



## Full wwPDB EM Validation Report ⓘ

Aug 24, 2026 – 11:25 AM EDT

PDB ID : 9EC3 / pdb\_00009ec3  
EMDB ID : EMD-47899  
Title : Cryo-EM structure of the ribosome-tunnel occluding hibernation factor bound to the Mycobacterium tuberculosis C- 70S ribosome carrying fMet-tRNA(fMet) and deacylated tRNA at ribosome P and E sites.  
Authors : Majumdar, S.; Ojha, A.K.; Agrawal, R.K.  
Deposited on : 2024-11-13  
Resolution : 3.29 Å(reported)  
Based on initial model : 7MT7

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>.

---

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

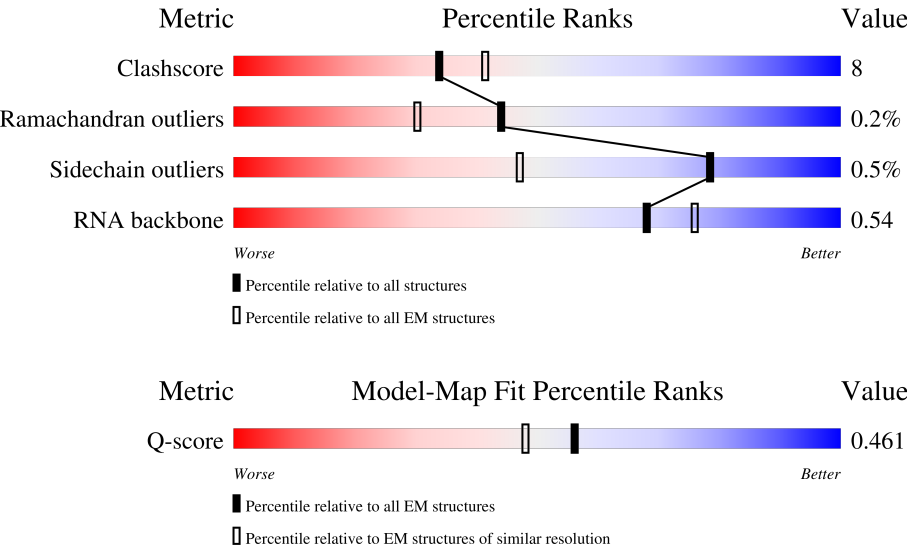
EMDB validation analysis : 0.0.1.dev133  
MolProbity : 4-5-2 with Phenix2.0  
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)  
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)  
MapQ : 1.9.13  
Ideal geometry (proteins)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

# 1 Overall quality at a glance

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

The reported resolution of this entry is 3.29 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                       | 14466 ( 2.79 - 3.79 )                                    |

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   | n     | 77     |                  |
| 1   | u     | 77     |                  |
| 2   | 1     | 62     |                  |

Continued on next page...

Continued from previous page...

| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 3   | 0     | 57     |                  |
| 4   | 2     | 47     |                  |
| 5   | 3     | 64     |                  |
| 6   | 4     | 37     |                  |
| 7   | 6     | 80     |                  |
| 8   | I     | 3138   |                  |
| 9   | B     | 115    |                  |
| 10  | C     | 280    |                  |
| 11  | D     | 217    |                  |
| 12  | E     | 223    |                  |
| 13  | F     | 187    |                  |
| 14  | G     | 179    |                  |
| 15  | H     | 152    |                  |
| 16  | J     | 195    |                  |
| 17  | K     | 122    |                  |
| 18  | L     | 146    |                  |
| 19  | M     | 138    |                  |
| 20  | N     | 180    |                  |
| 21  | O     | 122    |                  |
| 22  | P     | 113    |                  |
| 23  | Q     | 129    |                  |
| 24  | R     | 104    |                  |
| 25  | S     | 197    |                  |
| 26  | T     | 100    |                  |
| 27  | U     | 105    |                  |

Continued on next page...

Continued from previous page...

| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 28  | V     | 215    |                  |
| 29  | W     | 86     |                  |
| 30  | Y     | 77     |                  |
| 31  | Z     | 65     |                  |
| 32  | a     | 1537   |                  |
| 33  | c     | 274    |                  |
| 34  | d     | 201    |                  |
| 35  | e     | 220    |                  |
| 36  | f     | 96     |                  |
| 37  | g     | 156    |                  |
| 38  | h     | 132    |                  |
| 39  | i     | 151    |                  |
| 40  | j     | 101    |                  |
| 41  | k     | 139    |                  |
| 42  | l     | 124    |                  |
| 43  | m     | 124    |                  |
| 44  | o     | 89     |                  |
| 45  | p     | 162    |                  |
| 46  | q     | 135    |                  |
| 47  | s     | 93     |                  |
| 48  | t     | 86     |                  |
| 49  | x     | 33     |                  |
| 50  | r     | 88     |                  |
| 51  | 9     | 101    |                  |
| 52  | b     | 54     |                  |

Continued on next page...

*Continued from previous page...*

| Mol | Chain | Length | Quality of chain                                                                          |
|-----|-------|--------|-------------------------------------------------------------------------------------------|
| 53  | y     | 78     |  78%21% |
| 54  | X     | 20     |  30%70% |

## 2 Entry composition

There are 54 unique types of molecules in this entry. The entry contains 147854 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 E-tRNA, fMet-tRNA(fMet).

| Mol | Chain | Residues | Atoms |     |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 1   | n     | 77       | Total | C   | N   | O   | P  | 0       | 0     |
|     |       |          | 1643  | 732 | 297 | 537 | 77 |         |       |
| 1   | u     | 76       | Total | C   | N   | O   | P  | 0       | 0     |
|     |       |          | 1623  | 723 | 294 | 530 | 76 |         |       |

- Molecule 2 is a protein called DUF5302 domain-containing protein.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 2   | 1     | 51       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 395   | 231 | 87 | 76 | 1 |         |       |

- Molecule 3 is a protein called 50S ribosomal protein L32.

| Mol | Chain | Residues | Atoms |     |    |    | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---------|-------|
| 3   | 0     | 53       | Total | C   | N  | O  | 0       | 0     |
|     |       |          | 421   | 262 | 93 | 66 |         |       |

- Molecule 4 is a protein called 50S ribosomal protein bL34.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 4   | 2     | 42       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 358   | 212 | 94 | 51 | 1 |         |       |

- Molecule 5 is a protein called 50S ribosomal protein L35.

| Mol | Chain | Residues | Atoms |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---------|-------|
| 5   | 3     | 62       | Total | C   | N   | O  | 0       | 0     |
|     |       |          | 494   | 298 | 112 | 84 |         |       |

- Molecule 6 is a protein called 50S ribosomal protein L36.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 6   | 4     | 37       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 300   | 182 | 66 | 47 | 5 |         |       |

- Molecule 7 is a protein called 50S ribosomal protein L31.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 7   | 6     | 45       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 345   | 214 | 60 | 66 | 5 |         |       |

- Molecule 8 is a RNA chain called 23S ribosomal RNA.

| Mol | Chain | Residues | Atoms |       |       |       |      | AltConf | Trace |
|-----|-------|----------|-------|-------|-------|-------|------|---------|-------|
| 8   | I     | 3118     | Total | C     | N     | O     | P    | 0       | 0     |
|     |       |          | 66956 | 29845 | 12340 | 21653 | 3118 |         |       |

- Molecule 9 is a RNA chain called 5S ribosomal RNA.

| Mol | Chain | Residues | Atoms |      |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|-----|---------|-------|
| 9   | B     | 115      | Total | C    | N   | O   | P   | 0       | 0     |
|     |       |          | 2458  | 1097 | 456 | 790 | 115 |         |       |

- Molecule 10 is a protein called 50S ribosomal protein L2.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 10  | C     | 272      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 2088  | 1277 | 437 | 369 | 5 |         |       |

- Molecule 11 is a protein called 50S ribosomal protein L3.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 11  | D     | 213      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1590  | 985 | 307 | 292 | 6 |         |       |

- Molecule 12 is a protein called 50S ribosomal protein L4.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 12  | E     | 207      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1552  | 958 | 303 | 289 | 2 |         |       |

- Molecule 13 is a protein called 50S ribosomal protein L5.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 13  | F     | 170      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1335  | 834 | 254 | 242 | 5 |         |       |

- Molecule 14 is a protein called 50S ribosomal protein L6.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 14  | G     | 174      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1330  | 836 | 249 | 244 | 1 |         |       |

- Molecule 15 is a protein called 50S ribosomal protein L9.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 15  | H     | 47       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 350   | 220 | 64 | 65 | 1 |         |       |

- Molecule 16 is a protein called 50S ribosomal protein L13.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 16  | J     | 146      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1143  | 724 | 217 | 199 | 3 |         |       |

- Molecule 17 is a protein called Large ribosomal subunit protein uL14.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 17  | K     | 121      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 934   | 585 | 179 | 168 | 2 |         |       |

- Molecule 18 is a protein called 50S ribosomal protein L15.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 18  | L     | 142      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1060  | 656 | 215 | 187 | 2 |         |       |

- Molecule 19 is a protein called 50S ribosomal protein L16.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 19  | M     | 134      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1072  | 679 | 215 | 177 | 1 |         |       |

- Molecule 20 is a protein called 50S ribosomal protein L17.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 20  | N     | 116      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 908   | 574 | 175 | 158 | 1 |         |       |

- Molecule 21 is a protein called 50S ribosomal protein L18.

| Mol | Chain | Residues | Atoms |     |     |     |  | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|--|---------|-------|
| 21  | O     | 116      | Total | C   | N   | O   |  | 0       | 0     |
|     |       |          | 886   | 541 | 188 | 157 |  |         |       |

- Molecule 22 is a protein called 50S ribosomal protein L19.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 22  | P     | 112      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 907   | 573 | 174 | 159 | 1 |         |       |

- Molecule 23 is a protein called 50S ribosomal protein L20.

| Mol | Chain | Residues | Atoms |     |     |     |  | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|--|---------|-------|
| 23  | Q     | 122      | Total | C   | N   | O   |  | 0       | 0     |
|     |       |          | 980   | 608 | 205 | 167 |  |         |       |

- Molecule 24 is a protein called Large ribosomal subunit protein bL21.

| Mol | Chain | Residues | Atoms |     |     |     |  | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|--|---------|-------|
| 24  | R     | 98       | Total | C   | N   | O   |  | 0       | 0     |
|     |       |          | 742   | 472 | 136 | 134 |  |         |       |

- Molecule 25 is a protein called 50S ribosomal protein L22.

| Mol | Chain | Residues | Atoms |     |     |     |  | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|--|---------|-------|
| 25  | S     | 113      | Total | C   | N   | O   |  | 0       | 0     |
|     |       |          | 860   | 533 | 178 | 149 |  |         |       |

- Molecule 26 is a protein called 50S ribosomal protein L23.

| Mol | Chain | Residues | Atoms |     |     |     |  | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|--|---------|-------|
| 26  | T     | 95       | Total | C   | N   | O   |  | 0       | 0     |
|     |       |          | 741   | 469 | 138 | 134 |  |         |       |

- Molecule 27 is a protein called 50S ribosomal protein L24.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 27  | U     | 90       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 699   | 430 | 138 | 129 | 2 |         |       |

- Molecule 28 is a protein called 50S ribosomal protein L25.

| Mol | Chain | Residues | Atoms |     |     |     |  | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|--|---------|-------|
| 28  | V     | 177      | Total | C   | N   | O   |  | 0       | 0     |
|     |       |          | 1319  | 822 | 243 | 254 |  |         |       |

- Molecule 29 is a protein called 50S ribosomal protein L27.

| Mol | Chain | Residues | Atoms |     |     |    |  | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|--|---------|-------|
| 29  | W     | 74       | Total | C   | N   | O  |  | 0       | 0     |
|     |       |          | 546   | 336 | 111 | 99 |  |         |       |

- Molecule 30 is a protein called 50S ribosomal protein L29.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 30  | Y     | 65       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 541   | 331 | 106 | 103 | 1 |         |       |

- Molecule 31 is a protein called 50S ribosomal protein L30.

| Mol | Chain | Residues | Atoms |     |     |    |  | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|--|---------|-------|
| 31  | Z     | 59       | Total | C   | N   | O  |  | 0       | 0     |
|     |       |          | 476   | 293 | 101 | 82 |  |         |       |

- Molecule 32 is a RNA chain called 16S ribosomal RNA.

| Mol | Chain | Residues | Atoms |       |      |       |      | AltConf | Trace |
|-----|-------|----------|-------|-------|------|-------|------|---------|-------|
| 32  | a     | 1519     | Total | C     | N    | O     | P    | 0       | 0     |
|     |       |          | 32610 | 14525 | 5961 | 10605 | 1519 |         |       |

- Molecule 33 is a protein called 30S ribosomal protein S3.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 33  | c     | 207      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1654  | 1030 | 322 | 298 | 4 |         |       |

- Molecule 34 is a protein called 30S ribosomal protein S4.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 34  | d     | 201      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1658  | 1041 | 317 | 297 | 3 |         |       |

- Molecule 35 is a protein called 30S ribosomal protein S5.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 35  | e     | 160      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1149  | 726 | 214 | 206 | 3 |         |       |

- Molecule 36 is a protein called 30S ribosomal protein S6.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 36  | f     | 95       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 757   | 480 | 133 | 141 | 3 |         |       |

- Molecule 37 is a protein called 30S ribosomal protein S7.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 37  | g     | 152      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1193  | 742 | 234 | 215 | 2 |         |       |

- Molecule 38 is a protein called 30S ribosomal protein S8.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 38  | h     | 130      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 999   | 627 | 187 | 184 | 1 |         |       |

- Molecule 39 is a protein called 30S ribosomal protein S9.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 39  | i     | 126      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 981   | 622 | 191 | 168 |   |         |       |

- Molecule 40 is a protein called 30S ribosomal protein S10.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 40  | j     | 99       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 789   | 496 | 146 | 144 | 3 |         |       |

- Molecule 41 is a protein called 30S ribosomal protein S11.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 41  | k     | 117      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 873   | 540 | 175 | 158 |         |       |

- Molecule 42 is a protein called 30S ribosomal protein S12.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 42  | l     | 123      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 967   | 599 | 198 | 167 | 3 |         |       |

- Molecule 43 is a protein called 30S ribosomal protein S13.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 43  | m     | 113      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 919   | 562 | 190 | 164 | 3 |         |       |

- Molecule 44 is a protein called 30S ribosomal protein S15.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 44  | o     | 87       | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 718   | 449 | 144 | 125 |         |       |

- Molecule 45 is a protein called 30S ribosomal protein S16.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 45  | p     | 85       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 688   | 438 | 130 | 119 | 1 |         |       |

- Molecule 46 is a protein called 30S ribosomal protein S17.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 46  | q     | 94       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 752   | 471 | 146 | 132 | 3 |         |       |

- Molecule 47 is a protein called 30S ribosomal protein S19.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 47  | s     | 81       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 657   | 421 | 123 | 112 | 1 |         |       |

- Molecule 48 is a protein called 30S ribosomal protein S20.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 48  | t     | 82       | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 631   | 381 | 137 | 113 |         |       |

- Molecule 49 is a protein called Mitochondrial domain of uncharacterized function (DUF1713).

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 49  | x     | 31       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 272   | 167 | 69 | 35 | 1 |         |       |

- Molecule 50 is a protein called Small ribosomal subunit protein bS18.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 50  | r     | 71       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 560   | 345 | 110 | 104 | 1 |         |       |

- Molecule 51 is a protein called Small ribosomal subunit protein uS14.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 51  | 9     | 100      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 798   | 484 | 181 | 133 |         |       |

- Molecule 52 is a protein called Large ribosomal subunit protein bL33.

| Mol | Chain | Residues | Atoms |     |    |    | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---------|-------|
| 52  | b     | 48       | Total | C   | N  | O  | 0       | 0     |
|     |       |          | 416   | 257 | 88 | 71 |         |       |

- Molecule 53 is a protein called Large ribosomal subunit protein bL28.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 53  | y     | 77       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 630   | 383 | 142 | 104 | 1 |         |       |

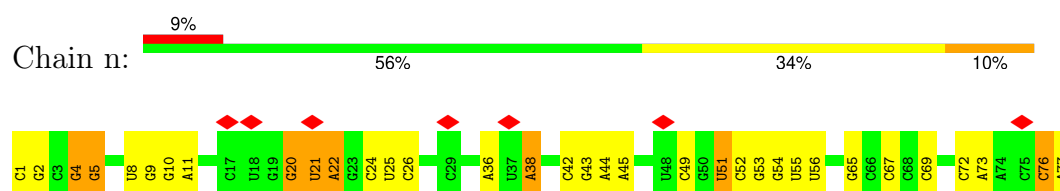
- Molecule 54 is a RNA chain called mRNA.

| Mol | Chain | Residues | Atoms |    |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|----|----|----|---|---------|-------|
| 54  | X     | 6        | Total | C  | N  | O  | P | 0       | 0     |
|     |       |          | 131   | 59 | 27 | 39 | 6 |         |       |

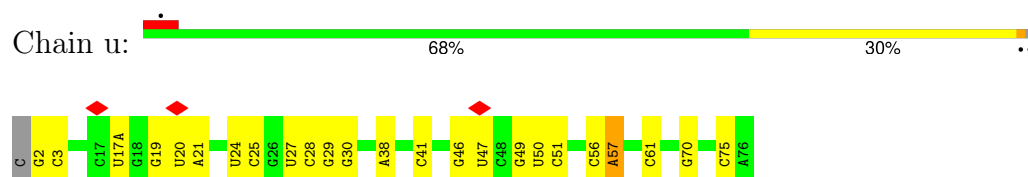
### 3 Residue-property plots [i](#)

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.

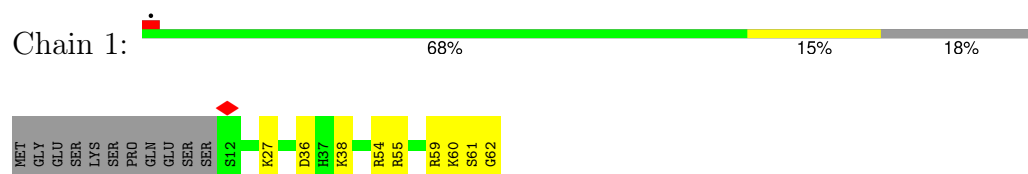
- Molecule 1: E-tRNA, fMet-tRNA(fMet)



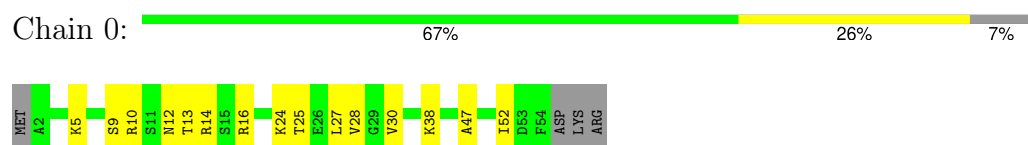
- Molecule 1: E-tRNA, fMet-tRNA(fMet)



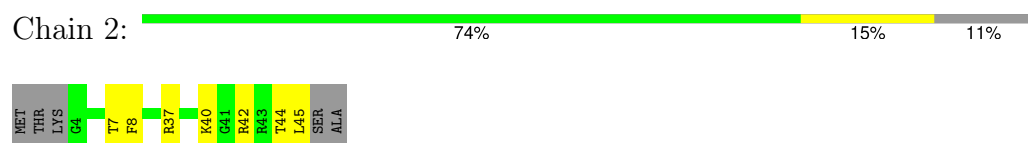
- Molecule 2: DUF5302 domain-containing protein



- Molecule 3: 50S ribosomal protein L32



- Molecule 4: 50S ribosomal protein bL34



- Molecule 5: 50S ribosomal protein L35

Chain 3:  78% 19%

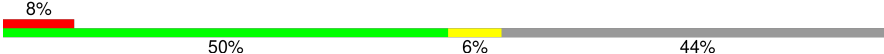


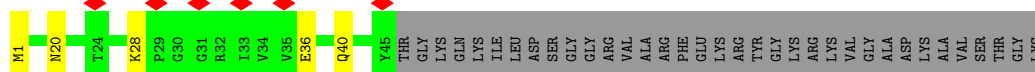
- Molecule 6: 50S ribosomal protein L36

Chain 4:  78% 19%



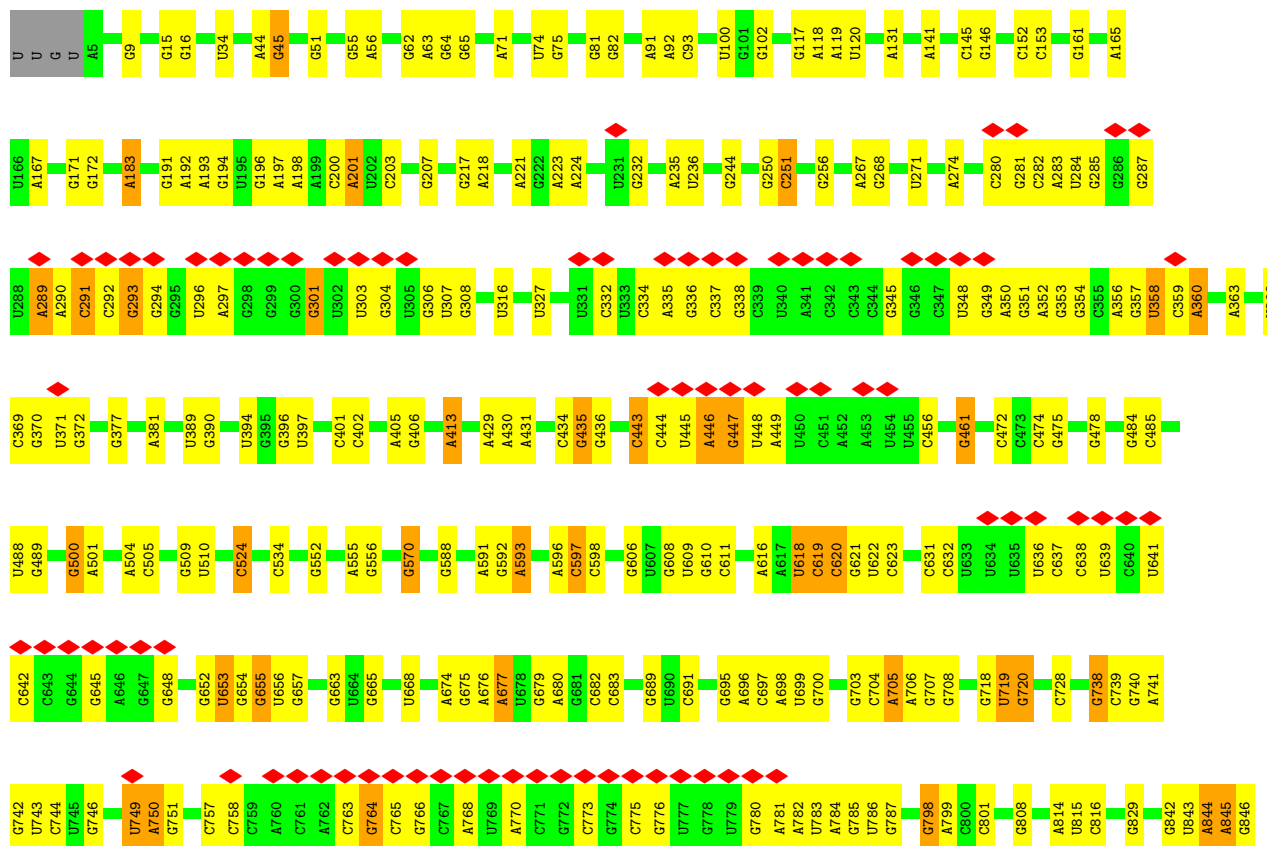
- Molecule 7: 50S ribosomal protein L31

Chain 6:  8% 50% 6% 44%

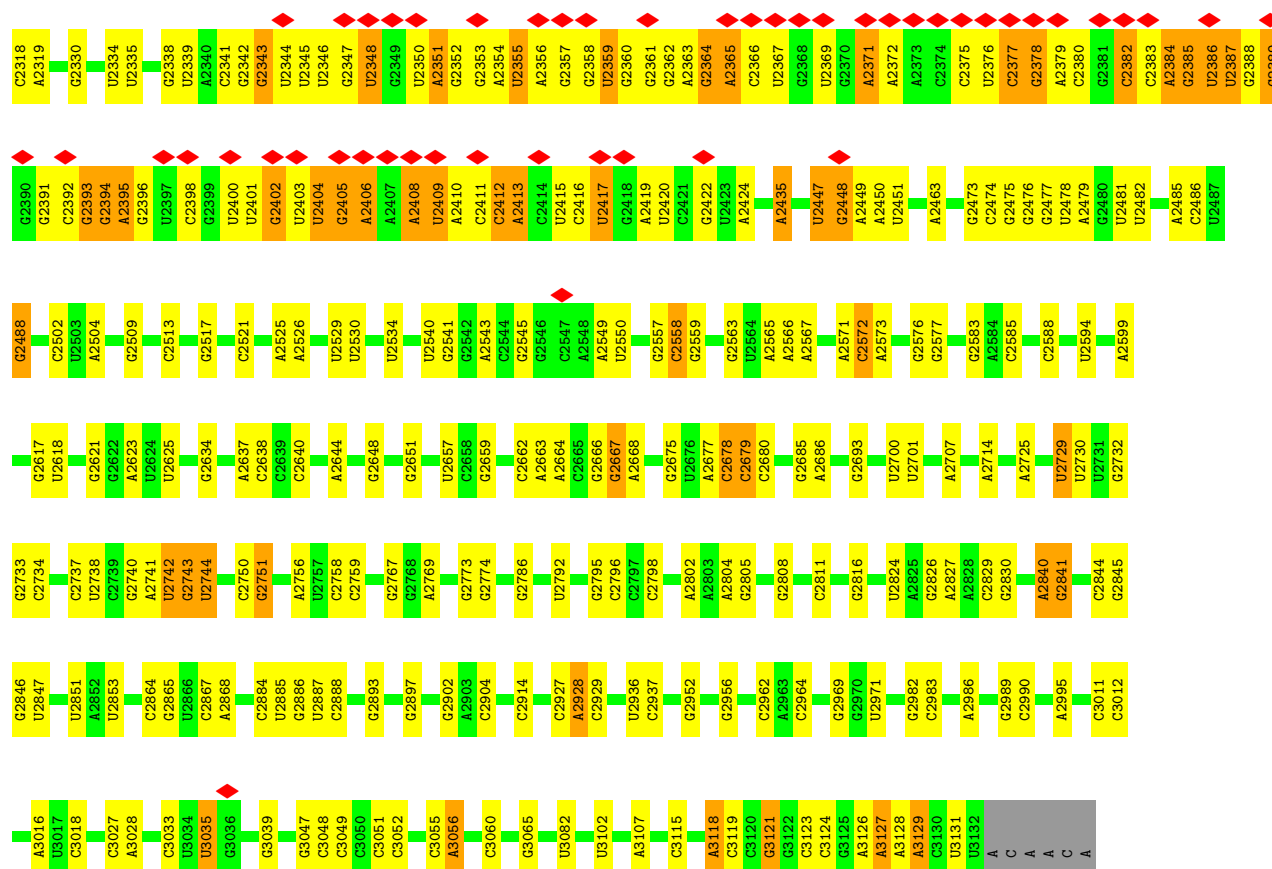


- Molecule 8: 23S ribosomal RNA

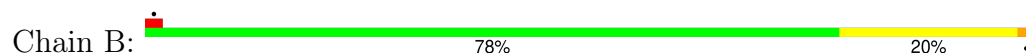
Chain I:  10% 66% 28% 5%



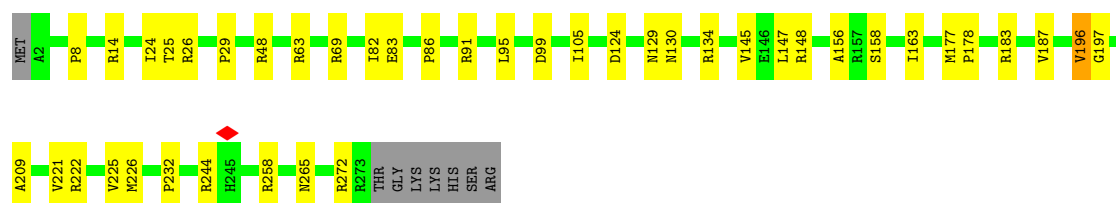
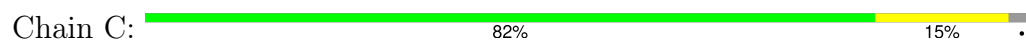




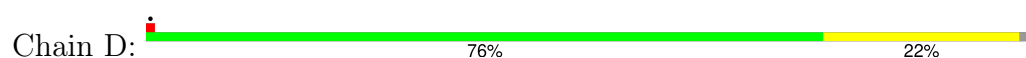
### • Molecule 9: 5S ribosomal RNA



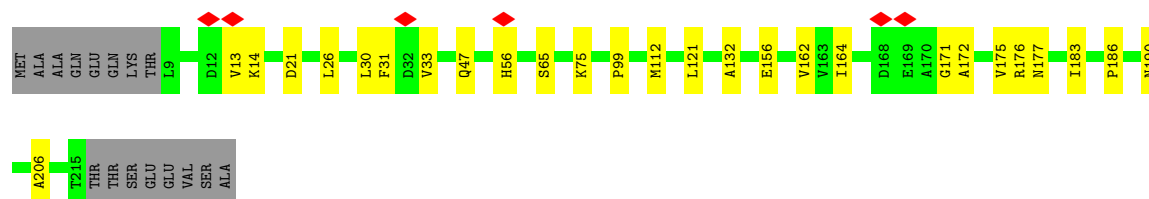
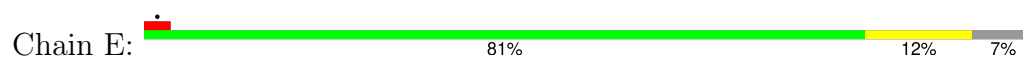
### • Molecule 10: 50S ribosomal protein L2



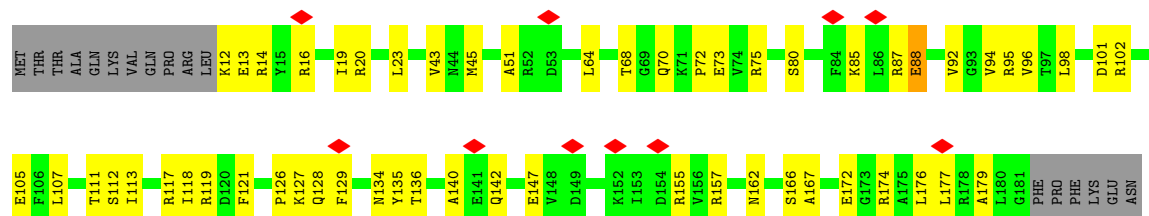
### • Molecule 11: 50S ribosomal protein L3



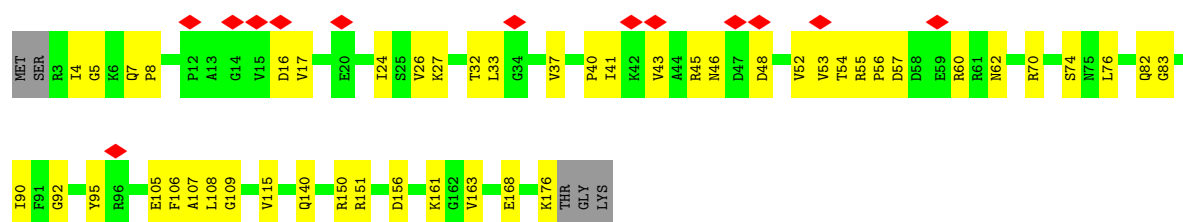
- Molecule 12: 50S ribosomal protein L4



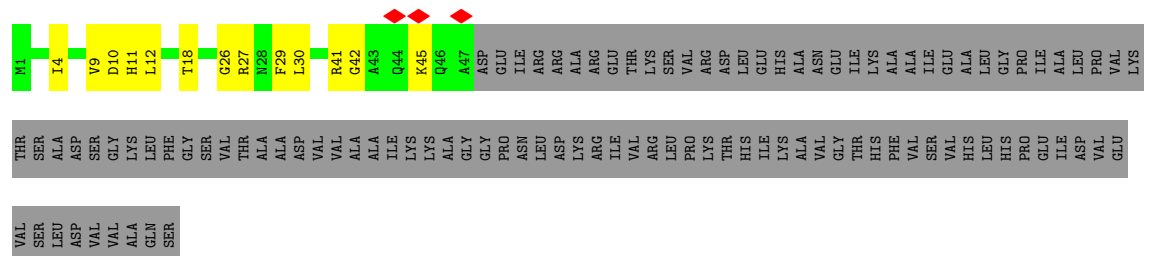
- Molecule 13: 50S ribosomal protein L5



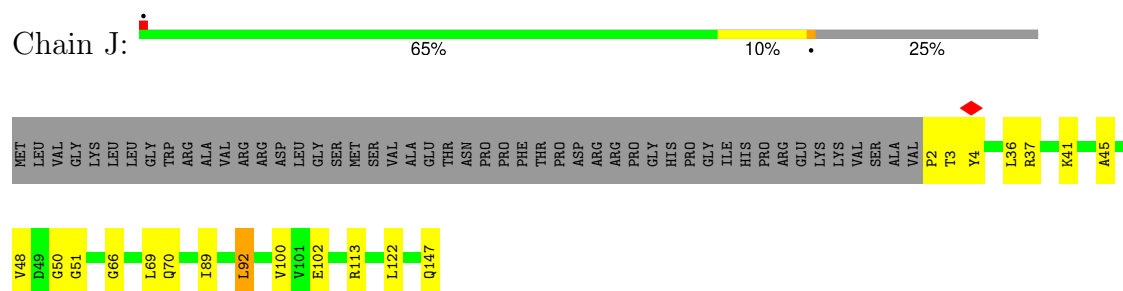
- Molecule 14: 50S ribosomal protein L6



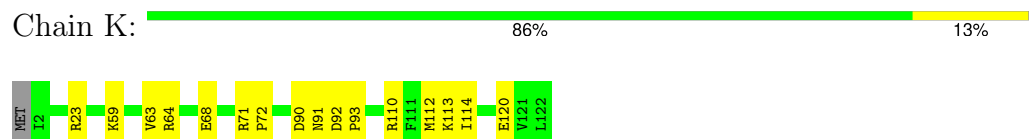
- Molecule 15: 50S ribosomal protein L9



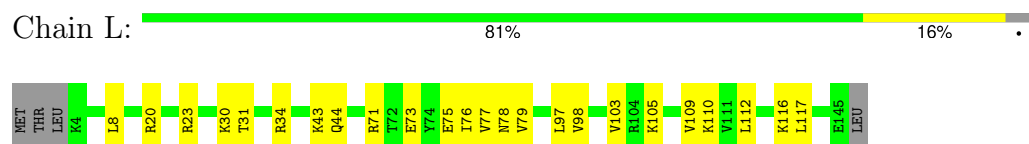
- Molecule 16: 50S ribosomal protein L13



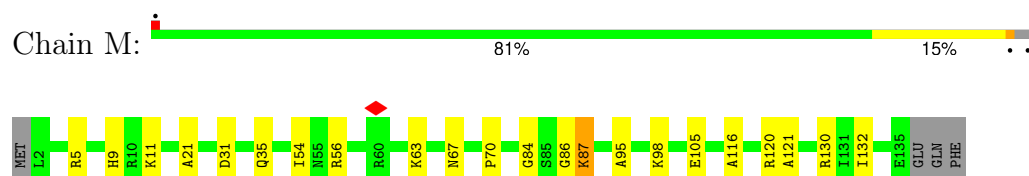
- Molecule 17: Large ribosomal subunit protein uL14



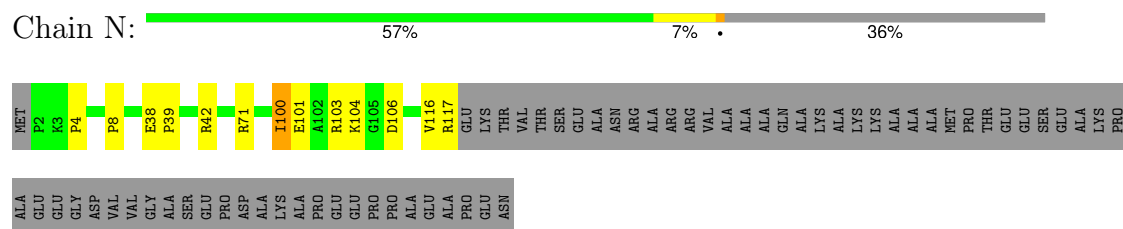
- Molecule 18: 50S ribosomal protein L15



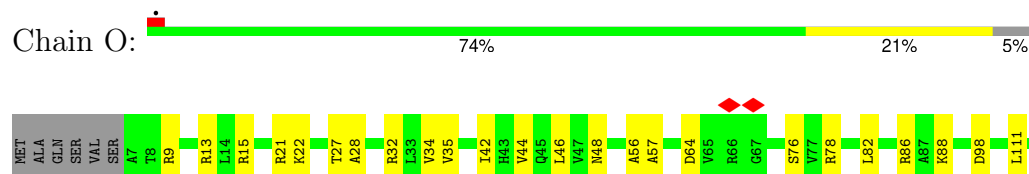
- Molecule 19: 50S ribosomal protein L16



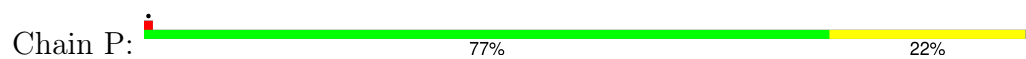
- Molecule 20: 50S ribosomal protein L17



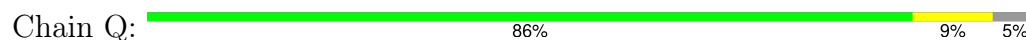
- Molecule 21: 50S ribosomal protein L18



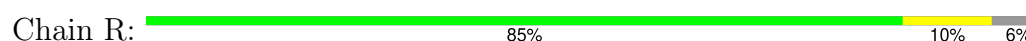
- Molecule 22: 50S ribosomal protein L19



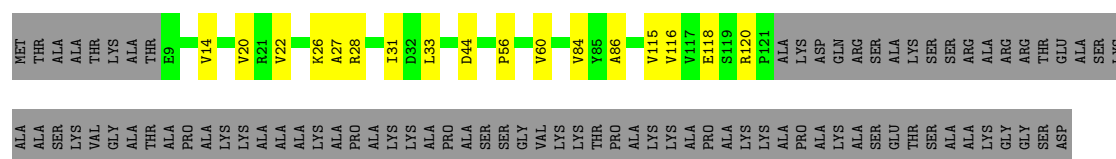
- Molecule 23: 50S ribosomal protein L20



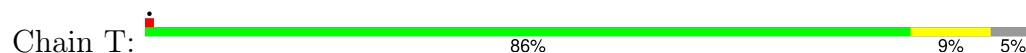
- Molecule 24: Large ribosomal subunit protein bL21



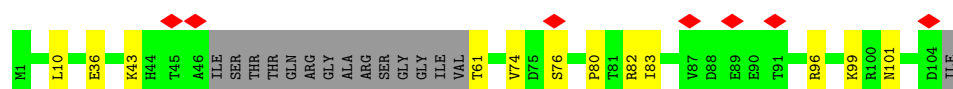
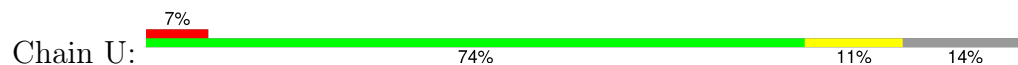
- Molecule 25: 50S ribosomal protein L22



- Molecule 26: 50S ribosomal protein L23

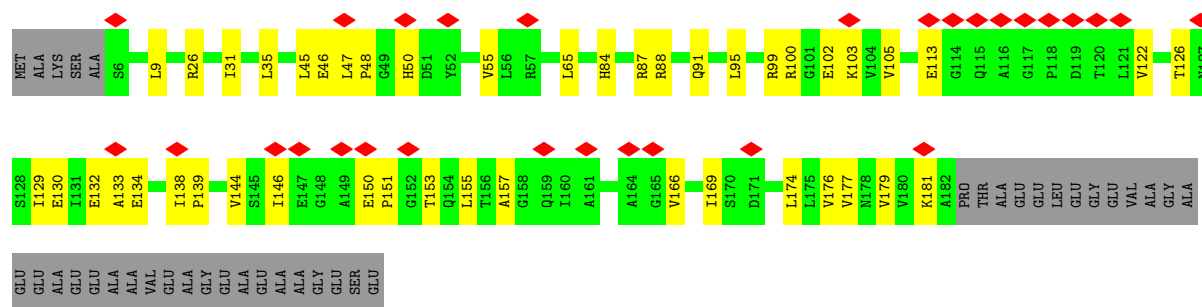


- Molecule 27: 50S ribosomal protein L24



- Molecule 28: 50S ribosomal protein L25

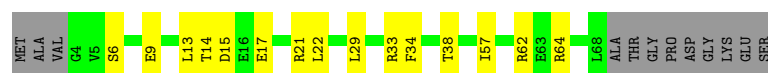




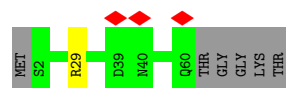
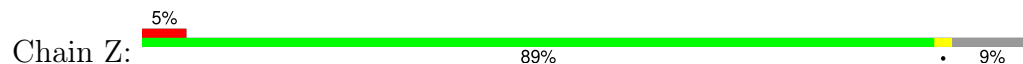
- Molecule 29: 50S ribosomal protein L27



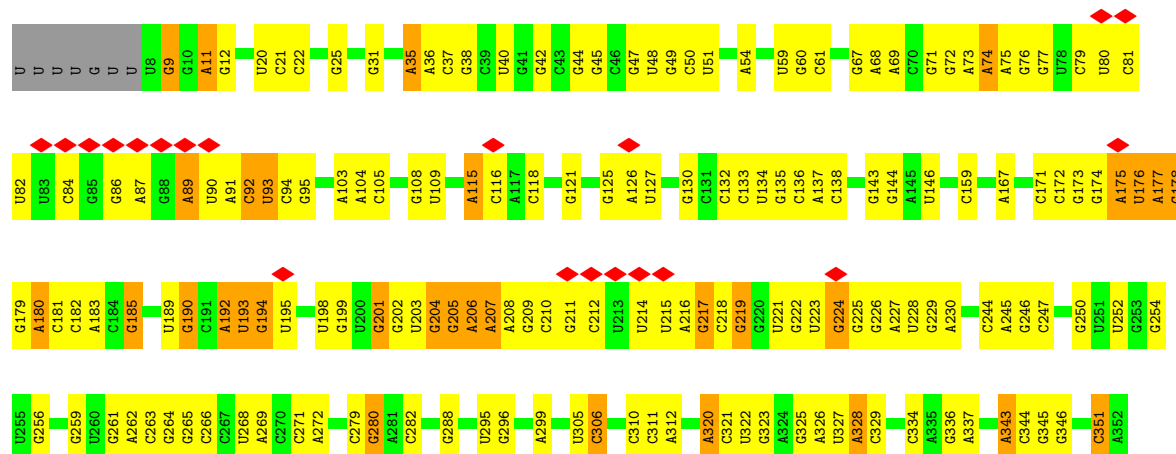
- Molecule 30: 50S ribosomal protein L29

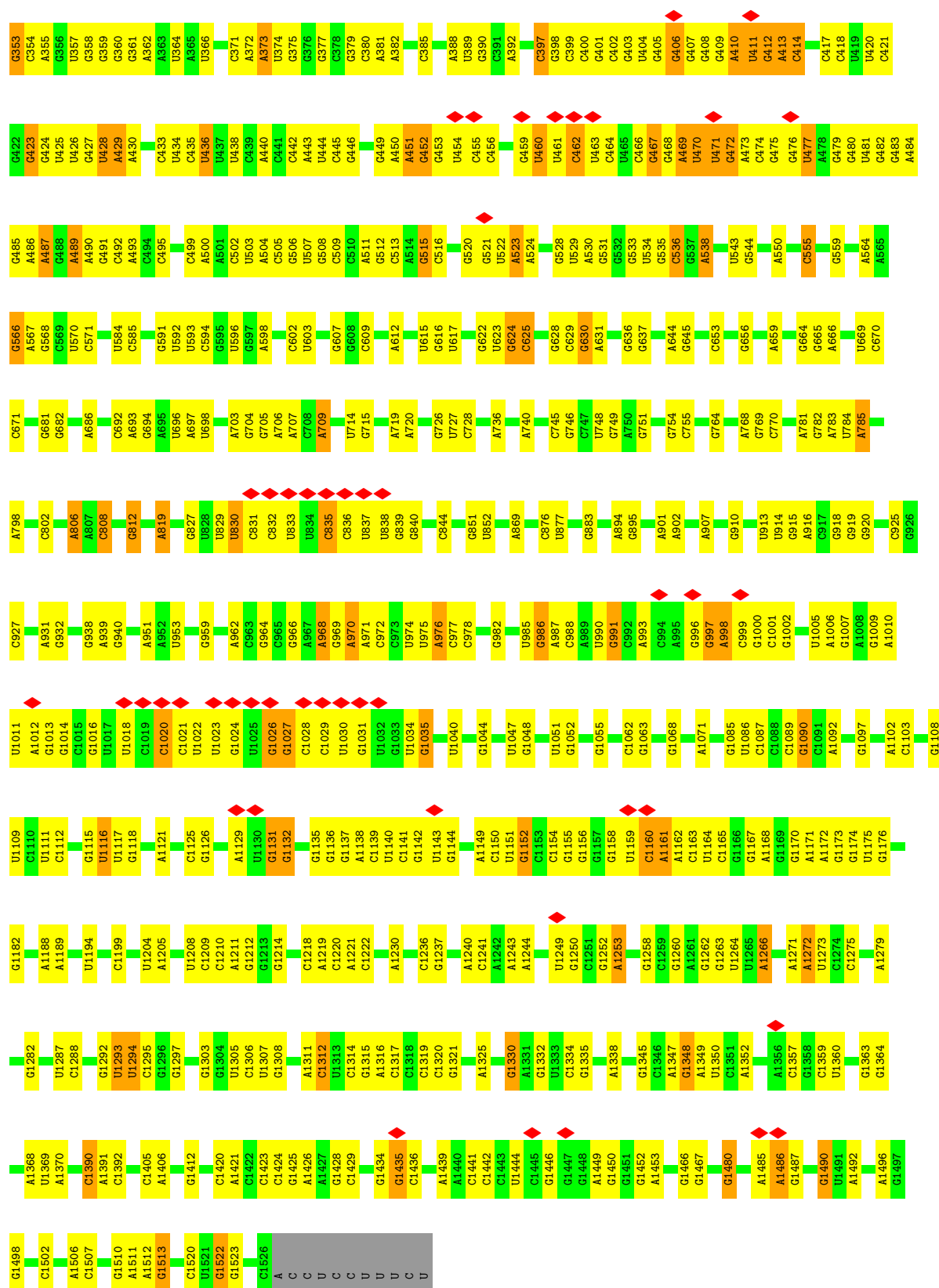


- Molecule 31: 50S ribosomal protein L30

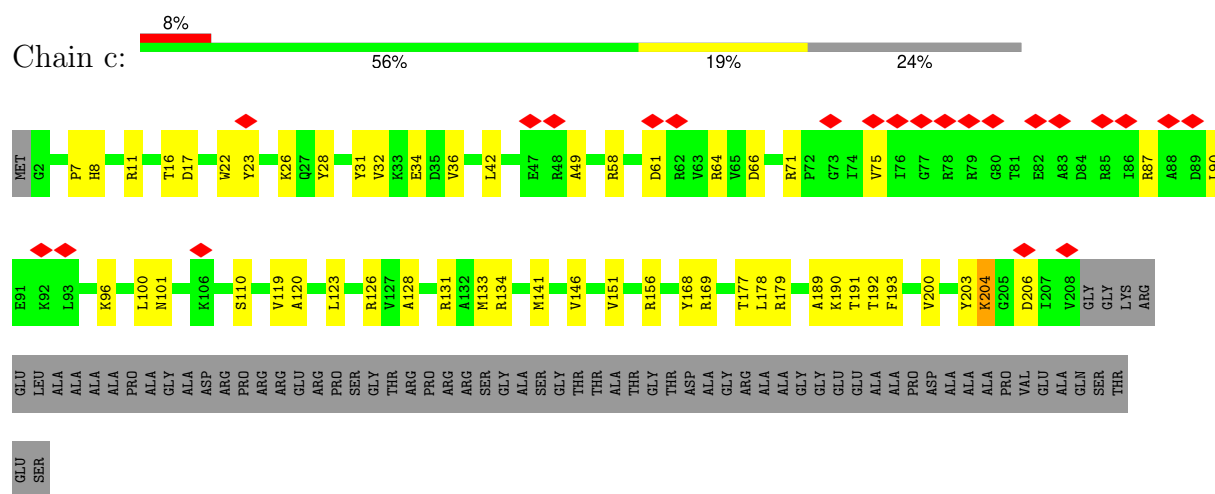


- Molecule 32: 16S ribosomal RNA





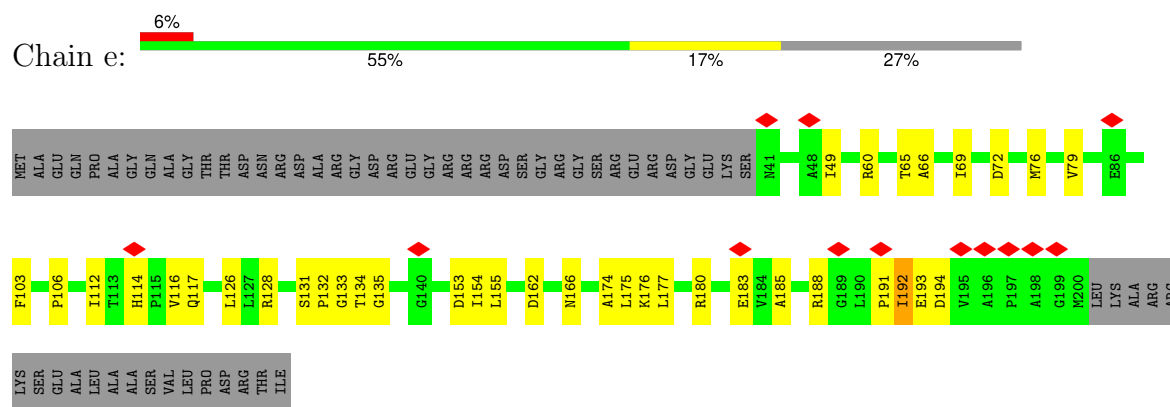
• Molecule 33: 30S ribosomal protein S3



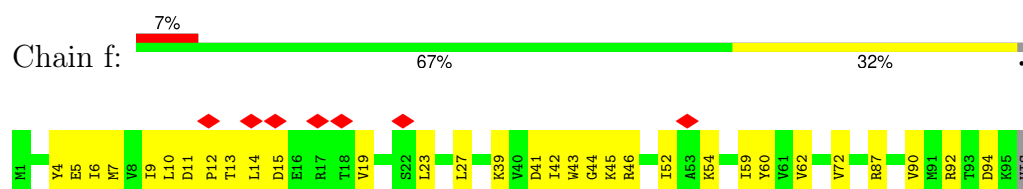
- Molecule 34: 30S ribosomal protein S4



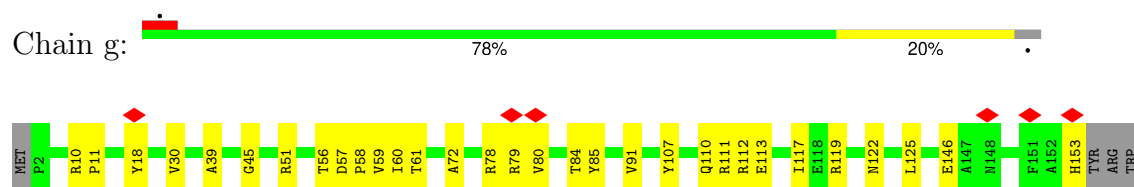
- Molecule 35: 30S ribosomal protein S5



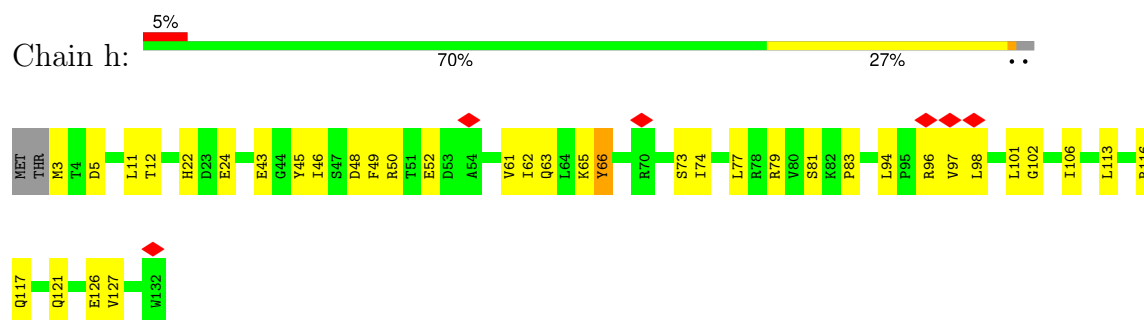
- Molecule 36: 30S ribosomal protein S6



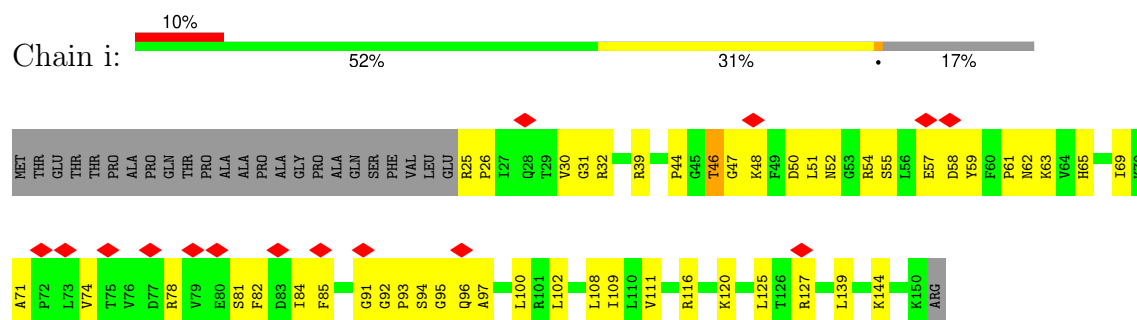
- Molecule 37: 30S ribosomal protein S7



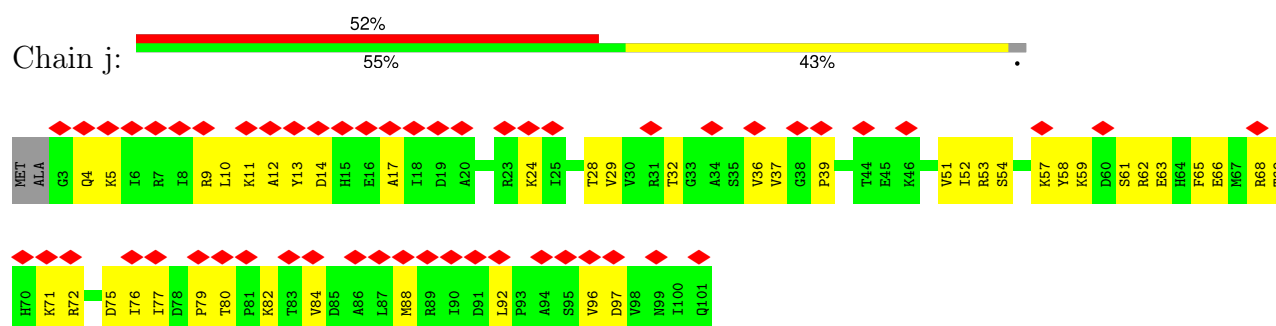
- Molecule 38: 30S ribosomal protein S8



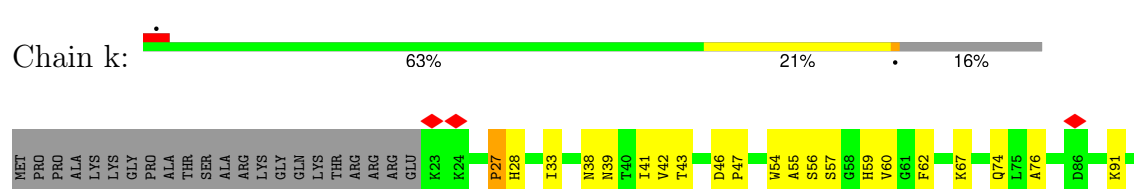
- Molecule 39: 30S ribosomal protein S9



- Molecule 40: 30S ribosomal protein S10



- Molecule 41: 30S ribosomal protein S11

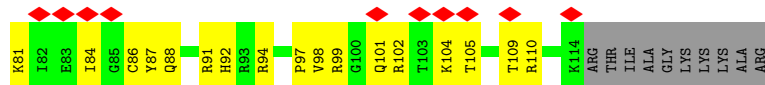
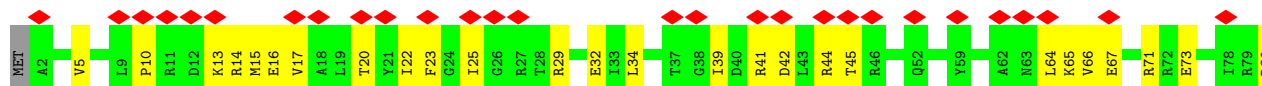




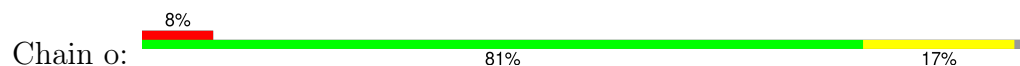
- Molecule 42: 30S ribosomal protein S12



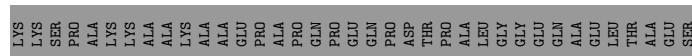
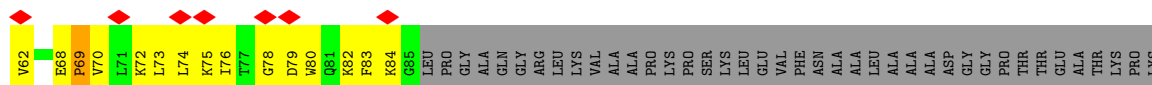
- Molecule 43: 30S ribosomal protein S13



- Molecule 44: 30S ribosomal protein S15

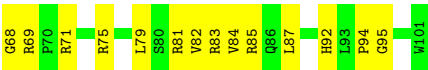


- Molecule 45: 30S ribosomal protein S16

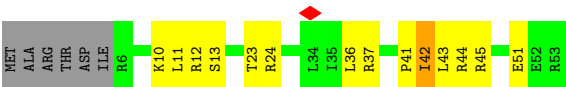


- Molecule 46: 30S ribosomal protein S17

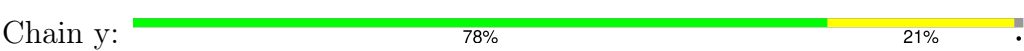




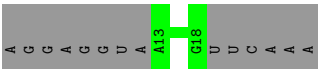
- Molecule 52: Large ribosomal subunit protein bL33



- Molecule 53: Large ribosomal subunit protein bL28



- Molecule 54: mRNA



## 4 Experimental information

| Property                             | Value                                   | Source    |
|--------------------------------------|-----------------------------------------|-----------|
| EM reconstruction method             | SINGLE PARTICLE                         | Depositor |
| Imposed symmetry                     | POINT, C1                               | Depositor |
| Number of particles used             | 81757                                   | 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 ( $e^-/\text{\AA}^2$ ) | 51.65                                   | Depositor |
| Minimum defocus (nm)                 | 500                                     | Depositor |
| Maximum defocus (nm)                 | 2200                                    | Depositor |
| Magnification                        | 105000                                  | Depositor |
| Image detector                       | GATAN K2 SUMMIT (4k x 4k)               | Depositor |
| Maximum map value                    | 1.920                                   | Depositor |
| Minimum map value                    | -1.414                                  | Depositor |
| Average map value                    | -0.000                                  | Depositor |
| Map value standard deviation         | 0.074                                   | Depositor |
| Recommended contour level            | 0.15                                    | Depositor |
| Map size (Å)                         | 422.15, 422.15, 422.15                  | wwPDB     |
| Map dimensions                       | 500, 500, 500                           | wwPDB     |
| Map angles (°)                       | 90.0, 90.0, 90.0                        | wwPDB     |
| Pixel spacing (Å)                    | 0.8443, 0.8443, 0.8443                  | 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   | n     | 0.10         | 0/1835       | 0.24        | 0/2859        |
| 1   | u     | 0.14         | 0/1813       | 0.30        | 0/2825        |
| 2   | 1     | 0.16         | 0/399        | 0.43        | 0/522         |
| 3   | 0     | 0.27         | 0/427        | 0.53        | 0/570         |
| 4   | 2     | 0.22         | 0/361        | 0.42        | 0/473         |
| 5   | 3     | 0.20         | 0/499        | 0.39        | 0/664         |
| 6   | 4     | 0.73         | 1/304 (0.3%) | 0.70        | 0/402         |
| 7   | 6     | 0.18         | 0/353        | 0.45        | 0/478         |
| 8   | I     | 0.20         | 0/74973      | 0.30        | 0/116979      |
| 9   | B     | 0.15         | 0/2749       | 0.27        | 0/4284        |
| 10  | C     | 0.22         | 0/2129       | 0.39        | 0/2861        |
| 11  | D     | 0.24         | 0/1613       | 0.45        | 0/2174        |
| 12  | E     | 0.22         | 0/1575       | 0.46        | 0/2129        |
| 13  | F     | 0.19         | 0/1352       | 0.47        | 0/1817        |
| 14  | G     | 0.20         | 0/1351       | 0.47        | 0/1824        |
| 15  | H     | 0.19         | 0/353        | 0.45        | 0/474         |
| 16  | J     | 0.21         | 0/1170       | 0.36        | 0/1584        |
| 17  | K     | 0.23         | 0/944        | 0.43        | 0/1268        |
| 18  | L     | 0.20         | 0/1073       | 0.38        | 0/1432        |
| 19  | M     | 0.21         | 0/1098       | 0.42        | 0/1481        |
| 20  | N     | 0.22         | 0/925        | 0.39        | 0/1242        |
| 21  | O     | 0.18         | 0/895        | 0.41        | 0/1202        |
| 22  | P     | 0.24         | 0/922        | 0.54        | 1/1236 (0.1%) |
| 23  | Q     | 0.23         | 0/992        | 0.42        | 0/1329        |
| 24  | R     | 0.20         | 0/751        | 0.34        | 0/1009        |
| 25  | S     | 0.23         | 0/874        | 0.39        | 0/1186        |
| 26  | T     | 0.21         | 0/751        | 0.36        | 0/1012        |
| 27  | U     | 0.20         | 0/705        | 0.46        | 0/941         |
| 28  | V     | 0.22         | 0/1336       | 0.53        | 1/1820 (0.1%) |
| 29  | W     | 0.24         | 0/551        | 0.54        | 0/735         |
| 30  | Y     | 0.19         | 0/544        | 0.37        | 0/727         |
| 31  | Z     | 0.21         | 0/480        | 0.40        | 0/645         |
| 32  | a     | 0.16         | 0/36501      | 0.30        | 0/56956       |
| 33  | c     | 0.17         | 0/1678       | 0.40        | 0/2254        |

| Mol | Chain | Bond lengths |                 | Bond angles |                 |
|-----|-------|--------------|-----------------|-------------|-----------------|
|     |       | RMSZ         | # Z  >5         | RMSZ        | # Z  >5         |
| 34  | d     | 0.21         | 0/1691          | 0.48        | 0/2279          |
| 35  | e     | 0.27         | 0/1165          | 0.52        | 1/1578 (0.1%)   |
| 36  | f     | 0.18         | 0/767           | 0.45        | 0/1036          |
| 37  | g     | 0.16         | 0/1210          | 0.38        | 0/1631          |
| 38  | h     | 0.21         | 0/1014          | 0.45        | 0/1369          |
| 39  | i     | 0.23         | 0/999           | 0.63        | 0/1342          |
| 40  | j     | 0.20         | 0/803           | 0.45        | 0/1086          |
| 41  | k     | 0.23         | 0/891           | 0.46        | 1/1204 (0.1%)   |
| 42  | l     | 0.21         | 0/978           | 0.49        | 0/1306          |
| 43  | m     | 0.17         | 0/927           | 0.43        | 0/1239          |
| 44  | o     | 0.18         | 0/727           | 0.41        | 0/973           |
| 45  | p     | 0.39         | 1/701 (0.1%)    | 0.80        | 2/944 (0.2%)    |
| 46  | q     | 0.18         | 0/763           | 0.47        | 0/1020          |
| 47  | s     | 0.18         | 0/674           | 0.43        | 0/906           |
| 48  | t     | 0.17         | 0/633           | 0.42        | 0/838           |
| 49  | x     | 0.48         | 0/272           | 0.74        | 1/350 (0.3%)    |
| 50  | r     | 0.17         | 0/564           | 0.40        | 0/755           |
| 51  | 9     | 0.15         | 0/810           | 0.37        | 0/1083          |
| 52  | b     | 0.20         | 0/423           | 0.65        | 0/567           |
| 53  | y     | 0.40         | 1/640 (0.2%)    | 0.57        | 2/856 (0.2%)    |
| 54  | X     | 0.15         | 0/147           | 0.17        | 0/227           |
| All | All   | 0.19         | 3/161075 (0.0%) | 0.34        | 9/241983 (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 |
|-----|-------|---------------------|---------------------|
| 34  | d     | 0                   | 1                   |

All (3) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|-------|-------|-------------|----------|
| 53  | y     | 4   | HIS  | C-O   | -5.57 | 1.17        | 1.23     |
| 45  | p     | 69  | PRO  | CG-CD | -5.50 | 1.32        | 1.50     |
| 6   | 4     | 2   | LYS  | C-O   | -5.02 | 1.18        | 1.24     |

All (9) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms   | Z      | Observed(°) | Ideal(°) |
|-----|-------|-----|------|---------|--------|-------------|----------|
| 45  | p     | 69  | PRO  | CA-N-CD | -13.00 | 93.80       | 112.00   |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type | Atoms   | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|---------|-------|-------------|----------|
| 45  | p     | 69  | PRO  | N-CD-CG | -8.62 | 90.27       | 103.20   |
| 22  | P     | 10  | PRO  | CA-N-CD | -8.44 | 100.19      | 112.00   |
| 53  | y     | 3   | ALA  | N-CA-C  | 7.95  | 122.47      | 111.74   |
| 41  | k     | 27  | PRO  | CA-N-CD | -6.52 | 102.87      | 112.00   |
| 28  | V     | 55  | VAL  | N-CA-C  | -6.17 | 107.49      | 113.53   |
| 35  | e     | 106 | PRO  | CA-N-CD | -5.97 | 103.64      | 112.00   |
| 49  | x     | 24  | THR  | N-CA-C  | 5.48  | 118.97      | 112.72   |
| 53  | y     | 4   | HIS  | CB-CA-C | -5.39 | 98.67       | 109.35   |

There are no chirality outliers.

All (1) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group   |
|-----|-------|-----|------|---------|
| 34  | d     | 31  | TYR  | Peptide |

## 5.2 Too-close contacts [i](#)

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   | n     | 1643  | 0        | 836      | 22      | 0            |
| 1   | u     | 1623  | 0        | 825      | 8       | 0            |
| 2   | 1     | 395   | 0        | 389      | 10      | 0            |
| 3   | 0     | 421   | 0        | 461      | 17      | 0            |
| 4   | 2     | 358   | 0        | 390      | 5       | 0            |
| 5   | 3     | 494   | 0        | 533      | 8       | 0            |
| 6   | 4     | 300   | 0        | 326      | 6       | 0            |
| 7   | 6     | 345   | 0        | 332      | 4       | 0            |
| 8   | I     | 66956 | 0        | 33720    | 566     | 0            |
| 9   | B     | 2458  | 0        | 1253     | 13      | 0            |
| 10  | C     | 2088  | 0        | 2123     | 29      | 0            |
| 11  | D     | 1590  | 0        | 1633     | 32      | 0            |
| 12  | E     | 1552  | 0        | 1593     | 20      | 0            |
| 13  | F     | 1335  | 0        | 1372     | 49      | 0            |
| 14  | G     | 1330  | 0        | 1390     | 42      | 0            |
| 15  | H     | 350   | 0        | 367      | 9       | 0            |
| 16  | J     | 1143  | 0        | 1173     | 14      | 0            |
| 17  | K     | 934   | 0        | 993      | 11      | 0            |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Non-H  | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|--------|----------|----------|---------|--------------|
| 18  | L     | 1060   | 0        | 1119     | 21      | 0            |
| 19  | M     | 1072   | 0        | 1115     | 17      | 0            |
| 20  | N     | 908    | 0        | 956      | 12      | 0            |
| 21  | O     | 886    | 0        | 924      | 18      | 0            |
| 22  | P     | 907    | 0        | 947      | 17      | 0            |
| 23  | Q     | 980    | 0        | 1028     | 10      | 0            |
| 24  | R     | 742    | 0        | 799      | 6       | 0            |
| 25  | S     | 860    | 0        | 903      | 11      | 0            |
| 26  | T     | 741    | 0        | 792      | 7       | 0            |
| 27  | U     | 699    | 0        | 738      | 7       | 0            |
| 28  | V     | 1319   | 0        | 1365     | 29      | 0            |
| 29  | W     | 546    | 0        | 567      | 20      | 0            |
| 30  | Y     | 541    | 0        | 551      | 11      | 0            |
| 31  | Z     | 476    | 0        | 509      | 1       | 0            |
| 32  | a     | 32610  | 0        | 16406    | 519     | 0            |
| 33  | c     | 1654   | 0        | 1694     | 41      | 0            |
| 34  | d     | 1658   | 0        | 1683     | 82      | 0            |
| 35  | e     | 1149   | 0        | 1207     | 33      | 0            |
| 36  | f     | 757    | 0        | 796      | 26      | 0            |
| 37  | g     | 1193   | 0        | 1256     | 21      | 0            |
| 38  | h     | 999    | 0        | 1034     | 28      | 0            |
| 39  | i     | 981    | 0        | 1039     | 38      | 0            |
| 40  | j     | 789    | 0        | 821      | 43      | 0            |
| 41  | k     | 873    | 0        | 887      | 17      | 0            |
| 42  | l     | 967    | 0        | 1056     | 38      | 0            |
| 43  | m     | 919    | 0        | 961      | 54      | 0            |
| 44  | o     | 718    | 0        | 760      | 12      | 0            |
| 45  | p     | 688    | 0        | 726      | 69      | 0            |
| 46  | q     | 752    | 0        | 808      | 25      | 0            |
| 47  | s     | 657    | 0        | 671      | 40      | 0            |
| 48  | t     | 631    | 0        | 681      | 11      | 0            |
| 49  | x     | 272    | 0        | 331      | 20      | 0            |
| 50  | r     | 560    | 0        | 588      | 11      | 0            |
| 51  | 9     | 798    | 0        | 845      | 42      | 0            |
| 52  | b     | 416    | 0        | 431      | 14      | 0            |
| 53  | y     | 630    | 0        | 651      | 11      | 0            |
| 54  | X     | 131    | 0        | 66       | 0       | 0            |
| All | All   | 147854 | 0        | 97420    | 1975    | 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 8.

All (1975) 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) |
|-------------------|-------------------|--------------------------|-------------------|
| 8:I:1495:G:OP2    | 53:y:2:SER:CB     | 1.96                     | 1.14              |
| 32:a:77:G:H1      | 32:a:91:A:N6      | 1.47                     | 1.12              |
| 8:I:1582:A:N6     | 8:I:1622:G:H21    | 1.48                     | 1.11              |
| 32:a:1435:G:H1    | 32:a:1453:A:N6    | 1.52                     | 1.06              |
| 8:I:1686:A:H62    | 8:I:1698:C:N4     | 1.55                     | 1.05              |
| 45:p:8:THR:O      | 45:p:18:TYR:HA    | 1.53                     | 1.05              |
| 8:I:1582:A:H62    | 8:I:1622:G:N2     | 1.56                     | 1.04              |
| 8:I:1582:A:H62    | 8:I:1622:G:H21    | 1.10                     | 0.96              |
| 8:I:1686:A:H62    | 8:I:1698:C:H42    | 1.01                     | 0.94              |
| 49:x:26:VAL:HG12  | 49:x:27:GLN:H     | 1.32                     | 0.93              |
| 34:d:86:LEU:HB3   | 34:d:183:ARG:HB3  | 1.53                     | 0.90              |
| 8:I:798:G:N2      | 8:I:801:C:OP1     | 2.06                     | 0.89              |
| 43:m:81:LYS:HA    | 43:m:84:ILE:HD12  | 1.53                     | 0.88              |
| 32:a:1152:G:H1    | 32:a:1168:A:H61   | 1.19                     | 0.87              |
| 43:m:97:PRO:HD3   | 43:m:110:ARG:HG2  | 1.58                     | 0.86              |
| 49:x:26:VAL:O     | 49:x:28:ARG:N     | 2.09                     | 0.85              |
| 32:a:77:G:H1      | 32:a:91:A:H61     | 0.86                     | 0.85              |
| 45:p:3:VAL:HA     | 45:p:24:ASP:HA    | 1.58                     | 0.85              |
| 47:s:60:VAL:HG11  | 47:s:74:PHE:HB3   | 1.55                     | 0.85              |
| 8:I:1955:G:H22    | 8:I:1974:G:H1     | 1.23                     | 0.84              |
| 49:x:26:VAL:HG12  | 49:x:27:GLN:N     | 1.92                     | 0.84              |
| 25:S:84:VAL:HG12  | 25:S:115:VAL:HG22 | 1.57                     | 0.84              |
| 32:a:179:G:N2     | 32:a:223:U:O5'    | 2.11                     | 0.83              |
| 34:d:6:GLY:O      | 34:d:107:ARG:NH2  | 2.11                     | 0.83              |
| 47:s:6:LYS:HE3    | 47:s:7:LYS:HE3    | 1.58                     | 0.83              |
| 32:a:210:C:H2'    | 32:a:211:G:C8     | 2.14                     | 0.82              |
| 8:I:1504:A:H5'    | 8:I:2450:A:H1'    | 1.61                     | 0.82              |
| 47:s:63:THR:H     | 47:s:66:MET:HG2   | 1.44                     | 0.82              |
| 3:O:16:ARG:NH2    | 8:I:1395:G:OP1    | 2.12                     | 0.82              |
| 32:a:77:G:N2      | 32:a:91:A:N1      | 2.28                     | 0.81              |
| 34:d:83:GLU:HG3   | 34:d:87:LYS:HE2   | 1.63                     | 0.81              |
| 37:g:113:GLU:HB2  | 37:g:119:ARG:HG3  | 1.61                     | 0.81              |
| 45:p:21:ALA:HA    | 45:p:33:ALA:HB2   | 1.62                     | 0.81              |
| 32:a:966:G:H4'    | 40:j:57:LYS:HB2   | 1.63                     | 0.81              |
| 40:j:53:ARG:HD3   | 51:9:85:ARG:HH12  | 1.46                     | 0.81              |
| 43:m:14:ARG:HH21  | 43:m:41:ARG:HB2   | 1.45                     | 0.80              |
| 8:I:638:C:N4      | 8:I:641:U:O4      | 2.14                     | 0.80              |
| 32:a:529:U:H5''   | 42:l:111:LYS:HG2  | 1.62                     | 0.80              |
| 14:G:70:ARG:NH1   | 14:G:74:SER:OG    | 2.15                     | 0.79              |
| 32:a:1435:G:N2    | 32:a:1453:A:N1    | 2.28                     | 0.79              |
| 43:m:23:PHE:HB3   | 43:m:67:GLU:HB3   | 1.64                     | 0.79              |
| 10:C:163:ILE:HG22 | 10:C:178:PRO:HD3  | 1.65                     | 0.79              |

Continued on next page...

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 38:h:22:HIS:O     | 38:h:66:TYR:OH    | 2.01                     | 0.78              |
| 32:a:175:A:H4'    | 32:a:176:U:H5'    | 1.65                     | 0.78              |
| 32:a:178:G:N1     | 32:a:205:G:N7     | 2.31                     | 0.78              |
| 8:I:1381:G:N7     | 18:L:20:ARG:NH2   | 2.32                     | 0.78              |
| 45:p:74:LEU:HB3   | 45:p:79:ASP:HB2   | 1.66                     | 0.78              |
| 8:I:2729:U:H5'    | 8:I:2808:G:H5''   | 1.66                     | 0.77              |
| 13:F:128:GLN:HB3  | 13:F:135:TYR:HB3  | 1.64                     | 0.77              |
| 20:N:116:VAL:HG12 | 20:N:117:ARG:HG2  | 1.66                     | 0.77              |
| 32:a:1156:G:H1    | 32:a:1164:U:H3    | 1.33                     | 0.77              |
| 32:a:1118:G:H22   | 32:a:1137:G:H1    | 1.30                     | 0.76              |
| 8:I:1686:A:N6     | 8:I:1698:C:H42    | 1.81                     | 0.76              |
| 32:a:189:U:H3     | 32:a:194:G:H1     | 1.32                     | 0.76              |
| 13:F:155:ARG:O    | 13:F:157:ARG:NH1  | 2.17                     | 0.76              |
| 42:l:37:VAL:HG21  | 42:l:74:LEU:HB2   | 1.66                     | 0.76              |
| 8:I:2409:U:H3     | 8:I:2413:A:H61    | 1.34                     | 0.76              |
| 51:9:3:LYS:HD2    | 51:9:6:LYS:HE3    | 1.68                     | 0.76              |
| 40:j:39:PRO:HA    | 40:j:75:ASP:HB3   | 1.67                     | 0.75              |
| 32:a:681:G:OP2    | 41:k:39:ASN:ND2   | 2.19                     | 0.75              |
| 8:I:1557:G:H21    | 8:I:1648:A:H62    | 1.31                     | 0.75              |
| 8:I:1582:A:N6     | 8:I:1622:G:N2     | 2.21                     | 0.75              |
| 8:I:2983:C:O2     | 14:G:140:GLN:NE2  | 2.20                     | 0.75              |
| 8:I:2346:U:O4     | 8:I:2417:U:O2'    | 2.05                     | 0.75              |
| 39:i:74:VAL:HG11  | 39:i:78:ARG:HG2   | 1.69                     | 0.75              |
| 34:d:120:VAL:HG13 | 34:d:125:VAL:HG11 | 1.70                     | 0.74              |
| 9:B:8:G:OP1       | 21:O:21:ARG:NH1   | 2.19                     | 0.74              |
| 34:d:113:VAL:HG22 | 34:d:118:PHE:HB2  | 1.69                     | 0.74              |
| 32:a:1435:G:H1    | 32:a:1453:A:H61   | 0.79                     | 0.74              |
| 47:s:12:ASP:OD2   | 47:s:35:SER:OG    | 2.03                     | 0.74              |
| 21:O:35:VAL:HG12  | 21:O:44:VAL:HG12  | 1.70                     | 0.74              |
| 32:a:190:G:N2     | 32:a:193:U:OP2    | 2.20                     | 0.74              |
| 32:a:211:G:N2     | 32:a:216:A:H62    | 1.85                     | 0.74              |
| 8:I:2534:U:OP2    | 21:O:15:ARG:NH2   | 2.21                     | 0.74              |
| 32:a:1152:G:H1    | 32:a:1168:A:N6    | 1.86                     | 0.73              |
| 36:f:9:ILE:HD12   | 36:f:87:ARG:HB3   | 1.70                     | 0.73              |
| 8:I:1903:A:N3     | 8:I:1905:C:N4     | 2.35                     | 0.73              |
| 14:G:27:LYS:HD3   | 14:G:32:THR:HG22  | 1.68                     | 0.73              |
| 47:s:6:LYS:HG3    | 47:s:7:LYS:HG3    | 1.70                     | 0.73              |
| 36:f:6:ILE:HG12   | 36:f:90:VAL:HG22  | 1.68                     | 0.73              |
| 10:C:24:ILE:HG22  | 10:C:26:ARG:H     | 1.51                     | 0.73              |
| 25:S:14:VAL:HG12  | 25:S:116:VAL:HG22 | 1.69                     | 0.73              |
| 49:x:26:VAL:CG1   | 49:x:27:GLN:H     | 2.01                     | 0.73              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 32:a:412:G:O2'   | 32:a:427:G:N2     | 2.22                     | 0.73              |
| 32:a:528:G:OP1   | 42:l:110:ARG:NH2  | 2.22                     | 0.73              |
| 13:F:80:SER:HB3  | 13:F:88:GLU:H     | 1.52                     | 0.73              |
| 37:g:80:VAL:H    | 37:g:84:THR:HG21  | 1.53                     | 0.73              |
| 32:a:470:U:H1'   | 32:a:471:U:H5'    | 1.71                     | 0.73              |
| 8:I:1955:G:N2    | 8:I:1974:G:H1     | 1.86                     | 0.72              |
| 25:S:118:GLU:OE2 | 25:S:120:ARG:NH1  | 2.23                     | 0.72              |
| 34:d:99:ARG:NH1  | 34:d:187:ASP:OD2  | 2.23                     | 0.72              |
| 32:a:1108:G:O2'  | 39:i:127:ARG:HD2  | 1.90                     | 0.72              |
| 51:9:64:ASP:HB3  | 51:9:68:GLY:H     | 1.53                     | 0.72              |
| 32:a:210:C:H2'   | 32:a:211:G:H8     | 1.55                     | 0.72              |
| 43:m:22:ILE:HG21 | 43:m:25:ILE:HD12  | 1.72                     | 0.72              |
| 32:a:48:U:OP1    | 32:a:306:C:O2'    | 2.06                     | 0.72              |
| 32:a:182:C:H2'   | 32:a:183:A:H8     | 1.55                     | 0.72              |
| 32:a:1097:G:O2'  | 33:c:169:ARG:NH1  | 2.23                     | 0.71              |
| 8:I:1122:G:N2    | 24:R:26:GLU:OE1   | 2.22                     | 0.71              |
| 8:I:353:G:H2'    | 8:I:354:G:C8      | 2.25                     | 0.71              |
| 8:I:976:U:O4     | 8:I:1061:A:N6     | 2.22                     | 0.71              |
| 8:I:2087:A:N7    | 8:I:2127:A:N6     | 2.39                     | 0.71              |
| 8:I:2740:G:H5''  | 8:I:2741:A:H5''   | 1.73                     | 0.71              |
| 17:K:63:VAL:HG12 | 17:K:64:ARG:HG3   | 1.71                     | 0.71              |
| 32:a:665:G:H2'   | 32:a:666:A:H8     | 1.54                     | 0.71              |
| 43:m:88:GLN:HG2  | 43:m:98:VAL:HG21  | 1.72                     | 0.71              |
| 33:c:34:GLU:OE1  | 33:c:58:ARG:NH2   | 2.23                     | 0.71              |
| 8:I:2377:C:O2'   | 8:I:2380:C:N4     | 2.23                     | 0.71              |
| 32:a:183:A:O2'   | 48:t:84:ASN:OD1   | 2.08                     | 0.71              |
| 32:a:211:G:N2    | 32:a:216:A:N6     | 2.39                     | 0.71              |
| 32:a:171:C:H5''  | 48:t:20:ARG:HH12  | 1.55                     | 0.71              |
| 32:a:1364:G:OP1  | 39:i:96:GLN:NE2   | 2.24                     | 0.71              |
| 32:a:1012:A:H3'  | 32:a:1013:G:H21   | 1.56                     | 0.71              |
| 15:H:26:GLY:HA2  | 15:H:30:LEU:HB3   | 1.73                     | 0.70              |
| 23:Q:64:ARG:HD3  | 23:Q:100:ILE:HD11 | 1.73                     | 0.70              |
| 13:F:136:THR:OG1 | 13:F:162:ASN:OD1  | 2.09                     | 0.70              |
| 32:a:1347:A:H2'  | 32:a:1348:G:H8    | 1.54                     | 0.70              |
| 34:d:163:PRO:HD2 | 34:d:166:LEU:HD11 | 1.74                     | 0.70              |
| 8:I:1471:U:OP2   | 26:T:62:ARG:NH2   | 2.24                     | 0.70              |
| 8:I:2061:U:OP2   | 10:C:222:ARG:NH1  | 2.24                     | 0.70              |
| 32:a:1253:A:N6   | 32:a:1266:A:O2'   | 2.24                     | 0.70              |
| 32:a:73:A:H2'    | 32:a:89:A:H2'     | 1.72                     | 0.70              |
| 32:a:221:U:H2'   | 32:a:222:G:C8     | 2.27                     | 0.70              |
| 34:d:99:ARG:HE   | 34:d:163:PRO:HG3  | 1.55                     | 0.70              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 8:I:1212:G:N2     | 8:I:1215:A:C5     | 2.59                     | 0.70              |
| 13:F:64:LEU:HD12  | 13:F:94:VAL:HG13  | 1.72                     | 0.70              |
| 45:p:7:LEU:HA     | 45:p:19:ARG:O     | 1.92                     | 0.70              |
| 8:I:2343:G:N2     | 8:I:2420:U:O2     | 2.23                     | 0.70              |
| 13:F:87:ARG:HH21  | 13:F:92:VAL:HG22  | 1.55                     | 0.70              |
| 37:g:78:ARG:O     | 37:g:84:THR:OG1   | 2.09                     | 0.69              |
| 3:0:28:VAL:HG22   | 3:0:38:LYS:HE3    | 1.75                     | 0.69              |
| 34:d:92:ARG:NH1   | 34:d:129:SER:OG   | 2.25                     | 0.69              |
| 45:p:12:LYS:HD3   | 45:p:15:ASN:HB2   | 1.73                     | 0.69              |
| 8:I:1223:U:N3     | 8:I:1226:U:OP2    | 2.25                     | 0.69              |
| 13:F:119:ARG:NH2  | 43:m:67:GLU:OE2   | 2.26                     | 0.69              |
| 30:Y:14:THR:O     | 30:Y:64:ARG:NH1   | 2.25                     | 0.69              |
| 8:I:1200:G:H4'    | 8:I:1205:C:H42    | 1.58                     | 0.69              |
| 8:I:2566:A:H2'    | 8:I:2567:A:C8     | 2.27                     | 0.69              |
| 33:c:151:VAL:HG22 | 33:c:200:VAL:HG22 | 1.75                     | 0.69              |
| 38:h:50:ARG:NH2   | 38:h:52:GLU:OE2   | 2.26                     | 0.69              |
| 8:I:369:C:H2'     | 8:I:370:G:C8      | 2.28                     | 0.69              |
| 46:q:123:THR:O    | 46:q:125:ARG:NH1  | 2.24                     | 0.69              |
| 32:a:105:C:O2'    | 45:p:25:ALA:O     | 2.11                     | 0.69              |
| 32:a:1348:G:H2'   | 32:a:1349:A:C8    | 2.28                     | 0.68              |
| 40:j:57:LYS:HD3   | 51:9:81:ARG:CZ    | 2.23                     | 0.68              |
| 43:m:13:LYS:HD2   | 43:m:17:VAL:HG11  | 1.75                     | 0.68              |
| 49:x:27:GLN:HA    | 49:x:31:LEU:HD13  | 1.76                     | 0.68              |
| 8:I:1578:C:H2'    | 8:I:1579:A:C8     | 2.29                     | 0.68              |
| 8:I:1770:C:H42    | 8:I:1777:G:H1     | 1.41                     | 0.68              |
| 32:a:134:U:H2'    | 32:a:135:G:H8     | 1.59                     | 0.68              |
| 36:f:10:LEU:HD12  | 36:f:11:ASP:H     | 1.59                     | 0.68              |
| 8:I:308:G:OP2     | 15:H:41:ARG:NH2   | 2.26                     | 0.68              |
| 34:d:80:LYS:HG3   | 35:e:134:THR:HG21 | 1.74                     | 0.68              |
| 43:m:102:ARG:NE   | 43:m:104:LYS:HB3  | 2.08                     | 0.68              |
| 32:a:607:G:H1     | 32:a:615:U:H3     | 1.38                     | 0.68              |
| 13:F:12:LYS:HB3   | 13:F:14:ARG:HG2   | 1.76                     | 0.68              |
| 32:a:939:A:O2'    | 32:a:1325:A:N3    | 2.26                     | 0.68              |
| 34:d:12:SER:HB3   | 34:d:18:ASP:HA    | 1.76                     | 0.68              |
| 43:m:84:ILE:HG22  | 43:m:86:CYS:H     | 1.58                     | 0.68              |
| 8:I:3102:U:O4     | 22:P:20:ASN:ND2   | 2.27                     | 0.68              |
| 32:a:204:G:H2'    | 32:a:205:G:C8     | 2.29                     | 0.67              |
| 32:a:1143:U:O2'   | 40:j:72:ARG:NH2   | 2.25                     | 0.67              |
| 8:I:1593:C:H2'    | 8:I:1594:A:H8     | 1.58                     | 0.67              |
| 32:a:203:U:H2'    | 32:a:204:G:C5     | 2.30                     | 0.67              |
| 38:h:98:LEU:HB3   | 38:h:101:LEU:HB3  | 1.76                     | 0.67              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 32:a:321:C:H42    | 32:a:328:A:H62   | 1.43                     | 0.67              |
| 45:p:74:LEU:O     | 45:p:79:ASP:N    | 2.27                     | 0.67              |
| 32:a:1287:U:O2'   | 43:m:14:ARG:NH1  | 2.27                     | 0.67              |
| 45:p:8:THR:O      | 45:p:18:TYR:CA   | 2.39                     | 0.67              |
| 32:a:508:G:N2     | 32:a:522:U:OP1   | 2.26                     | 0.67              |
| 34:d:90:GLU:HG3   | 34:d:165:TRP:HZ2 | 1.60                     | 0.67              |
| 45:p:4:LYS:N      | 45:p:23:ALA:O    | 2.25                     | 0.67              |
| 45:p:9:ARG:HA     | 45:p:17:GLN:O    | 1.94                     | 0.67              |
| 45:p:24:ASP:O     | 45:p:27:THR:OG1  | 2.12                     | 0.67              |
| 1:n:1:C:H42       | 1:n:73:A:H61     | 1.40                     | 0.67              |
| 34:d:115:HIS:O    | 34:d:141:ARG:NH2 | 2.28                     | 0.67              |
| 8:I:2269:A:N3     | 8:I:2693:G:O2'   | 2.26                     | 0.67              |
| 34:d:125:VAL:HG22 | 34:d:127:VAL:H   | 1.60                     | 0.67              |
| 8:I:2249:C:OP2    | 25:S:26:LYS:NZ   | 2.25                     | 0.67              |
| 8:I:3052:C:OP1    | 20:N:42:ARG:NH2  | 2.28                     | 0.67              |
| 8:I:1100:C:O2'    | 8:I:1112:A:N3    | 2.28                     | 0.66              |
| 8:I:1675:G:N2     | 8:I:1793:C:N3    | 2.43                     | 0.66              |
| 8:I:289:A:H62     | 8:I:301:G:H8     | 1.42                     | 0.66              |
| 8:I:1495:G:P      | 53:y:2:SER:CB    | 2.84                     | 0.66              |
| 8:I:1578:C:H2'    | 8:I:1579:A:H8    | 1.61                     | 0.66              |
| 14:G:82:GLN:NE2   | 14:G:83:GLY:O    | 2.28                     | 0.66              |
| 32:a:1315:G:H2'   | 32:a:1316:A:C8   | 2.30                     | 0.66              |
| 8:I:1212:G:C2     | 8:I:1215:A:N7    | 2.63                     | 0.66              |
| 32:a:998:A:H4'    | 32:a:1029:C:H1'  | 1.76                     | 0.66              |
| 44:o:63:ARG:O     | 44:o:67:ILE:HG12 | 1.96                     | 0.66              |
| 8:I:1609:U:H2'    | 8:I:1610:G:H8    | 1.61                     | 0.66              |
| 32:a:221:U:H2'    | 32:a:222:G:H8    | 1.59                     | 0.66              |
| 7:6:36:GLU:OE2    | 13:F:117:ARG:NH1 | 2.29                     | 0.66              |
| 32:a:411:U:H3     | 32:a:430:A:H61   | 1.43                     | 0.66              |
| 43:m:102:ARG:NH2  | 43:m:105:THR:OG1 | 2.29                     | 0.66              |
| 6:4:3:VAL:HG21    | 6:4:35:ARG:HH21  | 1.61                     | 0.66              |
| 32:a:206:A:H2'    | 32:a:207:A:H5'   | 1.77                     | 0.66              |
| 34:d:84:GLU:HA    | 34:d:87:LYS:HE3  | 1.76                     | 0.66              |
| 47:s:39:THR:HA    | 47:s:70:LYS:HG2  | 1.77                     | 0.66              |
| 8:I:749:U:O2'     | 8:I:751:G:N7     | 2.26                     | 0.66              |
| 8:I:1880:G:H5''   | 8:I:1881:U:H5''  | 1.78                     | 0.66              |
| 38:h:79:ARG:NH1   | 38:h:81:SER:O    | 2.29                     | 0.66              |
| 32:a:177:A:N7     | 32:a:178:G:N1    | 2.44                     | 0.65              |
| 32:a:664:G:H2'    | 32:a:665:G:C8    | 2.31                     | 0.65              |
| 34:d:80:LYS:HB3   | 34:d:83:GLU:HB3  | 1.77                     | 0.65              |
| 8:I:2751:G:OP1    | 11:D:165:ARG:NH1 | 2.28                     | 0.65              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 36:f:43:TRP:CG   | 36:f:60:TYR:HD2  | 2.13                     | 0.65              |
| 8:I:934:G:OP1    | 18:L:43:LYS:NZ   | 2.29                     | 0.65              |
| 43:m:80:ARG:HG3  | 47:s:65:SER:HB2  | 1.78                     | 0.65              |
| 8:I:500:G:OP2    | 8:I:2644:A:O2'   | 2.15                     | 0.65              |
| 8:I:1156:A:H61   | 8:I:1256:U:H5    | 1.43                     | 0.65              |
| 34:d:103:ALA:HB1 | 34:d:108:MET:HB3 | 1.77                     | 0.65              |
| 8:I:1547:C:O2'   | 8:I:1653:A:O2'   | 2.14                     | 0.65              |
| 10:C:25:THR:HB   | 10:C:82:ILE:H    | 1.61                     | 0.65              |
| 32:a:1220:C:N4   | 43:m:104:LYS:HG3 | 2.12                     | 0.65              |
| 8:I:9:G:C2       | 8:I:2867:C:N3    | 2.64                     | 0.65              |
| 34:d:94:ASP:HB3  | 34:d:128:PRO:HB3 | 1.79                     | 0.65              |
| 36:f:4:TYR:HD2   | 36:f:72:VAL:HG21 | 1.62                     | 0.65              |
| 51:9:39:GLU:HA   | 51:9:42:SER:HB2  | 1.78                     | 0.65              |
| 32:a:414:C:N4    | 32:a:427:G:O6    | 2.19                     | 0.65              |
| 8:I:1567:U:O2'   | 8:I:1568:A:OP2   | 2.14                     | 0.65              |
| 32:a:460:U:OP1   | 32:a:462:C:N4    | 2.29                     | 0.64              |
| 8:I:1007:G:O2'   | 8:I:1029:A:N6    | 2.30                     | 0.64              |
| 14:G:5:GLY:HA2   | 14:G:70:ARG:HG2  | 1.79                     | 0.64              |
| 29:W:72:LYS:HG2  | 29:W:73:ARG:H    | 1.61                     | 0.64              |
| 32:a:555:C:OP1   | 42:l:12:ARG:NH1  | 2.29                     | 0.64              |
| 33:c:49:ALA:HB1  | 33:c:75:VAL:HG22 | 1.79                     | 0.64              |
| 32:a:1347:A:H2'  | 32:a:1348:G:C8   | 2.32                     | 0.64              |
| 8:I:1948:A:N3    | 8:I:1950:A:O2'   | 2.30                     | 0.64              |
| 32:a:173:G:H21   | 32:a:174:G:H5''  | 1.62                     | 0.64              |
| 32:a:202:G:H2'   | 32:a:203:U:O4'   | 1.97                     | 0.64              |
| 8:I:2365:A:O5'   | 8:I:2411:C:N4    | 2.30                     | 0.64              |
| 13:F:12:LYS:HE3  | 13:F:14:ARG:HH21 | 1.61                     | 0.64              |
| 32:a:296:G:N2    | 32:a:299:A:OP2   | 2.30                     | 0.64              |
| 42:l:1:MET:SD    | 42:l:1:MET:N     | 2.71                     | 0.64              |
| 43:m:102:ARG:HE  | 43:m:104:LYS:HB3 | 1.63                     | 0.64              |
| 7:6:28:LYS:HE3   | 13:F:147:GLU:HB3 | 1.79                     | 0.64              |
| 8:I:974:G:OP2    | 8:I:974:G:N2     | 2.21                     | 0.64              |
| 32:a:1068:G:N2   | 32:a:1071:A:OP2  | 2.31                     | 0.64              |
| 45:p:13:ILE:HG22 | 45:p:14:ARG:HG3  | 1.79                     | 0.64              |
| 8:I:191:G:OP2    | 53:y:26:ARG:NH2  | 2.31                     | 0.64              |
| 8:I:1303:C:H41   | 8:I:1305:U:H4'   | 1.63                     | 0.64              |
| 8:I:2566:A:H2'   | 8:I:2567:A:H8    | 1.62                     | 0.64              |
| 32:a:211:G:H21   | 32:a:216:A:N6    | 1.96                     | 0.64              |
| 32:a:990:U:O2    | 32:a:1035:G:O6   | 2.16                     | 0.64              |
| 34:d:11:LYS:HG3  | 34:d:58:PHE:HE2  | 1.63                     | 0.64              |
| 5:3:19:THR:HG22  | 5:3:20:GLY:H     | 1.63                     | 0.63              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 6:4:22:ARG:NH1    | 6:4:36:GLN:O      | 2.32                     | 0.63              |
| 8:I:1215:A:O2'    | 8:I:1232:A:N6     | 2.31                     | 0.63              |
| 13:F:12:LYS:HD3   | 13:F:13:GLU:H     | 1.61                     | 0.63              |
| 32:a:182:C:H2'    | 32:a:183:A:C8     | 2.32                     | 0.63              |
| 42:l:56:LYS:HE2   | 42:l:60:GLN:HA    | 1.81                     | 0.63              |
| 29:W:45:PHE:HB3   | 29:W:80:ILE:HG12  | 1.78                     | 0.63              |
| 8:I:2914:C:H42    | 8:I:2969:G:H1     | 1.46                     | 0.63              |
| 32:a:1102:A:N1    | 33:c:177:THR:OG1  | 2.31                     | 0.63              |
| 14:G:95:TYR:HB2   | 14:G:108:LEU:HD12 | 1.81                     | 0.63              |
| 41:k:33:ILE:HG23  | 41:k:42:VAL:HG22  | 1.81                     | 0.63              |
| 45:p:38:GLY:HA3   | 45:p:50:GLU:O     | 1.99                     | 0.63              |
| 51:9:20:TYR:HA    | 51:9:24:ARG:HD3   | 1.79                     | 0.63              |
| 32:a:361:G:N2     | 32:a:364:U:OP2    | 2.31                     | 0.63              |
| 32:a:598:A:OP1    | 32:a:622:G:N2     | 2.27                     | 0.63              |
| 35:e:191:PRO:HB2  | 35:e:192:ILE:HG13 | 1.81                     | 0.63              |
| 43:m:86:CYS:SG    | 47:s:69:HIS:ND1   | 2.71                     | 0.63              |
| 47:s:48:THR:HA    | 47:s:60:VAL:O     | 1.98                     | 0.63              |
| 1:n:51:U:H3       | 1:n:65:G:H1       | 1.47                     | 0.63              |
| 35:e:188:ARG:NH2  | 38:h:43:GLU:OE1   | 2.31                     | 0.63              |
| 8:I:2385:G:H1'    | 8:I:2386:U:H5     | 1.64                     | 0.63              |
| 33:c:203:TYR:OH   | 33:c:206:ASP:OD1  | 2.16                     | 0.63              |
| 15:H:27:ARG:NH1   | 53:y:60:ASP:OD2   | 2.32                     | 0.63              |
| 40:j:52:ILE:HG22  | 40:j:62:ARG:HD3   | 1.80                     | 0.63              |
| 10:C:156:ALA:HB2  | 10:C:163:ILE:HG23 | 1.81                     | 0.62              |
| 43:m:17:VAL:O     | 43:m:20:THR:OG1   | 2.14                     | 0.62              |
| 11:D:26:VAL:HG21  | 11:D:193:LEU:HD23 | 1.81                     | 0.62              |
| 32:a:1305:U:OP2   | 47:s:6:LYS:HB3    | 1.99                     | 0.62              |
| 42:l:68:PRO:HB2   | 42:l:117:TYR:HE1  | 1.63                     | 0.62              |
| 8:I:2022:C:H5''   | 10:C:225:VAL:HG11 | 1.80                     | 0.62              |
| 40:j:13:TYR:CG    | 51:9:95:GLY:HA2   | 2.34                     | 0.62              |
| 42:l:3:THR:O      | 42:l:6:GLN:N      | 2.32                     | 0.62              |
| 32:a:1167:G:H2'   | 32:a:1168:A:H8    | 1.65                     | 0.62              |
| 34:d:94:ASP:OD1   | 34:d:106:ARG:NH2  | 2.33                     | 0.62              |
| 20:N:100:ILE:HG22 | 20:N:101:GLU:H    | 1.63                     | 0.62              |
| 32:a:22:C:OP1     | 35:e:166:ASN:ND2  | 2.29                     | 0.62              |
| 8:I:338:G:N2      | 8:I:338:G:OP2     | 2.33                     | 0.62              |
| 32:a:492:C:H2'    | 32:a:493:A:C8     | 2.34                     | 0.62              |
| 45:p:34:ILE:HB    | 45:p:59:TRP:CH2   | 2.34                     | 0.62              |
| 8:I:620:C:N4      | 8:I:2258:A:N3     | 2.47                     | 0.62              |
| 32:a:436:U:O2'    | 34:d:117:HIS:NE2  | 2.29                     | 0.62              |
| 44:o:74:ASP:OD1   | 44:o:75:VAL:N     | 2.32                     | 0.62              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 49:x:26:VAL:CG1   | 49:x:27:GLN:OE1   | 2.48                     | 0.62              |
| 51:9:28:LYS:HD2   | 51:9:48:LEU:HB3   | 1.81                     | 0.62              |
| 29:W:15:ASP:OD1   | 29:W:16:SER:N     | 2.33                     | 0.62              |
| 53:y:61:ARG:NH1   | 53:y:62:ASP:OD1   | 2.33                     | 0.62              |
| 8:I:1557:G:N2     | 8:I:1648:A:H62    | 1.98                     | 0.62              |
| 32:a:379:G:N2     | 32:a:382:A:OP2    | 2.31                     | 0.62              |
| 8:I:1864:U:O4     | 8:I:1865:A:N6     | 2.33                     | 0.61              |
| 32:a:413:A:H8     | 32:a:429:A:H61    | 1.47                     | 0.61              |
| 34:d:80:LYS:HG2   | 34:d:83:GLU:H     | 1.65                     | 0.61              |
| 8:I:2363:A:O2'    | 8:I:2410:A:N6     | 2.33                     | 0.61              |
| 16:J:36:LEU:HD11  | 16:J:122:LEU:HB2  | 1.83                     | 0.61              |
| 32:a:808:C:H5     | 32:a:1522:G:H1    | 1.47                     | 0.61              |
| 42:l:71:GLY:O     | 42:l:99:ARG:NH1   | 2.33                     | 0.61              |
| 21:O:42:ILE:HD12  | 21:O:111:LEU:HD12 | 1.81                     | 0.61              |
| 28:V:155:LEU:HB3  | 28:V:177:VAL:HB   | 1.82                     | 0.61              |
| 34:d:60:TYR:OH    | 34:d:183:ARG:NH1  | 2.33                     | 0.61              |
| 11:D:42:PRO:HA    | 11:D:46:GLY:HA2   | 1.83                     | 0.61              |
| 32:a:1149:A:N7    | 32:a:1172:A:N6    | 2.49                     | 0.61              |
| 11:D:185:VAL:HG22 | 11:D:192:LEU:HD23 | 1.81                     | 0.61              |
| 42:l:69:GLY:HA3   | 42:l:107:VAL:HG21 | 1.81                     | 0.61              |
| 52:b:11:LEU:HD12  | 52:b:12:ARG:HE    | 1.64                     | 0.61              |
| 8:I:904:G:H4'     | 8:I:905:G:H5'     | 1.83                     | 0.61              |
| 8:I:2343:G:H1     | 8:I:2420:U:H3     | 1.47                     | 0.61              |
| 32:a:829:U:H2'    | 32:a:830:U:O4'    | 2.01                     | 0.61              |
| 33:c:61:ASP:HA    | 33:c:96:LYS:HD3   | 1.80                     | 0.61              |
| 43:m:14:ARG:HE    | 43:m:41:ARG:HB3   | 1.65                     | 0.61              |
| 51:9:87:LEU:HD22  | 51:9:92:HIS:HB2   | 1.83                     | 0.61              |
| 5:3:12:LYS:NZ     | 8:I:251:C:O2      | 2.33                     | 0.61              |
| 8:I:1185:G:HO2'   | 8:I:1215:A:HO2'   | 1.46                     | 0.61              |
| 8:I:3028:A:H1'    | 8:I:3127:A:H2     | 1.64                     | 0.61              |
| 8:I:856:A:OP1     | 8:I:1669:A:O2'    | 2.19                     | 0.61              |
| 8:I:1303:C:N4     | 8:I:1305:U:H4'    | 2.16                     | 0.61              |
| 8:I:2387:U:H2'    | 8:I:2388:G:C8     | 2.35                     | 0.61              |
| 13:F:107:LEU:O    | 13:F:111:THR:HG22 | 1.99                     | 0.61              |
| 32:a:931:A:N3     | 32:a:1369:U:O2'   | 2.31                     | 0.61              |
| 45:p:6:LYS:NZ     | 45:p:27:THR:O     | 2.34                     | 0.61              |
| 5:3:31:HIS:NE2    | 8:I:2659:G:N7     | 2.49                     | 0.60              |
| 8:I:844:A:O2'     | 8:I:845:A:OP1     | 2.18                     | 0.60              |
| 8:I:2343:G:N1     | 8:I:2420:U:N3     | 2.48                     | 0.60              |
| 28:V:26:ARG:NH1   | 28:V:91:GLN:O     | 2.34                     | 0.60              |
| 45:p:8:THR:H      | 45:p:19:ARG:H     | 1.48                     | 0.60              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 32:a:916:A:O2'    | 32:a:1392:C:OP2   | 2.18                     | 0.60              |
| 37:g:78:ARG:HE    | 37:g:153:HIS:HB2  | 1.65                     | 0.60              |
| 40:j:11:LYS:HG2   | 40:j:71:LYS:HD3   | 1.84                     | 0.60              |
| 8:I:2225:C:H2'    | 8:I:2226:A:H8     | 1.65                     | 0.60              |
| 29:W:18:ALA:O     | 29:W:20:ARG:NH1   | 2.33                     | 0.60              |
| 32:a:425:U:OP1    | 34:d:13:ARG:NH2   | 2.35                     | 0.60              |
| 32:a:492:C:H2'    | 32:a:493:A:H8     | 1.67                     | 0.60              |
| 32:a:830:U:H3     | 32:a:840:G:H1     | 1.47                     | 0.60              |
| 8:I:1494:C:O2'    | 8:I:2043:A:N3     | 2.33                     | 0.60              |
| 14:G:43:VAL:HG22  | 14:G:53:VAL:HG13  | 1.82                     | 0.60              |
| 32:a:1390:C:OP2   | 35:e:60:ARG:NH2   | 2.25                     | 0.60              |
| 45:p:33:ALA:HB3   | 45:p:36:VAL:HG22  | 1.84                     | 0.60              |
| 1:n:21:U:H2'      | 1:n:22:A:H4'      | 1.83                     | 0.60              |
| 32:a:103:A:C2     | 48:t:10:ARG:HD3   | 2.37                     | 0.60              |
| 32:a:135:G:O2'    | 46:q:44:GLY:O     | 2.15                     | 0.60              |
| 32:a:375:G:H4'    | 45:p:6:LYS:HA     | 1.84                     | 0.60              |
| 52:b:44:ARG:O     | 52:b:45:ARG:NH1   | 2.25                     | 0.60              |
| 8:I:221:A:N3      | 8:I:236:U:O2'     | 2.30                     | 0.60              |
| 28:V:150:GLU:HB2  | 28:V:153:THR:HG23 | 1.83                     | 0.60              |
| 34:d:141:ARG:HG2  | 34:d:143:LYS:H    | 1.66                     | 0.60              |
| 32:a:1170:G:OP1   | 39:i:116:ARG:NH2  | 2.35                     | 0.60              |
| 8:I:446:A:N7      | 8:I:447:G:N2      | 2.50                     | 0.59              |
| 32:a:108:G:H1'    | 32:a:353:G:H5'    | 1.84                     | 0.59              |
| 29:W:47:PRO:HG3   | 29:W:53:ARG:HG2   | 1.84                     | 0.59              |
| 32:a:428:U:OP1    | 34:d:9:THR:OG1    | 2.17                     | 0.59              |
| 32:a:470:U:H4'    | 32:a:471:U:OP1    | 2.00                     | 0.59              |
| 32:a:1272:A:OP1   | 40:j:9:ARG:NH1    | 2.35                     | 0.59              |
| 8:I:193:A:H2'     | 8:I:194:G:C8      | 2.37                     | 0.59              |
| 8:I:2572:C:H1'    | 21:O:22:LYS:HD2   | 1.83                     | 0.59              |
| 32:a:259:G:OP1    | 48:t:75:LYS:NZ    | 2.35                     | 0.59              |
| 49:x:26:VAL:HG12  | 49:x:27:GLN:OE1   | 2.02                     | 0.59              |
| 8:I:2387:U:O2'    | 8:I:2388:G:O4'    | 2.16                     | 0.59              |
| 23:Q:122:ASN:OD1  | 23:Q:123:ALA:N    | 2.36                     | 0.59              |
| 32:a:245:A:H62    | 32:a:280:G:N2     | 2.00                     | 0.59              |
| 32:a:997:G:H2'    | 32:a:998:A:C8     | 2.38                     | 0.59              |
| 8:I:2372:A:N1     | 8:I:2393:G:O2'    | 2.30                     | 0.59              |
| 32:a:105:C:H4'    | 45:p:26:ARG:HG2   | 1.85                     | 0.59              |
| 38:h:50:ARG:HB2   | 38:h:61:VAL:HG22  | 1.82                     | 0.59              |
| 39:i:32:ARG:HB2   | 39:i:102:LEU:HD12 | 1.84                     | 0.59              |
| 46:q:70:MET:HB3   | 46:q:73:THR:HG22  | 1.83                     | 0.59              |
| 28:V:126:THR:HG22 | 28:V:176:VAL:HA   | 1.83                     | 0.59              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 32:a:1420:C:H2'   | 32:a:1421:A:H8    | 1.67                     | 0.59              |
| 34:d:15:LEU:HD13  | 34:d:19:LEU:HD21  | 1.85                     | 0.59              |
| 8:I:1565:G:H2'    | 8:I:1566:G:H8     | 1.67                     | 0.59              |
| 13:F:112:SER:C    | 13:F:113:ILE:HD13 | 2.28                     | 0.59              |
| 18:L:77:VAL:HG21  | 18:L:97:LEU:HD13  | 1.84                     | 0.59              |
| 38:h:106:ILE:HG22 | 38:h:127:VAL:HA   | 1.85                     | 0.59              |
| 41:k:98:GLY:O     | 41:k:103:ARG:NH2  | 2.34                     | 0.59              |
| 8:I:842:G:H21     | 8:I:847:A:H62     | 1.51                     | 0.59              |
| 35:e:131:SER:HB2  | 35:e:132:PRO:HD3  | 1.84                     | 0.59              |
| 38:h:46:ILE:HG22  | 38:h:74:ILE:HD11  | 1.83                     | 0.59              |
| 8:I:1184:G:O2'    | 8:I:1213:A:N6     | 2.34                     | 0.59              |
| 15:H:9:VAL:HB     | 15:H:12:LEU:HB2   | 1.85                     | 0.59              |
| 32:a:998:A:H3'    | 32:a:999:C:H6     | 1.68                     | 0.59              |
| 32:a:1220:C:H41   | 43:m:104:LYS:HG3  | 1.67                     | 0.59              |
| 36:f:4:TYR:CD2    | 36:f:72:VAL:HG21  | 2.37                     | 0.59              |
| 46:q:78:LEU:HD23  | 46:q:95:LYS:HB2   | 1.84                     | 0.59              |
| 8:I:64:G:H2'      | 8:I:65:G:H8       | 1.67                     | 0.59              |
| 8:I:616:A:H2      | 8:I:2281:C:H5'    | 1.67                     | 0.59              |
| 8:I:1164:U:OP1    | 14:G:60:ARG:NH1   | 2.35                     | 0.59              |
| 8:I:1571:A:OP2    | 8:I:1632:G:N2     | 2.32                     | 0.59              |
| 8:I:2032:U:OP2    | 10:C:272:ARG:NH2  | 2.34                     | 0.59              |
| 14:G:41:ILE:HD13  | 14:G:55:ARG:HB2   | 1.84                     | 0.59              |
| 32:a:1089:C:N4    | 32:a:1090:G:O6    | 2.36                     | 0.59              |
| 15:H:42:GLY:HA2   | 15:H:45:LYS:HD3   | 1.84                     | 0.58              |
| 43:m:29:ARG:NH1   | 43:m:32:GLU:OE1   | 2.35                     | 0.58              |
| 8:I:381:A:N3      | 8:I:402:C:O2'     | 2.29                     | 0.58              |
| 8:I:1176:G:O2'    | 8:I:1239:A:N6     | 2.36                     | 0.58              |
| 38:h:11:LEU:HD22  | 38:h:77:LEU:HD22  | 1.84                     | 0.58              |
| 41:k:56:SER:OG    | 41:k:76:ALA:O     | 2.21                     | 0.58              |
| 32:a:466:C:H2'    | 32:a:467:G:C8     | 2.38                     | 0.58              |
| 32:a:682:G:OP2    | 41:k:38:ASN:ND2   | 2.36                     | 0.58              |
| 34:d:116:GLY:HA2  | 34:d:119:ASN:HD21 | 1.68                     | 0.58              |
| 8:I:358:U:N3      | 8:I:363:A:N1      | 2.51                     | 0.58              |
| 17:K:110:ARG:NH2  | 17:K:112:MET:SD   | 2.74                     | 0.58              |
| 19:M:54:ILE:HG13  | 19:M:121:ALA:HB2  | 1.86                     | 0.58              |
| 32:a:704:G:H2'    | 32:a:705:G:C8     | 2.37                     | 0.58              |
| 32:a:530:A:H2'    | 32:a:531:G:H8     | 1.68                     | 0.58              |
| 32:a:1001:C:H2'   | 32:a:1002:G:C8    | 2.39                     | 0.58              |
| 32:a:1241:C:O2'   | 39:i:92:GLY:N     | 2.36                     | 0.58              |
| 8:I:2341:C:H2'    | 8:I:2342:G:C8     | 2.39                     | 0.58              |
| 32:a:118:C:OP1    | 32:a:310:C:O2'    | 2.21                     | 0.58              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 42:l:35:THR:HA    | 42:l:76:GLU:HA    | 1.84                     | 0.58              |
| 32:a:193:U:P      | 46:q:127:ARG:HH12 | 2.27                     | 0.58              |
| 32:a:1141:C:H2'   | 32:a:1142:G:C8    | 2.38                     | 0.58              |
| 40:j:11:LYS:HE3   | 40:j:97:ASP:HB3   | 1.86                     | 0.58              |
| 47:s:45:ILE:HG23  | 47:s:63:THR:HA    | 1.86                     | 0.58              |
| 8:I:1586:G:H2'    | 8:I:1587:A:H8     | 1.69                     | 0.58              |
| 10:C:124:ASP:O    | 10:C:129:ASN:ND2  | 2.26                     | 0.58              |
| 3:0:28:VAL:HG13   | 3:0:38:LYS:HG2    | 1.85                     | 0.58              |
| 47:s:15:LEU:HD13  | 47:s:33:THR:HG21  | 1.86                     | 0.58              |
| 13:F:68:THR:HG22  | 13:F:98:LEU:HD11  | 1.86                     | 0.58              |
| 32:a:374:U:OP1    | 45:p:69:PRO:HB3   | 2.04                     | 0.58              |
| 32:a:665:G:H2'    | 32:a:666:A:C8     | 2.39                     | 0.58              |
| 32:a:1212:G:OP2   | 51:9:53:ARG:NH1   | 2.36                     | 0.58              |
| 51:9:39:GLU:OE2   | 51:9:40:GLN:NE2   | 2.37                     | 0.58              |
| 8:I:2769:A:C8     | 14:G:176:LYS:HB2  | 2.39                     | 0.57              |
| 8:I:2897:G:O2'    | 14:G:176:LYS:NZ   | 2.34                     | 0.57              |
| 28:V:144:VAL:HG21 | 28:V:155:LEU:HD21 | 1.85                     | 0.57              |
| 38:h:48:ASP:OD1   | 38:h:49:PHE:N     | 2.36                     | 0.57              |
| 45:p:49:ILE:HD13  | 45:p:73:LEU:HD13  | 1.86                     | 0.57              |
| 53:y:5:CYS:SG     | 53:y:52:SER:OG    | 2.59                     | 0.57              |
| 6:4:27:CYS:SG     | 6:4:28:SER:N      | 2.77                     | 0.57              |
| 2:1:60:LYS:NZ     | 8:I:2743:G:OP2    | 2.35                     | 0.57              |
| 8:I:478:G:C8      | 8:I:2651:G:H4'    | 2.39                     | 0.57              |
| 12:E:162:VAL:HG12 | 12:E:164:ILE:HG12 | 1.86                     | 0.57              |
| 32:a:103:A:H2     | 48:t:10:ARG:HD3   | 1.69                     | 0.57              |
| 32:a:1490:G:H1'   | 32:a:1511:A:H2    | 1.67                     | 0.57              |
| 37:g:113:GLU:OE2  | 37:g:122:ASN:ND2  | 2.38                     | 0.57              |
| 8:I:2013:U:OP2    | 8:I:2018:A:N6     | 2.38                     | 0.57              |
| 8:I:2309:C:H5     | 8:I:2675:G:H1     | 1.51                     | 0.57              |
| 8:I:2364:G:HO2'   | 8:I:2365:A:H8     | 1.51                     | 0.57              |
| 12:E:13:VAL:HG22  | 12:E:14:LYS:HD2   | 1.86                     | 0.57              |
| 21:O:46:LEU:HD13  | 21:O:56:ALA:HB3   | 1.85                     | 0.57              |
| 32:a:869:A:H1'    | 38:h:12:THR:HG21  | 1.85                     | 0.57              |
| 40:j:58:TYR:CE1   | 40:j:59:LYS:HE2   | 2.40                     | 0.57              |
| 8:I:2388:G:N2     | 8:I:2389:G:O6     | 2.37                     | 0.57              |
| 12:E:13:VAL:HG11  | 12:E:132:ALA:H    | 1.70                     | 0.57              |
| 13:F:72:PRO:HB2   | 13:F:94:VAL:HG22  | 1.87                     | 0.57              |
| 28:V:31:ILE:HD11  | 28:V:47:LEU:HD13  | 1.84                     | 0.57              |
| 8:I:2359:U:OP2    | 8:I:2406:A:N6     | 2.38                     | 0.57              |
| 14:G:55:ARG:HD2   | 14:G:56:PRO:HD2   | 1.87                     | 0.57              |
| 8:I:1098:G:H2'    | 8:I:1099:U:C6     | 2.39                     | 0.57              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 32:a:224:G:H1'   | 46:q:47:HIS:CG   | 2.40                     | 0.57              |
| 32:a:504:A:H2'   | 32:a:505:C:C6    | 2.40                     | 0.57              |
| 32:a:1111:U:H2'  | 32:a:1112:C:H6   | 1.70                     | 0.57              |
| 43:m:66:VAL:HG22 | 43:m:67:GLU:H    | 1.70                     | 0.57              |
| 47:s:36:ARG:NH2  | 47:s:75:ALA:O    | 2.38                     | 0.57              |
| 32:a:1208:U:OP1  | 51:9:5:SER:OG    | 2.18                     | 0.57              |
| 36:f:52:ILE:C    | 36:f:54:LYS:H    | 2.13                     | 0.57              |
| 8:I:2707:A:H4'   | 19:M:56:ARG:HD3  | 1.86                     | 0.56              |
| 51:9:23:ARG:HB2  | 51:9:27:LEU:HB2  | 1.87                     | 0.56              |
| 8:I:1609:U:H2'   | 8:I:1610:G:C8    | 2.40                     | 0.56              |
| 8:I:2513:C:O2'   | 19:M:84:GLY:O    | 2.18                     | 0.56              |
| 32:a:503:U:H2'   | 32:a:504:A:C8    | 2.40                     | 0.56              |
| 32:a:529:U:H2'   | 32:a:530:A:H8    | 1.71                     | 0.56              |
| 43:m:97:PRO:HB2  | 43:m:101:GLN:HG3 | 1.87                     | 0.56              |
| 8:I:904:G:H5'    | 8:I:906:G:H1'    | 1.87                     | 0.56              |
| 8:I:1235:G:H2'   | 8:I:1236:G:H8    | 1.70                     | 0.56              |
| 18:L:71:ARG:NH1  | 18:L:73:GLU:OE2  | 2.39                     | 0.56              |
| 19:M:35:GLN:OE1  | 19:M:130:ARG:NH2 | 2.34                     | 0.56              |
| 19:M:67:ASN:ND2  | 19:M:105:GLU:OE2 | 2.34                     | 0.56              |
| 32:a:413:A:H5''  | 32:a:427:G:H22   | 1.69                     | 0.56              |
| 32:a:450:A:N6    | 32:a:472:G:OP2   | 2.38                     | 0.56              |
| 32:a:455:C:H2'   | 32:a:456:C:H6    | 1.71                     | 0.56              |
| 32:a:832:C:H2'   | 32:a:835:C:C4    | 2.41                     | 0.56              |
| 32:a:1027:G:H2'  | 32:a:1028:C:C6   | 2.40                     | 0.56              |
| 34:d:3:ARG:HH12  | 34:d:110:ARG:HB2 | 1.70                     | 0.56              |
| 38:h:97:VAL:HG12 | 38:h:98:LEU:HG   | 1.86                     | 0.56              |
| 45:p:8:THR:OG1   | 45:p:29:ARG:O    | 2.23                     | 0.56              |
| 49:x:26:VAL:C    | 49:x:28:ARG:N    | 2.64                     | 0.56              |
| 52:b:11:LEU:HB2  | 52:b:23:THR:HG23 | 1.86                     | 0.56              |
| 52:b:11:LEU:HD11 | 52:b:12:ARG:HH21 | 1.70                     | 0.56              |
| 8:I:9:G:N1       | 8:I:2867:C:C2    | 2.73                     | 0.56              |
| 8:I:2386:U:O2'   | 8:I:2387:U:O4'   | 2.24                     | 0.56              |
| 11:D:94:GLU:OE1  | 11:D:94:GLU:N    | 2.36                     | 0.56              |
| 32:a:530:A:H2'   | 32:a:531:G:C8    | 2.41                     | 0.56              |
| 32:a:566:G:O2'   | 32:a:812:G:OP2   | 2.21                     | 0.56              |
| 8:I:1621:G:H2'   | 8:I:1622:G:C8    | 2.40                     | 0.56              |
| 23:Q:77:ASN:OD1  | 23:Q:78:ARG:N    | 2.39                     | 0.56              |
| 32:a:390:G:H5''  | 45:p:9:ARG:HE    | 1.69                     | 0.56              |
| 42:l:68:PRO:HB2  | 42:l:117:TYR:CE1 | 2.41                     | 0.56              |
| 1:n:44:A:H2'     | 1:n:45:A:H8      | 1.70                     | 0.56              |
| 7:6:1:MET:SD     | 7:6:1:MET:N      | 2.75                     | 0.56              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 8:I:370:G:H1      | 8:I:434:C:H42     | 1.54                     | 0.56              |
| 8:I:829:G:O2'     | 8:I:1867:A:N3     | 2.32                     | 0.56              |
| 8:I:842:G:N2      | 8:I:847:A:H62     | 2.03                     | 0.56              |
| 47:s:46:GLY:N     | 47:s:62:VAL:O     | 2.28                     | 0.56              |
| 8:I:907:G:H5'     | 10:C:48:ARG:HH21  | 1.71                     | 0.56              |
| 8:I:1549:C:OP2    | 8:I:1551:C:N4     | 2.39                     | 0.56              |
| 8:I:2816:G:N2     | 11:D:135:GLN:OE1  | 2.32                     | 0.56              |
| 29:W:75:ARG:O     | 29:W:77:THR:N     | 2.36                     | 0.56              |
| 32:a:134:U:H2'    | 32:a:135:G:C8     | 2.38                     | 0.56              |
| 32:a:940:G:H5''   | 43:m:109:THR:HB   | 1.88                     | 0.56              |
| 32:a:1109:U:OP1   | 39:i:32:ARG:NH1   | 2.38                     | 0.56              |
| 43:m:88:GLN:HB2   | 47:s:69:HIS:HE1   | 1.71                     | 0.56              |
| 49:x:27:GLN:O     | 49:x:31:LEU:HD22  | 2.06                     | 0.56              |
| 8:I:1193:C:H41    | 8:I:1198:A:H8     | 1.52                     | 0.56              |
| 8:I:1737:G:N2     | 10:C:99:ASP:O     | 2.39                     | 0.56              |
| 13:F:87:ARG:HA    | 13:F:87:ARG:NH1   | 2.20                     | 0.56              |
| 32:a:1350:U:OP1   | 51:9:75:ARG:HB3   | 2.05                     | 0.56              |
| 33:c:28:TYR:OH    | 51:9:94:PRO:O     | 2.23                     | 0.56              |
| 34:d:11:LYS:HG3   | 34:d:58:PHE:CE2   | 2.41                     | 0.56              |
| 50:r:16:ASN:HD22  | 50:r:19:ASP:HB2   | 1.69                     | 0.56              |
| 36:f:7:MET:HE2    | 50:r:70:MET:HG2   | 1.88                     | 0.56              |
| 44:o:33:THR:HG22  | 44:o:63:ARG:HH11  | 1.71                     | 0.56              |
| 47:s:32:LYS:HB3   | 47:s:57:HIS:ND1   | 2.20                     | 0.56              |
| 8:I:9:G:C2        | 8:I:2867:C:C2     | 2.94                     | 0.56              |
| 32:a:372:A:H61    | 32:a:390:G:H1'    | 1.70                     | 0.56              |
| 32:a:603:U:OP1    | 34:d:76:ARG:NH1   | 2.39                     | 0.56              |
| 38:h:113:LEU:HD13 | 38:h:117:GLN:HB3  | 1.88                     | 0.56              |
| 45:p:38:GLY:CA    | 45:p:50:GLU:O     | 2.54                     | 0.56              |
| 46:q:76:VAL:HG11  | 46:q:114:LEU:HD11 | 1.86                     | 0.56              |
| 8:I:293:G:H2'     | 8:I:294:G:C8      | 2.41                     | 0.55              |
| 43:m:10:PRO:HD2   | 43:m:45:THR:HG21  | 1.87                     | 0.55              |
| 43:m:34:LEU:HD22  | 43:m:39:ILE:HB    | 1.88                     | 0.55              |
| 8:I:911:A:N1      | 10:C:226:MET:HE2  | 2.21                     | 0.55              |
| 32:a:390:G:H5''   | 45:p:9:ARG:NE     | 2.21                     | 0.55              |
| 32:a:705:G:H2'    | 32:a:706:A:C8     | 2.42                     | 0.55              |
| 32:a:1131:G:H4'   | 32:a:1132:G:H5'   | 1.89                     | 0.55              |
| 30:Y:22:LEU:HB2   | 30:Y:57:ILE:HG21  | 1.88                     | 0.55              |
| 34:d:104:ARG:NH1  | 34:d:159:GLU:OE2  | 2.39                     | 0.55              |
| 35:e:188:ARG:HD2  | 38:h:45:TYR:HE2   | 1.71                     | 0.55              |
| 35:e:192:ILE:O    | 35:e:194:ASP:N    | 2.40                     | 0.55              |
| 8:I:1198:A:N1     | 8:I:1225:A:H4'    | 2.22                     | 0.55              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 32:a:449:G:H5''  | 32:a:450:A:H2'   | 1.89                     | 0.55              |
| 32:a:515:G:H2'   | 32:a:516:C:C6    | 2.42                     | 0.55              |
| 8:I:1707:A:H2'   | 8:I:1708:A:H8    | 1.71                     | 0.55              |
| 32:a:227:A:O2'   | 45:p:62:VAL:HG13 | 2.06                     | 0.55              |
| 8:I:443:C:H2'    | 8:I:444:C:C6     | 2.42                     | 0.55              |
| 43:m:14:ARG:HG2  | 43:m:42:ASP:HA   | 1.86                     | 0.55              |
| 45:p:34:ILE:HB   | 45:p:59:TRP:CZ2  | 2.42                     | 0.55              |
| 29:W:49:VAL:HB   | 29:W:82:GLY:HA2  | 1.89                     | 0.55              |
| 32:a:1364:G:H5'' | 39:i:96:GLN:HE22 | 1.72                     | 0.55              |
| 36:f:41:ASP:HB2  | 36:f:62:VAL:HG22 | 1.88                     | 0.55              |
| 8:I:192:A:N3     | 8:I:808:G:O2'    | 2.37                     | 0.55              |
| 32:a:968:A:N1    | 32:a:1359:C:O2'  | 2.36                     | 0.55              |
| 52:b:42:ILE:O    | 52:b:43:LEU:HG   | 2.07                     | 0.55              |
| 8:I:2617:G:H2'   | 8:I:2618:U:C6    | 2.42                     | 0.55              |
| 14:G:150:ARG:HG3 | 14:G:151:ARG:H   | 1.71                     | 0.55              |
| 49:x:27:GLN:CG   | 49:x:31:LEU:HD11 | 2.36                     | 0.55              |
| 8:I:609:U:H2'    | 8:I:610:G:C8     | 2.42                     | 0.55              |
| 8:I:2354:A:OP2   | 8:I:2402:G:N2    | 2.39                     | 0.55              |
| 13:F:19:ILE:HD12 | 13:F:179:ALA:HB1 | 1.88                     | 0.55              |
| 20:N:103:ARG:NH2 | 20:N:106:ASP:OD2 | 2.38                     | 0.55              |
| 32:a:503:U:H2'   | 32:a:504:A:H8    | 1.72                     | 0.55              |
| 39:i:62:ASN:OD1  | 39:i:65:HIS:HB2  | 2.07                     | 0.55              |
| 41:k:41:ILE:HA   | 41:k:57:SER:HB3  | 1.87                     | 0.55              |
| 8:I:746:G:H1'    | 8:I:749:U:H5     | 1.72                     | 0.54              |
| 8:I:2338:G:H2'   | 8:I:2339:U:C6    | 2.41                     | 0.54              |
| 32:a:609:C:O2    | 45:p:12:LYS:NZ   | 2.40                     | 0.54              |
| 32:a:1243:A:H2'  | 32:a:1244:A:C8   | 2.42                     | 0.54              |
| 1:n:76:C:H5'     | 1:n:77:A:H5'     | 1.88                     | 0.54              |
| 8:I:356:A:H2'    | 8:I:357:G:C8     | 2.42                     | 0.54              |
| 8:I:1185:G:N2    | 8:I:1232:A:OP2   | 2.41                     | 0.54              |
| 8:I:1212:G:C2    | 8:I:1215:A:C5    | 2.96                     | 0.54              |
| 8:I:2100:A:N6    | 8:I:2113:G:O2'   | 2.40                     | 0.54              |
| 24:R:24:LYS:HG2  | 24:R:97:VAL:HG22 | 1.90                     | 0.54              |
| 33:c:110:SER:O   | 33:c:204:LYS:NZ  | 2.39                     | 0.54              |
| 36:f:5:GLU:OE2   | 50:r:29:LYS:NZ   | 2.33                     | 0.54              |
| 40:j:61:SER:O    | 40:j:62:ARG:NH1  | 2.41                     | 0.54              |
| 43:m:65:LYS:NZ   | 43:m:73:GLU:OE2  | 2.26                     | 0.54              |
| 43:m:84:ILE:HG12 | 47:s:66:MET:SD   | 2.48                     | 0.54              |
| 8:I:689:G:H22    | 18:L:34:ARG:NE   | 2.05                     | 0.54              |
| 8:I:843:U:C4     | 44:o:88:ARG:HB3  | 2.41                     | 0.54              |
| 8:I:2342:G:H3'   | 8:I:2343:G:H5''  | 1.88                     | 0.54              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 8:I:2541:G:H5'    | 13:F:129:PHE:HB2  | 1.89                     | 0.54              |
| 19:M:86:GLY:O     | 19:M:87:LYS:HB2   | 2.05                     | 0.54              |
| 26:T:52:VAL:HG11  | 26:T:93:ILE:HG22  | 1.89                     | 0.54              |
| 32:a:1288:C:H5'   | 43:m:14:ARG:HH11  | 1.72                     | 0.54              |
| 45:p:72:LYS:HE3   | 45:p:76:ILE:HD11  | 1.88                     | 0.54              |
| 8:I:2358:G:N2     | 8:I:2415:U:O2     | 2.41                     | 0.54              |
| 12:E:13:VAL:HG22  | 12:E:14:LYS:H     | 1.73                     | 0.54              |
| 28:V:126:THR:HG21 | 28:V:174:LEU:HD21 | 1.88                     | 0.54              |
| 33:c:119:VAL:O    | 33:c:123:LEU:HG   | 2.07                     | 0.54              |
| 8:I:282:C:H2'     | 8:I:283:A:H8      | 1.71                     | 0.54              |
| 27:U:101:ASN:O    | 27:U:101:ASN:ND2  | 2.41                     | 0.54              |
| 32:a:86:G:H2'     | 32:a:87:A:H8      | 1.72                     | 0.54              |
| 35:e:188:ARG:HD2  | 38:h:45:TYR:CE2   | 2.42                     | 0.54              |
| 36:f:12:PRO:HB3   | 36:f:45:LYS:HD2   | 1.90                     | 0.54              |
| 16:J:69:LEU:HD23  | 16:J:89:ILE:HG22  | 1.88                     | 0.54              |
| 32:a:543:U:H2'    | 32:a:544:G:H8     | 1.73                     | 0.54              |
| 40:j:52:ILE:CG2   | 40:j:62:ARG:HD3   | 2.37                     | 0.54              |
| 49:x:27:GLN:HG3   | 49:x:31:LEU:HD11  | 1.89                     | 0.54              |
| 4:2:40:LYS:HD3    | 4:2:42:ARG:HH11   | 1.73                     | 0.54              |
| 28:V:122:VAL:HG22 | 28:V:179:VAL:HG22 | 1.90                     | 0.54              |
| 32:a:68:A:O4'     | 32:a:211:G:O2'    | 2.22                     | 0.54              |
| 32:a:143:G:H2'    | 32:a:144:G:C8     | 2.42                     | 0.54              |
| 32:a:423:G:H2'    | 32:a:424:G:C8     | 2.43                     | 0.54              |
| 32:a:504:A:H2'    | 32:a:505:C:H6     | 1.73                     | 0.54              |
| 32:a:806:A:N1     | 32:a:1502:C:O2'   | 2.36                     | 0.54              |
| 32:a:1144:G:O4'   | 40:j:72:ARG:NH2   | 2.41                     | 0.54              |
| 38:h:5:ASP:HB2    | 38:h:83:PRO:HG3   | 1.90                     | 0.54              |
| 8:I:1136:C:OP1    | 16:J:37:ARG:NH1   | 2.39                     | 0.54              |
| 8:I:2225:C:H2'    | 8:I:2226:A:C8     | 2.43                     | 0.54              |
| 16:J:41:LYS:NZ    | 16:J:50:GLY:O     | 2.40                     | 0.54              |
| 32:a:263:C:O2'    | 46:q:119:PRO:O    | 2.25                     | 0.54              |
| 32:a:1118:G:N2    | 32:a:1137:G:H1    | 2.03                     | 0.54              |
| 8:I:1606:G:H2'    | 8:I:1607:G:C8     | 2.43                     | 0.54              |
| 8:I:2565:A:H2'    | 8:I:2566:A:C8     | 2.43                     | 0.54              |
| 32:a:1210:C:H2'   | 32:a:1211:A:C8    | 2.42                     | 0.54              |
| 32:a:1210:C:H2'   | 32:a:1211:A:H8    | 1.71                     | 0.54              |
| 34:d:95:ASN:HA    | 34:d:106:ARG:HH12 | 1.73                     | 0.54              |
| 39:i:47:GLY:HA2   | 39:i:81:SER:HB2   | 1.88                     | 0.54              |
| 39:i:65:HIS:O     | 39:i:69:ILE:HG13  | 2.08                     | 0.54              |
| 4:2:37:ARG:NH1    | 8:I:555:A:OP1     | 2.41                     | 0.54              |
| 8:I:703:G:N2      | 8:I:708:G:O3'     | 2.41                     | 0.54              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 8:I:117:G:OP2     | 8:I:119:A:O2'     | 2.26                     | 0.53              |
| 8:I:2393:G:H2'    | 8:I:2394:G:H4'    | 1.90                     | 0.53              |
| 8:I:2864:C:H2'    | 8:I:2865:G:H8     | 1.72                     | 0.53              |
| 30:Y:6:SER:HB3    | 30:Y:9:GLU:HG3    | 1.89                     | 0.53              |
| 32:a:245:A:H62    | 32:a:280:G:H21    | 1.55                     | 0.53              |
| 35:e:117:GLN:OE1  | 35:e:126:LEU:HD23 | 2.08                     | 0.53              |
| 38:h:3:MET:N      | 38:h:3:MET:SD     | 2.82                     | 0.53              |
| 49:x:22:ARG:O     | 49:x:22:ARG:HD2   | 2.08                     | 0.53              |
| 8:I:1517:C:H5     | 8:I:1532:G:H1     | 1.56                     | 0.53              |
| 32:a:11:A:N6      | 34:d:197:GLU:O    | 2.41                     | 0.53              |
| 32:a:357:U:H2'    | 32:a:358:G:H8     | 1.72                     | 0.53              |
| 43:m:99:ARG:O     | 43:m:101:GLN:NE2  | 2.24                     | 0.53              |
| 45:p:9:ARG:NH2    | 45:p:18:TYR:OH    | 2.39                     | 0.53              |
| 8:I:1619:U:H2'    | 8:I:1620:G:C8     | 2.43                     | 0.53              |
| 8:I:3028:A:H1'    | 8:I:3127:A:C2     | 2.42                     | 0.53              |
| 14:G:55:ARG:HE    | 14:G:62:ASN:CG    | 2.17                     | 0.53              |
| 17:K:120:GLU:OE1  | 22:P:64:SER:OG    | 2.26                     | 0.53              |
| 32:a:645:G:H1     | 32:a:745:C:H5     | 1.56                     | 0.53              |
| 38:h:98:LEU:O     | 38:h:102:GLY:N    | 2.38                     | 0.53              |
| 42:l:78:SER:OG    | 42:l:103:ASP:HB3  | 2.07                     | 0.53              |
| 42:l:87:VAL:HG12  | 42:l:89:ASP:H     | 1.73                     | 0.53              |
| 8:I:336:G:H2'     | 8:I:337:C:C6      | 2.44                     | 0.53              |
| 8:I:704:C:O2'     | 8:I:705:A:H8      | 1.90                     | 0.53              |
| 8:I:1964:U:OP1    | 8:I:1965:G:N2     | 2.41                     | 0.53              |
| 17:K:92:ASP:HB2   | 17:K:113:LYS:HD2  | 1.89                     | 0.53              |
| 43:m:29:ARG:HG3   | 43:m:64:LEU:HD13  | 1.89                     | 0.53              |
| 43:m:88:GLN:HB2   | 47:s:69:HIS:CE1   | 2.43                     | 0.53              |
| 51:9:26:ALA:O     | 51:9:29:ASP:C     | 2.52                     | 0.53              |
| 8:I:1721:A:H2'    | 8:I:1722:G:H8     | 1.74                     | 0.53              |
| 18:L:43:LYS:HG2   | 18:L:44:GLN:H     | 1.73                     | 0.53              |
| 28:V:129:ILE:HD11 | 28:V:157:ALA:HB1  | 1.91                     | 0.53              |
| 32:a:435:C:H2'    | 32:a:436:U:C6     | 2.42                     | 0.53              |
| 37:g:45:GLY:HA3   | 37:g:117:ILE:HD13 | 1.91                     | 0.53              |
| 8:I:1200:G:O6     | 8:I:1218:G:H2'    | 2.08                     | 0.53              |
| 8:I:2236:A:OP2    | 11:D:146:ARG:NH2  | 2.41                     | 0.53              |
| 8:I:2989:G:H4'    | 14:G:4:ILE:HB     | 1.91                     | 0.53              |
| 10:C:134:ARG:HB2  | 10:C:187:VAL:HG12 | 1.89                     | 0.53              |
| 11:D:129:ARG:HD2  | 11:D:170:MET:HB3  | 1.90                     | 0.53              |
| 32:a:47:G:H1      | 32:a:397:C:H5     | 1.56                     | 0.53              |
| 32:a:1348:G:H2'   | 32:a:1349:A:H8    | 1.73                     | 0.53              |
| 40:j:52:ILE:O     | 51:9:81:ARG:NH2   | 2.39                     | 0.53              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 8:I:9:G:N2        | 8:I:2867:C:O2     | 2.42                     | 0.53              |
| 8:I:1190:U:O2'    | 8:I:1199:A:N3     | 2.40                     | 0.53              |
| 8:I:1543:U:H2'    | 8:I:1544:G:C8     | 2.43                     | 0.53              |
| 17:K:71:ARG:HG3   | 17:K:72:PRO:HD2   | 1.90                     | 0.53              |
| 32:a:334:C:O2'    | 32:a:1426:A:N3    | 2.39                     | 0.53              |
| 32:a:727:U:H2'    | 32:a:728:C:C6     | 2.44                     | 0.53              |
| 33:c:179:ARG:HG3  | 33:c:179:ARG:O    | 2.08                     | 0.53              |
| 2:1:54:ARG:HG2    | 2:1:55:ARG:H      | 1.74                     | 0.53              |
| 8:I:292:C:H3'     | 8:I:293:G:H5'     | 1.91                     | 0.53              |
| 8:I:307:U:H2'     | 8:I:308:G:C8      | 2.44                     | 0.53              |
| 8:I:2377:C:HO2'   | 8:I:2380:C:N4     | 2.07                     | 0.53              |
| 16:J:4:TYR:HB2    | 23:Q:100:ILE:HG21 | 1.90                     | 0.53              |
| 39:i:91:GLY:C     | 39:i:93:PRO:HD3   | 2.34                     | 0.53              |
| 40:j:10:LEU:HD22  | 40:j:92:LEU:HD12  | 1.91                     | 0.53              |
| 8:I:679:G:O2'     | 8:I:1385:A:OP1    | 2.26                     | 0.53              |
| 14:G:43:VAL:HG13  | 14:G:53:VAL:HG22  | 1.90                     | 0.53              |
| 30:Y:14:THR:OG1   | 30:Y:15:ASP:N     | 2.42                     | 0.53              |
| 30:Y:34:PHE:O     | 30:Y:38:THR:HG22  | 2.09                     | 0.53              |
| 33:c:120:ALA:HB1  | 33:c:189:ALA:HB2  | 1.91                     | 0.53              |
| 33:c:126:ARG:HH11 | 33:c:126:ARG:HG3  | 1.73                     | 0.53              |
| 13:F:51:ALA:HB1   | 13:F:85:LYS:HG2   | 1.91                     | 0.52              |
| 21:O:64:ASP:HB2   | 21:O:78:ARG:HG2   | 1.91                     | 0.52              |
| 32:a:20:U:H2'     | 32:a:21:C:C6      | 2.43                     | 0.52              |
| 45:p:69:PRO:O     | 45:p:73:LEU:HG    | 2.09                     | 0.52              |
| 8:I:2864:C:H2'    | 8:I:2865:G:C8     | 2.44                     | 0.52              |
| 32:a:209:G:H2'    | 32:a:210:C:H6     | 1.75                     | 0.52              |
| 32:a:1087:C:O2    | 32:a:1162:A:O2'   | 2.27                     | 0.52              |
| 36:f:94:ASP:OD1   | 36:f:94:ASP:N     | 2.42                     | 0.52              |
| 40:j:66:GLU:HG3   | 40:j:68:ARG:HG3   | 1.90                     | 0.52              |
| 12:E:175:VAL:HG23 | 12:E:183:ILE:HD11 | 1.92                     | 0.52              |
| 28:V:46:GLU:OE1   | 28:V:46:GLU:N     | 2.42                     | 0.52              |
| 32:a:81:C:H2'     | 32:a:82:U:O4'     | 2.10                     | 0.52              |
| 32:a:444:U:H2'    | 32:a:445:C:C6     | 2.45                     | 0.52              |
| 32:a:559:G:O6     | 42:l:2:PRO:HD2    | 2.10                     | 0.52              |
| 34:d:193:GLN:NE2  | 35:e:135:GLY:HA2  | 2.25                     | 0.52              |
| 35:e:180:ARG:HB2  | 35:e:183:GLU:HG3  | 1.92                     | 0.52              |
| 49:x:31:LEU:N     | 49:x:31:LEU:CD1   | 2.73                     | 0.52              |
| 52:b:13:SER:HA    | 52:b:51:GLU:HA    | 1.90                     | 0.52              |
| 10:C:177:MET:HE2  | 10:C:183:ARG:HB3  | 1.91                     | 0.52              |
| 20:N:104:LYS:O    | 20:N:104:LYS:HG2  | 2.09                     | 0.52              |
| 20:N:106:ASP:N    | 20:N:106:ASP:OD1  | 2.41                     | 0.52              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 32:a:425:U:OP2   | 34:d:29:ARG:NH1   | 2.39                     | 0.52              |
| 39:i:69:ILE:HG23 | 39:i:100:LEU:HD21 | 1.92                     | 0.52              |
| 8:I:775:C:N4     | 8:I:776:G:O6      | 2.43                     | 0.52              |
| 8:I:1619:U:H2'   | 8:I:1620:G:H8     | 1.74                     | 0.52              |
| 32:a:408:G:H5''  | 34:d:23:ASP:CG    | 2.35                     | 0.52              |
| 38:h:81:SER:OG   | 38:h:126:GLU:OE2  | 2.26                     | 0.52              |
| 6:4:1:MET:HE1    | 6:4:35:ARG:HB2    | 1.91                     | 0.52              |
| 8:I:183:A:H1'    | 8:I:524:C:H5'     | 1.92                     | 0.52              |
| 8:I:746:G:H21    | 8:I:749:U:H6      | 1.58                     | 0.52              |
| 8:I:1713:G:O2'   | 8:I:1753:G:O6     | 2.19                     | 0.52              |
| 8:I:2151:A:H4'   | 8:I:2152:C:H5''   | 1.92                     | 0.52              |
| 8:I:2408:A:OP1   | 8:I:2410:A:N6     | 2.43                     | 0.52              |
| 11:D:34:ASN:OD1  | 11:D:78:ARG:NH1   | 2.42                     | 0.52              |
| 22:P:23:ASP:OD2  | 22:P:88:ARG:NH1   | 2.42                     | 0.52              |
| 8:I:2299:G:OP1   | 12:E:75:LYS:NZ    | 2.29                     | 0.52              |
| 8:I:3047:G:H2'   | 8:I:3048:C:H6     | 1.73                     | 0.52              |
| 13:F:167:ALA:HB1 | 13:F:172:GLU:HB3  | 1.92                     | 0.52              |
| 43:m:14:ARG:CZ   | 43:m:42:ASP:HB2   | 2.39                     | 0.52              |
| 3:0:24:LYS:HD3   | 25:S:33:LEU:HD12  | 1.91                     | 0.52              |
| 6:4:1:MET:HE1    | 6:4:35:ARG:CB     | 2.40                     | 0.52              |
| 8:I:306:G:H2'    | 8:I:307:U:C6      | 2.45                     | 0.52              |
| 8:I:677:A:OP2    | 8:I:2737:C:O2'    | 2.28                     | 0.52              |
| 8:I:1553:U:H2'   | 8:I:1554:G:H8     | 1.75                     | 0.52              |
| 8:I:2051:G:N1    | 8:I:2052:U:O2     | 2.42                     | 0.52              |
| 8:I:2341:C:H2'   | 8:I:2342:G:H8     | 1.75                     | 0.52              |
| 32:a:252:U:O2'   | 46:q:70:MET:SD    | 2.65                     | 0.52              |
| 32:a:998:A:H3'   | 32:a:999:C:C6     | 2.44                     | 0.52              |
| 33:c:87:ARG:HA   | 33:c:90:LEU:HG    | 1.90                     | 0.52              |
| 36:f:15:ASP:CG   | 36:f:59:ILE:HG21  | 2.35                     | 0.52              |
| 52:b:41:PRO:O    | 52:b:42:ILE:HG22  | 2.10                     | 0.52              |
| 8:I:776:G:H4'    | 18:L:116:LYS:NZ   | 2.25                     | 0.52              |
| 8:I:2447:U:O2'   | 8:I:2448:G:O5'    | 2.27                     | 0.52              |
| 14:G:95:TYR:HE1  | 14:G:106:PHE:HB3  | 1.74                     | 0.52              |
| 21:O:34:VAL:HA   | 21:O:98:ASP:HB3   | 1.92                     | 0.52              |
| 22:P:11:SER:O    | 22:P:11:SER:OG    | 2.18                     | 0.52              |
| 32:a:406:G:O6    | 32:a:435:C:N4     | 2.43                     | 0.52              |
| 32:a:1011:U:C2   | 32:a:1012:A:C8    | 2.97                     | 0.52              |
| 32:a:1026:G:N2   | 32:a:1027:G:O4'   | 2.43                     | 0.52              |
| 39:i:120:LYS:HG3 | 39:i:125:LEU:HD12 | 1.91                     | 0.52              |
| 8:I:1750:C:H2'   | 8:I:1751:C:C6     | 2.45                     | 0.52              |
| 8:I:2386:U:O2'   | 8:I:2387:U:O5'    | 2.27                     | 0.52              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 40:j:84:VAL:O     | 40:j:88:MET:HG3   | 2.09                     | 0.52              |
| 44:o:46:HIS:O     | 44:o:48:HIS:N     | 2.43                     | 0.52              |
| 45:p:8:THR:HG23   | 45:p:29:ARG:NH1   | 2.25                     | 0.52              |
| 8:I:680:A:OP1     | 8:I:1386:U:O2'    | 2.28                     | 0.51              |
| 8:I:2238:C:O2'    | 8:I:2927:C:OP2    | 2.25                     | 0.51              |
| 12:E:31:PHE:O     | 12:E:33:VAL:N     | 2.39                     | 0.51              |
| 14:G:57:ASP:HA    | 14:G:62:ASN:HD22  | 1.74                     | 0.51              |
| 22:P:103:ARG:HD2  | 22:P:106:LYS:HB2  | 1.92                     | 0.51              |
| 32:a:392:A:OP1    | 45:p:14:ARG:NH2   | 2.43                     | 0.51              |
| 32:a:727:U:H2'    | 32:a:728:C:H6     | 1.75                     | 0.51              |
| 8:I:1187:G:H2'    | 8:I:1188:G:C8     | 2.45                     | 0.51              |
| 8:I:2156:A:O2'    | 8:I:2158:C:N4     | 2.43                     | 0.51              |
| 19:M:11:LYS:NZ    | 19:M:87:LYS:HG2   | 2.24                     | 0.51              |
| 27:U:10:LEU:HD23  | 27:U:80:PRO:HG3   | 1.92                     | 0.51              |
| 32:a:1306:C:H2'   | 32:a:1307:U:C6    | 2.45                     | 0.51              |
| 36:f:23:LEU:O     | 36:f:27:LEU:HG    | 2.11                     | 0.51              |
| 39:i:32:ARG:HE    | 39:i:127:ARG:HB2  | 1.73                     | 0.51              |
| 8:I:368:U:H2'     | 8:I:369:C:C6      | 2.46                     | 0.51              |
| 15:H:10:ASP:OD1   | 15:H:11:HIS:N     | 2.43                     | 0.51              |
| 22:P:33:GLU:OE1   | 22:P:38:ARG:NH2   | 2.34                     | 0.51              |
| 27:U:61:THR:O     | 27:U:61:THR:OG1   | 2.28                     | 0.51              |
| 34:d:148:VAL:HG13 | 34:d:152:ILE:HG13 | 1.91                     | 0.51              |
| 35:e:116:VAL:HG23 | 35:e:177:LEU:HD22 | 1.92                     | 0.51              |
| 8:I:704:C:HO2'    | 8:I:705:A:H8      | 1.57                     | 0.51              |
| 32:a:31:G:O2'     | 32:a:295:U:OP1    | 2.25                     | 0.51              |
| 32:a:175:A:N6     | 32:a:206:A:OP2    | 2.44                     | 0.51              |
| 32:a:209:G:H2'    | 32:a:210:C:C6     | 2.46                     | 0.51              |
| 32:a:407:G:H2'    | 32:a:408:G:H8     | 1.76                     | 0.51              |
| 32:a:1194:U:O2    | 51:9:83:ARG:NH2   | 2.43                     | 0.51              |
| 32:a:1428:G:H2'   | 32:a:1429:C:C6    | 2.46                     | 0.51              |
| 52:b:11:LEU:CD1   | 52:b:12:ARG:HE    | 2.24                     | 0.51              |
| 53:y:35:GLN:OE1   | 53:y:50:ARG:NH2   | 2.43                     | 0.51              |
| 8:I:2292:A:H5''   | 8:I:2293:C:H5''   | 1.92                     | 0.51              |
| 13:F:101:ASP:O    | 13:F:105:GLU:HG2  | 2.11                     | 0.51              |
| 32:a:453:G:H2'    | 32:a:454:U:H6     | 1.76                     | 0.51              |
| 39:i:44:PRO:HA    | 39:i:82:PHE:HD1   | 1.75                     | 0.51              |
| 39:i:55:SER:OG    | 39:i:58:ASP:HB2   | 2.11                     | 0.51              |
| 42:l:36:ARG:HB2   | 42:l:54:ARG:HB2   | 1.92                     | 0.51              |
| 8:I:912:A:H8      | 8:I:2012:U:O2'    | 1.93                     | 0.51              |
| 21:O:57:ALA:O     | 21:O:86:ARG:NH1   | 2.44                     | 0.51              |
| 32:a:181:C:C2     | 32:a:204:G:N2     | 2.79                     | 0.51              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 32:a:407:G:O2'    | 34:d:104:ARG:HG2  | 2.09                     | 0.51              |
| 33:c:190:LYS:HD3  | 33:c:190:LYS:H    | 1.75                     | 0.51              |
| 35:e:112:ILE:HG23 | 35:e:154:ILE:HD11 | 1.92                     | 0.51              |
| 36:f:4:TYR:HE1    | 36:f:92:ARG:HD3   | 1.75                     | 0.51              |
| 40:j:51:VAL:O     | 40:j:63:GLU:HG2   | 2.10                     | 0.51              |
| 45:p:80:TRP:CE2   | 45:p:84:LYS:HG3   | 2.46                     | 0.51              |
| 8:I:306:G:O2'     | 15:H:45:LYS:HG2   | 2.11                     | 0.51              |
| 11:D:36:VAL:HG21  | 11:D:75:VAL:HG11  | 1.92                     | 0.51              |
| 13:F:119:ARG:NH1  | 43:m:5:VAL:O      | 2.44                     | 0.51              |
| 22:P:61:ARG:HB2   | 22:P:70:GLU:HG2   | 1.93                     | 0.51              |
| 32:a:133:C:H2'    | 32:a:134:U:C6     | 2.46                     | 0.51              |
| 34:d:43:GLU:HA    | 34:d:47:LEU:HD23  | 1.93                     | 0.51              |
| 35:e:72:ASP:HB3   | 35:e:76:MET:HB2   | 1.91                     | 0.51              |
| 8:I:1200:G:H4'    | 8:I:1205:C:N4     | 2.24                     | 0.51              |
| 10:C:25:THR:O     | 10:C:25:THR:HG22  | 2.09                     | 0.51              |
| 10:C:258:ARG:NH1  | 10:C:265:ASN:OD1  | 2.44                     | 0.51              |
| 13:F:45:MET:HB2   | 13:F:94:VAL:HG12  | 1.92                     | 0.51              |
| 29:W:46:HIS:ND1   | 29:W:77:THR:HG23  | 2.26                     | 0.51              |
| 32:a:426:U:OP1    | 34:d:13:ARG:NH1   | 2.44                     | 0.51              |
| 32:a:1163:C:H2'   | 32:a:1164:U:H6    | 1.75                     | 0.51              |
| 32:a:1513:G:OP2   | 49:x:11:ARG:NH2   | 2.44                     | 0.51              |
| 47:s:16:LEU:HD23  | 51:9:46:ARG:HH21  | 1.75                     | 0.51              |
| 1:n:72:C:H2'      | 1:n:73:A:C8       | 2.46                     | 0.50              |
| 8:I:588:G:N1      | 8:I:591:A:OP2     | 2.43                     | 0.50              |
| 8:I:593:A:O2'     | 8:I:597:C:O2'     | 2.22                     | 0.50              |
| 8:I:2071:C:N4     | 8:I:2137:A:N7     | 2.59                     | 0.50              |
| 25:S:20:VAL:HG12  | 25:S:22:VAL:HG22  | 1.92                     | 0.50              |
| 29:W:43:THR:HG22  | 29:W:43:THR:O     | 2.09                     | 0.50              |
| 32:a:189:U:O2     | 32:a:194:G:N2     | 2.38                     | 0.50              |
| 32:a:1315:G:H2'   | 32:a:1316:A:H8    | 1.74                     | 0.50              |
| 33:c:23:TYR:HB3   | 40:j:97:ASP:HB2   | 1.91                     | 0.50              |
| 49:x:26:VAL:CG1   | 49:x:27:GLN:N     | 2.62                     | 0.50              |
| 3:0:10:ARG:O      | 3:0:14:ARG:HG2    | 2.10                     | 0.50              |
| 8:I:905:G:N2      | 8:I:2479:A:OP1    | 2.42                     | 0.50              |
| 32:a:69:A:P       | 32:a:69:A:H8      | 2.34                     | 0.50              |
| 32:a:320:A:H2'    | 32:a:321:C:H6     | 1.76                     | 0.50              |
| 32:a:591:G:H2'    | 32:a:592:U:C6     | 2.46                     | 0.50              |
| 47:s:50:ALA:HA    | 47:s:58:VAL:O     | 2.11                     | 0.50              |
| 8:I:556:G:HO2'    | 8:I:925:U:HO2'    | 1.54                     | 0.50              |
| 8:I:696:A:H2'     | 8:I:697:C:C6      | 2.46                     | 0.50              |
| 8:I:2302:C:H2'    | 8:I:2303:C:C6     | 2.45                     | 0.50              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 8:I:2307:G:H2'    | 8:I:2308:A:C8     | 2.46                     | 0.50              |
| 8:I:2904:C:N4     | 14:G:109:GLY:O    | 2.43                     | 0.50              |
| 13:F:70:GLN:HE21  | 13:F:96:VAL:HG13  | 1.77                     | 0.50              |
| 21:O:82:LEU:O     | 21:O:86:ARG:HG2   | 2.11                     | 0.50              |
| 32:a:362:A:C6     | 42:l:28:PRO:HD2   | 2.47                     | 0.50              |
| 35:e:153:ASP:OD1  | 35:e:153:ASP:N    | 2.43                     | 0.50              |
| 8:I:1133:C:H2'    | 8:I:1140:G:H2'    | 1.94                     | 0.50              |
| 8:I:2829:C:H2'    | 8:I:2830:G:H8     | 1.77                     | 0.50              |
| 13:F:72:PRO:HB3   | 13:F:96:VAL:HG23  | 1.93                     | 0.50              |
| 33:c:87:ARG:HH21  | 33:c:100:LEU:H    | 1.57                     | 0.50              |
| 34:d:77:GLN:HG3   | 34:d:78:PRO:HD2   | 1.94                     | 0.50              |
| 38:h:24:GLU:OE1   | 38:h:63:GLN:NE2   | 2.37                     | 0.50              |
| 1:n:10:G:H2'      | 1:n:11:A:H8       | 1.77                     | 0.50              |
| 8:I:846:G:OP2     | 44:o:88:ARG:NH2   | 2.38                     | 0.50              |
| 8:I:1295:A:H2'    | 8:I:1296:C:C6     | 2.45                     | 0.50              |
| 32:a:192:A:O3'    | 46:q:127:ARG:NH1  | 2.44                     | 0.50              |
| 32:a:938:G:C2     | 32:a:939:A:C8     | 2.99                     | 0.50              |
| 34:d:120:VAL:O    | 34:d:139:ASP:HB3  | 2.11                     | 0.50              |
| 36:f:43:TRP:HB2   | 36:f:60:TYR:HB3   | 1.94                     | 0.50              |
| 8:I:1282:C:H2'    | 8:I:1283:C:C6     | 2.47                     | 0.50              |
| 8:I:1824:C:H2'    | 8:I:1825:A:H8     | 1.77                     | 0.50              |
| 10:C:145:VAL:HG11 | 10:C:163:ILE:HD11 | 1.94                     | 0.50              |
| 32:a:492:C:OP1    | 42:l:114:ARG:NH1  | 2.45                     | 0.50              |
| 32:a:781:A:OP1    | 1:u:38:A:O2'      | 2.27                     | 0.50              |
| 32:a:974:U:H4'    | 51:9:61:ARG:HG2   | 1.92                     | 0.50              |
| 42:l:36:ARG:H     | 42:l:76:GLU:HG2   | 1.75                     | 0.50              |
| 49:x:26:VAL:C     | 49:x:28:ARG:H     | 2.18                     | 0.50              |
| 8:I:2488:G:O2'    | 8:I:2734:C:OP1    | 2.30                     | 0.50              |
| 19:M:56:ARG:HH11  | 19:M:56:ARG:HG3   | 1.77                     | 0.50              |
| 22:P:99:LEU:HD11  | 22:P:109:ILE:HD11 | 1.93                     | 0.50              |
| 32:a:40:U:O2'     | 32:a:538:A:N1     | 2.39                     | 0.50              |
| 32:a:529:U:H2'    | 32:a:530:A:C8     | 2.47                     | 0.50              |
| 35:e:185:ALA:HA   | 35:e:191:PRO:HB3  | 1.94                     | 0.50              |
| 39:i:55:SER:O     | 39:i:59:TYR:N     | 2.40                     | 0.50              |
| 8:I:1008:A:H2'    | 8:I:1009:U:O4'    | 2.12                     | 0.50              |
| 8:I:1182:C:H2'    | 8:I:1183:A:H8     | 1.77                     | 0.50              |
| 14:G:92:GLY:HA3   | 14:G:161:LYS:HG2  | 1.93                     | 0.50              |
| 32:a:37:C:H2'     | 32:a:38:G:H8      | 1.77                     | 0.50              |
| 32:a:227:A:H2'    | 32:a:228:U:C6     | 2.47                     | 0.50              |
| 32:a:402:C:H5''   | 34:d:127:VAL:HA   | 1.92                     | 0.50              |
| 8:I:1902:G:O2'    | 8:I:2229:U:O4     | 2.30                     | 0.49              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 10:C:196:VAL:HG12 | 10:C:197:GLY:H    | 1.77                     | 0.49              |
| 32:a:262:A:H2'    | 32:a:263:C:C6     | 2.47                     | 0.49              |
| 32:a:450:A:C4     | 32:a:451:A:C6     | 3.00                     | 0.49              |
| 37:g:10:ARG:HG3   | 37:g:11:PRO:HD2   | 1.93                     | 0.49              |
| 8:I:749:U:O2      | 8:I:750:A:N6      | 2.45                     | 0.49              |
| 8:I:3051:C:O4'    | 8:I:3119:C:N4     | 2.45                     | 0.49              |
| 32:a:513:C:H41    | 42:l:50:ARG:HH22  | 1.60                     | 0.49              |
| 32:a:1312:C:O2    | 47:s:72:GLY:HA3   | 2.11                     | 0.49              |
| 33:c:141:MET:HA   | 33:c:141:MET:HE3  | 1.95                     | 0.49              |
| 8:I:1140:G:H21    | 16:J:147:GLN:HE21 | 1.60                     | 0.49              |
| 8:I:1953:G:H1     | 8:I:1976:G:H1     | 1.60                     | 0.49              |
| 14:G:95:TYR:HA    | 14:G:107:ALA:O    | 2.12                     | 0.49              |
| 32:a:444:U:H2'    | 32:a:445:C:H6     | 1.76                     | 0.49              |
| 32:a:1149:A:N6    | 32:a:1172:A:N7    | 2.59                     | 0.49              |
| 32:a:1212:G:OP1   | 51:9:53:ARG:NH2   | 2.45                     | 0.49              |
| 43:m:86:CYS:SG    | 43:m:87:TYR:N     | 2.85                     | 0.49              |
| 45:p:4:LYS:HG3    | 45:p:25:ALA:HB2   | 1.94                     | 0.49              |
| 47:s:69:HIS:ND1   | 47:s:73:GLU:OE1   | 2.38                     | 0.49              |
| 50:r:38:ILE:HG23  | 50:r:42:GLY:HA2   | 1.94                     | 0.49              |
| 51:9:20:TYR:CG    | 51:9:55:ALA:HB1   | 2.47                     | 0.49              |
| 14:G:7:GLN:CD     | 14:G:70:ARG:HH21  | 2.20                     | 0.49              |
| 32:a:538:A:OP1    | 34:d:1:MET:HB3    | 2.12                     | 0.49              |
| 39:i:52:ASN:HB2   | 39:i:54:ARG:HG2   | 1.94                     | 0.49              |
| 8:I:749:U:H1'     | 8:I:750:A:N7      | 2.28                     | 0.49              |
| 8:I:1219:U:H2'    | 8:I:1220:G:O4'    | 2.13                     | 0.49              |
| 32:a:227:A:H4'    | 45:p:62:VAL:HG22  | 1.95                     | 0.49              |
| 34:d:137:ILE:HG23 | 34:d:174:ARG:HB2  | 1.95                     | 0.49              |
| 2:1:38:LYS:HG2    | 8:I:1453:A:N7     | 2.28                     | 0.49              |
| 8:I:704:C:O2'     | 8:I:705:A:O5'     | 2.30                     | 0.49              |
| 8:I:1298:U:H2'    | 8:I:1299:C:C6     | 2.48                     | 0.49              |
| 8:I:2307:G:H2'    | 8:I:2308:A:H8     | 1.77                     | 0.49              |
| 8:I:2358:G:P      | 8:I:2405:G:H22    | 2.35                     | 0.49              |
| 8:I:2412:C:H2'    | 8:I:2413:A:H2     | 1.77                     | 0.49              |
| 8:I:2481:U:H2'    | 8:I:2482:U:C6     | 2.48                     | 0.49              |
| 11:D:32:GLY:HA3   | 11:D:54:TYR:CE1   | 2.47                     | 0.49              |
| 11:D:114:VAL:HG22 | 11:D:208:VAL:HG22 | 1.94                     | 0.49              |
| 32:a:227:A:O2'    | 45:p:62:VAL:O     | 2.29                     | 0.49              |
| 32:a:481:U:H2'    | 32:a:482:G:C8     | 2.47                     | 0.49              |
| 32:a:970:A:OP2    | 51:9:71:ARG:NH1   | 2.45                     | 0.49              |
| 8:I:552:G:N2      | 8:I:555:A:OP2     | 2.43                     | 0.49              |
| 8:I:1027:U:H2'    | 8:I:1028:G:C5     | 2.46                     | 0.49              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 8:I:1295:A:H2'    | 8:I:1296:C:H6     | 1.78                     | 0.49              |
| 31:Z:29:ARG:HG2   | 31:Z:29:ARG:HH11  | 1.76                     | 0.49              |
| 32:a:72:G:H2'     | 32:a:73:A:C8      | 2.48                     | 0.49              |
| 32:a:271:C:H2'    | 32:a:272:A:H8     | 1.77                     | 0.49              |
| 32:a:659:A:O2'    | 44:o:46:HIS:HB3   | 2.13                     | 0.49              |
| 8:I:696:A:H2'     | 8:I:697:C:H6      | 1.78                     | 0.49              |
| 8:I:3027:C:O3'    | 8:I:3028:A:H8     | 1.95                     | 0.49              |
| 32:a:20:U:H2'     | 32:a:21:C:H6      | 1.78                     | 0.49              |
| 32:a:802:C:O2'    | 32:a:894:A:N1     | 2.45                     | 0.49              |
| 35:e:116:VAL:HG13 | 35:e:174:ALA:HB1  | 1.93                     | 0.49              |
| 35:e:162:ASP:OD1  | 35:e:162:ASP:N    | 2.44                     | 0.49              |
| 8:I:871:U:H2'     | 8:I:872:A:C8      | 2.47                     | 0.49              |
| 8:I:1553:U:H2'    | 8:I:1554:G:C8     | 2.46                     | 0.49              |
| 8:I:2174:A:H2     | 8:I:2181:U:H3     | 1.59                     | 0.49              |
| 9:B:13:C:OP2      | 9:B:69:C:O2'      | 2.31                     | 0.49              |
| 26:T:66:ARG:HG2   | 26:T:73:TYR:HD2   | 1.77                     | 0.49              |
| 32:a:1506:A:H2'   | 32:a:1507:C:C6    | 2.48                     | 0.49              |
| 35:e:49:ILE:HG13  | 35:e:65:THR:O     | 2.13                     | 0.49              |
| 25:S:28:ARG:NH1   | 25:S:86:ALA:O     | 2.46                     | 0.49              |
| 32:a:491:G:H2'    | 32:a:492:C:H6     | 1.78                     | 0.49              |
| 32:a:1117:U:H5    | 40:j:76:ILE:HD11  | 1.78                     | 0.49              |
| 32:a:1214:G:OP2   | 32:a:1314:C:N4    | 2.44                     | 0.49              |
| 32:a:1420:C:H2'   | 32:a:1421:A:C8    | 2.47                     | 0.49              |
| 43:m:87:TYR:HB2   | 47:s:73:GLU:HA    | 1.94                     | 0.49              |
| 47:s:12:ASP:O     | 47:s:16:LEU:HB2   | 2.12                     | 0.49              |
| 8:I:738:G:H2'     | 8:I:739:C:C6      | 2.47                     | 0.48              |
| 8:I:2352:G:H21    | 8:I:2354:A:H8     | 1.61                     | 0.48              |
| 12:E:190:ASN:OD1  | 12:E:190:ASN:N    | 2.45                     | 0.48              |
| 32:a:709:A:H61    | 50:r:68:ARG:NH2   | 2.11                     | 0.48              |
| 32:a:1135:G:H2'   | 32:a:1136:G:C8    | 2.48                     | 0.48              |
| 35:e:69:ILE:HG12  | 35:e:79:VAL:HG12  | 1.94                     | 0.48              |
| 40:j:12:ALA:HB2   | 40:j:96:VAL:HG22  | 1.95                     | 0.48              |
| 43:m:88:GLN:O     | 43:m:92:HIS:ND1   | 2.46                     | 0.48              |
| 45:p:39:ARG:NH1   | 45:p:50:GLU:HG2   | 2.28                     | 0.48              |
| 1:u:2:G:H2'       | 1:u:3:C:C6        | 2.48                     | 0.48              |
| 11:D:186:ASP:HB3  | 11:D:191:VAL:HG22 | 1.94                     | 0.48              |
| 32:a:311:C:H2'    | 32:a:312:A:C8     | 2.48                     | 0.48              |
| 32:a:452:G:C6     | 32:a:453:G:C6     | 3.01                     | 0.48              |
| 32:a:533:G:OP2    | 34:d:10:ARG:NE    | 2.46                     | 0.48              |
| 32:a:754:G:H2'    | 32:a:755:C:C6     | 2.47                     | 0.48              |
| 32:a:1115:G:N2    | 32:a:1116:U:O4    | 2.46                     | 0.48              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 39:i:63:LYS:N    | 39:i:63:LYS:HD2  | 2.29                     | 0.48              |
| 41:k:39:ASN:HB3  | 41:k:67:LYS:HG3  | 1.95                     | 0.48              |
| 44:o:11:ILE:HD11 | 44:o:34:LYS:HG2  | 1.94                     | 0.48              |
| 45:p:78:GLY:O    | 45:p:82:LYS:HE3  | 2.12                     | 0.48              |
| 52:b:11:LEU:HA   | 52:b:24:ARG:O    | 2.13                     | 0.48              |
| 2:l:61:SER:HA    | 8:I:2744:U:H1'   | 1.96                     | 0.48              |
| 8:I:1586:G:H2'   | 8:I:1587:A:C8    | 2.47                     | 0.48              |
| 8:I:2042:C:O2'   | 8:I:2043:A:O4'   | 2.31                     | 0.48              |
| 8:I:2677:A:H4'   | 8:I:2678:C:H5''  | 1.95                     | 0.48              |
| 32:a:59:U:H2'    | 32:a:60:G:H8     | 1.79                     | 0.48              |
| 32:a:203:U:H2'   | 32:a:204:G:C4    | 2.48                     | 0.48              |
| 32:a:211:G:C2    | 32:a:216:A:N6    | 2.80                     | 0.48              |
| 32:a:343:A:H5''  | 32:a:344:C:H5    | 1.78                     | 0.48              |
| 32:a:435:C:H5''  | 34:d:148:VAL:HB  | 1.95                     | 0.48              |
| 32:a:534:U:H5'   | 34:d:14:ARG:HG2  | 1.94                     | 0.48              |
| 8:I:280:C:H2'    | 8:I:281:G:H8     | 1.78                     | 0.48              |
| 8:I:1770:C:N4    | 8:I:1778:G:O6    | 2.47                     | 0.48              |
| 8:I:2485:A:H2'   | 8:I:2486:C:H6    | 1.78                     | 0.48              |
| 8:I:2886:G:H2'   | 8:I:2887:U:C6    | 2.48                     | 0.48              |
| 14:G:46:ASN:ND2  | 14:G:48:ASP:OD1  | 2.46                     | 0.48              |
| 32:a:455:C:H2'   | 32:a:456:C:C6    | 2.49                     | 0.48              |
| 32:a:1006:A:N1   | 32:a:1010:A:N6   | 2.61                     | 0.48              |
| 41:k:91:LYS:HG3  | 41:k:116:GLU:HB3 | 1.93                     | 0.48              |
| 45:p:57:GLN:CD   | 45:p:57:GLN:H    | 2.22                     | 0.48              |
| 1:n:38:A:N1      | 37:g:85:TYR:OH   | 2.46                     | 0.48              |
| 3:0:27:LEU:HD12  | 3:0:28:VAL:N     | 2.28                     | 0.48              |
| 9:B:65:A:H4'     | 9:B:66:G:H5'     | 1.95                     | 0.48              |
| 30:Y:29:LEU:O    | 30:Y:33:ARG:HG2  | 2.13                     | 0.48              |
| 32:a:146:U:H3    | 32:a:167:A:H62   | 1.61                     | 0.48              |
| 32:a:377:G:OP1   | 45:p:4:LYS:NZ    | 2.33                     | 0.48              |
| 46:q:121:SER:OG  | 46:q:122:ALA:N   | 2.46                     | 0.48              |
| 5:3:15:ARG:HG2   | 5:3:16:ARG:N     | 2.28                     | 0.48              |
| 8:I:368:U:H2'    | 8:I:369:C:H6     | 1.79                     | 0.48              |
| 8:I:1039:A:N3    | 8:I:2502:C:O2'   | 2.42                     | 0.48              |
| 8:I:2352:G:N1    | 8:I:2355:U:OP2   | 2.47                     | 0.48              |
| 8:I:2594:U:H4'   | 29:W:20:ARG:HG3  | 1.96                     | 0.48              |
| 32:a:35:A:H2'    | 32:a:36:A:C8     | 2.48                     | 0.48              |
| 32:a:121:G:OP1   | 32:a:596:U:O2'   | 2.21                     | 0.48              |
| 32:a:400:C:C2    | 32:a:401:G:C8    | 3.02                     | 0.48              |
| 32:a:1140:U:H2'  | 32:a:1141:C:O4'  | 2.13                     | 0.48              |
| 32:a:1466:G:H2'  | 32:a:1467:G:C8   | 2.49                     | 0.48              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 40:j:13:TYR:CB    | 51:9:95:GLY:HA2   | 2.43                     | 0.48              |
| 1:n:42:C:H2'      | 1:n:43:G:H8       | 1.78                     | 0.48              |
| 8:I:44:A:H2'      | 8:I:45:G:O4'      | 2.14                     | 0.48              |
| 8:I:616:A:H5''    | 16:J:113:ARG:HD3  | 1.95                     | 0.48              |
| 8:I:1621:G:C6     | 8:I:1622:G:C6     | 3.02                     | 0.48              |
| 8:I:1650:U:H2'    | 8:I:1651:C:C6     | 2.49                     | 0.48              |
| 8:I:1736:C:C2     | 8:I:1737:G:C8     | 3.02                     | 0.48              |
| 8:I:1832:G:H5''   | 8:I:1833:C:H5'    | 1.95                     | 0.48              |
| 11:D:45:ASP:N     | 11:D:45:ASP:OD1   | 2.47                     | 0.48              |
| 33:c:71:ARG:O     | 33:c:75:VAL:HG23  | 2.13                     | 0.48              |
| 38:h:98:LEU:O     | 38:h:101:LEU:N    | 2.47                     | 0.48              |
| 52:b:10:LYS:HB2   | 52:b:11:LEU:HD23  | 1.96                     | 0.48              |
| 8:I:619:C:OP2     | 8:I:663:G:N2      | 2.46                     | 0.48              |
| 8:I:1618:C:H2'    | 8:I:1619:U:O4'    | 2.13                     | 0.48              |
| 8:I:2827:A:N1     | 8:I:2844:C:N4     | 2.61                     | 0.48              |
| 11:D:57:ILE:HG23  | 11:D:79:ARG:HB2   | 1.96                     | 0.48              |
| 22:P:45:VAL:HG11  | 22:P:109:ILE:HD12 | 1.95                     | 0.48              |
| 28:V:132:GLU:HG2  | 28:V:169:ILE:HB   | 1.96                     | 0.48              |
| 32:a:495:C:C2     | 32:a:533:G:N2     | 2.82                     | 0.48              |
| 32:a:670:C:H2'    | 32:a:671:C:H6     | 1.79                     | 0.48              |
| 32:a:1173:G:O2'   | 32:a:1174:G:N7    | 2.39                     | 0.48              |
| 8:I:784:A:H4'     | 8:I:785:G:H5'     | 1.96                     | 0.48              |
| 8:I:1561:C:H42    | 8:I:1643:G:H21    | 1.61                     | 0.48              |
| 8:I:2558:C:O2'    | 8:I:2559:G:OP2    | 2.31                     | 0.48              |
| 27:U:83:ILE:HD13  | 27:U:96:ARG:HD2   | 1.96                     | 0.48              |
| 29:W:56:ASP:OD1   | 29:W:56:ASP:O     | 2.31                     | 0.48              |
| 32:a:410:A:N6     | 32:a:428:U:OP2    | 2.46                     | 0.48              |
| 32:a:523:A:N6     | 33:c:156:ARG:HH12 | 2.12                     | 0.48              |
| 32:a:1030:U:H2'   | 32:a:1031:G:C8    | 2.49                     | 0.48              |
| 37:g:72:ALA:O     | 37:g:91:VAL:HG12  | 2.14                     | 0.48              |
| 45:p:6:LYS:O      | 45:p:7:LEU:HD23   | 2.14                     | 0.48              |
| 2:l:27:LYS:NZ     | 26:T:16:ILE:O     | 2.39                     | 0.48              |
| 8:I:389:U:H2'     | 8:I:390:G:O4'     | 2.14                     | 0.48              |
| 8:I:1381:G:OP2    | 18:L:23:ARG:NH1   | 2.47                     | 0.48              |
| 17:K:93:PRO:HG3   | 17:K:114:ILE:HG13 | 1.95                     | 0.48              |
| 32:a:452:G:C5     | 32:a:471:U:N3     | 2.82                     | 0.48              |
| 32:a:991:G:C6     | 32:a:1035:G:C5    | 3.02                     | 0.48              |
| 32:a:1115:G:H5''  | 40:j:37:VAL:HG12  | 1.96                     | 0.48              |
| 34:d:48:LEU:O     | 34:d:52:GLU:HG2   | 2.14                     | 0.48              |
| 34:d:188:VAL:HG12 | 34:d:190:LEU:O    | 2.14                     | 0.48              |
| 35:e:177:LEU:O    | 35:e:177:LEU:HD23 | 2.14                     | 0.48              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 37:g:107:TYR:HA  | 37:g:110:GLN:HB2  | 1.95                     | 0.48              |
| 40:j:11:LYS:HA   | 40:j:71:LYS:HG2   | 1.95                     | 0.48              |
| 43:m:16:GLU:O    | 43:m:20:THR:HG23  | 2.14                     | 0.48              |
| 44:o:56:LEU:O    | 44:o:60:VAL:HG23  | 2.13                     | 0.48              |
| 45:p:35:GLU:HB3  | 45:p:59:TRP:HE1   | 1.79                     | 0.48              |
| 45:p:47:SER:O    | 45:p:49:ILE:HG13  | 2.14                     | 0.48              |
| 8:I:472:C:H5'    | 8:I:474:C:OP2     | 2.14                     | 0.47              |
| 8:I:1804:A:H2'   | 10:C:86:PRO:HG3   | 1.96                     | 0.47              |
| 8:I:1954:U:H2'   | 8:I:1955:G:H8     | 1.79                     | 0.47              |
| 14:G:33:LEU:HB3  | 14:G:76:LEU:HD22  | 1.96                     | 0.47              |
| 29:W:41:ARG:CZ   | 29:W:41:ARG:HB3   | 2.44                     | 0.47              |
| 32:a:736:A:OP1   | 32:a:844:C:O2'    | 2.32                     | 0.47              |
| 32:a:901:A:H2'   | 32:a:902:A:H8     | 1.79                     | 0.47              |
| 35:e:128:ARG:HG2 | 35:e:155:LEU:HB3  | 1.96                     | 0.47              |
| 8:I:81:G:H2'     | 8:I:82:G:O4'      | 2.14                     | 0.47              |
| 8:I:911:A:N7     | 10:C:221:VAL:HG21 | 2.28                     | 0.47              |
| 8:I:1176:G:H4'   | 8:I:1177:A:H5'    | 1.95                     | 0.47              |
| 8:I:1565:G:H2'   | 8:I:1566:G:C8     | 2.49                     | 0.47              |
| 8:I:2759:C:O2'   | 8:I:2802:A:N3     | 2.36                     | 0.47              |
| 32:a:413:A:H3'   | 32:a:414:C:H6     | 1.79                     | 0.47              |
| 32:a:470:U:O2'   | 32:a:472:G:OP1    | 2.23                     | 0.47              |
| 32:a:782:G:O6    | 32:a:783:A:N6     | 2.47                     | 0.47              |
| 32:a:986:G:H2'   | 32:a:988:C:H41    | 1.79                     | 0.47              |
| 33:c:42:LEU:HD23 | 33:c:42:LEU:HA    | 1.76                     | 0.47              |
| 38:h:117:GLN:O   | 38:h:121:GLN:HG2  | 2.13                     | 0.47              |
| 39:i:94:SER:OG   | 39:i:95:GLY:N     | 2.48                     | 0.47              |
| 8:I:2262:C:H2'   | 8:I:2263:G:H8     | 1.78                     | 0.47              |
| 8:I:2378:G:H2'   | 8:I:2379:A:O4'    | 2.14                     | 0.47              |
| 16:J:92:LEU:HD22 | 16:J:100:VAL:HG23 | 1.95                     | 0.47              |
| 17:K:90:ASP:O    | 17:K:91:ASN:HB2   | 2.15                     | 0.47              |
| 32:a:115:A:H4'   | 32:a:116:C:C5     | 2.49                     | 0.47              |
| 32:a:268:U:H2'   | 32:a:269:A:C8     | 2.50                     | 0.47              |
| 33:c:23:TYR:OH   | 40:j:69:THR:OG1   | 2.19                     | 0.47              |
| 8:I:1184:G:H1'   | 8:I:1213:A:N1     | 2.30                     | 0.47              |
| 8:I:1569:C:H2'   | 8:I:1570:U:O4'    | 2.14                     | 0.47              |
| 8:I:2024:C:O2'   | 10:C:209:ALA:HB2  | 2.14                     | 0.47              |
| 8:I:2956:G:O2'   | 8:I:3082:U:OP1    | 2.29                     | 0.47              |
| 19:M:70:PRO:HA   | 19:M:95:ALA:HB2   | 1.96                     | 0.47              |
| 32:a:322:U:H3    | 32:a:326:A:H62    | 1.62                     | 0.47              |
| 32:a:472:G:H1'   | 32:a:474:C:N4     | 2.29                     | 0.47              |
| 32:a:490:A:H61   | 32:a:538:A:P      | 2.37                     | 0.47              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 40:j:13:TYR:HA   | 40:j:69:THR:HA    | 1.95                     | 0.47              |
| 42:l:100:GLY:HA2 | 42:l:104:THR:O    | 2.14                     | 0.47              |
| 8:I:196:G:H2'    | 8:I:197:A:O4'     | 2.14                     | 0.47              |
| 8:I:1539:U:H2'   | 8:I:1540:G:H8     | 1.78                     | 0.47              |
| 8:I:1787:G:H2'   | 8:I:1788:U:C6     | 2.48                     | 0.47              |
| 10:C:232:PRO:HB3 | 10:C:244:ARG:HH11 | 1.80                     | 0.47              |
| 11:D:138:SER:O   | 11:D:138:SER:OG   | 2.29                     | 0.47              |
| 19:M:116:ALA:O   | 19:M:120:ARG:HG2  | 2.14                     | 0.47              |
| 32:a:44:G:H2'    | 32:a:45:G:H8      | 1.79                     | 0.47              |
| 32:a:263:C:H2'   | 32:a:264:G:O4'    | 2.14                     | 0.47              |
| 32:a:450:A:N6    | 32:a:472:G:C5     | 2.81                     | 0.47              |
| 32:a:491:G:H2'   | 32:a:492:C:C6     | 2.49                     | 0.47              |
| 32:a:726:G:H2'   | 32:a:727:U:H6     | 1.80                     | 0.47              |
| 32:a:998:A:C5    | 32:a:999:C:H1'    | 2.49                     | 0.47              |
| 40:j:10:LEU:HD13 | 40:j:92:LEU:HD11  | 1.96                     | 0.47              |
| 8:I:740:G:N1     | 18:L:76:ILE:HD11  | 2.29                     | 0.47              |
| 8:I:1564:C:H2'   | 8:I:1565:G:C8     | 2.49                     | 0.47              |
| 8:I:2351:A:C6    | 8:I:2404:U:H1'    | 2.49                     | 0.47              |
| 8:I:2352:G:N2    | 8:I:2354:A:H3'    | 2.30                     | 0.47              |
| 32:a:9:G:O6      | 35:e:132:PRO:HD2  | 2.13                     | 0.47              |
| 32:a:93:U:H2'    | 32:a:94:C:C6      | 2.50                     | 0.47              |
| 32:a:503:U:H4'   | 34:d:36:HIS:CE1   | 2.50                     | 0.47              |
| 32:a:719:A:H2'   | 32:a:720:A:H8     | 1.80                     | 0.47              |
| 32:a:972:C:O2    | 51:9:59:ARG:HG2   | 2.15                     | 0.47              |
| 35:e:133:GLY:HA3 | 35:e:153:ASP:HB2  | 1.96                     | 0.47              |
| 42:l:4:ILE:O     | 42:l:8:VAL:HG23   | 2.14                     | 0.47              |
| 8:I:390:G:H21    | 8:I:413:A:H61     | 1.63                     | 0.47              |
| 8:I:504:A:H2'    | 8:I:505:C:C6      | 2.50                     | 0.47              |
| 8:I:1483:U:O2'   | 8:I:1807:A:N3     | 2.38                     | 0.47              |
| 8:I:1720:G:H2'   | 8:I:1721:A:H8     | 1.79                     | 0.47              |
| 8:I:2435:A:C4    | 15:H:29:PHE:HB2   | 2.50                     | 0.47              |
| 13:F:64:LEU:O    | 13:F:68:THR:OG1   | 2.32                     | 0.47              |
| 18:L:98:VAL:HG12 | 18:L:103:VAL:HG23 | 1.95                     | 0.47              |
| 32:a:67:G:C5     | 32:a:94:C:N4      | 2.83                     | 0.47              |
| 32:a:454:U:OP2   | 32:a:455:C:N4     | 2.46                     | 0.47              |
| 32:a:483:G:H2'   | 32:a:484:A:C8     | 2.50                     | 0.47              |
| 32:a:726:G:H2'   | 32:a:727:U:C6     | 2.50                     | 0.47              |
| 32:a:1002:G:C2   | 32:a:1014:G:C2    | 3.03                     | 0.47              |
| 34:d:15:LEU:HD11 | 34:d:55:LYS:HG3   | 1.97                     | 0.47              |
| 34:d:163:PRO:HG2 | 34:d:166:LEU:HD21 | 1.96                     | 0.47              |
| 40:j:14:ASP:HB3  | 40:j:17:ALA:HB3   | 1.96                     | 0.47              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 42:l:14:ASP:OD1  | 42:l:14:ASP:N     | 2.38                     | 0.47              |
| 8:I:946:C:O2'    | 8:I:968:U:OP1     | 2.27                     | 0.47              |
| 8:I:2795:G:H2'   | 8:I:2796:C:C6     | 2.49                     | 0.47              |
| 10:C:95:LEU:HD11 | 10:C:105:ILE:HD13 | 1.97                     | 0.47              |
| 10:C:232:PRO:HB3 | 10:C:244:ARG:NH1  | 2.30                     | 0.47              |
| 11:D:38:ARG:NH1  | 11:D:40:ARG:HH11  | 2.12                     | 0.47              |
| 28:V:138:ILE:HB  | 28:V:139:PRO:HD3  | 1.96                     | 0.47              |
| 32:a:172:C:H2'   | 32:a:173:G:C8     | 2.50                     | 0.47              |
| 32:a:407:G:H2'   | 32:a:408:G:C8     | 2.49                     | 0.47              |
| 42:l:73:ASN:C    | 42:l:74:LEU:HD23  | 2.39                     | 0.47              |
| 43:m:14:ARG:HE   | 43:m:41:ARG:CB    | 2.28                     | 0.47              |
| 8:I:1954:U:C2    | 8:I:1955:G:C8     | 3.02                     | 0.47              |
| 8:I:2052:U:H5'   | 10:C:158:SER:HB3  | 1.97                     | 0.47              |
| 12:E:171:GLY:O   | 12:E:175:VAL:HG22 | 2.15                     | 0.47              |
| 13:F:70:GLN:OE1  | 13:F:102:ARG:NH2  | 2.47                     | 0.47              |
| 32:a:1490:G:H1'  | 32:a:1511:A:C2    | 2.50                     | 0.47              |
| 34:d:96:VAL:HG12 | 34:d:166:LEU:HD22 | 1.96                     | 0.47              |
| 37:g:111:ARG:HG2 | 37:g:112:ARG:H    | 1.80                     | 0.47              |
| 41:k:46:ASP:HB2  | 41:k:47:PRO:HD2   | 1.96                     | 0.47              |
| 50:r:52:LEU:HB3  | 50:r:56:GLN:HB2   | 1.97                     | 0.47              |
| 8:I:1644:U:OP2   | 8:I:1645:A:O2'    | 2.29                     | 0.47              |
| 12:E:186:PRO:HG3 | 12:E:206:ALA:HB1  | 1.97                     | 0.47              |
| 13:F:135:TYR:CZ  | 13:F:177:LEU:HB2  | 2.50                     | 0.47              |
| 32:a:1111:U:H2'  | 32:a:1112:C:C6    | 2.48                     | 0.47              |
| 32:a:1236:C:H2'  | 32:a:1237:G:H8    | 1.80                     | 0.47              |
| 33:c:36:VAL:HG11 | 51:9:66:ILE:HG12  | 1.96                     | 0.47              |
| 8:I:2088:A:OP2   | 8:I:2122:A:N6     | 2.47                     | 0.46              |
| 32:a:377:G:O6    | 32:a:385:C:N4     | 2.46                     | 0.46              |
| 32:a:466:C:H2'   | 32:a:467:G:N7     | 2.30                     | 0.46              |
| 32:a:1449:A:H2'  | 32:a:1450:G:O4'   | 2.16                     | 0.46              |
| 35:e:103:PHE:CE1 | 35:e:176:LYS:HG2  | 2.50                     | 0.46              |
| 47:s:49:PHE:O    | 47:s:59:PRO:HA    | 2.15                     | 0.46              |
| 8:I:1200:G:H2'   | 8:I:1201:C:O4'    | 2.14                     | 0.46              |
| 8:I:2110:G:H2'   | 8:I:2111:G:H8     | 1.80                     | 0.46              |
| 12:E:47:GLN:HE22 | 12:E:190:ASN:HB2  | 1.80                     | 0.46              |
| 32:a:451:A:C5    | 32:a:471:U:C4     | 3.03                     | 0.46              |
| 3:0:24:LYS:HB3   | 25:S:33:LEU:HD11  | 1.96                     | 0.46              |
| 8:I:244:G:O2'    | 8:I:256:G:O6      | 2.32                     | 0.46              |
| 8:I:504:A:H2'    | 8:I:505:C:H6      | 1.80                     | 0.46              |
| 8:I:1707:A:H2'   | 8:I:1708:A:C8     | 2.49                     | 0.46              |
| 8:I:2750:C:O2    | 11:D:150:SER:OG   | 2.33                     | 0.46              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 21:O:42:ILE:HD11 | 21:O:76:SER:HA    | 1.96                     | 0.46              |
| 33:c:22:TRP:HZ2  | 33:c:32:VAL:HG12  | 1.79                     | 0.46              |
| 34:d:166:LEU:HB2 | 34:d:175:VAL:HG13 | 1.98                     | 0.46              |
| 35:e:49:ILE:HD12 | 35:e:66:ALA:HB2   | 1.97                     | 0.46              |
| 37:g:78:ARG:HH21 | 37:g:153:HIS:CG   | 2.33                     | 0.46              |
| 49:x:27:GLN:HG3  | 49:x:31:LEU:CD1   | 2.45                     | 0.46              |
| 3:0:47:ALA:HA    | 3:0:52:ILE:HD12   | 1.98                     | 0.46              |
| 8:I:611:C:O2     | 8:I:656:U:O2'     | 2.33                     | 0.46              |
| 28:V:133:ALA:HB2 | 28:V:166:VAL:HG13 | 1.97                     | 0.46              |
| 32:a:59:U:H2'    | 32:a:60:G:C8      | 2.50                     | 0.46              |
| 32:a:103:A:H2    | 48:t:10:ARG:HH11  | 1.62                     | 0.46              |
| 32:a:1052:G:H1'  | 40:j:59:LYS:NZ    | 2.30                     | 0.46              |
| 32:a:1140:U:H1'  | 39:i:39:ARG:HE    | 1.80                     | 0.46              |
| 36:f:10:LEU:O    | 36:f:59:ILE:HG23  | 2.16                     | 0.46              |
| 42:l:115:SER:C   | 42:l:116:ARG:HD3  | 2.40                     | 0.46              |
| 46:q:101:ASP:OD2 | 46:q:104:SER:HA   | 2.16                     | 0.46              |
| 50:r:70:MET:HE2  | 50:r:70:MET:HB2   | 1.75                     | 0.46              |
| 8:I:1129:A:H2'   | 8:I:1130:A:C8     | 2.51                     | 0.46              |
| 8:I:1585:G:H2'   | 8:I:1586:G:H8     | 1.79                     | 0.46              |
| 8:I:1638:C:H2'   | 8:I:1639:G:C8     | 2.51                     | 0.46              |
| 8:I:2091:G:N2    | 8:I:2124:U:O4     | 2.48                     | 0.46              |
| 14:G:90:ILE:HD12 | 14:G:95:TYR:HB3   | 1.98                     | 0.46              |
| 22:P:2:ASN:OD1   | 22:P:3:ARG:N      | 2.46                     | 0.46              |
| 23:Q:21:SER:O    | 23:Q:21:SER:OG    | 2.28                     | 0.46              |
| 25:S:27:ALA:O    | 25:S:31:ILE:HG13  | 2.14                     | 0.46              |
| 32:a:412:G:H5'   | 32:a:413:A:OP1    | 2.15                     | 0.46              |
| 32:a:490:A:N6    | 32:a:538:A:OP2    | 2.49                     | 0.46              |
| 32:a:1486:A:H3'  | 32:a:1487:G:H5'   | 1.98                     | 0.46              |
| 33:c:22:TRP:CD1  | 33:c:31:TYR:HD2   | 2.33                     | 0.46              |
| 37:g:80:VAL:N    | 37:g:84:THR:HG21  | 2.28                     | 0.46              |
| 1:u:24:U:H2'     | 1:u:25:C:C6       | 2.51                     | 0.46              |
| 2:1:59:ARG:HG2   | 2:1:60:LYS:H      | 1.81                     | 0.46              |
| 2:1:61:SER:OG    | 2:1:62:GLY:N      | 2.44                     | 0.46              |
| 4:2:44:THR:OG1   | 4:2:45:LEU:N      | 2.48                     | 0.46              |
| 8:I:282:C:C2     | 8:I:283:A:C8      | 3.04                     | 0.46              |
| 8:I:1887:A:C6    | 20:N:8:PRO:HG2    | 2.50                     | 0.46              |
| 8:I:3048:C:H2'   | 8:I:3049:C:H6     | 1.80                     | 0.46              |
| 9:B:61:U:H2'     | 9:B:62:G:H8       | 1.80                     | 0.46              |
| 14:G:46:ASN:HB2  | 14:G:52:VAL:HG23  | 1.97                     | 0.46              |
| 32:a:48:U:H2'    | 32:a:49:G:C8      | 2.51                     | 0.46              |
| 32:a:1121:A:H61  | 32:a:1135:G:H21   | 1.64                     | 0.46              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 51:9:14:ALA:HA   | 51:9:60:LEU:HD21  | 1.97                     | 0.46              |
| 8:I:765:C:H2'    | 8:I:766:G:C8      | 2.50                     | 0.46              |
| 8:I:1007:G:H22   | 8:I:1028:G:H1'    | 1.80                     | 0.46              |
| 8:I:1193:C:H3'   | 8:I:1194:U:H6     | 1.80                     | 0.46              |
| 8:I:1771:G:H1    | 8:I:1776:A:H61    | 1.64                     | 0.46              |
| 8:I:2893:G:O2'   | 8:I:2902:G:O6     | 2.28                     | 0.46              |
| 11:D:20:SER:O    | 11:D:20:SER:OG    | 2.30                     | 0.46              |
| 32:a:1159:U:H4'  | 32:a:1160:C:C4    | 2.50                     | 0.46              |
| 32:a:1307:U:O2'  | 32:a:1352:A:N3    | 2.46                     | 0.46              |
| 33:c:16:THR:HG22 | 33:c:17:ASP:N     | 2.31                     | 0.46              |
| 35:e:76:MET:HA   | 35:e:103:PHE:O    | 2.15                     | 0.46              |
| 8:I:534:C:OP1    | 23:Q:2:ALA:HA     | 2.16                     | 0.46              |
| 8:I:1732:A:H2'   | 8:I:1733:A:C8     | 2.51                     | 0.46              |
| 12:E:21:ASP:OD1  | 12:E:21:ASP:O     | 2.34                     | 0.46              |
| 13:F:140:ALA:O   | 13:F:142:GLN:N    | 2.48                     | 0.46              |
| 32:a:463:U:H2'   | 32:a:464:C:C6     | 2.50                     | 0.46              |
| 32:a:592:U:H2'   | 32:a:593:U:C6     | 2.50                     | 0.46              |
| 32:a:783:A:H1'   | 32:a:785:A:N7     | 2.30                     | 0.46              |
| 32:a:1194:U:O2'  | 51:9:69:ARG:HD2   | 2.16                     | 0.46              |
| 39:i:46:THR:HG22 | 39:i:48:LYS:H     | 1.81                     | 0.46              |
| 41:k:97:LYS:HB3  | 41:k:123:VAL:HG23 | 1.98                     | 0.46              |
| 1:n:10:G:H2'     | 1:n:11:A:C8       | 2.50                     | 0.46              |
| 3:0:27:LEU:HD22  | 8:I:3121:G:O2'    | 2.16                     | 0.46              |
| 8:I:334:C:H2'    | 8:I:335:A:H8      | 1.80                     | 0.46              |
| 8:I:1209:C:H2'   | 8:I:1210:U:C6     | 2.51                     | 0.46              |
| 8:I:1234:U:H2'   | 8:I:1235:G:C8     | 2.51                     | 0.46              |
| 8:I:2302:C:H2'   | 8:I:2303:C:H6     | 1.81                     | 0.46              |
| 8:I:2928:A:N7    | 20:N:4:PRO:HA     | 2.31                     | 0.46              |
| 9:B:1:U:H2'      | 9:B:2:U:C6        | 2.51                     | 0.46              |
| 22:P:31:VAL:O    | 22:P:32:ILE:HD13  | 2.16                     | 0.46              |
| 28:V:9:LEU:HD12  | 28:V:65:LEU:HD23  | 1.97                     | 0.46              |
| 32:a:136:C:H5'   | 46:q:44:GLY:O     | 2.15                     | 0.46              |
| 32:a:703:A:H2'   | 32:a:704:G:C8     | 2.51                     | 0.46              |
| 32:a:939:A:H2'   | 32:a:940:G:H8     | 1.81                     | 0.46              |
| 32:a:982:G:O6    | 32:a:1209:C:N4    | 2.49                     | 0.46              |
| 8:I:280:C:H2'    | 8:I:281:G:C8      | 2.51                     | 0.46              |
| 8:I:1284:G:OP2   | 23:Q:58:ARG:NH2   | 2.36                     | 0.46              |
| 8:I:1978:G:H2'   | 8:I:1979:A:C8     | 2.50                     | 0.46              |
| 8:I:2371:A:C5    | 8:I:2395:A:H4'    | 2.51                     | 0.46              |
| 10:C:69:ARG:HB3  | 10:C:130:ASN:HD22 | 1.81                     | 0.46              |
| 10:C:83:GLU:O    | 10:C:91:ARG:HG3   | 2.16                     | 0.46              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 32:a:591:G:C6    | 32:a:630:G:C6     | 3.04                     | 0.46              |
| 32:a:628:G:H2'   | 32:a:629:C:O4'    | 2.16                     | 0.46              |
| 32:a:1152:G:N2   | 32:a:1168:A:N1    | 2.55                     | 0.46              |
| 40:j:29:VAL:O    | 40:j:32:THR:OG1   | 2.27                     | 0.46              |
| 46:q:121:SER:O   | 46:q:125:ARG:NH1  | 2.45                     | 0.46              |
| 52:b:42:ILE:HA   | 52:b:42:ILE:HD12  | 1.79                     | 0.46              |
| 8:I:2738:U:O2'   | 8:I:2742:U:OP1    | 2.30                     | 0.45              |
| 22:P:70:GLU:OE2  | 22:P:100:ARG:NH1  | 2.49                     | 0.45              |
| 32:a:79:C:H2'    | 32:a:80:U:C6      | 2.51                     | 0.45              |
| 32:a:449:G:O2'   | 45:p:42:PRO:HB2   | 2.15                     | 0.45              |
| 34:d:68:ARG:O    | 34:d:72:GLU:HG2   | 2.16                     | 0.45              |
| 3:0:9:SER:O      | 3:0:13:THR:HG23   | 2.15                     | 0.45              |
| 8:I:776:G:H4'    | 18:L:116:LYS:HZ2  | 1.80                     | 0.45              |
| 8:I:2263:G:H2'   | 8:I:2264:A:C8     | 2.51                     | 0.45              |
| 14:G:105:GLU:HG2 | 14:G:115:VAL:HG22 | 1.97                     | 0.45              |
| 28:V:151:PRO:HB2 | 28:V:181:LYS:HB2  | 1.98                     | 0.45              |
| 32:a:226:G:H2'   | 32:a:227:A:O4'    | 2.16                     | 0.45              |
| 32:a:435:C:O2'   | 34:d:149:PRO:HG3  | 2.15                     | 0.45              |
| 32:a:442:C:H2'   | 32:a:443:A:H8     | 1.82                     | 0.45              |
| 33:c:64:ARG:NH1  | 33:c:66:ASP:OD2   | 2.50                     | 0.45              |
| 5:3:26:LYS:HE2   | 5:3:48:THR:HG23   | 1.98                     | 0.45              |
| 8:I:1051:C:H1'   | 29:W:26:TYR:HD2   | 1.80                     | 0.45              |
| 19:M:5:ARG:HB3   | 19:M:5:ARG:NH1    | 2.32                     | 0.45              |
| 32:a:453:G:H2'   | 32:a:454:U:C6     | 2.51                     | 0.45              |
| 32:a:513:C:H5''  | 42:l:117:TYR:OH   | 2.17                     | 0.45              |
| 32:a:709:A:H61   | 50:r:68:ARG:HH21  | 1.63                     | 0.45              |
| 32:a:1405:C:H2'  | 32:a:1406:A:C8    | 2.51                     | 0.45              |
| 42:l:115:SER:O   | 42:l:116:ARG:HD3  | 2.16                     | 0.45              |
| 8:I:1642:G:H2'   | 8:I:1643:G:O4'    | 2.17                     | 0.45              |
| 8:I:2343:G:H2'   | 8:I:2344:U:H6     | 1.81                     | 0.45              |
| 28:V:45:LEU:HD11 | 28:V:95:LEU:HD11  | 1.97                     | 0.45              |
| 32:a:402:C:H2'   | 32:a:403:G:H8     | 1.81                     | 0.45              |
| 32:a:467:G:C2    | 32:a:468:G:C5     | 3.05                     | 0.45              |
| 32:a:529:U:OP2   | 42:l:112:GLN:HB2  | 2.16                     | 0.45              |
| 32:a:615:U:H2'   | 32:a:616:G:C8     | 2.50                     | 0.45              |
| 35:e:135:GLY:O   | 35:e:153:ASP:HA   | 2.16                     | 0.45              |
| 43:m:15:MET:CE   | 43:m:34:LEU:HD21  | 2.47                     | 0.45              |
| 51:9:64:ASP:OD1  | 51:9:65:ALA:N     | 2.49                     | 0.45              |
| 8:I:608:G:H2'    | 8:I:609:U:O4'     | 2.17                     | 0.45              |
| 8:I:740:G:H1     | 18:L:76:ILE:HD11  | 1.81                     | 0.45              |
| 32:a:972:C:O2    | 51:9:59:ARG:NH1   | 2.49                     | 0.45              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 32:a:1263:G:C6    | 32:a:1264:U:C4    | 3.05                     | 0.45              |
| 33:c:7:PRO:O      | 33:c:11:ARG:NH1   | 2.50                     | 0.45              |
| 34:d:19:LEU:HD13  | 34:d:58:PHE:HB3   | 1.97                     | 0.45              |
| 42:l:50:ARG:NH1   | 42:l:89:ASP:OD2   | 2.39                     | 0.45              |
| 43:m:91:ARG:HG3   | 43:m:98:VAL:HG23  | 1.98                     | 0.45              |
| 48:t:60:LYS:O     | 48:t:64:LYS:HG3   | 2.16                     | 0.45              |
| 8:I:656:U:H2'     | 8:I:657:G:O4'     | 2.16                     | 0.45              |
| 8:I:1007:G:H2'    | 8:I:1008:A:C2     | 2.52                     | 0.45              |
| 8:I:1009:U:H2'    | 8:I:1010:G:H8     | 1.82                     | 0.45              |
| 8:I:1051:C:H1'    | 29:W:26:TYR:CD2   | 2.52                     | 0.45              |
| 8:I:1191:G:N7     | 8:I:1199:A:H5'    | 2.32                     | 0.45              |
| 8:I:1980:U:H2'    | 8:I:1981:C:C6     | 2.51                     | 0.45              |
| 8:I:3047:G:H2'    | 8:I:3048:C:C6     | 2.51                     | 0.45              |
| 11:D:86:LEU:HD12  | 11:D:92:ALA:HB2   | 1.99                     | 0.45              |
| 20:N:71:ARG:HE    | 20:N:71:ARG:HB2   | 1.58                     | 0.45              |
| 32:a:464:C:OP1    | 45:p:75:LYS:HB3   | 2.16                     | 0.45              |
| 32:a:806:A:C8     | 32:a:1520:C:H1'   | 2.51                     | 0.45              |
| 32:a:1055:G:O2'   | 32:a:1182:G:N2    | 2.49                     | 0.45              |
| 32:a:1369:U:H2'   | 32:a:1370:A:C8    | 2.52                     | 0.45              |
| 39:i:57:GLU:O     | 39:i:61:PRO:HA    | 2.17                     | 0.45              |
| 42:l:114:ARG:NH2  | 42:l:121:LYS:HG3  | 2.32                     | 0.45              |
| 45:p:57:GLN:HB3   | 45:p:83:PHE:CD1   | 2.51                     | 0.45              |
| 45:p:78:GLY:C     | 45:p:82:LYS:HE3   | 2.42                     | 0.45              |
| 46:q:98:LYS:HB2   | 46:q:124:LYS:HA   | 1.97                     | 0.45              |
| 8:I:359:C:H4'     | 8:I:360:A:H5''    | 1.98                     | 0.45              |
| 8:I:1182:C:H2'    | 8:I:1183:A:C8     | 2.51                     | 0.45              |
| 11:D:114:VAL:HG11 | 11:D:198:VAL:HG13 | 1.99                     | 0.45              |
| 13:F:12:LYS:HD3   | 13:F:13:GLU:N     | 2.30                     | 0.45              |
| 13:F:75:ARG:HH12  | 13:F:95:ARG:HH21  | 1.64                     | 0.45              |
| 14:G:90:ILE:HG22  | 14:G:163:VAL:HA   | 1.99                     | 0.45              |
| 14:G:108:LEU:HD23 | 14:G:109:GLY:N    | 2.32                     | 0.45              |
| 32:a:212:C:H3'    | 32:a:214:U:C5     | 2.51                     | 0.45              |
| 32:a:426:U:H3'    | 32:a:427:G:H8     | 1.82                     | 0.45              |
| 48:t:69:LYS:HB2   | 48:t:69:LYS:HE3   | 1.53                     | 0.45              |
| 8:I:335:A:H2'     | 8:I:336:G:C8      | 2.52                     | 0.45              |
| 8:I:992:A:H2'     | 8:I:993:G:H8      | 1.82                     | 0.45              |
| 8:I:1292:G:C2     | 8:I:1293:G:C8     | 3.05                     | 0.45              |
| 8:I:1653:A:H3'    | 8:I:1654:G:H8     | 1.82                     | 0.45              |
| 8:I:1768:G:H2'    | 8:I:1769:C:H6     | 1.81                     | 0.45              |
| 8:I:1884:G:O2'    | 20:N:106:ASP:OD2  | 2.24                     | 0.45              |
| 8:I:2352:G:N2     | 8:I:2354:A:H8     | 2.15                     | 0.45              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 13:F:64:LEU:HD23 | 13:F:64:LEU:HA    | 1.81                     | 0.45              |
| 14:G:54:THR:OG1  | 14:G:55:ARG:N     | 2.50                     | 0.45              |
| 30:Y:13:LEU:HB3  | 30:Y:17:GLU:HB2   | 1.98                     | 0.45              |
| 32:a:754:G:H2'   | 32:a:755:C:H6     | 1.82                     | 0.45              |
| 32:a:839:G:H2'   | 32:a:840:G:H8     | 1.81                     | 0.45              |
| 32:a:1135:G:H2'  | 32:a:1136:G:H8    | 1.82                     | 0.45              |
| 39:i:30:VAL:HG12 | 39:i:31:GLY:H     | 1.82                     | 0.45              |
| 45:p:1:MET:HA    | 45:p:26:ARG:HG3   | 1.98                     | 0.45              |
| 47:s:13:GLU:HB2  | 51:9:46:ARG:HG2   | 1.98                     | 0.45              |
| 4:2:42:ARG:NH2   | 8:I:556:G:N7      | 2.64                     | 0.45              |
| 8:I:1230:U:H2'   | 8:I:1231:C:O4'    | 2.16                     | 0.45              |
| 8:I:1622:G:H3'   | 8:I:1623:G:C8     | 2.52                     | 0.45              |
| 9:B:110:C:H2'    | 9:B:111:G:H8      | 1.81                     | 0.45              |
| 11:D:35:VAL:HA   | 11:D:53:ALA:O     | 2.16                     | 0.45              |
| 13:F:75:ARG:NH1  | 13:F:95:ARG:HH21  | 2.14                     | 0.45              |
| 32:a:105:C:O3'   | 45:p:26:ARG:HA    | 2.17                     | 0.45              |
| 32:a:535:G:H5''  | 34:d:50:LEU:HD11  | 1.99                     | 0.45              |
| 32:a:1406:A:H2   | 32:a:1480:G:H22   | 1.65                     | 0.45              |
| 37:g:51:ARG:HB2  | 37:g:58:PRO:HG3   | 1.99                     | 0.45              |
| 1:u:27:U:H2'     | 1:u:28:C:C6       | 2.52                     | 0.45              |
| 3:0:9:SER:OG     | 3:0:12:ASN:ND2    | 2.50                     | 0.45              |
| 8:I:335:A:H2'    | 8:I:336:G:H8      | 1.82                     | 0.45              |
| 8:I:369:C:H2'    | 8:I:370:G:H8      | 1.77                     | 0.45              |
| 8:I:746:G:H1'    | 8:I:749:U:C5      | 2.50                     | 0.45              |
| 8:I:1624:C:H2'   | 8:I:1625:U:O4'    | 2.17                     | 0.45              |
| 8:I:1721:A:H2'   | 8:I:1722:G:C8     | 2.53                     | 0.45              |
| 8:I:2679:C:H2'   | 8:I:2680:C:C6     | 2.51                     | 0.45              |
| 8:I:2795:G:H2'   | 8:I:2796:C:H6     | 1.82                     | 0.45              |
| 14:G:16:ASP:HB3  | 14:G:27:LYS:HB3   | 1.97                     | 0.45              |
| 32:a:351:C:H4'   | 32:a:353:G:OP1    | 2.17                     | 0.45              |
| 32:a:982:G:O4'   | 32:a:1009:G:N2    | 2.49                     | 0.45              |
| 1:n:36:A:H2'     | 1:n:38:A:C8       | 2.52                     | 0.44              |
| 8:I:448:U:H2'    | 8:I:449:A:H8      | 1.82                     | 0.44              |
| 8:I:1298:U:H2'   | 8:I:1299:C:H6     | 1.81                     | 0.44              |
| 8:I:2447:U:O2'   | 8:I:2448:G:P      | 2.76                     | 0.44              |
| 8:I:2829:C:H2'   | 8:I:2830:G:C8     | 2.51                     | 0.44              |
| 12:E:156:GLU:N   | 12:E:156:GLU:OE2  | 2.50                     | 0.44              |
| 13:F:126:PRO:HB3 | 13:F:174:ARG:HH11 | 1.82                     | 0.44              |
| 32:a:226:G:H5''  | 46:q:51:THR:HG21  | 1.99                     | 0.44              |
| 32:a:435:C:H4'   | 34:d:149:PRO:HD3  | 1.98                     | 0.44              |
| 32:a:479:G:H2'   | 32:a:480:G:H8     | 1.82                     | 0.44              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 32:a:1221:A:H61   | 43:m:104:LYS:HE2  | 1.81                     | 0.44              |
| 34:d:8:VAL:HG13   | 34:d:107:ARG:HH21 | 1.82                     | 0.44              |
| 38:h:46:ILE:HD12  | 38:h:62:ILE:HG21  | 1.99                     | 0.44              |
| 8:I:637:C:H2'     | 8:I:638:C:C6      | 2.52                     | 0.44              |
| 8:I:2288:C:O2'    | 11:D:151:ILE:HD11 | 2.17                     | 0.44              |
| 16:J:36:LEU:O     | 16:J:51:GLY:HA3   | 2.18                     | 0.44              |
| 32:a:108:G:H2'    | 32:a:109:U:C6     | 2.52                     | 0.44              |
| 32:a:372:A:N3     | 32:a:473:A:N6     | 2.64                     | 0.44              |
| 32:a:968:A:H8     | 32:a:1349:A:HO2'  | 1.62                     | 0.44              |
| 34:d:14:ARG:NE    | 34:d:33:PRO:HG2   | 2.32                     | 0.44              |
| 36:f:4:TYR:CE1    | 36:f:92:ARG:HD3   | 2.52                     | 0.44              |
| 36:f:39:LYS:HB3   | 36:f:41:ASP:OD1   | 2.17                     | 0.44              |
| 40:j:54:SER:O     | 51:9:81:ARG:NH2   | 2.46                     | 0.44              |
| 2:1:38:LYS:HG2    | 8:I:1453:A:C5     | 2.52                     | 0.44              |
| 8:I:570:G:P       | 27:U:43:LYS:HG3   | 2.56                     | 0.44              |
| 8:I:1197:G:N2     | 8:I:1224:A:O2'    | 2.50                     | 0.44              |
| 8:I:2540:U:H2'    | 8:I:2541:G:H8     | 1.82                     | 0.44              |
| 8:I:3055:C:H5''   | 8:I:3056:A:N7     | 2.32                     | 0.44              |
| 32:a:403:G:H5'    | 34:d:114:SER:HB2  | 1.99                     | 0.44              |
| 32:a:593:U:H2'    | 32:a:594:C:C6     | 2.52                     | 0.44              |
| 32:a:1222:C:H41   | 43:m:105:THR:HG21 | 1.83                     | 0.44              |
| 32:a:1312:C:O4'   | 47:s:70:LYS:HB2   | 2.17                     | 0.44              |
| 32:a:1319:C:H2'   | 32:a:1320:C:H6    | 1.82                     | 0.44              |
| 35:e:193:GLU:OE2  | 38:h:116:ARG:HG3  | 2.18                     | 0.44              |
| 50:r:52:LEU:HD23  | 50:r:56:GLN:HB3   | 1.99                     | 0.44              |
| 1:n:72:C:H2'      | 1:n:73:A:H8       | 1.80                     | 0.44              |
| 3:0:27:LEU:HD12   | 3:0:28:VAL:C      | 2.42                     | 0.44              |
| 8:I:274:A:HO2'    | 8:I:456:C:HO2'    | 1.62                     | 0.44              |
| 8:I:430:A:H2'     | 8:I:431:A:C8      | 2.52                     | 0.44              |
| 8:I:1183:A:H2'    | 8:I:1184:G:H8     | 1.83                     | 0.44              |
| 8:I:1470:G:H3'    | 26:T:62:ARG:HH22  | 1.81                     | 0.44              |
| 10:C:8:PRO:HB3    | 10:C:14:ARG:HD3   | 1.99                     | 0.44              |
| 14:G:7:GLN:HG2    | 14:G:8:PRO:HD2    | 1.99                     | 0.44              |
| 32:a:372:A:N1     | 32:a:390:G:H1'    | 2.33                     | 0.44              |
| 32:a:719:A:H2'    | 32:a:720:A:C8     | 2.52                     | 0.44              |
| 32:a:1062:C:H2'   | 32:a:1063:G:H8    | 1.83                     | 0.44              |
| 34:d:116:GLY:O    | 34:d:141:ARG:NE   | 2.50                     | 0.44              |
| 42:l:111:LYS:HD3  | 42:l:111:LYS:N    | 2.33                     | 0.44              |
| 46:q:117:THR:HG23 | 46:q:118:ARG:H    | 1.81                     | 0.44              |
| 8:I:2345:U:H2'    | 8:I:2346:U:C6     | 2.53                     | 0.44              |
| 24:R:13:LYS:NZ    | 24:R:26:GLU:OE2   | 2.43                     | 0.44              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 32:a:485:G:H2'   | 32:a:487:A:H8    | 1.83                     | 0.44              |
| 32:a:602:C:C2    | 32:a:603:U:C5    | 3.05                     | 0.44              |
| 32:a:991:G:N2    | 32:a:1034:U:O2   | 2.48                     | 0.44              |
| 45:p:17:GLN:OE1  | 45:p:19:ARG:NH2  | 2.51                     | 0.44              |
| 45:p:68:GLU:HB2  | 45:p:69:PRO:HD2  | 2.00                     | 0.44              |
| 46:q:46:LYS:HG3  | 46:q:47:HIS:N    | 2.32                     | 0.44              |
| 52:b:11:LEU:HD12 | 52:b:12:ARG:NE   | 2.32                     | 0.44              |
| 1:n:20:G:H4'     | 1:n:21:U:OP2     | 2.17                     | 0.44              |
| 8:I:1060:A:H4'   | 8:I:1061:A:O5'   | 2.17                     | 0.44              |
| 8:I:1122:G:OP1   | 23:Q:50:ARG:NH1  | 2.51                     | 0.44              |
| 8:I:1634:A:H3'   | 8:I:1635:C:C6    | 2.53                     | 0.44              |
| 8:I:2382:C:H41   | 8:I:2384:A:H62   | 1.65                     | 0.44              |
| 8:I:2637:A:H2'   | 8:I:2638:C:C6    | 2.53                     | 0.44              |
| 30:Y:21:ARG:HG3  | 30:Y:57:ILE:HD11 | 2.00                     | 0.44              |
| 32:a:417:C:H2'   | 32:a:418:C:C6    | 2.52                     | 0.44              |
| 32:a:769:G:H2'   | 32:a:770:C:C6    | 2.53                     | 0.44              |
| 32:a:876:C:O2'   | 32:a:877:U:H5'   | 2.18                     | 0.44              |
| 32:a:939:A:H2'   | 32:a:940:G:C8    | 2.52                     | 0.44              |
| 32:a:1121:A:H61  | 32:a:1135:G:N2   | 2.15                     | 0.44              |
| 33:c:87:ARG:NH2  | 33:c:100:LEU:H   | 2.15                     | 0.44              |
| 39:i:48:LYS:HB3  | 39:i:48:LYS:NZ   | 2.32                     | 0.44              |
| 46:q:71:GLN:O    | 46:q:72:LYS:HB2  | 2.18                     | 0.44              |
| 1:n:24:C:H2'     | 1:n:25:U:C6      | 2.53                     | 0.44              |
| 7:6:20:ASN:ND2   | 7:6:40:GLN:OE1   | 2.44                     | 0.44              |
| 8:I:1406:A:N1    | 8:I:1426:C:O2'   | 2.48                     | 0.44              |
| 8:I:2802:A:C6    | 8:I:2885:U:H4'   | 2.53                     | 0.44              |
| 12:E:13:VAL:CG1  | 12:E:132:ALA:H   | 2.30                     | 0.44              |
| 12:E:26:LEU:HD13 | 12:E:30:LEU:HD22 | 2.00                     | 0.44              |
| 14:G:55:ARG:HG2  | 14:G:62:ASN:HB3  | 2.00                     | 0.44              |
| 27:U:82:ARG:O    | 27:U:99:LYS:HG2  | 2.18                     | 0.44              |
| 32:a:830:U:O4    | 32:a:840:G:O6    | 2.36                     | 0.44              |
| 34:d:67:PHE:CE1  | 34:d:85:LEU:HD22 | 2.53                     | 0.44              |
| 43:m:80:ARG:O    | 43:m:84:ILE:HG13 | 2.18                     | 0.44              |
| 43:m:81:LYS:O    | 43:m:84:ILE:HB   | 2.17                     | 0.44              |
| 43:m:84:ILE:HG23 | 47:s:66:MET:SD   | 2.58                     | 0.44              |
| 45:p:9:ARG:NE    | 45:p:18:TYR:HE1  | 2.16                     | 0.44              |
| 6:4:1:MET:HB3    | 6:4:1:MET:HE3    | 1.34                     | 0.44              |
| 8:I:844:A:HO2'   | 8:I:845:A:P      | 2.40                     | 0.44              |
| 8:I:1978:G:H2'   | 8:I:1979:A:H8    | 1.82                     | 0.44              |
| 8:I:2541:G:O2'   | 13:F:127:LYS:O   | 2.35                     | 0.44              |
| 13:F:166:SER:O   | 13:F:166:SER:OG  | 2.25                     | 0.44              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 28:V:9:LEU:HD21   | 28:V:50:HIS:HB3   | 1.99                     | 0.44              |
| 28:V:99:ARG:HG2   | 28:V:100:ARG:N    | 2.33                     | 0.44              |
| 28:V:105:VAL:HG11 | 28:V:169:ILE:HD13 | 2.00                     | 0.44              |
| 32:a:68:A:OP2     | 32:a:212:C:H5'    | 2.17                     | 0.44              |
| 32:a:1012:A:C6    | 32:a:1013:G:C6    | 3.05                     | 0.44              |
| 32:a:1109:U:H5''  | 39:i:32:ARG:HD3   | 1.99                     | 0.44              |
| 37:g:79:ARG:HD2   | 37:g:79:ARG:HA    | 1.85                     | 0.44              |
| 40:j:65:PHE:CE2   | 51:9:85:ARG:HA    | 2.51                     | 0.44              |
| 1:n:24:C:H2'      | 1:n:25:U:H6       | 1.83                     | 0.44              |
| 8:I:743:U:H2'     | 8:I:744:C:C6      | 2.53                     | 0.44              |
| 8:I:1750:C:H2'    | 8:I:1751:C:H6     | 1.82                     | 0.44              |
| 8:I:2318:C:H2'    | 8:I:2319:A:H8     | 1.83                     | 0.44              |
| 32:a:225:G:H2'    | 32:a:226:G:H8     | 1.82                     | 0.44              |
| 32:a:311:C:H2'    | 32:a:312:A:H8     | 1.83                     | 0.44              |
| 34:d:119:ASN:HB3  | 34:d:125:VAL:H    | 1.83                     | 0.44              |
| 1:n:1:C:H2'       | 1:n:2:G:H8        | 1.83                     | 0.43              |
| 1:n:4:G:O2'       | 1:n:5:G:O5'       | 2.32                     | 0.43              |
| 1:n:25:U:H2'      | 1:n:26:C:C6       | 2.53                     | 0.43              |
| 8:I:191:G:O6      | 8:I:207:G:O2'     | 2.31                     | 0.43              |
| 8:I:763:C:N4      | 8:I:764:G:O6      | 2.50                     | 0.43              |
| 8:I:1074:G:O6     | 8:I:1101:G:N2     | 2.50                     | 0.43              |
| 8:I:1597:C:H2'    | 8:I:1598:C:C6     | 2.52                     | 0.43              |
| 8:I:2009:U:O4     | 8:I:2023:A:H2     | 2.01                     | 0.43              |
| 8:I:2914:C:N4     | 8:I:2969:G:H1     | 2.15                     | 0.43              |
| 9:B:41:C:C6       | 13:F:73:GLU:HG3   | 2.53                     | 0.43              |
| 22:P:2:ASN:CG     | 22:P:3:ARG:H      | 2.23                     | 0.43              |
| 32:a:400:C:O2'    | 32:a:612:A:N3     | 2.41                     | 0.43              |
| 32:a:1258:G:N1    | 32:a:1262:G:O6    | 2.51                     | 0.43              |
| 32:a:1334:C:H2'   | 32:a:1335:G:H8    | 1.82                     | 0.43              |
| 37:g:56:THR:OG1   | 37:g:57:ASP:N     | 2.45                     | 0.43              |
| 42:l:4:ILE:HD13   | 42:l:7:LEU:HD12   | 2.00                     | 0.43              |
| 45:p:70:VAL:O     | 45:p:74:LEU:HG    | 2.17                     | 0.43              |
| 51:9:79:LEU:HB2   | 51:9:84:VAL:HG23  | 1.99                     | 0.43              |
| 3:0:5:LYS:HE2     | 8:I:2292:A:H2'    | 2.00                     | 0.43              |
| 8:I:293:G:O5'     | 8:I:338:G:O2'     | 2.36                     | 0.43              |
| 8:I:334:C:H2'     | 8:I:335:A:C8      | 2.53                     | 0.43              |
| 8:I:348:U:H2'     | 8:I:349:G:C8      | 2.54                     | 0.43              |
| 8:I:925:U:H2'     | 8:I:926:C:C6      | 2.53                     | 0.43              |
| 11:D:110:SER:O    | 11:D:182:VAL:HG12 | 2.18                     | 0.43              |
| 18:L:103:VAL:HG21 | 18:L:109:VAL:HG11 | 1.99                     | 0.43              |
| 19:M:21:ALA:HB2   | 19:M:98:LYS:HG3   | 2.01                     | 0.43              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 21:O:13:ARG:CZ    | 21:O:13:ARG:HB3   | 2.48                     | 0.43              |
| 21:O:27:THR:OG1   | 21:O:28:ALA:N     | 2.50                     | 0.43              |
| 32:a:75:A:C6      | 32:a:76:G:C5      | 3.06                     | 0.43              |
| 32:a:179:G:H21    | 32:a:223:U:C5'    | 2.30                     | 0.43              |
| 32:a:406:G:H1     | 32:a:434:U:H3     | 1.67                     | 0.43              |
| 32:a:449:G:OP1    | 45:p:46:PRO:HB3   | 2.16                     | 0.43              |
| 32:a:481:U:H2'    | 32:a:482:G:H8     | 1.82                     | 0.43              |
| 41:k:28:HIS:O     | 41:k:47:PRO:HD3   | 2.18                     | 0.43              |
| 42:l:110:ARG:C    | 42:l:111:LYS:HD3  | 2.43                     | 0.43              |
| 43:m:29:ARG:HD3   | 43:m:32:GLU:OE1   | 2.18                     | 0.43              |
| 8:I:636:U:C4      | 8:I:648:G:N1      | 2.86                     | 0.43              |
| 8:I:689:G:H22     | 18:L:34:ARG:CZ    | 2.32                     | 0.43              |
| 32:a:997:G:C6     | 32:a:1018:U:H5'   | 2.53                     | 0.43              |
| 32:a:1001:C:H2'   | 32:a:1002:G:H8    | 1.79                     | 0.43              |
| 32:a:1040:U:O2'   | 51:9:3:LYS:HE3    | 2.19                     | 0.43              |
| 35:e:72:ASP:C     | 35:e:72:ASP:OD1   | 2.61                     | 0.43              |
| 40:j:36:VAL:HA    | 40:j:77:ILE:HG23  | 1.99                     | 0.43              |
| 42:l:73:ASN:HD21  | 42:l:105:GLN:H    | 1.64                     | 0.43              |
| 8:I:282:C:H2'     | 8:I:283:A:C8      | 2.53                     | 0.43              |
| 8:I:296:U:O4      | 8:I:297:A:N6      | 2.51                     | 0.43              |
| 8:I:699:U:H2'     | 8:I:700:G:H8      | 1.82                     | 0.43              |
| 9:B:29:C:OP1      | 21:O:9:ARG:HD3    | 2.18                     | 0.43              |
| 11:D:37:THR:HA    | 11:D:51:GLN:O     | 2.18                     | 0.43              |
| 26:T:6:ASP:O      | 26:T:8:ARG:N      | 2.50                     | 0.43              |
| 29:W:56:ASP:HB3   | 29:W:58:THR:HG23  | 2.00                     | 0.43              |
| 32:a:831:C:C2     | 32:a:840:G:C2     | 3.06                     | 0.43              |
| 32:a:918:G:C2     | 32:a:920:G:C8     | 3.06                     | 0.43              |
| 32:a:1240:A:N6    | 32:a:1282:G:C5    | 2.87                     | 0.43              |
| 45:p:49:ILE:CD1   | 45:p:73:LEU:HD22  | 2.48                     | 0.43              |
| 8:I:1333:C:H2'    | 8:I:1334:U:C6     | 2.54                     | 0.43              |
| 8:I:1585:G:H2'    | 8:I:1586:G:C8     | 2.54                     | 0.43              |
| 8:I:2042:C:O2'    | 8:I:2043:A:O5'    | 2.36                     | 0.43              |
| 13:F:43:VAL:HG11  | 13:F:64:LEU:HD21  | 1.99                     | 0.43              |
| 14:G:24:ILE:HG22  | 14:G:26:VAL:HG23  | 2.00                     | 0.43              |
| 15:H:4:ILE:HG23   | 15:H:18:THR:HG22  | 2.00                     | 0.43              |
| 22:P:99:LEU:HD23  | 22:P:99:LEU:HA    | 1.87                     | 0.43              |
| 28:V:176:VAL:HG12 | 28:V:177:VAL:HG23 | 2.00                     | 0.43              |
| 32:a:380:C:H2'    | 32:a:381:A:O4'    | 2.19                     | 0.43              |
| 32:a:536:C:P      | 34:d:57:ARG:HH12  | 2.42                     | 0.43              |
| 33:c:191:THR:OG1  | 33:c:192:THR:N    | 2.51                     | 0.43              |
| 36:f:9:ILE:HG12   | 36:f:46:ARG:HH21  | 1.83                     | 0.43              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 36:f:15:ASP:O    | 36:f:19:VAL:HG23 | 2.19                     | 0.43              |
| 40:j:5:LYS:HB3   | 40:j:79:PRO:HB3  | 2.01                     | 0.43              |
| 43:m:29:ARG:HD3  | 43:m:29:ARG:HA   | 1.86                     | 0.43              |
| 45:p:70:VAL:HA   | 45:p:73:LEU:HG   | 2.01                     | 0.43              |
| 51:9:66:ILE:HD12 | 51:9:83:ARG:HD2  | 1.99                     | 0.43              |
| 8:I:145:C:H2'    | 8:I:146:G:H8     | 1.83                     | 0.43              |
| 8:I:358:U:H3'    | 8:I:359:C:C6     | 2.53                     | 0.43              |
| 8:I:509:G:H2'    | 8:I:510:U:C6     | 2.54                     | 0.43              |
| 8:I:652:G:H2'    | 8:I:653:U:H5''   | 2.00                     | 0.43              |
| 8:I:2364:G:O2'   | 8:I:2365:A:O4'   | 2.37                     | 0.43              |
| 8:I:3011:C:H2'   | 8:I:3012:C:C6    | 2.54                     | 0.43              |
| 32:a:35:A:H2'    | 32:a:36:A:H8     | 1.84                     | 0.43              |
| 32:a:135:G:H5''  | 46:q:43:LYS:N    | 2.34                     | 0.43              |
| 32:a:476:G:H3'   | 32:a:477:U:H5'   | 2.00                     | 0.43              |
| 32:a:1262:G:C2   | 32:a:1263:G:C5   | 3.06                     | 0.43              |
| 39:i:51:LEU:HB2  | 39:i:85:PHE:HD2  | 1.83                     | 0.43              |
| 47:s:13:GLU:OE2  | 51:9:50:ARG:NE   | 2.50                     | 0.43              |
| 8:I:622:U:H2'    | 8:I:623:C:C6     | 2.54                     | 0.43              |
| 8:I:1749:U:H2'   | 8:I:1750:C:C6    | 2.53                     | 0.43              |
| 8:I:2478:U:H2'   | 8:I:2479:A:H8    | 1.84                     | 0.43              |
| 8:I:2662:C:O2    | 8:I:2667:G:O2'   | 2.36                     | 0.43              |
| 32:a:130:G:O6    | 45:p:1:MET:HG2   | 2.19                     | 0.43              |
| 32:a:192:A:N6    | 46:q:55:ARG:HE   | 2.16                     | 0.43              |
| 32:a:630:G:C6    | 32:a:631:A:N7    | 2.87                     | 0.43              |
| 42:l:28:PRO:HB2  | 42:l:29:GLN:OE1  | 2.19                     | 0.43              |
| 44:o:75:VAL:HG13 | 46:q:136:LYS:HD2 | 2.00                     | 0.43              |
| 8:I:1066:G:C2    | 8:I:1067:G:C8    | 3.07                     | 0.43              |
| 8:I:2474:C:H2'   | 8:I:2475:G:O4'   | 2.19                     | 0.43              |
| 8:I:2936:U:H2'   | 8:I:2937:C:C6    | 2.54                     | 0.43              |
| 32:a:570:U:H2'   | 32:a:571:C:C6    | 2.54                     | 0.43              |
| 32:a:1138:A:H2'  | 32:a:1139:C:C6   | 2.53                     | 0.43              |
| 32:a:1498:G:N3   | 32:a:1498:G:H2'  | 2.34                     | 0.43              |
| 38:h:94:LEU:O    | 38:h:96:ARG:NH1  | 2.51                     | 0.43              |
| 39:i:93:PRO:O    | 39:i:94:SER:HB3  | 2.19                     | 0.43              |
| 39:i:96:GLN:HG2  | 39:i:97:ALA:N    | 2.33                     | 0.43              |
| 40:j:80:THR:HG22 | 40:j:82:LYS:HG2  | 2.01                     | 0.43              |
| 8:I:9:G:N1       | 8:I:2867:C:N3    | 2.66                     | 0.43              |
| 8:I:740:G:N7     | 18:L:110:LYS:NZ  | 2.58                     | 0.43              |
| 8:I:786:U:H2'    | 8:I:787:G:C8     | 2.53                     | 0.43              |
| 8:I:992:A:H2'    | 8:I:993:G:C8     | 2.54                     | 0.43              |
| 8:I:1574:C:H2'   | 8:I:1575:A:H8    | 1.84                     | 0.43              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 8:I:1903:A:H4'   | 8:I:1904:A:O5'   | 2.18                     | 0.43              |
| 8:I:2059:A:H2'   | 8:I:2060:C:C6    | 2.54                     | 0.43              |
| 8:I:2840:A:H4'   | 8:I:2841:G:O5'   | 2.17                     | 0.43              |
| 16:J:2:PRO:HB2   | 16:J:3:THR:H     | 1.60                     | 0.43              |
| 25:S:56:PRO:O    | 25:S:60:VAL:HG23 | 2.18                     | 0.43              |
| 32:a:179:G:C4    | 32:a:180:A:C8    | 3.07                     | 0.43              |
| 32:a:256:G:O6    | 32:a:269:A:N6    | 2.52                     | 0.43              |
| 32:a:320:A:H2'   | 32:a:321:C:C6    | 2.53                     | 0.43              |
| 32:a:403:G:O2'   | 32:a:489:A:N1    | 2.44                     | 0.43              |
| 32:a:623:U:H3'   | 32:a:624:G:H5'   | 2.01                     | 0.43              |
| 32:a:913:U:H2'   | 32:a:914:U:C6    | 2.54                     | 0.43              |
| 32:a:999:C:H2'   | 32:a:1000:G:C8   | 2.54                     | 0.43              |
| 32:a:1293:U:H2'  | 32:a:1295:C:C5   | 2.53                     | 0.43              |
| 32:a:1452:G:H2'  | 32:a:1453:A:H8   | 1.84                     | 0.43              |
| 3:O:28:VAL:HA    | 3:O:38:LYS:HG2   | 2.01                     | 0.43              |
| 8:I:855:G:HO2'   | 8:I:856:A:P      | 2.41                     | 0.43              |
| 8:I:1040:A:N6    | 19:M:9:HIS:HB3   | 2.34                     | 0.43              |
| 8:I:1167:A:C2    | 8:I:1247:G:N1    | 2.86                     | 0.43              |
| 20:N:38:GLU:HB3  | 20:N:39:PRO:HD3  | 2.01                     | 0.43              |
| 32:a:104:A:C6    | 32:a:325:G:C6    | 3.07                     | 0.43              |
| 32:a:180:A:H2'   | 32:a:181:C:H5'   | 2.01                     | 0.43              |
| 40:j:52:ILE:HD11 | 40:j:57:LYS:HD2  | 2.01                     | 0.43              |
| 8:I:858:G:O2'    | 8:I:892:G:H4'    | 2.19                     | 0.42              |
| 8:I:2024:C:H2'   | 8:I:2025:A:C8    | 2.54                     | 0.42              |
| 8:I:2750:C:H2'   | 8:I:2751:G:O4'   | 2.19                     | 0.42              |
| 12:E:176:ARG:O   | 12:E:177:ASN:HB3 | 2.19                     | 0.42              |
| 13:F:72:PRO:HB3  | 13:F:96:VAL:CG2  | 2.49                     | 0.42              |
| 18:L:78:ASN:HA   | 18:L:112:LEU:O   | 2.18                     | 0.42              |
| 23:Q:77:ASN:OD1  | 23:Q:78:ARG:HG2  | 2.19                     | 0.42              |
| 32:a:192:A:H62   | 46:q:55:ARG:HH21 | 1.67                     | 0.42              |
| 32:a:211:G:C6    | 32:a:215:U:C2    | 3.06                     | 0.42              |
| 32:a:452:G:OP1   | 45:p:72:LYS:HB2  | 2.19                     | 0.42              |
| 32:a:616:G:H4'   | 45:p:41:HIS:HE1  | 1.83                     | 0.42              |
| 32:a:951:A:H8    | 32:a:978:C:O2'   | 2.02                     | 0.42              |
| 32:a:1316:A:H2'  | 32:a:1317:C:C6   | 2.54                     | 0.42              |
| 32:a:1330:G:N3   | 1:u:41:C:O2'     | 2.51                     | 0.42              |
| 32:a:1435:G:H2'  | 32:a:1435:G:N3   | 2.34                     | 0.42              |
| 34:d:90:GLU:HG3  | 34:d:165:TRP:CZ2 | 2.48                     | 0.42              |
| 36:f:42:ILE:HG22 | 36:f:44:GLY:H    | 1.84                     | 0.42              |
| 41:k:107:ILE:O   | 41:k:111:GLN:HG3 | 2.19                     | 0.42              |
| 8:I:988:G:O2'    | 8:I:1045:G:O6    | 2.33                     | 0.42              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 8:I:1155:G:OP2    | 8:I:1263:G:O2'    | 2.30                     | 0.42              |
| 8:I:1558:A:H5'    | 8:I:1645:A:H61    | 1.83                     | 0.42              |
| 13:F:23:LEU:HD11  | 13:F:176:LEU:HD13 | 2.01                     | 0.42              |
| 32:a:92:C:H3'     | 32:a:93:U:C5      | 2.54                     | 0.42              |
| 32:a:94:C:O2'     | 32:a:95:G:H8      | 2.01                     | 0.42              |
| 32:a:179:G:C2     | 32:a:180:A:H1'    | 2.54                     | 0.42              |
| 32:a:322:U:H2'    | 32:a:323:G:O4'    | 2.19                     | 0.42              |
| 32:a:819:A:H62    | 32:a:851:G:H21    | 1.66                     | 0.42              |
| 32:a:1163:C:H2'   | 32:a:1164:U:C6    | 2.53                     | 0.42              |
| 32:a:1172:A:H1'   | 39:i:127:ARG:HH22 | 1.85                     | 0.42              |
| 33:c:128:ALA:HB3  | 33:c:131:ARG:HB3  | 2.01                     | 0.42              |
| 34:d:87:LYS:HB3   | 34:d:181:PRO:HG2  | 2.01                     | 0.42              |
| 36:f:10:LEU:N     | 36:f:59:ILE:HG12  | 2.34                     | 0.42              |
| 37:g:30:VAL:HG23  | 37:g:39:ALA:HB1   | 2.00                     | 0.42              |
| 47:s:38:SER:HB2   | 47:s:71:LEU:HG    | 2.01                     | 0.42              |
| 53:y:54:LYS:HE2   | 53:y:54:LYS:HB2   | 1.92                     | 0.42              |
| 1:u:49:G:H2'      | 1:u:50:U:C6       | 2.53                     | 0.42              |
| 8:I:3051:C:O2     | 8:I:3118:A:O2'    | 2.31                     | 0.42              |
| 32:a:212:C:H6     | 32:a:212:C:O5'    | 2.02                     | 0.42              |
| 32:a:451:A:C6     | 32:a:471:U:C4     | 3.07                     | 0.42              |
| 36:f:9:ILE:HG12   | 36:f:46:ARG:NH2   | 2.34                     | 0.42              |
| 39:i:109:ILE:HD13 | 39:i:116:ARG:HD2  | 2.01                     | 0.42              |
| 40:j:65:PHE:HE2   | 51:9:85:ARG:HA    | 1.83                     | 0.42              |
| 41:k:54:TRP:HE1   | 41:k:59:HIS:HE2   | 1.67                     | 0.42              |
| 43:m:5:VAL:HG11   | 43:m:66:VAL:HG11  | 2.01                     | 0.42              |
| 8:I:845:A:P       | 44:o:88:ARG:HH11  | 2.43                     | 0.42              |
| 8:I:2365:A:H3'    | 8:I:2366:C:H6     | 1.85                     | 0.42              |
| 8:I:3123:C:H2'    | 8:I:3124:C:C6     | 2.54                     | 0.42              |
| 17:K:90:ASP:O     | 17:K:90:ASP:OD1   | 2.38                     | 0.42              |
| 28:V:102:GLU:O    | 28:V:134:GLU:HB3  | 2.19                     | 0.42              |
| 29:W:80:ILE:HG22  | 29:W:81:VAL:HG12  | 2.01                     | 0.42              |
| 33:c:28:TYR:O     | 33:c:32:VAL:HG13  | 2.19                     | 0.42              |
| 34:d:125:VAL:HG22 | 34:d:127:VAL:N    | 2.32                     | 0.42              |
| 37:g:18:TYR:CG    | 37:g:59:VAL:HG21  | 2.54                     | 0.42              |
| 39:i:25:ARG:HB2   | 39:i:26:PRO:HD3   | 2.00                     | 0.42              |
| 41:k:74:GLN:HG3   | 41:k:109:SER:OG   | 2.19                     | 0.42              |
| 45:p:35:GLU:HB3   | 45:p:59:TRP:NE1   | 2.35                     | 0.42              |
| 8:I:350:A:H2'     | 8:I:351:G:H8      | 1.85                     | 0.42              |
| 8:I:814:A:C2      | 8:I:916:C:H1'     | 2.55                     | 0.42              |
| 8:I:967:G:C5      | 8:I:1069:A:N6     | 2.87                     | 0.42              |
| 8:I:1541:U:H2'    | 8:I:1542:G:O4'    | 2.19                     | 0.42              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 8:I:1822:C:H2'   | 8:I:1823:A:C8     | 2.54                     | 0.42              |
| 8:I:1842:C:N4    | 8:I:1857:G:OP2    | 2.52                     | 0.42              |
| 8:I:2385:G:H1'   | 8:I:2386:U:C5     | 2.51                     | 0.42              |
| 11:D:13:MET:HE3  | 11:D:13:MET:HB2   | 1.85                     | 0.42              |
| 32:a:769:G:H2'   | 32:a:770:C:H6     | 1.85                     | 0.42              |
| 32:a:971:A:C2    | 32:a:1311:A:C4    | 3.07                     | 0.42              |
| 32:a:1252:G:H4'  | 32:a:1275:C:O2'   | 2.19                     | 0.42              |
| 49:x:26:VAL:O    | 49:x:29:ARG:N     | 2.41                     | 0.42              |
| 50:r:70:MET:HG3  | 50:r:70:MET:O     | 2.18                     | 0.42              |
| 1:n:42:C:H2'     | 1:n:43:G:C8       | 2.54                     | 0.42              |
| 8:I:1654:G:H2'   | 8:I:1655:C:C6     | 2.55                     | 0.42              |
| 10:C:147:LEU:HB3 | 10:C:148:ARG:NH1  | 2.35                     | 0.42              |
| 11:D:110:SER:OG  | 11:D:111:TYR:N    | 2.52                     | 0.42              |
| 13:F:23:LEU:HD11 | 13:F:176:LEU:CD1  | 2.50                     | 0.42              |
| 28:V:31:ILE:HG13 | 28:V:47:LEU:HB2   | 2.02                     | 0.42              |
| 32:a:555:C:C4    | 46:q:86:LEU:HD21  | 2.54                     | 0.42              |
| 32:a:1312:C:O4'  | 47:s:70:LYS:HD2   | 2.19                     | 0.42              |
| 34:d:92:ARG:HG2  | 34:d:94:ASP:OD1   | 2.19                     | 0.42              |
| 39:i:44:PRO:HA   | 39:i:82:PHE:CD1   | 2.53                     | 0.42              |
| 40:j:4:GLN:HB3   | 40:j:76:ILE:HG22  | 2.02                     | 0.42              |
| 45:p:37:ILE:HG22 | 45:p:51:ILE:HG23  | 2.02                     | 0.42              |
| 8:I:1140:G:H21   | 16:J:147:GLN:NE2  | 2.18                     | 0.42              |
| 8:I:1313:G:H2'   | 8:I:1314:U:C6     | 2.55                     | 0.42              |
| 8:I:2509:G:H5'   | 29:W:20:ARG:HD3   | 2.02                     | 0.42              |
| 8:I:2576:G:C2    | 8:I:2577:G:C8     | 3.07                     | 0.42              |
| 8:I:2700:U:H2'   | 8:I:2701:U:C6     | 2.55                     | 0.42              |
| 32:a:48:U:H2'    | 32:a:49:G:H8      | 1.85                     | 0.42              |
| 32:a:325:G:H21   | 45:p:26:ARG:HH22  | 1.66                     | 0.42              |
| 32:a:442:C:H2'   | 32:a:443:A:C8     | 2.55                     | 0.42              |
| 32:a:591:G:H2'   | 32:a:592:U:H6     | 1.82                     | 0.42              |
| 32:a:1030:U:H2'  | 32:a:1031:G:H8    | 1.83                     | 0.42              |
| 32:a:1144:G:H5'  | 40:j:72:ARG:CZ    | 2.50                     | 0.42              |
| 33:c:126:ARG:HG3 | 33:c:126:ARG:NH1  | 2.34                     | 0.42              |
| 39:i:108:LEU:O   | 39:i:111:VAL:HG12 | 2.19                     | 0.42              |
| 47:s:27:THR:HG22 | 47:s:47:HIS:CE1   | 2.55                     | 0.42              |
| 47:s:40:ILE:HG12 | 47:s:69:HIS:O     | 2.20                     | 0.42              |
| 53:y:40:LEU:HD12 | 53:y:40:LEU:HA    | 1.88                     | 0.42              |
| 8:I:1069:A:C6    | 8:I:1070:G:C6     | 3.07                     | 0.42              |
| 8:I:2166:A:H2'   | 8:I:2167:G:O4'    | 2.19                     | 0.42              |
| 8:I:3052:C:C2    | 8:I:3065:G:N2     | 2.88                     | 0.42              |
| 14:G:150:ARG:HG3 | 14:G:151:ARG:N    | 2.34                     | 0.42              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 19:M:98:LYS:HE2  | 19:M:98:LYS:HB3  | 1.85                     | 0.42              |
| 22:P:48:ARG:HH21 | 22:P:50:GLN:HG3  | 1.85                     | 0.42              |
| 32:a:245:A:N6    | 32:a:280:G:H21   | 2.18                     | 0.42              |
| 32:a:966:G:O2'   | 40:j:57:LYS:HE3  | 2.20                     | 0.42              |
| 36:f:13:THR:OG1  | 36:f:14:LEU:N    | 2.53                     | 0.42              |
| 39:i:50:ASP:OD2  | 39:i:84:ILE:HA   | 2.19                     | 0.42              |
| 40:j:54:SER:O    | 40:j:57:LYS:HG2  | 2.20                     | 0.42              |
| 43:m:42:ASP:OD1  | 43:m:44:ARG:NH1  | 2.53                     | 0.42              |
| 45:p:40:TYR:HE1  | 45:p:47:SER:HA   | 1.84                     | 0.42              |
| 2:l:36:ASP:OD1   | 8:I:1465:C:O2'   | 2.33                     | 0.42              |
| 8:I:461:G:H5''   | 53:y:61:ARG:HH21 | 1.85                     | 0.42              |
| 8:I:1195:U:N3    | 8:I:1198:A:OP2   | 2.53                     | 0.42              |
| 8:I:1437:C:H2'   | 8:I:1438:A:H8    | 1.84                     | 0.42              |
| 9:B:114:C:N3     | 9:B:115:A:O2'    | 2.50                     | 0.42              |
| 11:D:36:VAL:O    | 11:D:52:LEU:HA   | 2.19                     | 0.42              |
| 12:E:56:HIS:CE1  | 12:E:99:PRO:HG3  | 2.55                     | 0.42              |
| 27:U:74:VAL:HG12 | 27:U:76:SER:H    | 1.84                     | 0.42              |
| 32:a:44:G:H2'    | 32:a:45:G:C8     | 2.55                     | 0.42              |
| 32:a:1047:U:H2'  | 32:a:1048:G:H8   | 1.85                     | 0.42              |
| 32:a:1305:U:H2'  | 32:a:1306:C:C6   | 2.55                     | 0.42              |
| 33:c:133:MET:HE2 | 33:c:168:TYR:HD2 | 1.85                     | 0.42              |
| 1:u:56:C:O2'     | 1:u:57:A:OP1     | 2.28                     | 0.42              |
| 8:I:152:C:H2'    | 8:I:153:C:C6     | 2.54                     | 0.42              |
| 8:I:618:U:O2'    | 8:I:2274:C:OP1   | 2.20                     | 0.42              |
| 8:I:1705:G:C6    | 8:I:1765:A:C2    | 3.08                     | 0.42              |
| 8:I:2098:U:OP1   | 8:I:2648:G:O2'   | 2.36                     | 0.42              |
| 8:I:3018:C:N4    | 16:J:102:GLU:OE2 | 2.53                     | 0.42              |
| 9:B:46:C:OP2     | 21:O:9:ARG:NH2   | 2.53                     | 0.42              |
| 32:a:108:G:H2'   | 32:a:109:U:H6    | 1.85                     | 0.42              |
| 32:a:1164:U:C2   | 32:a:1165:C:C5   | 3.08                     | 0.42              |
| 32:a:1308:G:N2   | 32:a:1311:A:OP2  | 2.50                     | 0.42              |
| 37:g:57:ASP:HB3  | 37:g:60:ILE:HG12 | 2.02                     | 0.42              |
| 38:h:46:ILE:HD12 | 38:h:62:ILE:CG2  | 2.50                     | 0.42              |
| 39:i:39:ARG:O    | 39:i:39:ARG:HG2  | 2.20                     | 0.42              |
| 45:p:59:TRP:CE3  | 45:p:59:TRP:HA   | 2.55                     | 0.42              |
| 47:s:32:LYS:HG2  | 47:s:50:ALA:HB3  | 2.02                     | 0.42              |
| 3:0:28:VAL:O     | 3:0:38:LYS:HA    | 2.19                     | 0.41              |
| 8:I:2013:U:H5    | 8:I:2018:A:N7    | 2.18                     | 0.41              |
| 8:I:2190:A:N3    | 8:I:2798:C:O2'   | 2.45                     | 0.41              |
| 16:J:45:ALA:HB3  | 16:J:48:VAL:HG22 | 2.02                     | 0.41              |
| 32:a:359:G:H2'   | 32:a:360:G:C8    | 2.55                     | 0.41              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 32:a:636:G:H2'   | 32:a:637:G:H8    | 1.85                     | 0.41              |
| 32:a:976:A:H5''  | 32:a:977:C:OP2   | 2.19                     | 0.41              |
| 32:a:1487:G:H8   | 32:a:1487:G:OP2  | 2.02                     | 0.41              |
| 33:c:26:LYS:HA   | 33:c:26:LYS:HD3  | 1.81                     | 0.41              |
| 39:i:139:LEU:HB3 | 39:i:144:LYS:O   | 2.20                     | 0.41              |
| 47:s:71:LEU:HA   | 47:s:74:PHE:HB2  | 2.02                     | 0.41              |
| 52:b:36:LEU:O    | 52:b:37:ARG:HD3  | 2.20                     | 0.41              |
| 8:I:64:G:H2'     | 8:I:65:G:C8      | 2.53                     | 0.41              |
| 8:I:947:G:N1     | 8:I:1320:U:OP2   | 2.39                     | 0.41              |
| 8:I:1203:G:H3'   | 8:I:1204:C:H6    | 1.85                     | 0.41              |
| 32:a:182:C:N4    | 32:a:202:G:O6    | 2.53                     | 0.41              |
| 32:a:406:G:N3    | 32:a:407:G:C8    | 2.88                     | 0.41              |
| 32:a:1005:U:H2'  | 32:a:1006:A:C8   | 2.55                     | 0.41              |
| 32:a:1293:U:H3'  | 32:a:1294:U:H5'' | 2.01                     | 0.41              |
| 41:k:27:PRO:HD2  | 41:k:28:HIS:N    | 2.36                     | 0.41              |
| 42:l:121:LYS:O   | 42:l:123:LYS:N   | 2.53                     | 0.41              |
| 43:m:84:ILE:HD13 | 47:s:69:HIS:NE2  | 2.34                     | 0.41              |
| 47:s:63:THR:HG22 | 47:s:66:MET:HE2  | 2.02                     | 0.41              |
| 1:u:50:U:H2'     | 1:u:51:C:H6      | 1.85                     | 0.41              |
| 8:I:484:G:H2'    | 8:I:485:C:C6     | 2.56                     | 0.41              |
| 8:I:631:C:H2'    | 8:I:632:C:C6     | 2.55                     | 0.41              |
| 8:I:697:C:C2     | 8:I:698:A:C8     | 3.08                     | 0.41              |
| 8:I:746:G:H8     | 8:I:746:G:O5'    | 2.03                     | 0.41              |
| 8:I:933:A:H5''   | 8:I:934:G:OP1    | 2.21                     | 0.41              |
| 8:I:2334:U:H2'   | 8:I:2335:U:C6    | 2.55                     | 0.41              |
| 8:I:2348:U:H5    | 8:I:2382:C:H42   | 1.67                     | 0.41              |
| 8:I:2707:A:H4'   | 19:M:56:ARG:CD   | 2.48                     | 0.41              |
| 8:I:2826:G:C6    | 8:I:2845:G:C2    | 3.09                     | 0.41              |
| 14:G:168:GLU:HG3 | 14:G:168:GLU:O   | 2.20                     | 0.41              |
| 28:V:35:LEU:HA   | 28:V:95:LEU:O    | 2.20                     | 0.41              |
| 32:a:354:C:C2    | 32:a:355:A:C8    | 3.08                     | 0.41              |
| 32:a:374:U:O2'   | 45:p:7:LEU:HB2   | 2.20                     | 0.41              |
| 32:a:624:G:H2'   | 32:a:625:C:H6    | 1.86                     | 0.41              |
| 34:d:32:PRO:HG3  | 34:d:38:ARG:HA   | 2.02                     | 0.41              |
| 37:g:146:GLU:OE1 | 37:g:146:GLU:HA  | 2.20                     | 0.41              |
| 49:x:27:GLN:CA   | 49:x:31:LEU:HD13 | 2.45                     | 0.41              |
| 51:9:24:ARG:O    | 51:9:51:GLN:NE2  | 2.50                     | 0.41              |
| 3:0:38:LYS:HD3   | 25:S:44:ASP:OD2  | 2.21                     | 0.41              |
| 5:3:2:PRO:HB2    | 5:3:3:LYS:H      | 1.77                     | 0.41              |
| 8:I:9:G:N2       | 8:I:3129:A:N1    | 2.64                     | 0.41              |
| 8:I:682:C:H2'    | 8:I:683:C:C6     | 2.56                     | 0.41              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 8:I:1492:G:H2'    | 8:I:1493:C:C6     | 2.55                     | 0.41              |
| 8:I:2773:G:H2'    | 8:I:2774:G:H8     | 1.85                     | 0.41              |
| 22:P:80:ILE:HD11  | 22:P:83:ILE:HG12  | 2.02                     | 0.41              |
| 32:a:205:G:O3'    | 32:a:206:A:O4'    | 2.38                     | 0.41              |
| 32:a:506:G:H2'    | 32:a:507:U:H6     | 1.84                     | 0.41              |
| 32:a:511:A:O2'    | 42:l:70:GLU:OE1   | 2.31                     | 0.41              |
| 32:a:696:U:C4     | 32:a:697:A:C8     | 3.08                     | 0.41              |
| 32:a:1154:C:H2'   | 32:a:1155:G:H8    | 1.85                     | 0.41              |
| 32:a:1258:G:N2    | 32:a:1260:G:H3'   | 2.36                     | 0.41              |
| 32:a:1320:C:C2    | 32:a:1321:G:C8    | 3.08                     | 0.41              |
| 32:a:1441:C:H2'   | 32:a:1442:C:C6    | 2.55                     | 0.41              |
| 34:d:116:GLY:C    | 34:d:119:ASN:HD21 | 2.28                     | 0.41              |
| 49:x:12:MET:O     | 49:x:12:MET:SD    | 2.79                     | 0.41              |
| 8:I:768:A:H2'     | 8:I:770:A:OP2     | 2.21                     | 0.41              |
| 8:I:976:U:O2      | 8:I:1062:G:N2     | 2.53                     | 0.41              |
| 8:I:1372:U:C2     | 8:I:1373:G:C8     | 3.08                     | 0.41              |
| 8:I:1812:C:H2'    | 8:I:1813:U:C6     | 2.56                     | 0.41              |
| 8:I:2252:A:H2'    | 8:I:2253:A:C8     | 2.56                     | 0.41              |
| 8:I:2375:C:H3'    | 8:I:2376:U:C6     | 2.56                     | 0.41              |
| 8:I:2448:G:H8     | 8:I:2448:G:OP1    | 2.03                     | 0.41              |
| 11:D:90:ASP:O     | 11:D:90:ASP:OD1   | 2.37                     | 0.41              |
| 13:F:118:ILE:HD12 | 13:F:121:PHE:CD1  | 2.56                     | 0.41              |
| 19:M:63:LYS:HE3   | 19:M:63:LYS:HB3   | 1.74                     | 0.41              |
| 21:O:32:ARG:O     | 21:O:46:LEU:HA    | 2.21                     | 0.41              |
| 21:O:88:LYS:HB2   | 21:O:88:LYS:HE3   | 1.71                     | 0.41              |
| 28:V:84:HIS:CE1   | 28:V:87:ARG:HH21  | 2.39                     | 0.41              |
| 32:a:423:G:N1     | 32:a:424:G:C6     | 2.88                     | 0.41              |
| 32:a:584:U:H2'    | 32:a:585:C:C6     | 2.55                     | 0.41              |
| 34:d:92:ARG:HH22  | 34:d:110:ARG:NH2  | 2.18                     | 0.41              |
| 41:k:43:THR:HB    | 41:k:55:ALA:HB2   | 2.02                     | 0.41              |
| 47:s:52:HIS:HD2   | 47:s:57:HIS:NE2   | 2.18                     | 0.41              |
| 48:t:8:GLN:O      | 48:t:12:ARG:HG3   | 2.21                     | 0.41              |
| 8:I:171:G:C2      | 8:I:172:G:C8      | 3.08                     | 0.41              |
| 8:I:703:G:H1'     | 12:E:112:MET:HE2  | 2.03                     | 0.41              |
| 8:I:1621:G:H2'    | 8:I:1622:G:H8     | 1.83                     | 0.41              |
| 13:F:16:ARG:HG2   | 13:F:20:ARG:CZ    | 2.50                     | 0.41              |
| 16:J:66:GLY:O     | 16:J:70:GLN:NE2   | 2.53                     | 0.41              |
| 17:K:68:GLU:CD    | 17:K:68:GLU:H     | 2.28                     | 0.41              |
| 18:L:105:LYS:HE3  | 18:L:105:LYS:HB2  | 1.78                     | 0.41              |
| 28:V:47:LEU:HB3   | 28:V:48:PRO:HD3   | 2.03                     | 0.41              |
| 29:W:69:PHE:HA    | 29:W:80:ILE:O     | 2.21                     | 0.41              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 32:a:212:C:O2     | 32:a:216:A:N6     | 2.53                     | 0.41              |
| 32:a:321:C:N4     | 32:a:328:A:H62    | 2.12                     | 0.41              |
| 32:a:373:A:C6     | 32:a:374:U:C4     | 3.08                     | 0.41              |
| 32:a:427:G:H4'    | 32:a:428:U:OP1    | 2.21                     | 0.41              |
| 32:a:997:G:O6     | 32:a:1018:U:H5'   | 2.20                     | 0.41              |
| 32:a:999:C:H2'    | 32:a:1000:G:H8    | 1.86                     | 0.41              |
| 32:a:999:C:C2     | 32:a:1000:G:N7    | 2.89                     | 0.41              |
| 32:a:1158:G:N1    | 32:a:1161:A:OP1   | 2.53                     | 0.41              |
| 33:c:134:ARG:HA   | 33:c:134:ARG:HD3  | 1.87                     | 0.41              |
| 38:h:65:LYS:O     | 38:h:73:SER:HB3   | 2.21                     | 0.41              |
| 43:m:67:GLU:HB2   | 43:m:71:ARG:HH22  | 1.84                     | 0.41              |
| 8:I:396:G:H2'     | 8:I:397:U:C6      | 2.55                     | 0.41              |
| 8:I:654:G:H2'     | 8:I:655:G:H5''    | 2.01                     | 0.41              |
| 8:I:2473:G:H2'    | 8:I:2474:C:C6     | 2.56                     | 0.41              |
| 8:I:3060:C:H41    | 11:D:169:ARG:NH2  | 2.19                     | 0.41              |
| 13:F:119:ARG:H    | 13:F:119:ARG:HG2  | 1.61                     | 0.41              |
| 32:a:218:C:H2'    | 32:a:219:G:O4'    | 2.20                     | 0.41              |
| 32:a:325:G:O5'    | 32:a:325:G:H8     | 2.04                     | 0.41              |
| 32:a:515:G:H2'    | 32:a:516:C:C5     | 2.55                     | 0.41              |
| 33:c:66:ASP:HA    | 33:c:101:ASN:O    | 2.21                     | 0.41              |
| 34:d:126:ASN:OD1  | 34:d:126:ASN:N    | 2.49                     | 0.41              |
| 34:d:148:VAL:HG13 | 34:d:152:ILE:CG1  | 2.50                     | 0.41              |
| 36:f:7:MET:HE3    | 36:f:60:TYR:CE1   | 2.56                     | 0.41              |
| 45:p:22:VAL:HG11  | 45:p:59:TRP:CG    | 2.56                     | 0.41              |
| 8:I:291:C:H2'     | 8:I:292:C:C6      | 2.56                     | 0.41              |
| 8:I:401:C:H2'     | 8:I:402:C:C6      | 2.56                     | 0.41              |
| 8:I:1235:G:H2'    | 8:I:1236:G:C8     | 2.54                     | 0.41              |
| 8:I:2036:A:H2'    | 8:I:2037:A:C8     | 2.55                     | 0.41              |
| 8:I:2073:G:N3     | 8:I:2073:G:H2'    | 2.35                     | 0.41              |
| 8:I:2358:G:H2'    | 8:I:2359:U:H4'    | 2.01                     | 0.41              |
| 8:I:2365:A:N3     | 8:I:2410:A:O2'    | 2.46                     | 0.41              |
| 8:I:2366:C:H2'    | 8:I:2367:U:C6     | 2.56                     | 0.41              |
| 8:I:2529:U:H2'    | 8:I:2530:U:C6     | 2.56                     | 0.41              |
| 11:D:114:VAL:HG11 | 11:D:198:VAL:HG22 | 2.03                     | 0.41              |
| 13:F:117:ARG:HE   | 13:F:117:ARG:HB3  | 1.54                     | 0.41              |
| 14:G:95:TYR:CB    | 14:G:108:LEU:HD12 | 2.48                     | 0.41              |
| 20:N:103:ARG:HH21 | 20:N:106:ASP:CG   | 2.26                     | 0.41              |
| 28:V:102:GLU:HG2  | 28:V:103:LYS:H    | 1.86                     | 0.41              |
| 28:V:130:GLU:HB3  | 28:V:169:ILE:HG23 | 2.01                     | 0.41              |
| 29:W:81:VAL:HG22  | 29:W:82:GLY:C     | 2.45                     | 0.41              |
| 32:a:74:A:C6      | 32:a:95:G:C8      | 3.09                     | 0.41              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 32:a:653:C:O2'   | 32:a:827:G:H5'    | 2.20                     | 0.41              |
| 34:d:118:PHE:HD1 | 34:d:140:VAL:HG22 | 1.85                     | 0.41              |
| 37:g:57:ASP:O    | 37:g:61:THR:HG23  | 2.21                     | 0.41              |
| 40:j:24:LYS:O    | 40:j:28:THR:HG23  | 2.20                     | 0.41              |
| 42:l:34:CYS:HB2  | 42:l:80:VAL:HG22  | 2.03                     | 0.41              |
| 51:9:81:ARG:NH1  | 51:9:82:VAL:HG13  | 2.35                     | 0.41              |
| 1:n:54:G:H2'     | 1:n:55:U:C6       | 2.56                     | 0.41              |
| 3:0:24:LYS:O     | 3:0:25:THR:HG23   | 2.20                     | 0.41              |
| 5:3:34:GLU:C     | 5:3:34:GLU:OE1    | 2.64                     | 0.41              |
| 8:I:435:G:C2     | 8:I:436:G:N7      | 2.89                     | 0.41              |
| 8:I:609:U:H2'    | 8:I:610:G:H8      | 1.84                     | 0.41              |
| 8:I:616:A:C2     | 8:I:2280:A:H2'    | 2.55                     | 0.41              |
| 8:I:1047:A:N3    | 9:B:79:U:O2'      | 2.52                     | 0.41              |
| 8:I:1060:A:H1'   | 8:I:1061:A:C2     | 2.56                     | 0.41              |
| 8:I:1681:G:C2    | 8:I:1786:G:C2     | 3.09                     | 0.41              |
| 8:I:1821:G:H2'   | 8:I:1822:C:C6     | 2.56                     | 0.41              |
| 8:I:2093:A:N3    | 8:I:2093:A:H2'    | 2.36                     | 0.41              |
| 8:I:2786:G:N3    | 17:K:23:ARG:NH2   | 2.68                     | 0.41              |
| 14:G:17:VAL:HB   | 14:G:45:ARG:HH22  | 1.86                     | 0.41              |
| 18:L:30:LYS:HG3  | 18:L:31:THR:H     | 1.86                     | 0.41              |
| 23:Q:83:LEU:HD23 | 23:Q:83:LEU:HA    | 1.92                     | 0.41              |
| 30:Y:33:ARG:HE   | 30:Y:33:ARG:HB3   | 1.68                     | 0.41              |
| 32:a:71:G:N7     | 32:a:72:G:C8      | 2.88                     | 0.41              |
| 32:a:190:G:C6    | 32:a:194:G:C8     | 3.08                     | 0.41              |
| 32:a:211:G:C2    | 32:a:217:G:C2     | 3.08                     | 0.41              |
| 32:a:336:G:H2'   | 32:a:337:A:H8     | 1.86                     | 0.41              |
| 32:a:375:G:C6    | 32:a:388:A:N1     | 2.89                     | 0.41              |
| 32:a:389:U:H2'   | 32:a:390:G:C8     | 2.56                     | 0.41              |
| 32:a:398:G:H2'   | 32:a:399:C:H6     | 1.86                     | 0.41              |
| 32:a:409:G:H22   | 32:a:430:A:H5''   | 1.86                     | 0.41              |
| 32:a:669:U:H2'   | 32:a:670:C:C6     | 2.56                     | 0.41              |
| 32:a:697:A:C6    | 32:a:698:U:C4     | 3.09                     | 0.41              |
| 32:a:1051:U:H2'  | 32:a:1052:G:H8    | 1.86                     | 0.41              |
| 33:c:8:HIS:NE2   | 33:c:16:THR:HG21  | 2.36                     | 0.41              |
| 35:e:114:HIS:CD2 | 38:h:101:LEU:HB2  | 2.56                     | 0.41              |
| 45:p:8:THR:HG21  | 45:p:30:ASP:CG    | 2.46                     | 0.41              |
| 48:t:45:ALA:O    | 48:t:49:GLU:HG3   | 2.21                     | 0.41              |
| 51:9:60:LEU:HD23 | 51:9:60:LEU:HA    | 1.87                     | 0.41              |
| 53:y:19:SER:OG   | 53:y:20:HIS:N     | 2.53                     | 0.41              |
| 13:F:12:LYS:HG3  | 13:F:14:ARG:NH2   | 2.36                     | 0.41              |
| 14:G:37:VAL:HG21 | 14:G:43:VAL:HG21  | 2.03                     | 0.41              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 18:L:75:GLU:HG2   | 18:L:103:VAL:HB   | 2.02                     | 0.41              |
| 30:Y:62:ARG:HD2   | 30:Y:62:ARG:HA    | 1.92                     | 0.41              |
| 32:a:468:G:O2'    | 32:a:469:A:O5'    | 2.35                     | 0.41              |
| 32:a:1293:U:H2'   | 32:a:1295:C:H5    | 1.86                     | 0.41              |
| 35:e:175:LEU:HD23 | 35:e:175:LEU:HA   | 1.90                     | 0.41              |
| 41:k:60:VAL:O     | 41:k:62:PHE:N     | 2.51                     | 0.41              |
| 43:m:94:ARG:HD2   | 47:s:80:PHE:HE2   | 1.85                     | 0.41              |
| 47:s:36:ARG:HH21  | 47:s:75:ALA:HB3   | 1.85                     | 0.41              |
| 52:b:11:LEU:CB    | 52:b:23:THR:HG23  | 2.50                     | 0.41              |
| 8:I:55:G:H2'      | 8:I:56:A:H8       | 1.86                     | 0.40              |
| 8:I:993:G:H2'     | 8:I:994:C:H6      | 1.86                     | 0.40              |
| 8:I:1189:U:H5'    | 8:I:1191:G:O4'    | 2.21                     | 0.40              |
| 8:I:1579:A:C6     | 8:I:1580:A:H1'    | 2.56                     | 0.40              |
| 8:I:2982:G:H2'    | 8:I:2983:C:H6     | 1.86                     | 0.40              |
| 13:F:12:LYS:HG3   | 13:F:14:ARG:CZ    | 2.51                     | 0.40              |
| 14:G:48:ASP:OD1   | 14:G:48:ASP:N     | 2.50                     | 0.40              |
| 19:M:132:ILE:HD12 | 28:V:88:ARG:CZ    | 2.52                     | 0.40              |
| 24:R:66:LEU:HD23  | 24:R:66:LEU:HA    | 1.87                     | 0.40              |
| 24:R:93:GLN:HG3   | 24:R:94:GLN:N     | 2.35                     | 0.40              |
| 29:W:59:LEU:CD2   | 29:W:80:ILE:HG13  | 2.51                     | 0.40              |
| 32:a:183:A:N6     | 32:a:201:G:O6     | 2.53                     | 0.40              |
| 32:a:445:C:H2'    | 32:a:446:G:O4'    | 2.20                     | 0.40              |
| 32:a:1424:C:H2'   | 32:a:1425:G:O4'   | 2.21                     | 0.40              |
| 33:c:156:ARG:NH1  | 33:c:193:PHE:HB3  | 2.36                     | 0.40              |
| 2:1:55:ARG:HH11   | 8:I:2300:A:H8     | 1.69                     | 0.40              |
| 8:I:699:U:H2'     | 8:I:700:G:C8      | 2.57                     | 0.40              |
| 8:I:1620:G:C2     | 8:I:1621:G:C5     | 3.09                     | 0.40              |
| 8:I:1807:A:H2'    | 8:I:1808:A:C8     | 2.57                     | 0.40              |
| 8:I:2245:U:C2     | 8:I:2246:C:C5     | 3.09                     | 0.40              |
| 8:I:2310:C:C2     | 8:I:2675:G:N2     | 2.88                     | 0.40              |
| 8:I:2732:G:C2     | 8:I:2733:G:C8     | 3.10                     | 0.40              |
| 9:B:38:A:C2       | 9:B:43:G:C2       | 3.09                     | 0.40              |
| 9:B:42:C:H4'      | 13:F:102:ARG:HH22 | 1.86                     | 0.40              |
| 10:C:29:PRO:HB3   | 10:C:63:ARG:NH1   | 2.36                     | 0.40              |
| 11:D:154:CYS:O    | 11:D:157:PRO:HD2  | 2.22                     | 0.40              |
| 12:E:121:LEU:HD23 | 12:E:121:LEU:HA   | 1.91                     | 0.40              |
| 14:G:40:PRO:HB3   | 14:G:55:ARG:CZ    | 2.51                     | 0.40              |
| 14:G:156:ASP:OD2  | 14:G:156:ASP:C    | 2.64                     | 0.40              |
| 21:O:116:ARG:HD3  | 21:O:122:PHE:CG   | 2.57                     | 0.40              |
| 24:R:17:VAL:HG21  | 24:R:100:VAL:HG21 | 2.03                     | 0.40              |
| 32:a:932:G:N3     | 32:a:1368:A:H2    | 2.19                     | 0.40              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 32:a:1020:C:H1'  | 32:a:1026:G:C6    | 2.57                     | 0.40              |
| 32:a:1103:C:N3   | 33:c:178:LEU:HD12 | 2.36                     | 0.40              |
| 34:d:120:VAL:C   | 34:d:139:ASP:HB3  | 2.47                     | 0.40              |
| 8:I:200:C:O2'    | 8:I:201:A:H5'     | 2.21                     | 0.40              |
| 8:I:488:U:H2'    | 8:I:489:G:O4'     | 2.21                     | 0.40              |
| 8:I:1164:U:H2'   | 8:I:1165:G:H8     | 1.86                     | 0.40              |
| 8:I:1199:A:N6    | 8:I:1225:A:O2'    | 2.54                     | 0.40              |
| 8:I:1349:A:H2'   | 8:I:1350:C:C6     | 2.57                     | 0.40              |
| 8:I:1639:G:H2'   | 8:I:1640:C:C6     | 2.57                     | 0.40              |
| 8:I:2103:C:N3    | 8:I:2111:G:N1     | 2.69                     | 0.40              |
| 8:I:2371:A:C6    | 8:I:2395:A:H4'    | 2.56                     | 0.40              |
| 8:I:2887:U:H2'   | 8:I:2888:C:C6     | 2.56                     | 0.40              |
| 12:E:172:ALA:O   | 12:E:176:ARG:HB3  | 2.21                     | 0.40              |
| 22:P:48:ARG:HG2  | 22:P:59:THR:HB    | 2.04                     | 0.40              |
| 28:V:113:GLU:HB2 | 28:V:146:ILE:HG22 | 2.02                     | 0.40              |
| 32:a:185:G:H1    | 32:a:198:U:H3     | 1.69                     | 0.40              |
| 32:a:229:G:H2'   | 32:a:230:A:O4'    | 2.21                     | 0.40              |
| 32:a:748:U:H2'   | 32:a:749:G:O4'    | 2.21                     | 0.40              |
| 34:d:90:GLU:HA   | 34:d:95:ASN:ND2   | 2.36                     | 0.40              |
| 1:n:1:C:H2'      | 1:n:2:G:C8        | 2.56                     | 0.40              |
| 4:2:8:PHE:O      | 8:I:1847:C:O2'    | 2.35                     | 0.40              |
| 8:I:284:U:C2     | 8:I:285:G:N7      | 2.89                     | 0.40              |
| 8:I:728:C:O2'    | 8:I:786:U:OP1     | 2.37                     | 0.40              |
| 8:I:1670:G:H2'   | 8:I:1671:G:O4'    | 2.21                     | 0.40              |
| 32:a:135:G:C6    | 32:a:224:G:N1     | 2.89                     | 0.40              |
| 44:o:23:GLY:HA2  | 44:o:28:GLN:HE21  | 1.85                     | 0.40              |
| 50:r:64:ILE:O    | 50:r:68:ARG:HD3   | 2.20                     | 0.40              |
| 1:n:54:G:H2'     | 1:n:55:U:H6       | 1.86                     | 0.40              |
| 5:3:33:LEU:HD13  | 8:I:2657:U:OP2    | 2.21                     | 0.40              |
| 8:I:668:U:H5''   | 18:L:30:LYS:NZ    | 2.37                     | 0.40              |
| 8:I:719:U:O2'    | 8:I:720:G:OP2     | 2.33                     | 0.40              |
| 8:I:1183:A:H2'   | 8:I:1184:G:C8     | 2.56                     | 0.40              |
| 8:I:1200:G:H8    | 8:I:1200:G:P      | 2.44                     | 0.40              |
| 8:I:1628:G:H2'   | 8:I:1629:U:C6     | 2.56                     | 0.40              |
| 8:I:2485:A:H2'   | 8:I:2486:C:C6     | 2.57                     | 0.40              |
| 8:I:3033:C:N4    | 8:I:3035:U:H5''   | 2.36                     | 0.40              |
| 17:K:59:LYS:HB2  | 17:K:59:LYS:HE3   | 1.76                     | 0.40              |
| 18:L:79:VAL:CG1  | 18:L:117:LEU:HB2  | 2.52                     | 0.40              |
| 26:T:12:LEU:O    | 30:Y:33:ARG:HD3   | 2.21                     | 0.40              |
| 32:a:254:G:OP1   | 46:q:124:LYS:NZ   | 2.37                     | 0.40              |
| 32:a:402:C:H5'   | 34:d:127:VAL:HG22 | 2.03                     | 0.40              |

*Continued on next page...*

Continued from previous page...

| Atom-1          | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|------------------|--------------------------|-------------------|
| 32:a:764:G:O6   | 32:a:798:A:N6    | 2.55                     | 0.40              |
| 32:a:1369:U:H2' | 32:a:1370:A:H8   | 1.85                     | 0.40              |
| 33:c:66:ASP:OD1 | 33:c:66:ASP:N    | 2.54                     | 0.40              |
| 34:d:9:THR:HA   | 34:d:12:SER:HB2  | 2.03                     | 0.40              |
| 48:t:25:LYS:O   | 48:t:29:ARG:HG3  | 2.22                     | 0.40              |
| 51:9:21:ALA:HA  | 51:9:25:THR:HG22 | 2.04                     | 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 |     |
|-----|-------|---------------|-----------|----------|----------|-------------|-----|
| 2   | 1     | 49/62 (79%)   | 45 (92%)  | 4 (8%)   | 0        | 100         | 100 |
| 3   | 0     | 51/57 (90%)   | 46 (90%)  | 4 (8%)   | 1 (2%)   | 6           | 27  |
| 4   | 2     | 40/47 (85%)   | 38 (95%)  | 2 (5%)   | 0        | 100         | 100 |
| 5   | 3     | 60/64 (94%)   | 56 (93%)  | 4 (7%)   | 0        | 100         | 100 |
| 6   | 4     | 35/37 (95%)   | 34 (97%)  | 1 (3%)   | 0        | 100         | 100 |
| 7   | 6     | 43/80 (54%)   | 33 (77%)  | 10 (23%) | 0        | 100         | 100 |
| 10  | C     | 270/280 (96%) | 253 (94%) | 17 (6%)  | 0        | 100         | 100 |
| 11  | D     | 211/217 (97%) | 187 (89%) | 24 (11%) | 0        | 100         | 100 |
| 12  | E     | 205/223 (92%) | 194 (95%) | 11 (5%)  | 0        | 100         | 100 |
| 13  | F     | 168/187 (90%) | 147 (88%) | 20 (12%) | 1 (1%)   | 21          | 52  |
| 14  | G     | 172/179 (96%) | 156 (91%) | 16 (9%)  | 0        | 100         | 100 |
| 15  | H     | 45/152 (30%)  | 41 (91%)  | 4 (9%)   | 0        | 100         | 100 |
| 16  | J     | 144/195 (74%) | 136 (94%) | 8 (6%)   | 0        | 100         | 100 |
| 17  | K     | 119/122 (98%) | 112 (94%) | 7 (6%)   | 0        | 100         | 100 |
| 18  | L     | 140/146 (96%) | 133 (95%) | 7 (5%)   | 0        | 100         | 100 |

Continued on next page...

*Continued from previous page...*

| Mol | Chain | Analysed      | Favoured  | Allowed  | Outliers | Percentiles |     |
|-----|-------|---------------|-----------|----------|----------|-------------|-----|
| 19  | M     | 132/138 (96%) | 123 (93%) | 7 (5%)   | 2 (2%)   | 8           | 32  |
| 20  | N     | 114/180 (63%) | 104 (91%) | 10 (9%)  | 0        | 100         | 100 |
| 21  | O     | 114/122 (93%) | 100 (88%) | 13 (11%) | 1 (1%)   | 14          | 43  |
| 22  | P     | 110/113 (97%) | 97 (88%)  | 13 (12%) | 0        | 100         | 100 |
| 23  | Q     | 120/129 (93%) | 115 (96%) | 5 (4%)   | 0        | 100         | 100 |
| 24  | R     | 96/104 (92%)  | 91 (95%)  | 5 (5%)   | 0        | 100         | 100 |
| 25  | S     | 111/197 (56%) | 109 (98%) | 2 (2%)   | 0        | 100         | 100 |
| 26  | T     | 93/100 (93%)  | 84 (90%)  | 9 (10%)  | 0        | 100         | 100 |
| 27  | U     | 86/105 (82%)  | 74 (86%)  | 12 (14%) | 0        | 100         | 100 |
| 28  | V     | 175/215 (81%) | 150 (86%) | 25 (14%) | 0        | 100         | 100 |
| 29  | W     | 72/86 (84%)   | 62 (86%)  | 10 (14%) | 0        | 100         | 100 |
| 30  | Y     | 63/77 (82%)   | 60 (95%)  | 3 (5%)   | 0        | 100         | 100 |
| 31  | Z     | 57/65 (88%)   | 50 (88%)  | 7 (12%)  | 0        | 100         | 100 |
| 33  | c     | 205/274 (75%) | 195 (95%) | 10 (5%)  | 0        | 100         | 100 |
| 34  | d     | 199/201 (99%) | 180 (90%) | 19 (10%) | 0        | 100         | 100 |
| 35  | e     | 158/220 (72%) | 139 (88%) | 18 (11%) | 1 (1%)   | 21          | 52  |
| 36  | f     | 93/96 (97%)   | 84 (90%)  | 9 (10%)  | 0        | 100         | 100 |
| 37  | g     | 150/156 (96%) | 140 (93%) | 10 (7%)  | 0        | 100         | 100 |
| 38  | h     | 128/132 (97%) | 115 (90%) | 13 (10%) | 0        | 100         | 100 |
| 39  | i     | 124/151 (82%) | 92 (74%)  | 30 (24%) | 2 (2%)   | 7           | 31  |
| 40  | j     | 97/101 (96%)  | 90 (93%)  | 7 (7%)   | 0        | 100         | 100 |
| 41  | k     | 115/139 (83%) | 106 (92%) | 9 (8%)   | 0        | 100         | 100 |
| 42  | l     | 121/124 (98%) | 93 (77%)  | 28 (23%) | 0        | 100         | 100 |
| 43  | m     | 111/124 (90%) | 100 (90%) | 11 (10%) | 0        | 100         | 100 |
| 44  | o     | 85/89 (96%)   | 77 (91%)  | 7 (8%)   | 1 (1%)   | 10          | 37  |
| 45  | p     | 83/162 (51%)  | 72 (87%)  | 11 (13%) | 0        | 100         | 100 |
| 46  | q     | 92/135 (68%)  | 79 (86%)  | 13 (14%) | 0        | 100         | 100 |
| 47  | s     | 79/93 (85%)   | 68 (86%)  | 11 (14%) | 0        | 100         | 100 |
| 48  | t     | 80/86 (93%)   | 76 (95%)  | 4 (5%)   | 0        | 100         | 100 |
| 49  | x     | 29/33 (88%)   | 27 (93%)  | 1 (3%)   | 1 (3%)   | 3           | 18  |
| 50  | r     | 69/88 (78%)   | 63 (91%)  | 6 (9%)   | 0        | 100         | 100 |

*Continued on next page...*

Continued from previous page...

| Mol | Chain | Analysed        | Favoured   | Allowed  | Outliers | Percentiles |     |
|-----|-------|-----------------|------------|----------|----------|-------------|-----|
| 51  | 9     | 98/101 (97%)    | 89 (91%)   | 9 (9%)   | 0        | 100         | 100 |
| 52  | b     | 46/54 (85%)     | 32 (70%)   | 13 (28%) | 1 (2%)   | 5           | 26  |
| 53  | y     | 75/78 (96%)     | 73 (97%)   | 2 (3%)   | 0        | 100         | 100 |
| All | All   | 5332/6316 (84%) | 4820 (90%) | 501 (9%) | 11 (0%)  | 44          | 71  |

All (11) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 19  | M     | 87  | LYS  |
| 44  | o     | 47  | LYS  |
| 49  | x     | 27  | GLN  |
| 52  | b     | 42  | ILE  |
| 13  | F     | 88  | GLU  |
| 19  | M     | 31  | ASP  |
| 35  | e     | 192 | ILE  |
| 3   | 0     | 30  | VAL  |
| 21  | O     | 48  | ASN  |
| 39  | i     | 46  | THR  |
| 39  | i     | 71  | ALA  |

### 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 |     |
|-----|-------|---------------|------------|----------|-------------|-----|
| 2   | 1     | 40/50 (80%)   | 40 (100%)  | 0        | 100         | 100 |
| 3   | 0     | 43/47 (92%)   | 43 (100%)  | 0        | 100         | 100 |
| 4   | 2     | 36/40 (90%)   | 35 (97%)   | 1 (3%)   | 38          | 62  |
| 5   | 3     | 53/54 (98%)   | 53 (100%)  | 0        | 100         | 100 |
| 6   | 4     | 35/35 (100%)  | 34 (97%)   | 1 (3%)   | 37          | 62  |
| 7   | 6     | 40/66 (61%)   | 40 (100%)  | 0        | 100         | 100 |
| 10  | C     | 212/219 (97%) | 211 (100%) | 1 (0%)   | 81          | 83  |
| 11  | D     | 163/166 (98%) | 163 (100%) | 0        | 100         | 100 |

Continued on next page...

*Continued from previous page...*

| Mol | Chain | Analysed       | Rotameric  | Outliers | Percentiles |     |
|-----|-------|----------------|------------|----------|-------------|-----|
| 12  | E     | 159/172 (92%)  | 158 (99%)  | 1 (1%)   | 78          | 81  |
| 13  | F     | 139/155 (90%)  | 138 (99%)  | 1 (1%)   | 76          | 80  |
| 14  | G     | 143/147 (97%)  | 143 (100%) | 0        | 100         | 100 |
| 15  | H     | 36/121 (30%)   | 36 (100%)  | 0        | 100         | 100 |
| 16  | J     | 120/161 (74%)  | 119 (99%)  | 1 (1%)   | 73          | 79  |
| 17  | K     | 100/101 (99%)  | 100 (100%) | 0        | 100         | 100 |
| 18  | L     | 106/110 (96%)  | 105 (99%)  | 1 (1%)   | 70          | 78  |
| 19  | M     | 110/114 (96%)  | 110 (100%) | 0        | 100         | 100 |
| 20  | N     | 94/139 (68%)   | 93 (99%)   | 1 (1%)   | 65          | 76  |
| 21  | O     | 88/93 (95%)    | 88 (100%)  | 0        | 100         | 100 |
| 22  | P     | 98/99 (99%)    | 98 (100%)  | 0        | 100         | 100 |
| 23  | Q     | 95/99 (96%)    | 95 (100%)  | 0        | 100         | 100 |
| 24  | R     | 79/83 (95%)    | 78 (99%)   | 1 (1%)   | 61          | 74  |
| 25  | S     | 87/140 (62%)   | 87 (100%)  | 0        | 100         | 100 |
| 26  | T     | 81/83 (98%)    | 81 (100%)  | 0        | 100         | 100 |
| 27  | U     | 77/88 (88%)    | 76 (99%)   | 1 (1%)   | 61          | 74  |
| 28  | V     | 142/164 (87%)  | 142 (100%) | 0        | 100         | 100 |
| 29  | W     | 54/62 (87%)    | 54 (100%)  | 0        | 100         | 100 |
| 30  | Y     | 58/66 (88%)    | 58 (100%)  | 0        | 100         | 100 |
| 31  | Z     | 51/55 (93%)    | 51 (100%)  | 0        | 100         | 100 |
| 33  | c     | 170/210 (81%)  | 168 (99%)  | 2 (1%)   | 63          | 75  |
| 34  | d     | 177/177 (100%) | 177 (100%) | 0        | 100         | 100 |
| 35  | e     | 114/159 (72%)  | 114 (100%) | 0        | 100         | 100 |
| 36  | f     | 84/85 (99%)    | 84 (100%)  | 0        | 100         | 100 |
| 37  | g     | 127/131 (97%)  | 126 (99%)  | 1 (1%)   | 73          | 79  |
| 38  | h     | 106/108 (98%)  | 105 (99%)  | 1 (1%)   | 70          | 78  |
| 39  | i     | 101/120 (84%)  | 101 (100%) | 0        | 100         | 100 |
| 40  | j     | 89/90 (99%)    | 89 (100%)  | 0        | 100         | 100 |
| 41  | k     | 90/107 (84%)   | 89 (99%)   | 1 (1%)   | 65          | 76  |
| 42  | l     | 105/105 (100%) | 103 (98%)  | 2 (2%)   | 50          | 68  |
| 43  | m     | 96/104 (92%)   | 96 (100%)  | 0        | 100         | 100 |

*Continued on next page...*

Continued from previous page...

| Mol | Chain | Analysed        | Rotameric   | Outliers | Percentiles |     |
|-----|-------|-----------------|-------------|----------|-------------|-----|
| 44  | o     | 77/79 (98%)     | 77 (100%)   | 0        | 100         | 100 |
| 45  | p     | 72/125 (58%)    | 72 (100%)   | 0        | 100         | 100 |
| 46  | q     | 82/105 (78%)    | 82 (100%)   | 0        | 100         | 100 |
| 47  | s     | 73/85 (86%)     | 73 (100%)   | 0        | 100         | 100 |
| 48  | t     | 62/65 (95%)     | 62 (100%)   | 0        | 100         | 100 |
| 49  | x     | 29/31 (94%)     | 26 (90%)    | 3 (10%)  | 7           | 25  |
| 50  | r     | 60/71 (84%)     | 60 (100%)   | 0        | 100         | 100 |
| 51  | 9     | 81/82 (99%)     | 81 (100%)   | 0        | 100         | 100 |
| 52  | b     | 45/50 (90%)     | 45 (100%)   | 0        | 100         | 100 |
| 53  | y     | 66/68 (97%)     | 65 (98%)    | 1 (2%)   | 57          | 72  |
| All | All   | 4445/5086 (87%) | 4424 (100%) | 21 (0%)  | 78          | 83  |

All (21) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 4   | 2     | 7   | THR  |
| 6   | 4     | 1   | MET  |
| 10  | C     | 196 | VAL  |
| 12  | E     | 65  | SER  |
| 13  | F     | 134 | ASN  |
| 16  | J     | 92  | LEU  |
| 18  | L     | 8   | LEU  |
| 20  | N     | 100 | ILE  |
| 24  | R     | 32  | GLN  |
| 27  | U     | 36  | GLU  |
| 33  | c     | 146 | VAL  |
| 33  | c     | 204 | LYS  |
| 37  | g     | 125 | LEU  |
| 38  | h     | 66  | TYR  |
| 41  | k     | 124 | THR  |
| 42  | l     | 14  | ASP  |
| 42  | l     | 49  | LEU  |
| 49  | x     | 11  | ARG  |
| 49  | x     | 24  | THR  |
| 49  | x     | 31  | LEU  |
| 53  | y     | 37  | THR  |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (25) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3   | 0     | 12  | ASN  |
| 5   | 3     | 28  | ASN  |
| 6   | 4     | 34  | GLN  |
| 11  | D     | 130 | HIS  |
| 12  | E     | 56  | HIS  |
| 13  | F     | 146 | HIS  |
| 16  | J     | 70  | GLN  |
| 16  | J     | 147 | GLN  |
| 19  | M     | 28  | ASN  |
| 19  | M     | 57  | HIS  |
| 20  | N     | 62  | ASN  |
| 24  | R     | 93  | GLN  |
| 33  | c     | 107 | ASN  |
| 34  | d     | 66  | GLN  |
| 34  | d     | 95  | ASN  |
| 34  | d     | 119 | ASN  |
| 35  | e     | 114 | HIS  |
| 35  | e     | 169 | HIS  |
| 36  | f     | 55  | HIS  |
| 37  | g     | 110 | GLN  |
| 38  | h     | 18  | ASN  |
| 47  | s     | 52  | HIS  |
| 47  | s     | 83  | HIS  |
| 50  | r     | 16  | ASN  |
| 51  | 9     | 92  | HIS  |

### 5.3.3 RNA [i](#)

| Mol | Chain | Analysed        | Backbone Outliers | Pucker Outliers |
|-----|-------|-----------------|-------------------|-----------------|
| 1   | n     | 76/77 (98%)     | 16 (21%)          | 0               |
| 1   | u     | 75/77 (97%)     | 12 (16%)          | 0               |
| 32  | a     | 1518/1537 (98%) | 258 (16%)         | 0               |
| 54  | X     | 5/20 (25%)      | 0                 | 0               |
| 8   | I     | 3116/3138 (99%) | 448 (14%)         | 12 (0%)         |
| 9   | B     | 114/115 (99%)   | 7 (6%)            | 0               |
| All | All   | 4904/4964 (98%) | 741 (15%)         | 12 (0%)         |

All (741) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | n     | 4   | G    |
| 1   | n     | 5   | G    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | n     | 8   | U    |
| 1   | n     | 9   | G    |
| 1   | n     | 20  | G    |
| 1   | n     | 21  | U    |
| 1   | n     | 22  | A    |
| 1   | n     | 38  | A    |
| 1   | n     | 49  | C    |
| 1   | n     | 51  | U    |
| 1   | n     | 52  | C    |
| 1   | n     | 53  | G    |
| 1   | n     | 56  | U    |
| 1   | n     | 67  | C    |
| 1   | n     | 69  | C    |
| 1   | n     | 76  | C    |
| 8   | I     | 15  | G    |
| 8   | I     | 16  | G    |
| 8   | I     | 34  | U    |
| 8   | I     | 45  | G    |
| 8   | I     | 51  | G    |
| 8   | I     | 62  | G    |
| 8   | I     | 63  | A    |
| 8   | I     | 71  | A    |
| 8   | I     | 74  | U    |
| 8   | I     | 75  | G    |
| 8   | I     | 92  | A    |
| 8   | I     | 93  | C    |
| 8   | I     | 100 | U    |
| 8   | I     | 102 | G    |
| 8   | I     | 118 | A    |
| 8   | I     | 120 | U    |
| 8   | I     | 131 | A    |
| 8   | I     | 141 | A    |
| 8   | I     | 161 | G    |
| 8   | I     | 165 | A    |
| 8   | I     | 167 | A    |
| 8   | I     | 183 | A    |
| 8   | I     | 198 | A    |
| 8   | I     | 201 | A    |
| 8   | I     | 203 | C    |
| 8   | I     | 217 | G    |
| 8   | I     | 218 | A    |
| 8   | I     | 223 | A    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 8   | I     | 224 | A    |
| 8   | I     | 232 | G    |
| 8   | I     | 235 | A    |
| 8   | I     | 250 | G    |
| 8   | I     | 251 | C    |
| 8   | I     | 267 | A    |
| 8   | I     | 268 | G    |
| 8   | I     | 271 | U    |
| 8   | I     | 287 | G    |
| 8   | I     | 289 | A    |
| 8   | I     | 290 | A    |
| 8   | I     | 291 | C    |
| 8   | I     | 293 | G    |
| 8   | I     | 301 | G    |
| 8   | I     | 303 | U    |
| 8   | I     | 304 | G    |
| 8   | I     | 316 | U    |
| 8   | I     | 327 | U    |
| 8   | I     | 332 | C    |
| 8   | I     | 345 | G    |
| 8   | I     | 352 | A    |
| 8   | I     | 358 | U    |
| 8   | I     | 360 | A    |
| 8   | I     | 371 | U    |
| 8   | I     | 372 | G    |
| 8   | I     | 377 | G    |
| 8   | I     | 394 | U    |
| 8   | I     | 405 | A    |
| 8   | I     | 406 | G    |
| 8   | I     | 413 | A    |
| 8   | I     | 429 | A    |
| 8   | I     | 435 | G    |
| 8   | I     | 443 | C    |
| 8   | I     | 445 | U    |
| 8   | I     | 446 | A    |
| 8   | I     | 447 | G    |
| 8   | I     | 461 | G    |
| 8   | I     | 475 | G    |
| 8   | I     | 500 | G    |
| 8   | I     | 501 | A    |
| 8   | I     | 524 | C    |
| 8   | I     | 570 | G    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 8   | I     | 592 | G    |
| 8   | I     | 593 | A    |
| 8   | I     | 596 | A    |
| 8   | I     | 597 | C    |
| 8   | I     | 598 | C    |
| 8   | I     | 606 | G    |
| 8   | I     | 618 | U    |
| 8   | I     | 619 | C    |
| 8   | I     | 620 | C    |
| 8   | I     | 621 | G    |
| 8   | I     | 639 | U    |
| 8   | I     | 642 | C    |
| 8   | I     | 645 | G    |
| 8   | I     | 653 | U    |
| 8   | I     | 655 | G    |
| 8   | I     | 665 | G    |
| 8   | I     | 674 | A    |
| 8   | I     | 675 | G    |
| 8   | I     | 676 | A    |
| 8   | I     | 677 | A    |
| 8   | I     | 691 | C    |
| 8   | I     | 695 | G    |
| 8   | I     | 705 | A    |
| 8   | I     | 706 | A    |
| 8   | I     | 707 | G    |
| 8   | I     | 718 | G    |
| 8   | I     | 719 | U    |
| 8   | I     | 720 | G    |
| 8   | I     | 738 | G    |
| 8   | I     | 741 | A    |
| 8   | I     | 742 | G    |
| 8   | I     | 749 | U    |
| 8   | I     | 750 | A    |
| 8   | I     | 757 | C    |
| 8   | I     | 758 | C    |
| 8   | I     | 764 | G    |
| 8   | I     | 773 | C    |
| 8   | I     | 780 | G    |
| 8   | I     | 781 | A    |
| 8   | I     | 782 | A    |
| 8   | I     | 783 | U    |
| 8   | I     | 798 | G    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 8   | I     | 799  | A    |
| 8   | I     | 815  | U    |
| 8   | I     | 816  | C    |
| 8   | I     | 845  | A    |
| 8   | I     | 856  | A    |
| 8   | I     | 859  | C    |
| 8   | I     | 876  | U    |
| 8   | I     | 879  | A    |
| 8   | I     | 893  | A    |
| 8   | I     | 904  | G    |
| 8   | I     | 905  | G    |
| 8   | I     | 911  | A    |
| 8   | I     | 912  | A    |
| 8   | I     | 913  | G    |
| 8   | I     | 914  | G    |
| 8   | I     | 919  | U    |
| 8   | I     | 934  | G    |
| 8   | I     | 941  | C    |
| 8   | I     | 956  | U    |
| 8   | I     | 975  | G    |
| 8   | I     | 977  | U    |
| 8   | I     | 979  | A    |
| 8   | I     | 988  | G    |
| 8   | I     | 1039 | A    |
| 8   | I     | 1059 | A    |
| 8   | I     | 1069 | A    |
| 8   | I     | 1074 | G    |
| 8   | I     | 1081 | G    |
| 8   | I     | 1086 | U    |
| 8   | I     | 1087 | A    |
| 8   | I     | 1089 | G    |
| 8   | I     | 1096 | A    |
| 8   | I     | 1097 | C    |
| 8   | I     | 1103 | A    |
| 8   | I     | 1112 | A    |
| 8   | I     | 1118 | G    |
| 8   | I     | 1125 | G    |
| 8   | I     | 1126 | G    |
| 8   | I     | 1142 | G    |
| 8   | I     | 1151 | G    |
| 8   | I     | 1155 | G    |
| 8   | I     | 1159 | G    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 8   | I     | 1162 | U    |
| 8   | I     | 1176 | G    |
| 8   | I     | 1187 | G    |
| 8   | I     | 1189 | U    |
| 8   | I     | 1190 | U    |
| 8   | I     | 1193 | C    |
| 8   | I     | 1197 | G    |
| 8   | I     | 1200 | G    |
| 8   | I     | 1202 | A    |
| 8   | I     | 1207 | C    |
| 8   | I     | 1208 | C    |
| 8   | I     | 1212 | G    |
| 8   | I     | 1217 | A    |
| 8   | I     | 1232 | A    |
| 8   | I     | 1240 | A    |
| 8   | I     | 1241 | G    |
| 8   | I     | 1242 | U    |
| 8   | I     | 1243 | G    |
| 8   | I     | 1251 | G    |
| 8   | I     | 1255 | A    |
| 8   | I     | 1261 | U    |
| 8   | I     | 1262 | A    |
| 8   | I     | 1264 | C    |
| 8   | I     | 1271 | C    |
| 8   | I     | 1273 | A    |
| 8   | I     | 1305 | U    |
| 8   | I     | 1378 | A    |
| 8   | I     | 1381 | G    |
| 8   | I     | 1387 | G    |
| 8   | I     | 1402 | G    |
| 8   | I     | 1403 | A    |
| 8   | I     | 1404 | C    |
| 8   | I     | 1432 | A    |
| 8   | I     | 1433 | A    |
| 8   | I     | 1452 | C    |
| 8   | I     | 1456 | C    |
| 8   | I     | 1460 | U    |
| 8   | I     | 1463 | G    |
| 8   | I     | 1481 | C    |
| 8   | I     | 1483 | U    |
| 8   | I     | 1491 | G    |
| 8   | I     | 1496 | A    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 8   | I     | 1499 | G    |
| 8   | I     | 1501 | C    |
| 8   | I     | 1509 | A    |
| 8   | I     | 1510 | U    |
| 8   | I     | 1515 | A    |
| 8   | I     | 1526 | A    |
| 8   | I     | 1550 | C    |
| 8   | I     | 1552 | G    |
| 8   | I     | 1558 | A    |
| 8   | I     | 1561 | C    |
| 8   | I     | 1567 | U    |
| 8   | I     | 1568 | A    |
| 8   | I     | 1580 | A    |
| 8   | I     | 1582 | A    |
| 8   | I     | 1589 | C    |
| 8   | I     | 1591 | A    |
| 8   | I     | 1592 | U    |
| 8   | I     | 1596 | U    |
| 8   | I     | 1601 | U    |
| 8   | I     | 1606 | G    |
| 8   | I     | 1609 | U    |
| 8   | I     | 1610 | G    |
| 8   | I     | 1615 | G    |
| 8   | I     | 1622 | G    |
| 8   | I     | 1625 | U    |
| 8   | I     | 1628 | G    |
| 8   | I     | 1632 | G    |
| 8   | I     | 1642 | G    |
| 8   | I     | 1646 | G    |
| 8   | I     | 1653 | A    |
| 8   | I     | 1654 | G    |
| 8   | I     | 1657 | A    |
| 8   | I     | 1659 | G    |
| 8   | I     | 1665 | A    |
| 8   | I     | 1666 | C    |
| 8   | I     | 1687 | G    |
| 8   | I     | 1691 | G    |
| 8   | I     | 1693 | G    |
| 8   | I     | 1697 | A    |
| 8   | I     | 1698 | C    |
| 8   | I     | 1699 | A    |
| 8   | I     | 1720 | G    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 8   | I     | 1727 | A    |
| 8   | I     | 1731 | A    |
| 8   | I     | 1743 | C    |
| 8   | I     | 1763 | G    |
| 8   | I     | 1767 | A    |
| 8   | I     | 1770 | C    |
| 8   | I     | 1773 | U    |
| 8   | I     | 1774 | U    |
| 8   | I     | 1803 | A    |
| 8   | I     | 1804 | A    |
| 8   | I     | 1806 | A    |
| 8   | I     | 1807 | A    |
| 8   | I     | 1815 | U    |
| 8   | I     | 1832 | G    |
| 8   | I     | 1842 | C    |
| 8   | I     | 1843 | A    |
| 8   | I     | 1845 | A    |
| 8   | I     | 1881 | U    |
| 8   | I     | 1883 | C    |
| 8   | I     | 1888 | U    |
| 8   | I     | 1909 | G    |
| 8   | I     | 1929 | C    |
| 8   | I     | 1933 | A    |
| 8   | I     | 1948 | A    |
| 8   | I     | 1950 | A    |
| 8   | I     | 1952 | C    |
| 8   | I     | 1955 | G    |
| 8   | I     | 1961 | C    |
| 8   | I     | 1962 | C    |
| 8   | I     | 1963 | U    |
| 8   | I     | 1966 | C    |
| 8   | I     | 1967 | G    |
| 8   | I     | 1990 | G    |
| 8   | I     | 1998 | U    |
| 8   | I     | 2007 | A    |
| 8   | I     | 2015 | C    |
| 8   | I     | 2018 | A    |
| 8   | I     | 2020 | A    |
| 8   | I     | 2034 | C    |
| 8   | I     | 2043 | A    |
| 8   | I     | 2063 | A    |
| 8   | I     | 2092 | G    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 8   | I     | 2107 | A    |
| 8   | I     | 2109 | G    |
| 8   | I     | 2121 | G    |
| 8   | I     | 2122 | A    |
| 8   | I     | 2123 | A    |
| 8   | I     | 2144 | G    |
| 8   | I     | 2151 | A    |
| 8   | I     | 2167 | G    |
| 8   | I     | 2168 | G    |
| 8   | I     | 2175 | A    |
| 8   | I     | 2176 | A    |
| 8   | I     | 2191 | A    |
| 8   | I     | 2193 | U    |
| 8   | I     | 2205 | C    |
| 8   | I     | 2208 | A    |
| 8   | I     | 2209 | U    |
| 8   | I     | 2210 | G    |
| 8   | I     | 2229 | U    |
| 8   | I     | 2231 | U    |
| 8   | I     | 2260 | U    |
| 8   | I     | 2261 | A    |
| 8   | I     | 2269 | A    |
| 8   | I     | 2270 | G    |
| 8   | I     | 2281 | C    |
| 8   | I     | 2290 | G    |
| 8   | I     | 2294 | G    |
| 8   | I     | 2298 | A    |
| 8   | I     | 2299 | G    |
| 8   | I     | 2313 | C    |
| 8   | I     | 2314 | A    |
| 8   | I     | 2330 | G    |
| 8   | I     | 2343 | G    |
| 8   | I     | 2347 | G    |
| 8   | I     | 2348 | U    |
| 8   | I     | 2350 | U    |
| 8   | I     | 2351 | A    |
| 8   | I     | 2353 | G    |
| 8   | I     | 2355 | U    |
| 8   | I     | 2356 | A    |
| 8   | I     | 2357 | G    |
| 8   | I     | 2359 | U    |
| 8   | I     | 2360 | G    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 8   | I     | 2361 | G    |
| 8   | I     | 2362 | G    |
| 8   | I     | 2364 | G    |
| 8   | I     | 2365 | A    |
| 8   | I     | 2369 | U    |
| 8   | I     | 2371 | A    |
| 8   | I     | 2377 | C    |
| 8   | I     | 2378 | G    |
| 8   | I     | 2382 | C    |
| 8   | I     | 2383 | C    |
| 8   | I     | 2384 | A    |
| 8   | I     | 2385 | G    |
| 8   | I     | 2386 | U    |
| 8   | I     | 2387 | U    |
| 8   | I     | 2389 | G    |
| 8   | I     | 2391 | G    |
| 8   | I     | 2392 | C    |
| 8   | I     | 2393 | G    |
| 8   | I     | 2394 | G    |
| 8   | I     | 2395 | A    |
| 8   | I     | 2396 | G    |
| 8   | I     | 2398 | C    |
| 8   | I     | 2400 | U    |
| 8   | I     | 2401 | U    |
| 8   | I     | 2402 | G    |
| 8   | I     | 2403 | U    |
| 8   | I     | 2404 | U    |
| 8   | I     | 2405 | G    |
| 8   | I     | 2406 | A    |
| 8   | I     | 2408 | A    |
| 8   | I     | 2409 | U    |
| 8   | I     | 2412 | C    |
| 8   | I     | 2413 | A    |
| 8   | I     | 2416 | C    |
| 8   | I     | 2417 | U    |
| 8   | I     | 2419 | A    |
| 8   | I     | 2422 | G    |
| 8   | I     | 2424 | A    |
| 8   | I     | 2435 | A    |
| 8   | I     | 2447 | U    |
| 8   | I     | 2448 | G    |
| 8   | I     | 2449 | A    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 8   | I     | 2451 | U    |
| 8   | I     | 2463 | A    |
| 8   | I     | 2476 | G    |
| 8   | I     | 2477 | G    |
| 8   | I     | 2488 | G    |
| 8   | I     | 2504 | A    |
| 8   | I     | 2517 | G    |
| 8   | I     | 2521 | C    |
| 8   | I     | 2525 | A    |
| 8   | I     | 2526 | A    |
| 8   | I     | 2543 | A    |
| 8   | I     | 2545 | G    |
| 8   | I     | 2549 | A    |
| 8   | I     | 2550 | U    |
| 8   | I     | 2557 | G    |
| 8   | I     | 2558 | C    |
| 8   | I     | 2563 | G    |
| 8   | I     | 2571 | A    |
| 8   | I     | 2572 | C    |
| 8   | I     | 2573 | A    |
| 8   | I     | 2583 | G    |
| 8   | I     | 2585 | C    |
| 8   | I     | 2588 | C    |
| 8   | I     | 2599 | A    |
| 8   | I     | 2621 | G    |
| 8   | I     | 2623 | A    |
| 8   | I     | 2625 | U    |
| 8   | I     | 2634 | G    |
| 8   | I     | 2640 | C    |
| 8   | I     | 2663 | A    |
| 8   | I     | 2664 | A    |
| 8   | I     | 2666 | G    |
| 8   | I     | 2667 | G    |
| 8   | I     | 2668 | A    |
| 8   | I     | 2678 | C    |
| 8   | I     | 2679 | C    |
| 8   | I     | 2685 | G    |
| 8   | I     | 2686 | A    |
| 8   | I     | 2714 | A    |
| 8   | I     | 2725 | A    |
| 8   | I     | 2729 | U    |
| 8   | I     | 2730 | U    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 8   | I     | 2742 | U    |
| 8   | I     | 2743 | G    |
| 8   | I     | 2744 | U    |
| 8   | I     | 2751 | G    |
| 8   | I     | 2756 | A    |
| 8   | I     | 2758 | C    |
| 8   | I     | 2767 | G    |
| 8   | I     | 2792 | U    |
| 8   | I     | 2804 | A    |
| 8   | I     | 2805 | G    |
| 8   | I     | 2811 | C    |
| 8   | I     | 2824 | U    |
| 8   | I     | 2840 | A    |
| 8   | I     | 2841 | G    |
| 8   | I     | 2846 | G    |
| 8   | I     | 2847 | U    |
| 8   | I     | 2851 | U    |
| 8   | I     | 2853 | U    |
| 8   | I     | 2868 | A    |
| 8   | I     | 2884 | C    |
| 8   | I     | 2928 | A    |
| 8   | I     | 2929 | C    |
| 8   | I     | 2952 | G    |
| 8   | I     | 2962 | C    |
| 8   | I     | 2964 | C    |
| 8   | I     | 2971 | U    |
| 8   | I     | 2986 | A    |
| 8   | I     | 2990 | C    |
| 8   | I     | 2995 | A    |
| 8   | I     | 3016 | A    |
| 8   | I     | 3035 | U    |
| 8   | I     | 3039 | G    |
| 8   | I     | 3056 | A    |
| 8   | I     | 3107 | A    |
| 8   | I     | 3115 | C    |
| 8   | I     | 3118 | A    |
| 8   | I     | 3121 | G    |
| 8   | I     | 3126 | A    |
| 8   | I     | 3127 | A    |
| 8   | I     | 3128 | A    |
| 8   | I     | 3129 | A    |
| 8   | I     | 3131 | U    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 9   | B     | 8   | G    |
| 9   | B     | 10  | C    |
| 9   | B     | 85  | U    |
| 9   | B     | 88  | G    |
| 9   | B     | 101 | G    |
| 9   | B     | 105 | A    |
| 9   | B     | 115 | A    |
| 32  | a     | 9   | G    |
| 32  | a     | 11  | A    |
| 32  | a     | 12  | G    |
| 32  | a     | 25  | G    |
| 32  | a     | 35  | A    |
| 32  | a     | 42  | G    |
| 32  | a     | 50  | C    |
| 32  | a     | 51  | U    |
| 32  | a     | 54  | A    |
| 32  | a     | 61  | C    |
| 32  | a     | 74  | A    |
| 32  | a     | 84  | C    |
| 32  | a     | 89  | A    |
| 32  | a     | 90  | U    |
| 32  | a     | 92  | C    |
| 32  | a     | 93  | U    |
| 32  | a     | 115 | A    |
| 32  | a     | 125 | G    |
| 32  | a     | 126 | A    |
| 32  | a     | 127 | U    |
| 32  | a     | 132 | C    |
| 32  | a     | 137 | A    |
| 32  | a     | 138 | C    |
| 32  | a     | 159 | C    |
| 32  | a     | 175 | A    |
| 32  | a     | 176 | U    |
| 32  | a     | 177 | A    |
| 32  | a     | 178 | G    |
| 32  | a     | 180 | A    |
| 32  | a     | 185 | G    |
| 32  | a     | 190 | G    |
| 32  | a     | 192 | A    |
| 32  | a     | 193 | U    |
| 32  | a     | 194 | G    |
| 32  | a     | 195 | U    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 32  | a     | 199 | G    |
| 32  | a     | 201 | G    |
| 32  | a     | 204 | G    |
| 32  | a     | 205 | G    |
| 32  | a     | 206 | A    |
| 32  | a     | 207 | A    |
| 32  | a     | 208 | A    |
| 32  | a     | 217 | G    |
| 32  | a     | 219 | G    |
| 32  | a     | 224 | G    |
| 32  | a     | 244 | C    |
| 32  | a     | 246 | G    |
| 32  | a     | 247 | C    |
| 32  | a     | 250 | G    |
| 32  | a     | 261 | G    |
| 32  | a     | 265 | G    |
| 32  | a     | 266 | C    |
| 32  | a     | 279 | C    |
| 32  | a     | 280 | G    |
| 32  | a     | 282 | C    |
| 32  | a     | 288 | G    |
| 32  | a     | 305 | U    |
| 32  | a     | 306 | C    |
| 32  | a     | 320 | A    |
| 32  | a     | 327 | U    |
| 32  | a     | 328 | A    |
| 32  | a     | 329 | C    |
| 32  | a     | 343 | A    |
| 32  | a     | 345 | G    |
| 32  | a     | 346 | G    |
| 32  | a     | 351 | C    |
| 32  | a     | 353 | G    |
| 32  | a     | 366 | U    |
| 32  | a     | 371 | C    |
| 32  | a     | 373 | A    |
| 32  | a     | 397 | C    |
| 32  | a     | 404 | U    |
| 32  | a     | 405 | G    |
| 32  | a     | 406 | G    |
| 32  | a     | 410 | A    |
| 32  | a     | 411 | U    |
| 32  | a     | 412 | G    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 32  | a     | 413 | A    |
| 32  | a     | 414 | C    |
| 32  | a     | 420 | U    |
| 32  | a     | 421 | C    |
| 32  | a     | 423 | G    |
| 32  | a     | 428 | U    |
| 32  | a     | 429 | A    |
| 32  | a     | 433 | C    |
| 32  | a     | 436 | U    |
| 32  | a     | 438 | U    |
| 32  | a     | 440 | A    |
| 32  | a     | 451 | A    |
| 32  | a     | 452 | G    |
| 32  | a     | 459 | G    |
| 32  | a     | 460 | U    |
| 32  | a     | 461 | U    |
| 32  | a     | 462 | C    |
| 32  | a     | 467 | G    |
| 32  | a     | 469 | A    |
| 32  | a     | 470 | U    |
| 32  | a     | 471 | U    |
| 32  | a     | 472 | G    |
| 32  | a     | 475 | G    |
| 32  | a     | 477 | U    |
| 32  | a     | 486 | A    |
| 32  | a     | 487 | A    |
| 32  | a     | 489 | A    |
| 32  | a     | 499 | C    |
| 32  | a     | 500 | A    |
| 32  | a     | 502 | C    |
| 32  | a     | 509 | C    |
| 32  | a     | 512 | G    |
| 32  | a     | 515 | G    |
| 32  | a     | 520 | G    |
| 32  | a     | 521 | G    |
| 32  | a     | 523 | A    |
| 32  | a     | 524 | A    |
| 32  | a     | 536 | C    |
| 32  | a     | 538 | A    |
| 32  | a     | 550 | A    |
| 32  | a     | 555 | C    |
| 32  | a     | 564 | A    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 32  | a     | 566 | G    |
| 32  | a     | 567 | A    |
| 32  | a     | 568 | G    |
| 32  | a     | 617 | U    |
| 32  | a     | 624 | G    |
| 32  | a     | 625 | C    |
| 32  | a     | 630 | G    |
| 32  | a     | 644 | A    |
| 32  | a     | 656 | G    |
| 32  | a     | 686 | A    |
| 32  | a     | 692 | C    |
| 32  | a     | 693 | A    |
| 32  | a     | 694 | G    |
| 32  | a     | 707 | A    |
| 32  | a     | 709 | A    |
| 32  | a     | 714 | U    |
| 32  | a     | 715 | G    |
| 32  | a     | 740 | A    |
| 32  | a     | 746 | G    |
| 32  | a     | 751 | G    |
| 32  | a     | 768 | A    |
| 32  | a     | 784 | U    |
| 32  | a     | 785 | A    |
| 32  | a     | 806 | A    |
| 32  | a     | 808 | C    |
| 32  | a     | 812 | G    |
| 32  | a     | 819 | A    |
| 32  | a     | 830 | U    |
| 32  | a     | 833 | U    |
| 32  | a     | 835 | C    |
| 32  | a     | 836 | C    |
| 32  | a     | 837 | U    |
| 32  | a     | 838 | U    |
| 32  | a     | 852 | U    |
| 32  | a     | 883 | G    |
| 32  | a     | 895 | G    |
| 32  | a     | 907 | A    |
| 32  | a     | 910 | G    |
| 32  | a     | 915 | G    |
| 32  | a     | 919 | G    |
| 32  | a     | 925 | C    |
| 32  | a     | 927 | C    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 32  | a     | 953  | U    |
| 32  | a     | 959  | G    |
| 32  | a     | 962  | A    |
| 32  | a     | 964  | G    |
| 32  | a     | 968  | A    |
| 32  | a     | 969  | G    |
| 32  | a     | 970  | A    |
| 32  | a     | 975  | U    |
| 32  | a     | 976  | A    |
| 32  | a     | 985  | U    |
| 32  | a     | 986  | G    |
| 32  | a     | 987  | A    |
| 32  | a     | 991  | G    |
| 32  | a     | 993  | A    |
| 32  | a     | 996  | G    |
| 32  | a     | 997  | G    |
| 32  | a     | 998  | A    |
| 32  | a     | 1007 | G    |
| 32  | a     | 1016 | G    |
| 32  | a     | 1020 | C    |
| 32  | a     | 1021 | C    |
| 32  | a     | 1022 | U    |
| 32  | a     | 1023 | U    |
| 32  | a     | 1024 | G    |
| 32  | a     | 1026 | G    |
| 32  | a     | 1027 | G    |
| 32  | a     | 1035 | G    |
| 32  | a     | 1044 | G    |
| 32  | a     | 1085 | G    |
| 32  | a     | 1086 | U    |
| 32  | a     | 1090 | G    |
| 32  | a     | 1092 | A    |
| 32  | a     | 1116 | U    |
| 32  | a     | 1125 | C    |
| 32  | a     | 1126 | G    |
| 32  | a     | 1129 | A    |
| 32  | a     | 1131 | G    |
| 32  | a     | 1132 | G    |
| 32  | a     | 1150 | C    |
| 32  | a     | 1151 | U    |
| 32  | a     | 1152 | G    |
| 32  | a     | 1160 | C    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 32  | a     | 1161 | A    |
| 32  | a     | 1171 | A    |
| 32  | a     | 1175 | U    |
| 32  | a     | 1176 | G    |
| 32  | a     | 1188 | A    |
| 32  | a     | 1189 | A    |
| 32  | a     | 1199 | C    |
| 32  | a     | 1204 | U    |
| 32  | a     | 1205 | A    |
| 32  | a     | 1218 | C    |
| 32  | a     | 1219 | A    |
| 32  | a     | 1230 | A    |
| 32  | a     | 1249 | U    |
| 32  | a     | 1250 | G    |
| 32  | a     | 1253 | A    |
| 32  | a     | 1266 | A    |
| 32  | a     | 1271 | A    |
| 32  | a     | 1272 | A    |
| 32  | a     | 1273 | U    |
| 32  | a     | 1279 | A    |
| 32  | a     | 1292 | G    |
| 32  | a     | 1293 | U    |
| 32  | a     | 1294 | U    |
| 32  | a     | 1297 | G    |
| 32  | a     | 1303 | G    |
| 32  | a     | 1312 | C    |
| 32  | a     | 1330 | G    |
| 32  | a     | 1332 | G    |
| 32  | a     | 1338 | A    |
| 32  | a     | 1345 | G    |
| 32  | a     | 1348 | G    |
| 32  | a     | 1357 | C    |
| 32  | a     | 1360 | U    |
| 32  | a     | 1363 | G    |
| 32  | a     | 1390 | C    |
| 32  | a     | 1391 | A    |
| 32  | a     | 1412 | G    |
| 32  | a     | 1423 | C    |
| 32  | a     | 1434 | G    |
| 32  | a     | 1435 | G    |
| 32  | a     | 1436 | C    |
| 32  | a     | 1439 | A    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res   | Type |
|-----|-------|-------|------|
| 32  | a     | 1444  | U    |
| 32  | a     | 1446  | G    |
| 32  | a     | 1480  | G    |
| 32  | a     | 1485  | A    |
| 32  | a     | 1486  | A    |
| 32  | a     | 1490  | G    |
| 32  | a     | 1492  | A    |
| 32  | a     | 1496  | A    |
| 32  | a     | 1510  | G    |
| 32  | a     | 1512  | A    |
| 32  | a     | 1513  | G    |
| 32  | a     | 1522  | G    |
| 32  | a     | 1523  | G    |
| 1   | u     | 17(A) | U    |
| 1   | u     | 19    | G    |
| 1   | u     | 20    | U    |
| 1   | u     | 21    | A    |
| 1   | u     | 29    | G    |
| 1   | u     | 30    | G    |
| 1   | u     | 46    | G    |
| 1   | u     | 47    | U    |
| 1   | u     | 57    | A    |
| 1   | u     | 61    | C    |
| 1   | u     | 70    | G    |
| 1   | u     | 75    | C    |

All (12) RNA pucker outliers are listed below:

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 8   | I     | 91   | A    |
| 8   | I     | 844  | A    |
| 8   | I     | 855  | G    |
| 8   | I     | 913  | G    |
| 8   | I     | 1086 | U    |
| 8   | I     | 1567 | U    |
| 8   | I     | 1605 | G    |
| 8   | I     | 1624 | C    |
| 8   | I     | 2364 | G    |
| 8   | I     | 2447 | U    |
| 8   | I     | 2666 | G    |
| 8   | I     | 2840 | A    |

## 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.

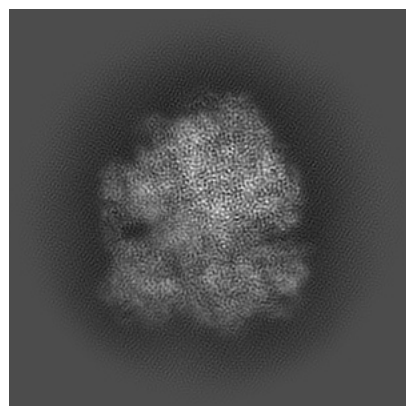
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-47899. These allow visual inspection of the internal detail of the map and identification of artifacts.

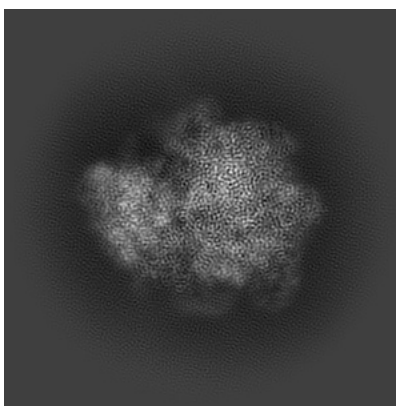
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

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

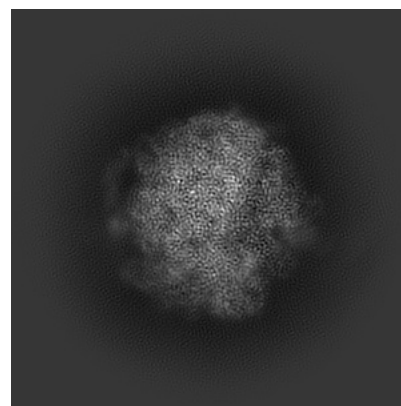
#### 6.1.1 Primary map



X

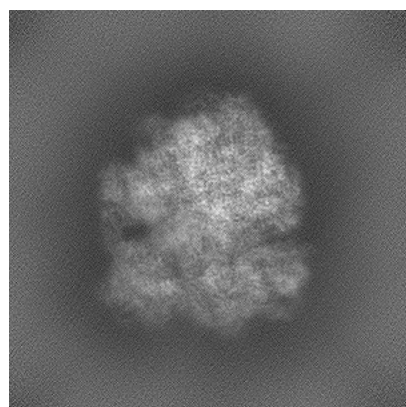


Y

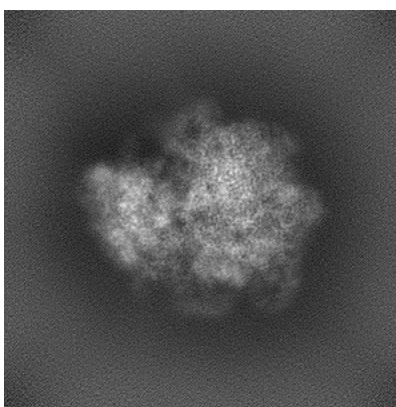


Z

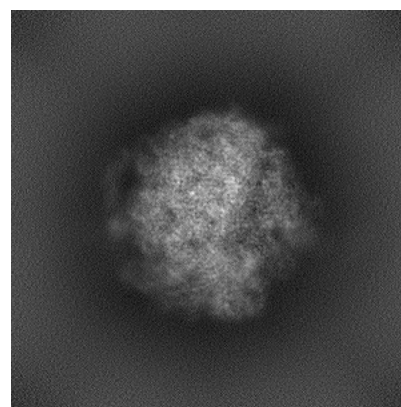
#### 6.1.2 Raw map



X



Y

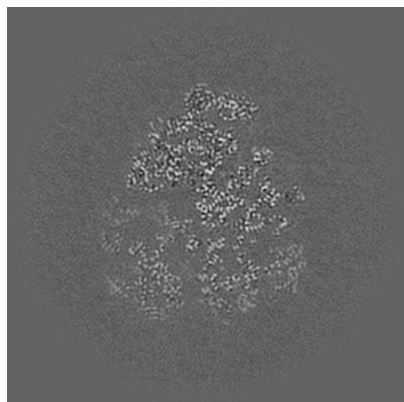


Z

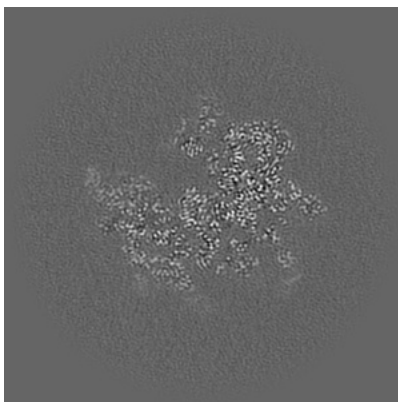
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

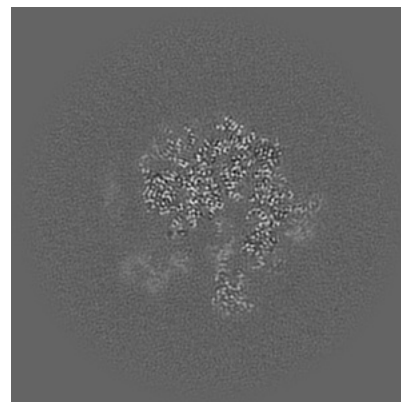
### 6.2.1 Primary map



X Index: 250

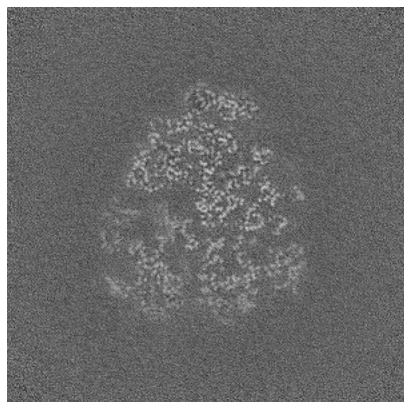


Y Index: 250

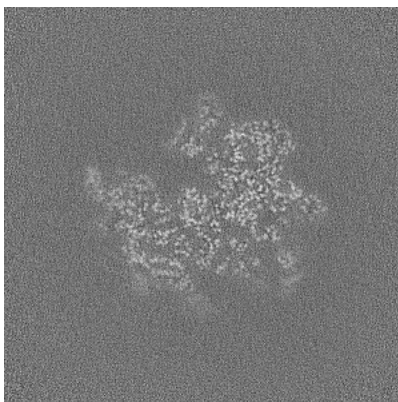


Z Index: 250

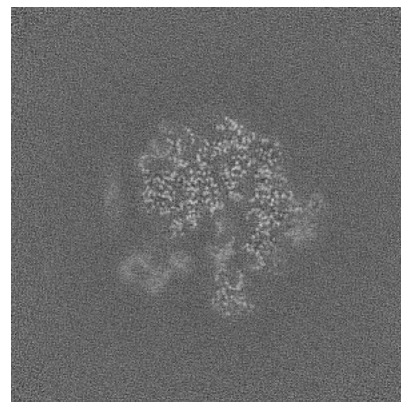
### 6.2.2 Raw map



X Index: 250



Y Index: 250

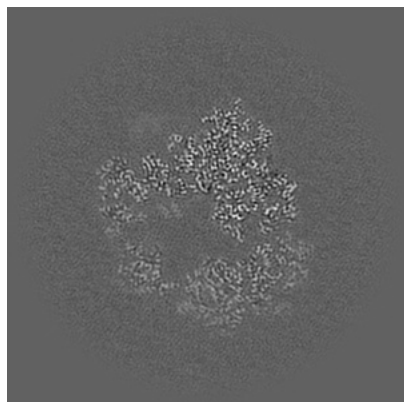


Z Index: 250

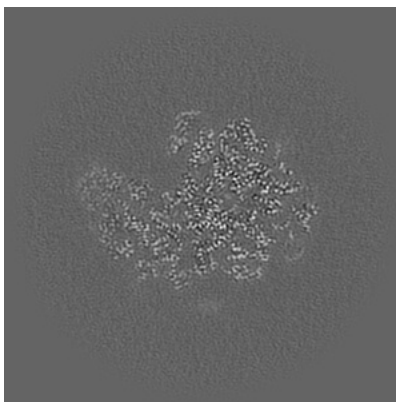
The images above show central slices of the map in three orthogonal directions.

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

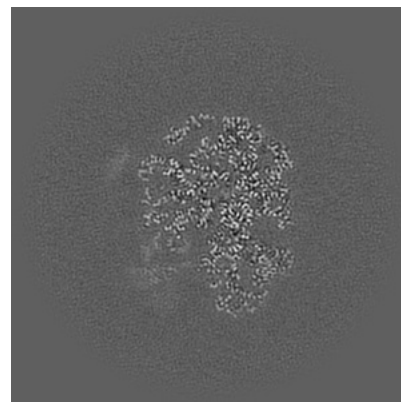
### 6.3.1 Primary map



X Index: 277

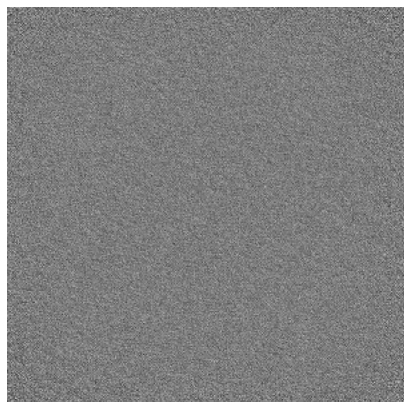


Y Index: 270

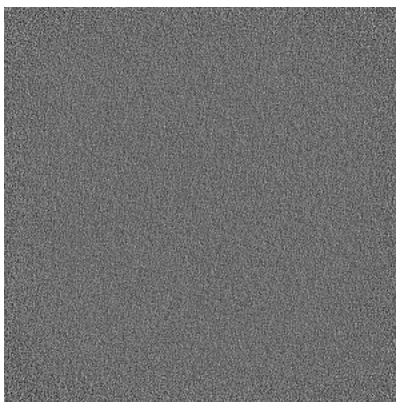


Z Index: 276

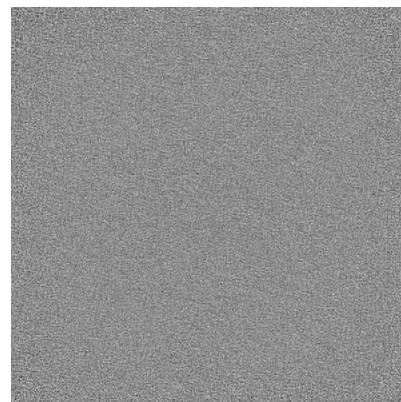
### 6.3.2 Raw map



X Index: 0



Y Index: 0

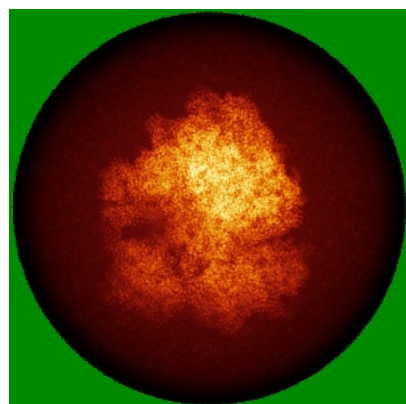


Z Index: 0

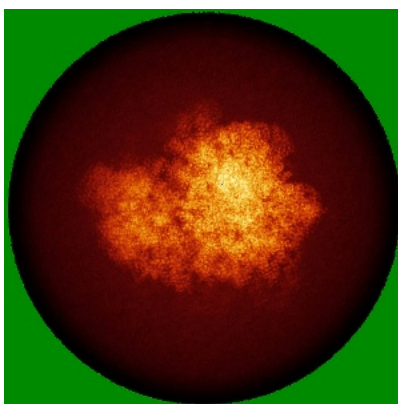
The images above show the largest variance slices of the map in three orthogonal directions.

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

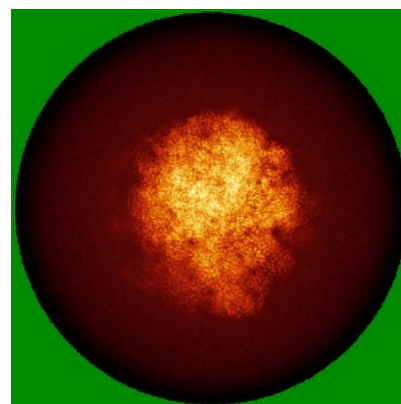
### 6.4.1 Primary map



X

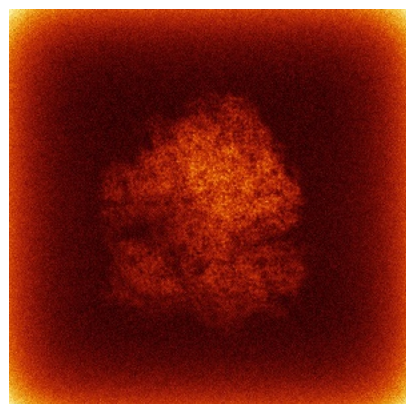


Y

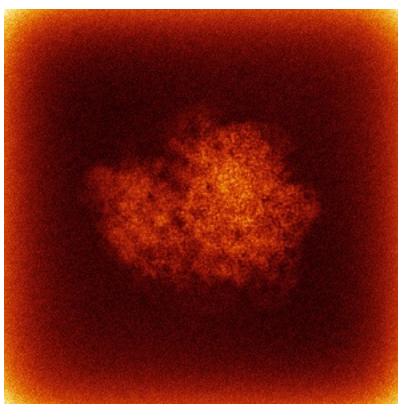


Z

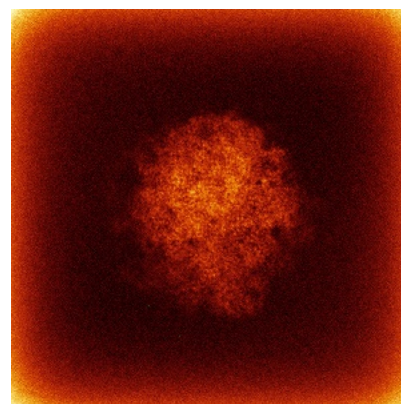
### 6.4.2 Raw map



X



Y

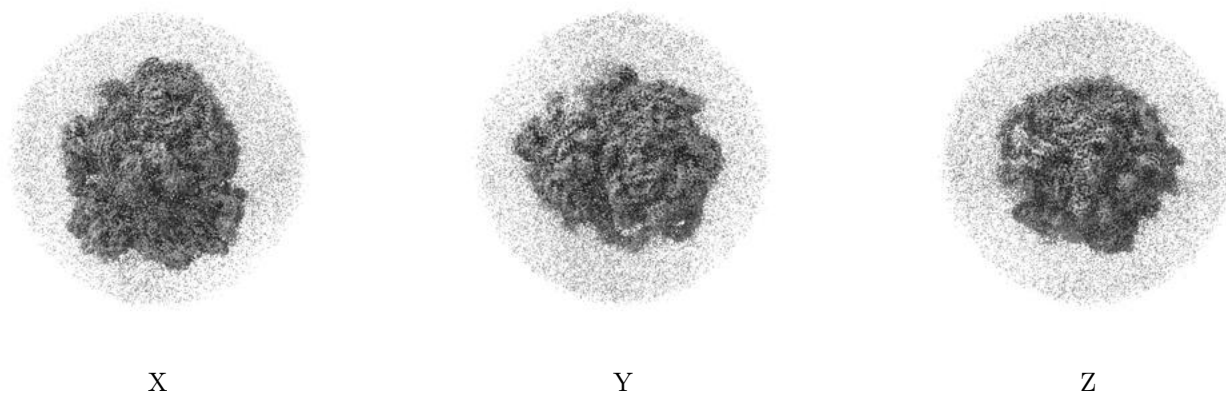


Z

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

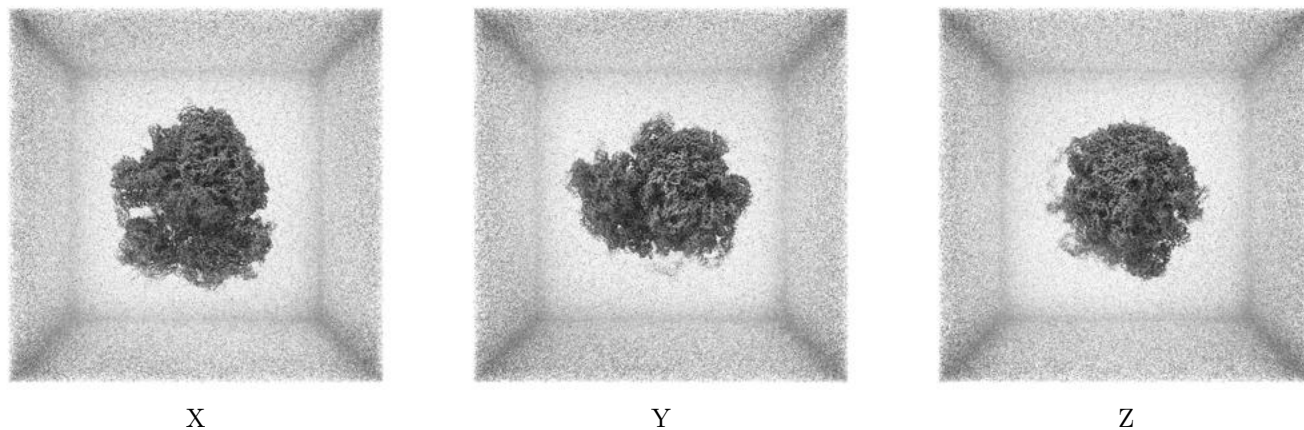
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.15. 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.

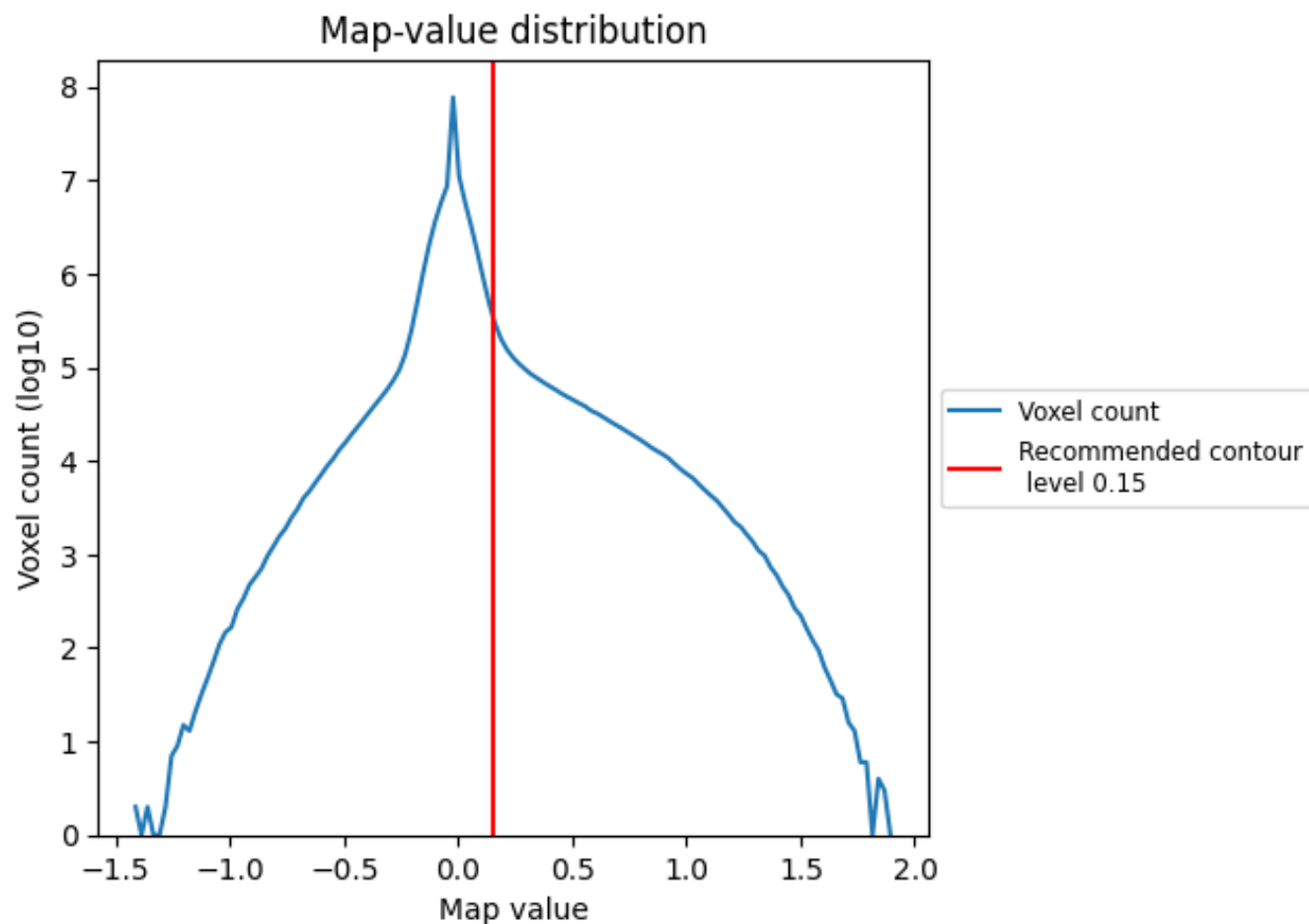
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

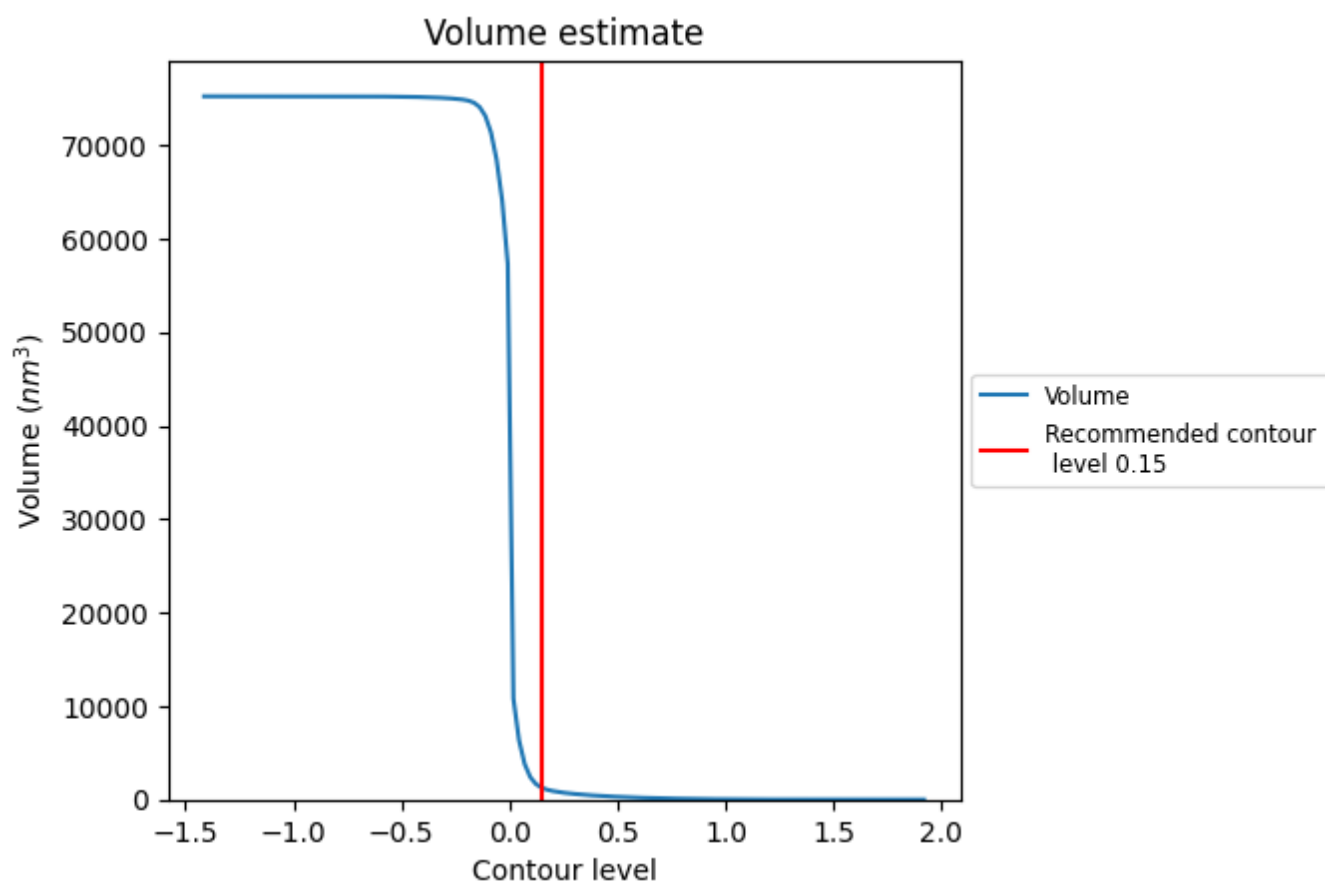
This section contains the results of statistical analysis of the map.

### 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.

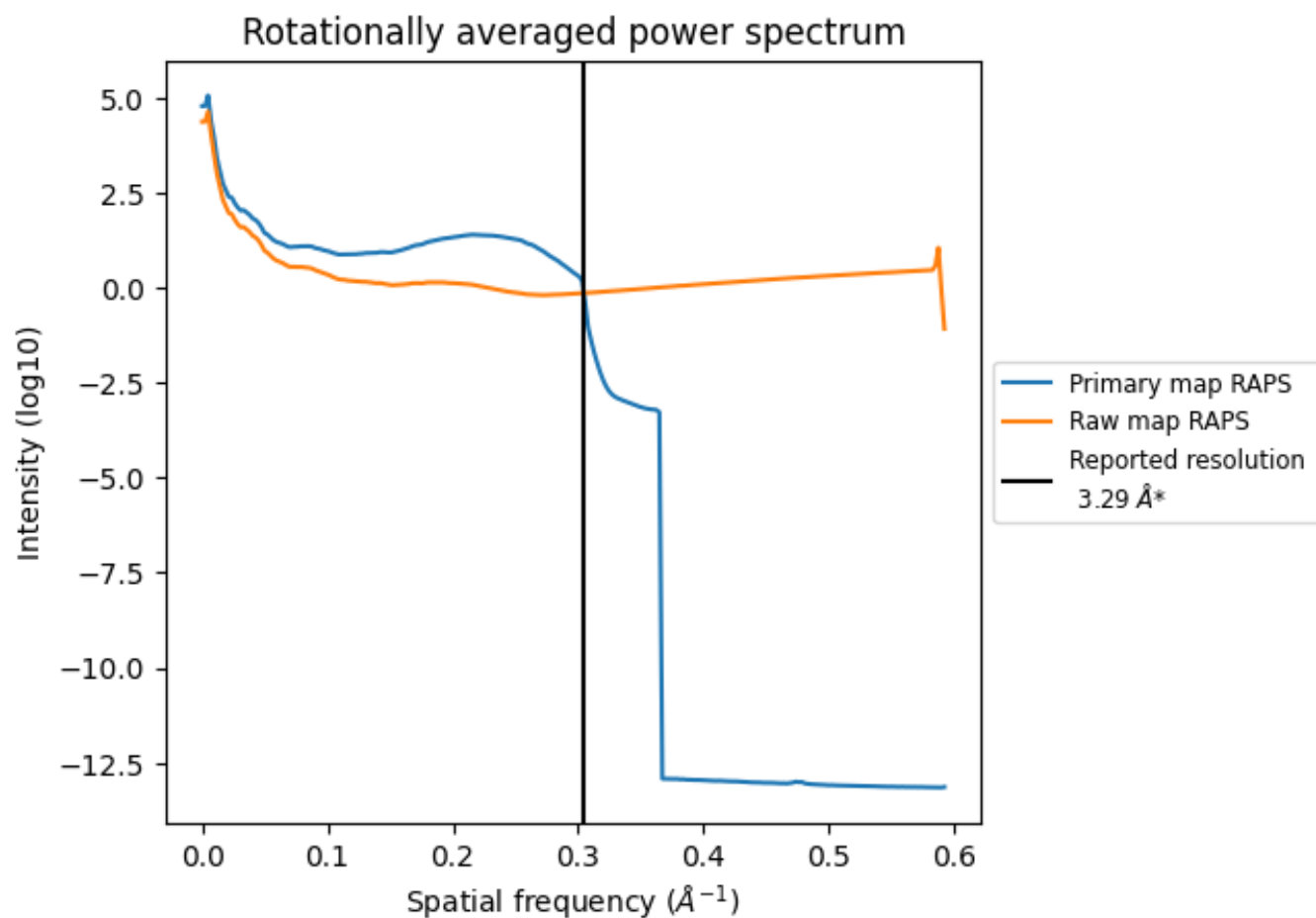
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 1266 nm<sup>3</sup>; this corresponds to an approximate mass of 1144 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 ⓘ

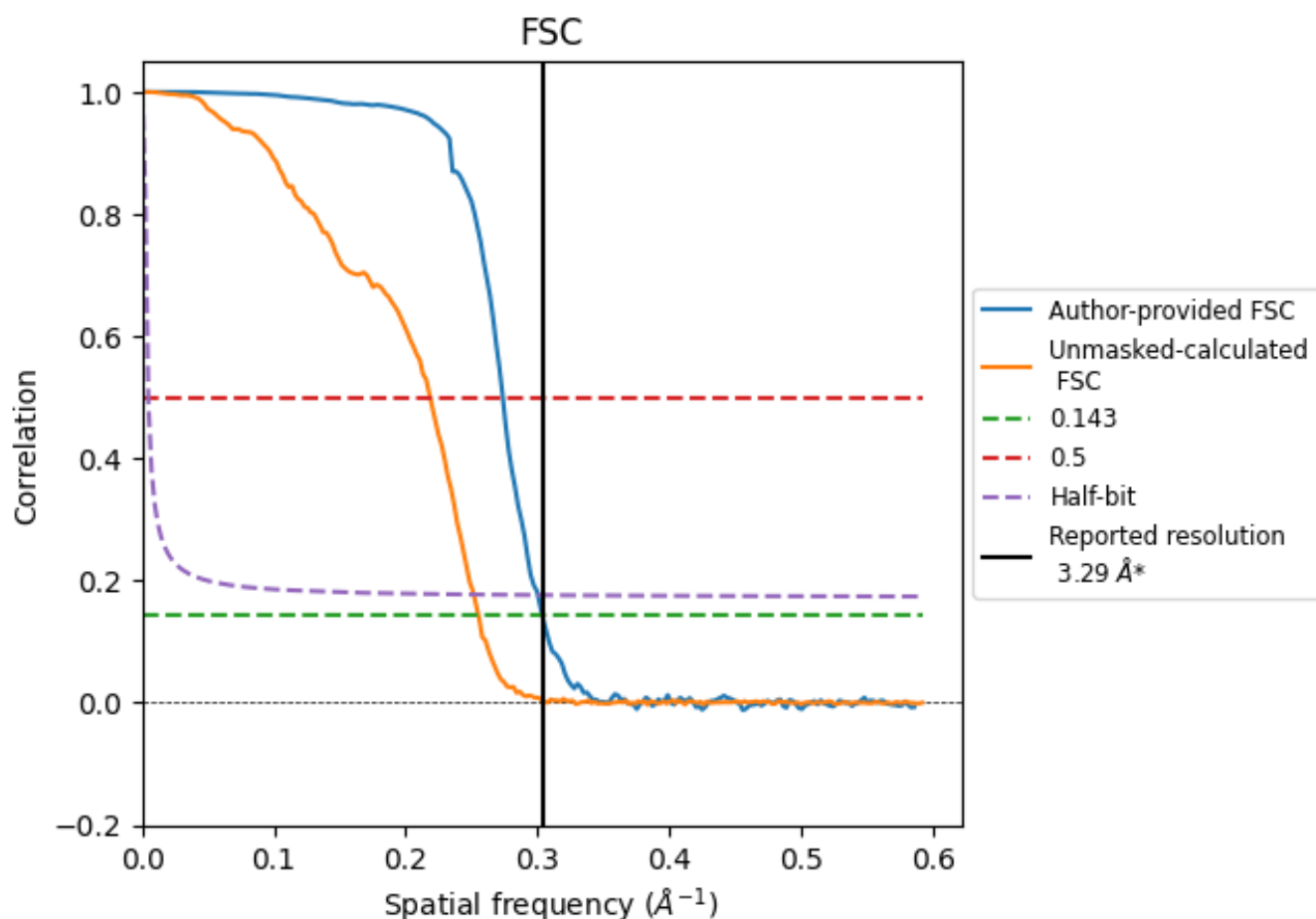


\*Reported resolution corresponds to spatial frequency of 0.304 Å<sup>-1</sup>

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

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

### 8.1 FSC [i](#)



\*Reported resolution corresponds to spatial frequency of  $0.304 \text{ \AA}^{-1}$

## 8.2 Resolution estimates [i](#)

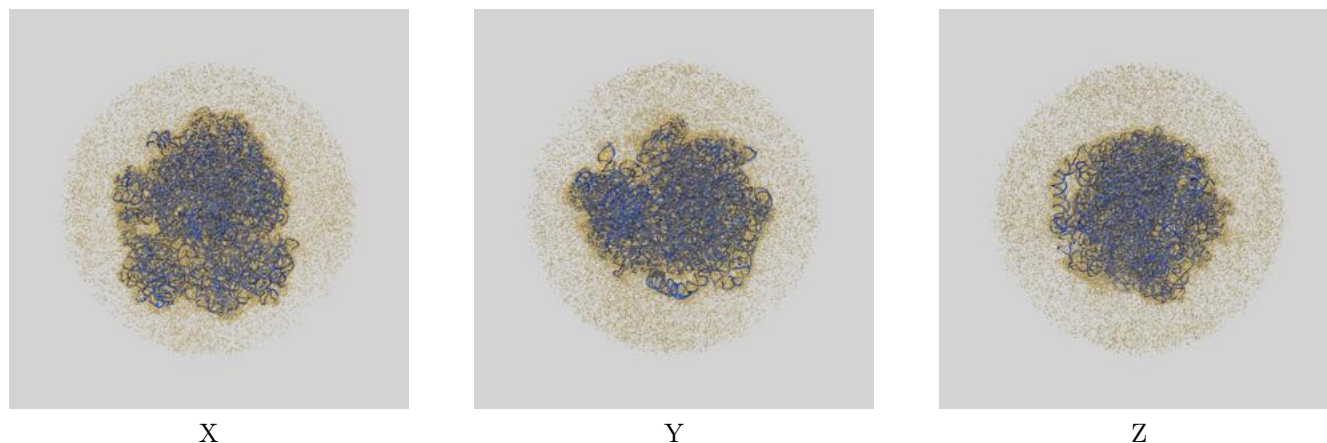
| Resolution estimate (Å)   | Estimation criterion (FSC cut-off) |      |          |
|---------------------------|------------------------------------|------|----------|
|                           | 0.143                              | 0.5  | Half-bit |
| Reported by author        | 3.29                               | -    | -        |
| Author-provided FSC curve | 3.29                               | 3.65 | 3.33     |
| Unmasked-calculated*      | 3.92                               | 4.58 | 3.97     |

\*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 3.92 differs from the reported value 3.29 by more than 10 %

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

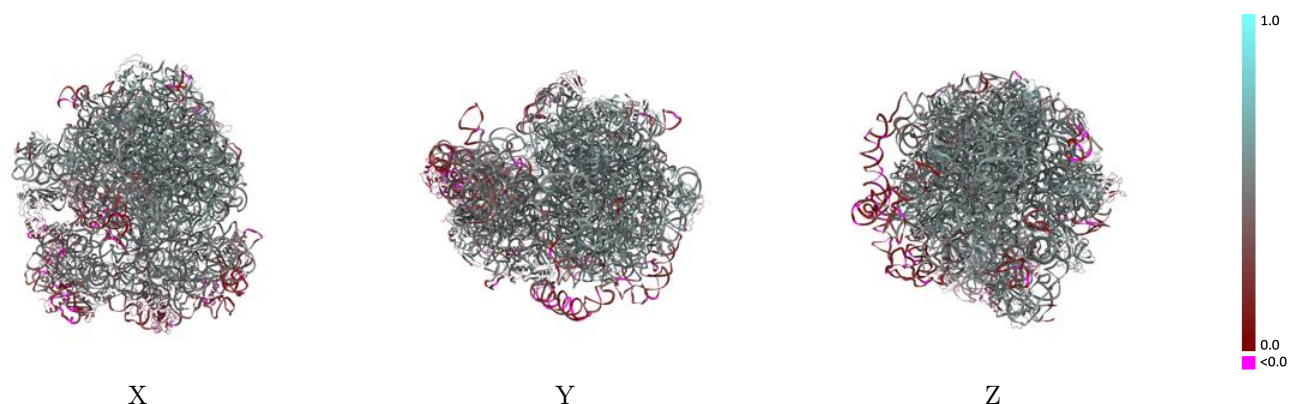
This section contains information regarding the fit between EMDB map EMD-47899 and PDB model 9EC3. Per-residue inclusion information can be found in section [3](#) on page [14](#).

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



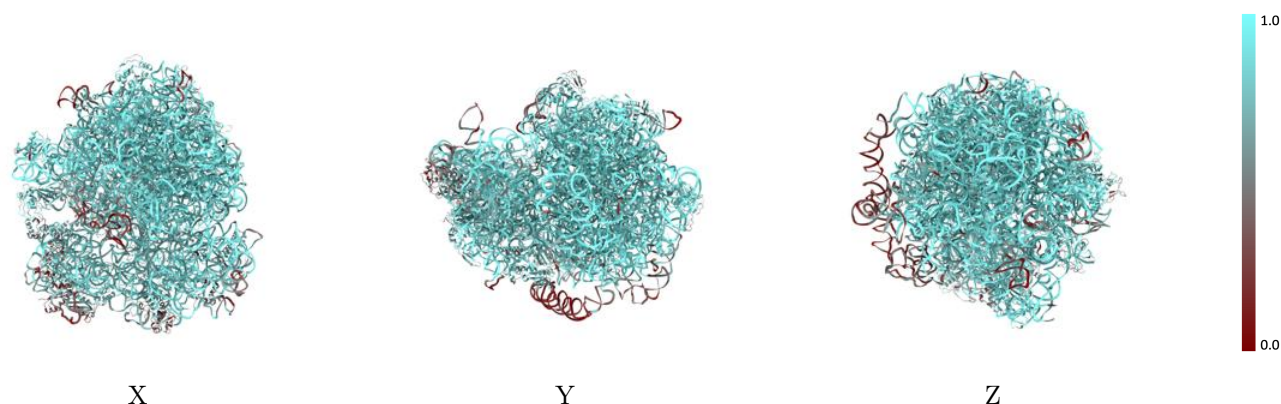
The images above show the 3D surface view of the map at the recommended contour level 0.15 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



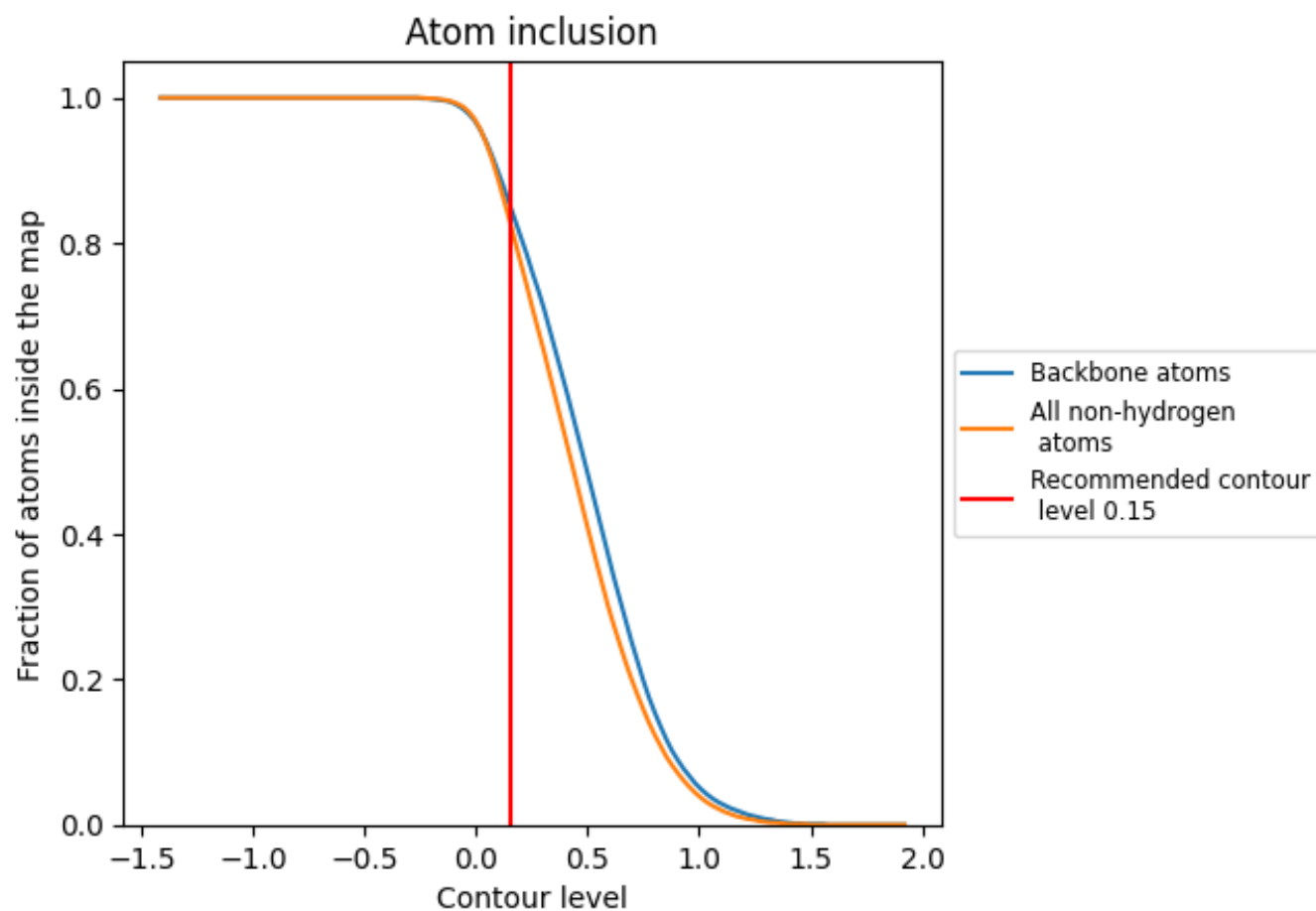
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.15).

## 9.4 Atom inclusion [i](#)



At the recommended contour level, 85% of all backbone atoms, 83% of all non-hydrogen atoms, are inside the map.

## 9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.15) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion                                                                             | Q-score                                                                                    |
|-------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| All   |  0.8320   |  0.4610   |
| 0     |  0.9150   |  0.5450   |
| 1     |  0.7760   |  0.4560   |
| 2     |  0.9210   |  0.5570   |
| 3     |  0.9220   |  0.5570   |
| 4     |  0.9130   |  0.5510   |
| 6     |  0.6750   |  0.3660   |
| 9     |  0.5780   |  0.3560   |
| B     |  0.9010   |  0.4850   |
| C     |  0.9080   |  0.5600   |
| D     |  0.9020   |  0.5470   |
| E     |  0.8670   |  0.5340   |
| F     |  0.7680   |  0.4510   |
| G     |  0.7710   |  0.4410   |
| H     |  0.7730  |  0.4850  |
| I     |  0.8480 |  0.4680 |
| J     |  0.9090 |  0.5540 |
| K     |  0.9050 |  0.5580 |
| L     |  0.9110 |  0.5640 |
| M     |  0.8960 |  0.5470 |
| N     |  0.9220 |  0.5580 |
| O     |  0.8610 |  0.5040 |
| P     |  0.8860 |  0.5450 |
| Q     |  0.9080 |  0.5540 |
| R     |  0.8850 |  0.5580 |
| S     |  0.9140 |  0.5600 |
| T     |  0.8990 |  0.5420 |
| U     |  0.7960 |  0.4640 |
| V     |  0.6700 |  0.4680 |
| W     |  0.8810 |  0.5250 |
| X     |  0.9470 |  0.5320 |
| Y     |  0.8460 |  0.5120 |
| Z     |  0.8550 |  0.5230 |
| a     |  0.8540 |  0.4470 |
| b     |  0.8110 |  0.4650 |



*Continued on next page...*

*Continued from previous page...*

| Chain | Atom inclusion                                                                             | Q-score                                                                                    |
|-------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| c     |  0.7160   |  0.4440   |
| d     |  0.5020   |  0.2050   |
| e     |  0.7960   |  0.4500   |
| f     |  0.7570   |  0.4480   |
| g     |  0.7920   |  0.4660   |
| h     |  0.7910   |  0.4470   |
| i     |  0.7030   |  0.4140   |
| j     |  0.4050   |  0.1550   |
| k     |  0.8150   |  0.4950   |
| l     |  0.7150   |  0.3940   |
| m     |  0.5260   |  0.2100   |
| n     |  0.6940   |  0.3430   |
| o     |  0.7770   |  0.4310   |
| p     |  0.4810   |  0.1570   |
| q     |  0.7560   |  0.4250   |
| r     |  0.7750   |  0.4830   |
| s     |  0.4810   |  0.1960   |
| t     |  0.7600   |  0.4050   |
| u     |  0.8630   |  0.4730   |
| x     |  0.8270  |  0.4900  |
| y     |  0.9180 |  0.5540 |