primary map



X Index: 200

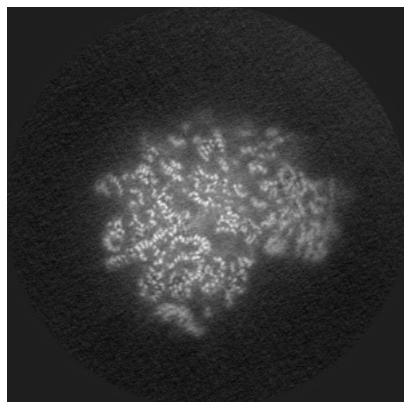


Y Index: 200

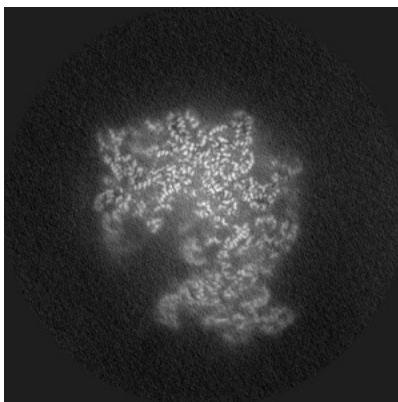


Z Index: 200

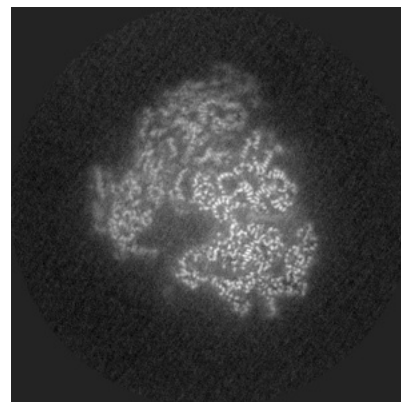
### 6.2.2 Raw map



X Index: 200



Y Index: 200

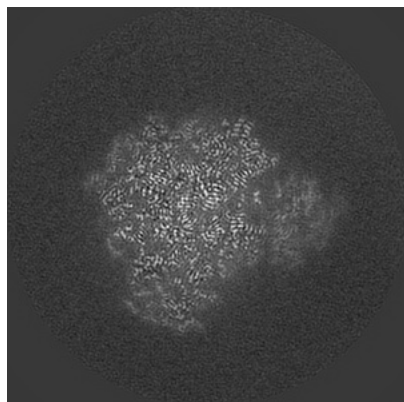


Z Index: 200

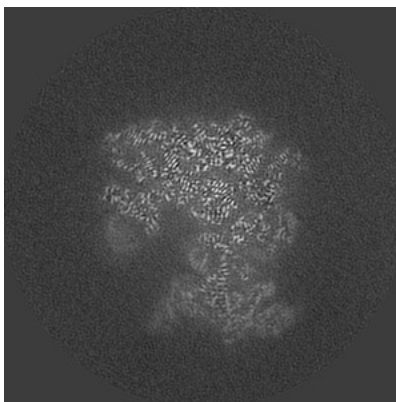
The images above show central slices of the map in three orthogonal directions.

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

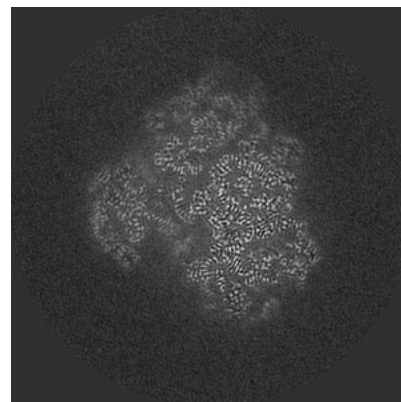
### 6.3.1 Primary map



X Index: 221

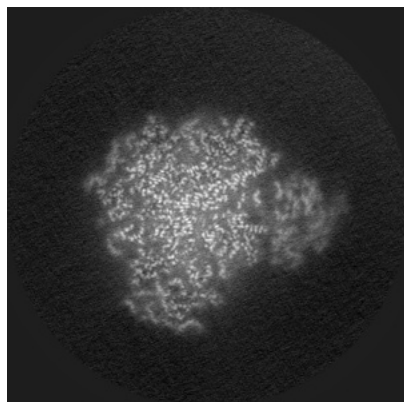


Y Index: 208

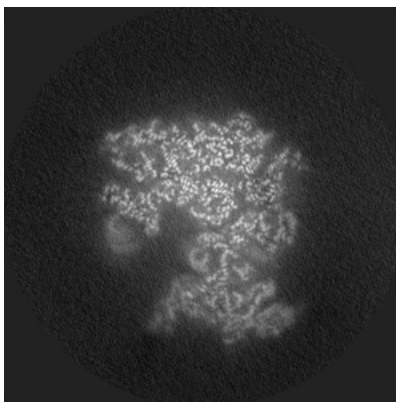


Z Index: 213

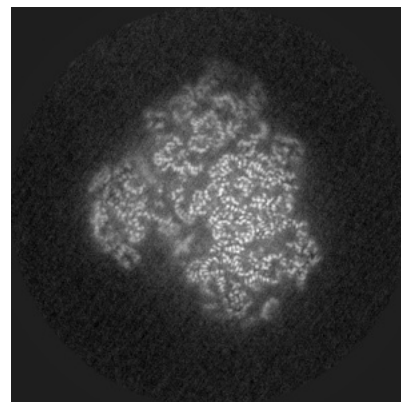
### 6.3.2 Raw map



X Index: 220



Y Index: 208

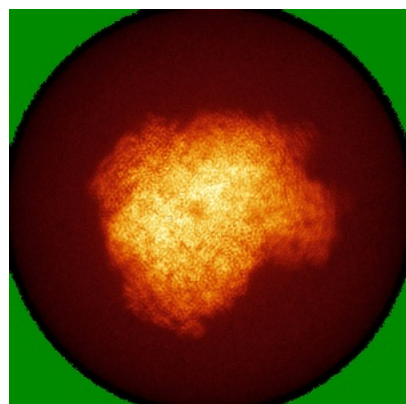


Z Index: 213

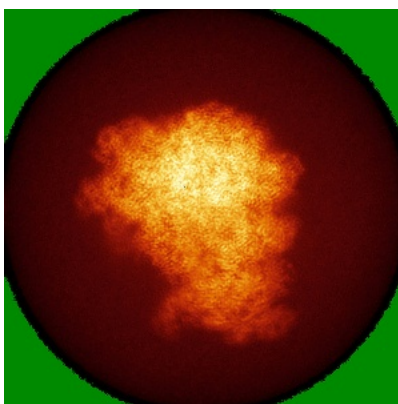
The images above show the largest variance slices of the map in three orthogonal directions.

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

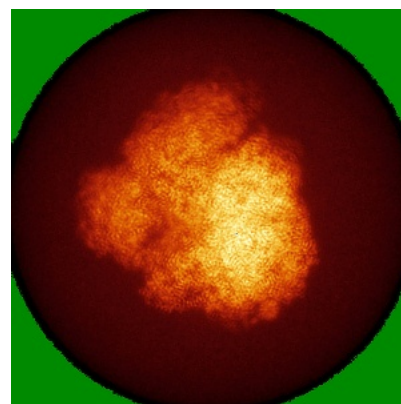
### 6.4.1 Primary map



X

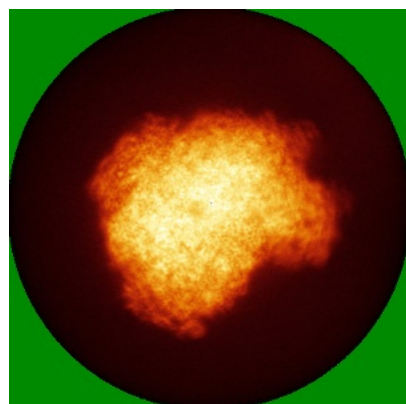


Y

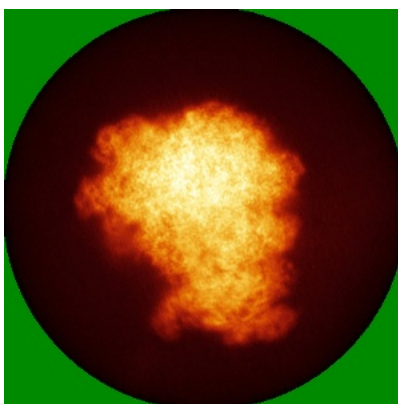


Z

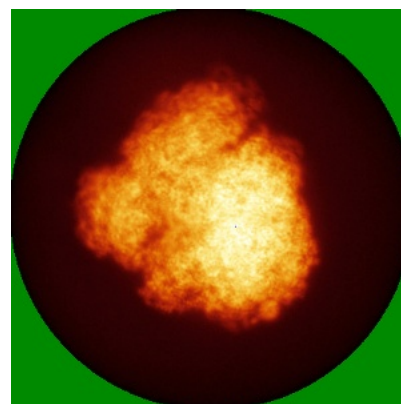
### 6.4.2 Raw map



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 2.8. 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.

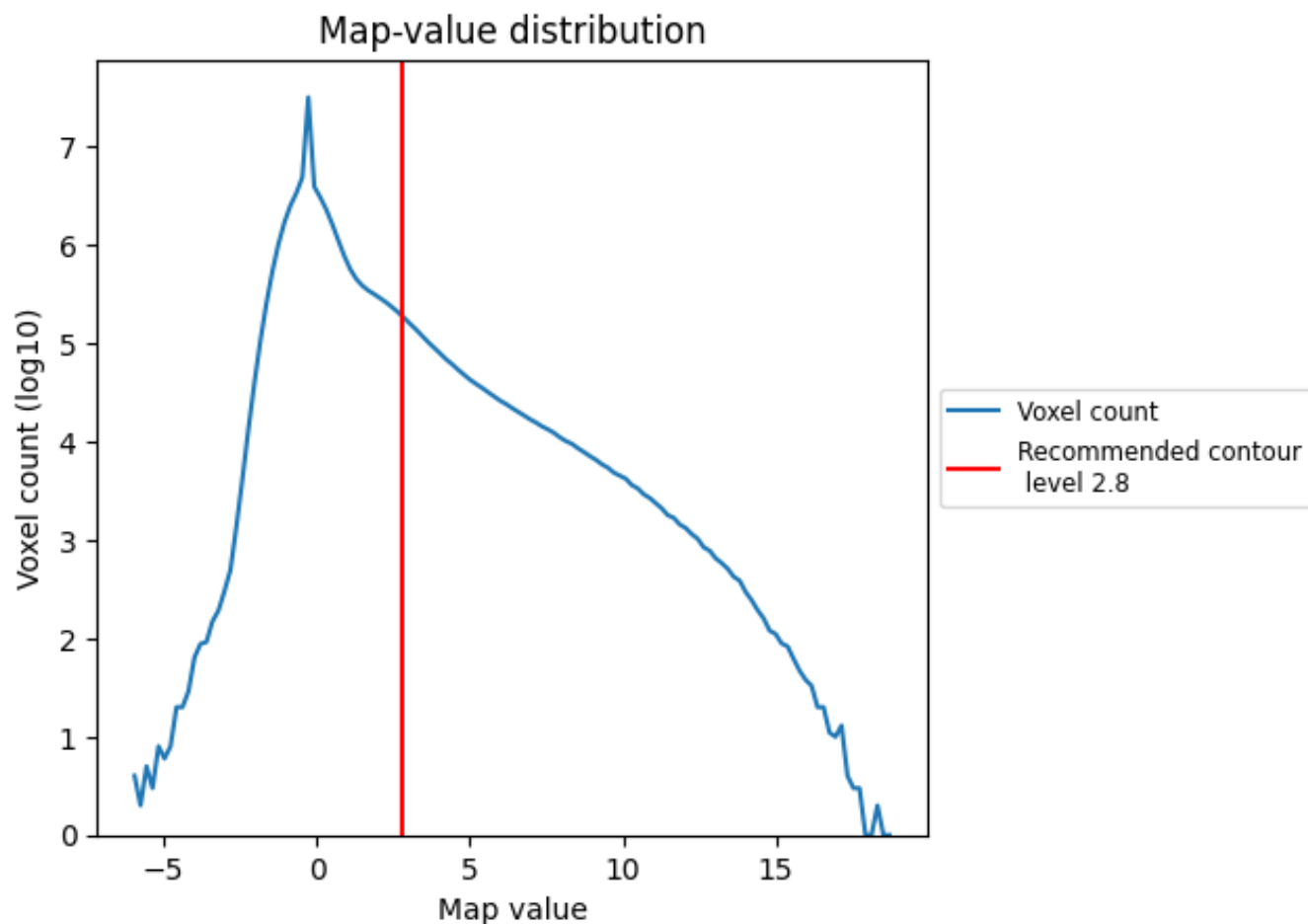
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

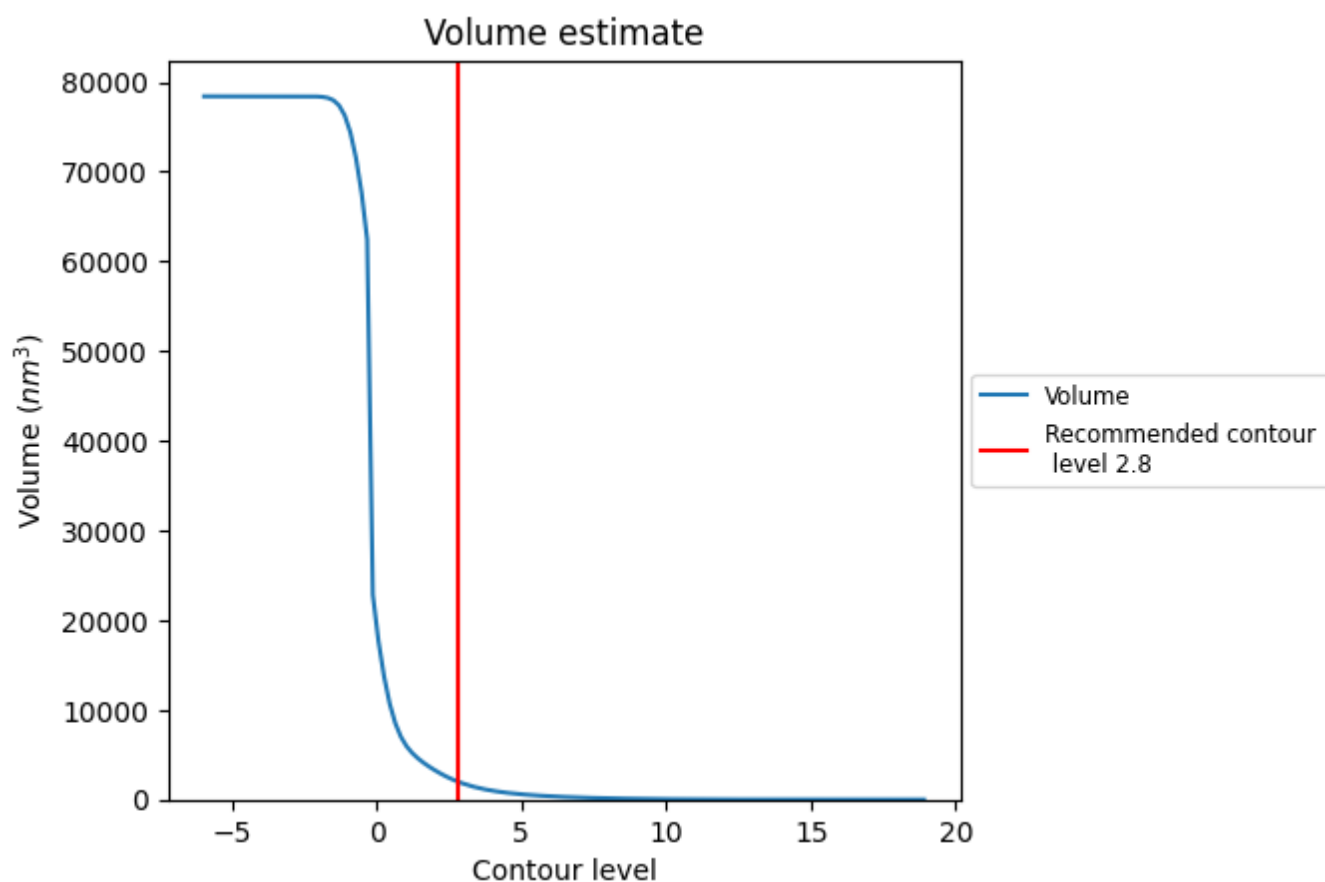
This section contains the results of statistical analysis of the map.

### 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.

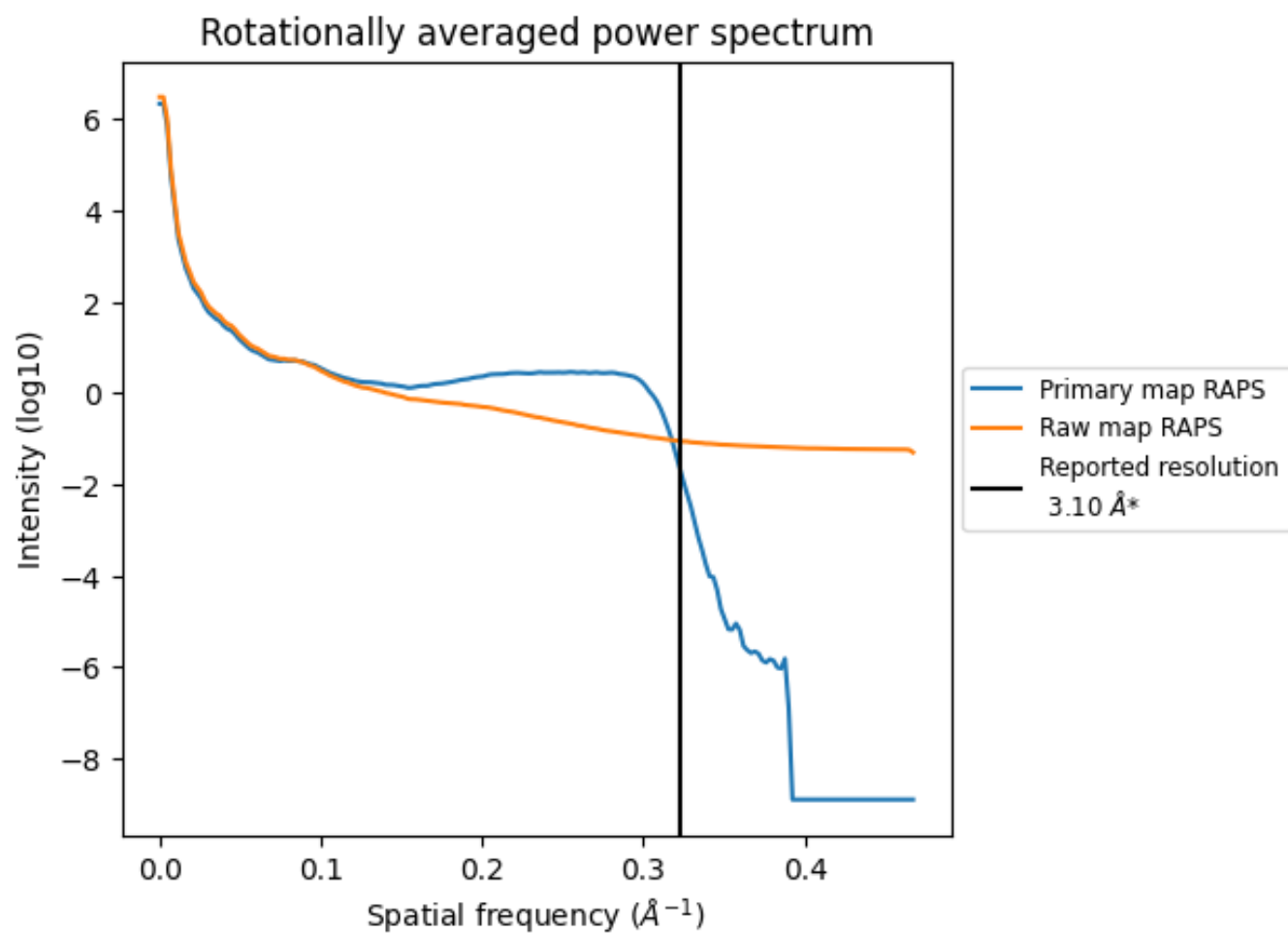
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 2011 nm<sup>3</sup>; this corresponds to an approximate mass of 1817 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 ⓘ

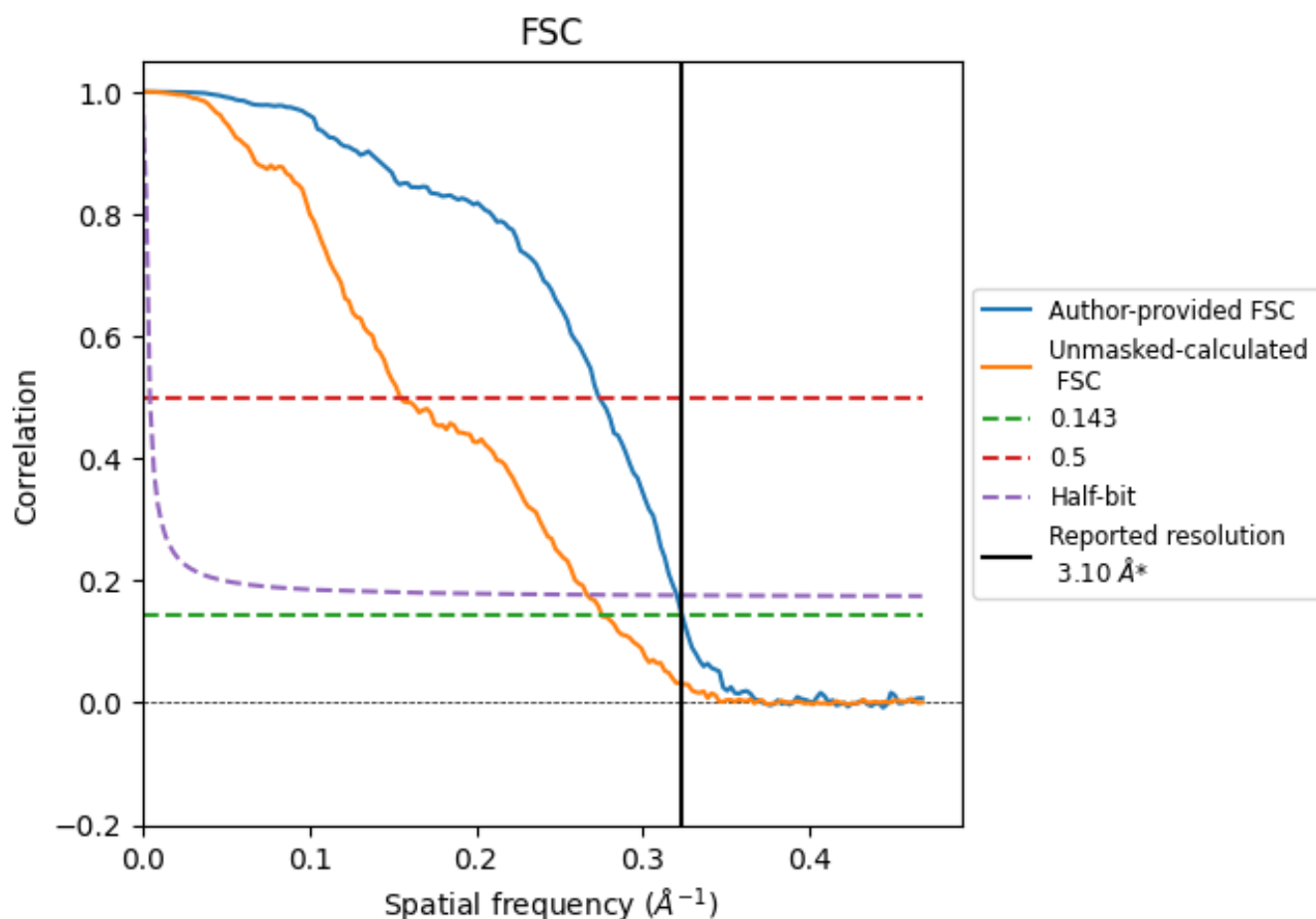


\*Reported resolution corresponds to spatial frequency of  $0.323 \text{ \AA}^{-1}$

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

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

### 8.1 FSC [i](#)



\*Reported resolution corresponds to spatial frequency of 0.323 Å<sup>-1</sup>

## 8.2 Resolution estimates [i](#)

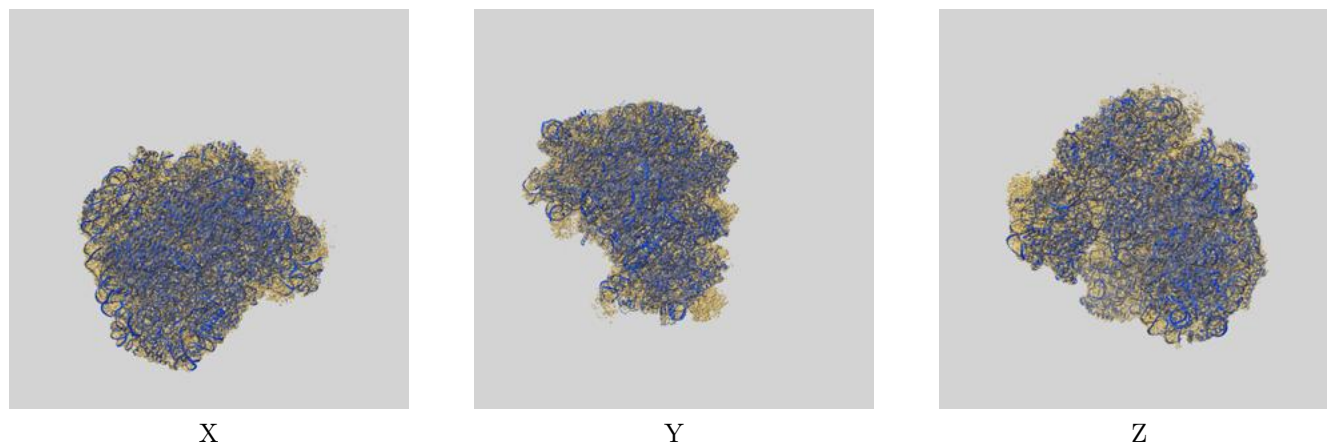
| Resolution estimate (Å)   | Estimation criterion (FSC cut-off) |      |          |
|---------------------------|------------------------------------|------|----------|
|                           | 0.143                              | 0.5  | Half-bit |
| Reported by author        | 3.10                               | -    | -        |
| Author-provided FSC curve | 3.09                               | 3.65 | 3.12     |
| Unmasked-calculated*      | 3.63                               | 6.46 | 3.76     |

\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.63 differs from the reported value 3.1 by more than 10 %

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

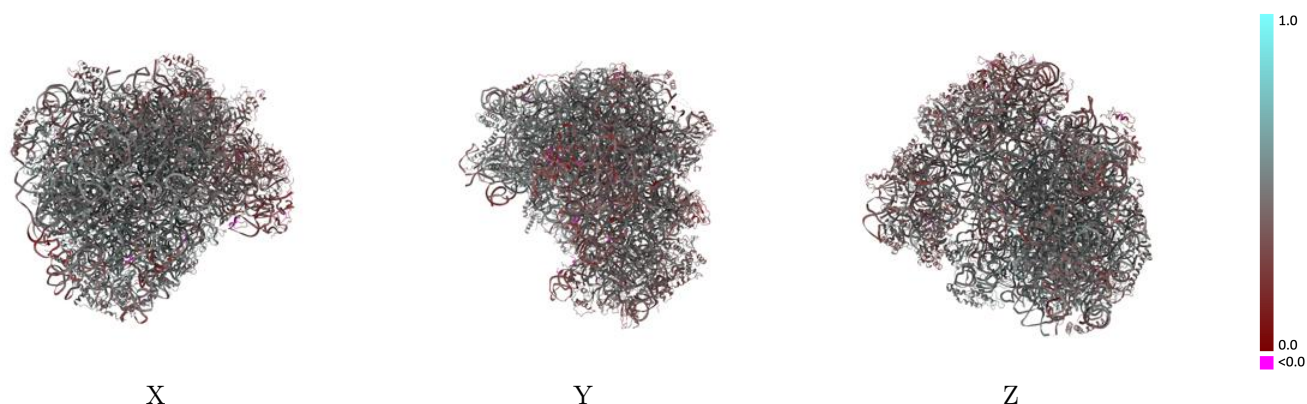
This section contains information regarding the fit between EMDB map EMD-64716 and PDB model 9V24. Per-residue inclusion information can be found in [section 3](#) on [page 18](#).

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



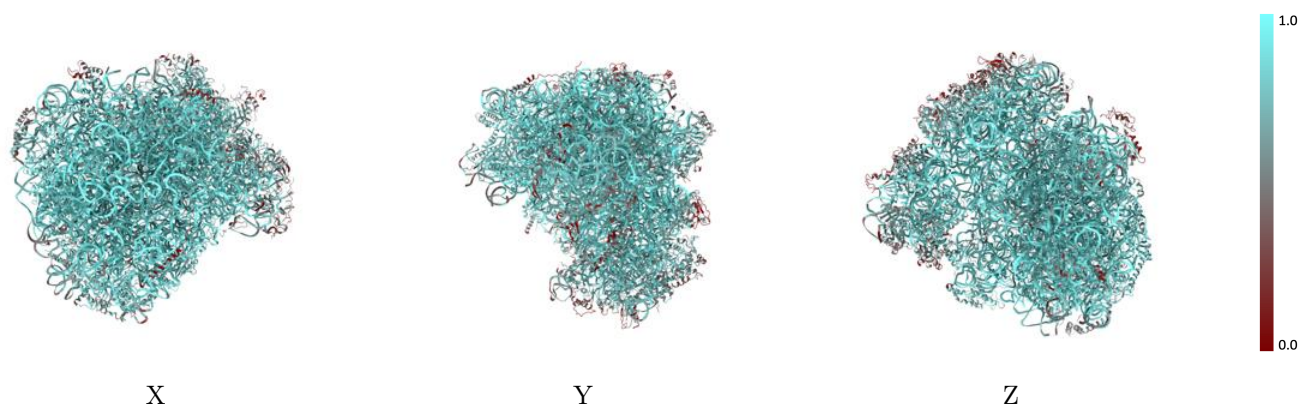
The images above show the 3D surface view of the map at the recommended contour level 2.8 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



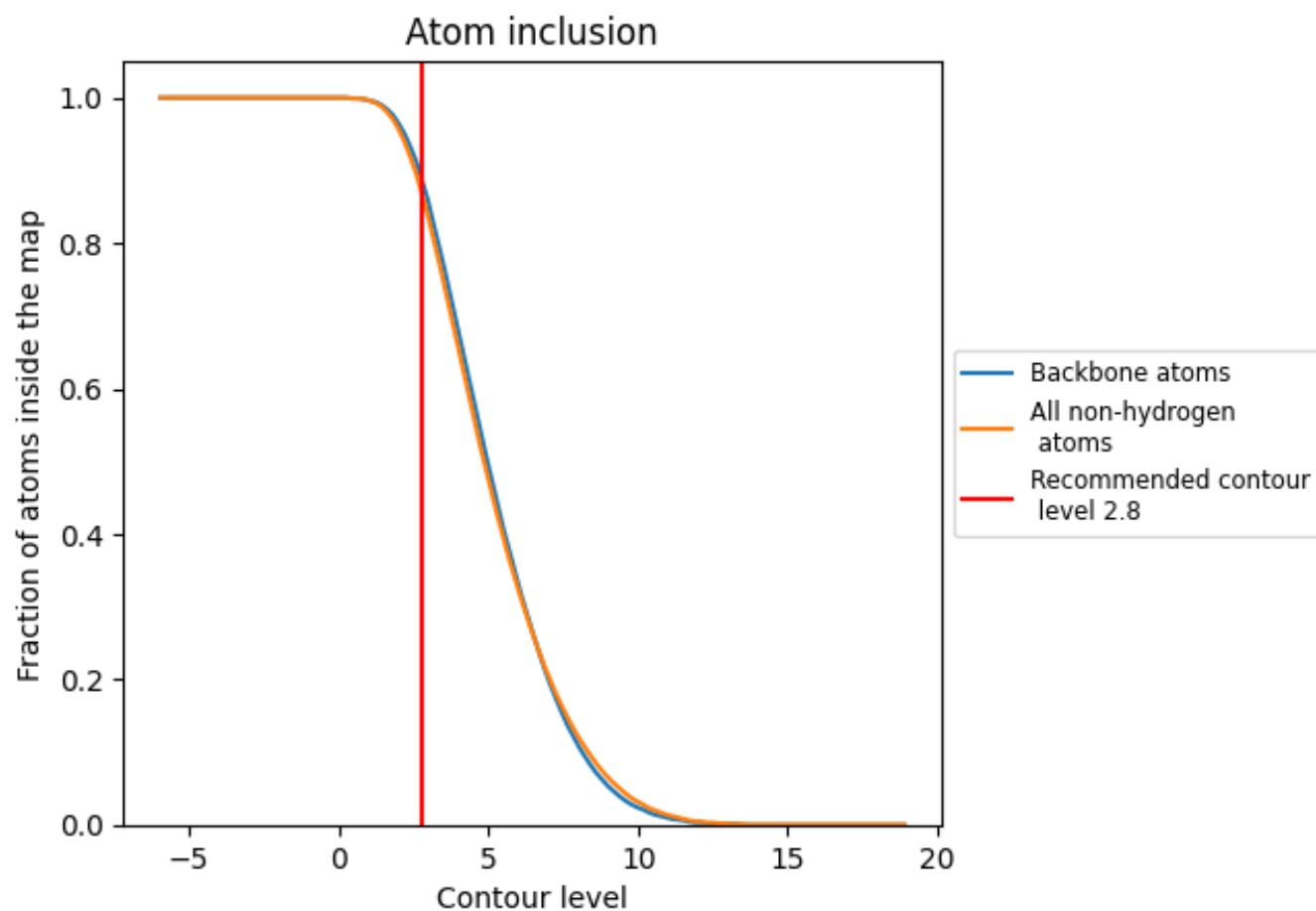
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (2.8).

## 9.4 Atom inclusion [i](#)



At the recommended contour level, 88% 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 (2.8) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion                                                                             | Q-score                                                                                    |
|-------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| All   |  0.8650   |  0.4430   |
| 1A    |  0.9340   |  0.4630   |
| 1B    |  0.9440   |  0.4660   |
| 1C    |  0.9550   |  0.4640   |
| 1D    |  0.9470   |  0.4750   |
| 1E    |  0.9000   |  0.4810   |
| 1F    |  0.8670   |  0.4890   |
| 1G    |  0.8040   |  0.4900   |
| 1H    |  0.6910   |  0.4490   |
| 1I    |  0.9180   |  0.5080   |
| 1J    |  0.6770   |  0.4250   |
| 1K    |  0.8130   |  0.4780   |
| 1L    |  0.9350   |  0.4840   |
| 1M    |  0.8100   |  0.4610   |
| 1N    |  0.7580  |  0.4590  |
| 1O    |  0.9010 |  0.4930 |
| 1P    |  0.8480 |  0.4950 |
| 1Q    |  0.9590 |  0.4940 |
| 1R    |  0.8950 |  0.4630 |
| 1S    |  0.9520 |  0.5010 |
| 1T    |  0.9370 |  0.5120 |
| 1U    |  0.8670 |  0.4430 |
| 1V    |  0.9220 |  0.5130 |
| 1W    |  0.3630 |  0.2860 |
| 1X    |  0.9450 |  0.4770 |
| 1Y    |  0.8070 |  0.4380 |
| 1Z    |  0.9190 |  0.4670 |
| 1a    |  0.8150 |  0.4580 |
| 1b    |  0.6130 |  0.3670 |
| 1c    |  0.9460 |  0.5100 |
| 1d    |  0.9550 |  0.5110 |
| 1e    |  0.7030 |  0.4170 |
| 1f    |  0.6710 |  0.3970 |
| 1g    |  0.8870 |  0.4830 |
| 1h    |  0.8750 |  0.4510 |



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| Chain | Atom inclusion                                                                             | Q-score                                                                                    |
|-------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| li    |  0.8010   |  0.4450   |
| lj    |  0.9310   |  0.5040   |
| lk    |  0.8620   |  0.4760   |
| ll    |  0.9820   |  0.4880   |
| lm    |  0.9320   |  0.4580   |
| ln    |  0.5160   |  0.3580   |
| lo    |  0.9830   |  0.4880   |
| lp    |  0.9060   |  0.4860   |
| lq    |  0.9580   |  0.5010   |
| sA    |  0.4060   |  0.3350   |
| sB    |  0.8830   |  0.4620   |
| sC    |  0.7240   |  0.4080   |
| sD    |  0.6730   |  0.3820   |
| sE    |  0.8740   |  0.4390   |
| sH    |  0.8890   |  0.2080   |
| sI    |  0.9460   |  0.3250   |
| sJ    |  0.9100   |  0.3970   |
| sK    |  0.9810   |  0.4740   |
| sa    |  0.9060   |  0.4150   |
| sb    |  0.6630  |  0.4110  |
| sc    |  0.7930 |  0.4550 |
| sd    |  0.6500 |  0.4050 |
| se    |  0.6980 |  0.3690 |
| sf    |  0.5440 |  0.3320 |
| sg    |  0.7250 |  0.4120 |
| sh    |  0.4340 |  0.2000 |
| si    |  0.3500 |  0.3040 |
| sj    |  0.7580 |  0.3860 |
| sk    |  0.5370 |  0.3630 |
| sl    |  0.5290 |  0.3930 |
| sm    |  0.7510 |  0.3760 |
| so    |  0.8490 |  0.4170 |
| sp    |  0.8470 |  0.4580 |
| sq    |  0.4960 |  0.2260 |
| sr    |  0.8450 |  0.4470 |
| ss    |  0.6830 |  0.4280 |
| st    |  0.6570 |  0.3770 |
| su    |  0.7660 |  0.4450 |
| sv    |  0.6680 |  0.4240 |
| sw    |  0.5580 |  0.3530 |
| sx    |  0.6760 |  0.4200 |
| sy    |  0.7580 |  0.4080 |

*Continued on next page...*

*Continued from previous page...*

| Chain | Atom inclusion                                                                           | Q-score                                                                                  |
|-------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| SZ    |  0.1580 |  0.2410 |