



## Full wwPDB EM Validation Report ⓘ

Jan 20, 2026 – 08:12 pm GMT

PDB ID : 9R9P / pdb\_00009r9p  
EMDB ID : EMD-53861  
Title : Yeast 80S with nascent chain in complex with Ssb1-ADP in the S2 state  
Authors : Grundmann, L.; Zhang, Y.; Grishkovskaya, I.; Rospert, S.; Haselbach, D.  
Deposited on : 2025-05-20  
Resolution : 3.00 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

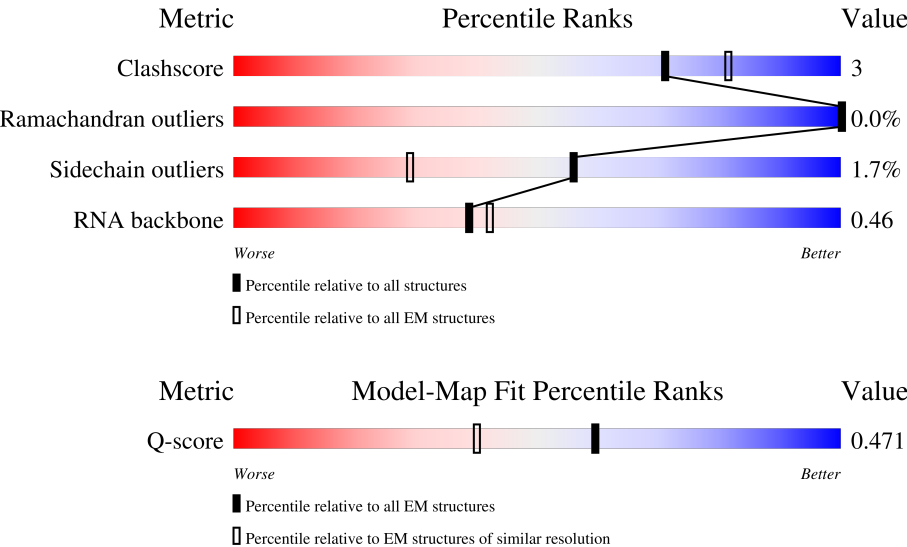
EMDB validation analysis : 0.0.1.dev129  
MolProbity : 4-5-2 with Phenix2.0  
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)  
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)  
MapQ : 1.9.13  
Ideal geometry (proteins)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

# 1 Overall quality at a glance

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

The reported resolution of this entry is 3.00 Å.

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



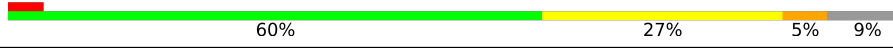
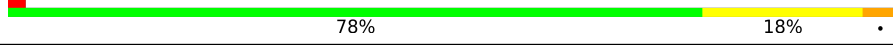
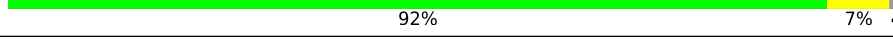
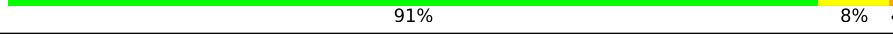
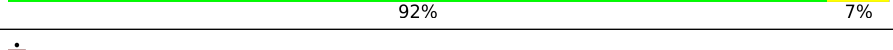
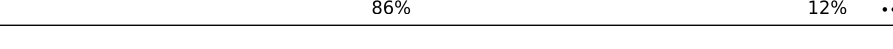
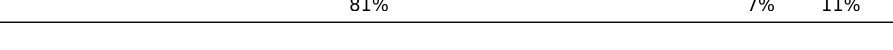
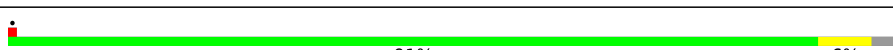
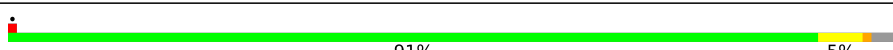
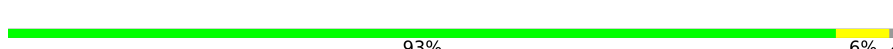
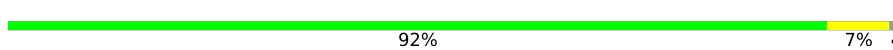
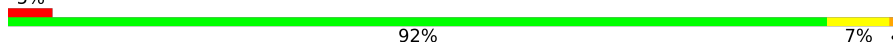
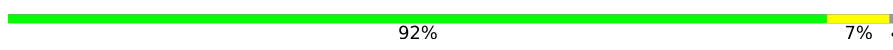
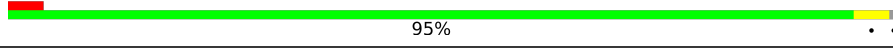
| Metric                | Whole archive<br>(#Entries) | EM structures<br>(#Entries) | Similar EM resolution<br>(#Entries, resolution range(Å)) |
|-----------------------|-----------------------------|-----------------------------|----------------------------------------------------------|
| Clashscore            | 210492                      | 15764                       | -                                                        |
| Ramachandran outliers | 207382                      | 16835                       | -                                                        |
| Sidechain outliers    | 206894                      | 16415                       | -                                                        |
| RNA backbone          | 6643                        | 2191                        | -                                                        |
| Q-score               | -                           | 25397                       | 14081 ( 2.50 - 3.50 )                                    |

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   | 5     | 234    |                  |
| 2   | 6     | 76     |                  |
| 3   | A     | 613    |                  |

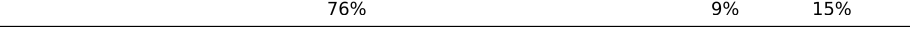
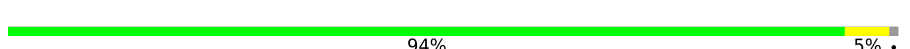
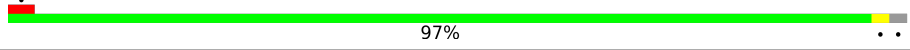
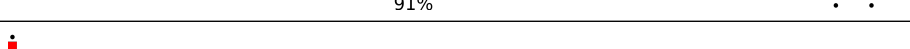
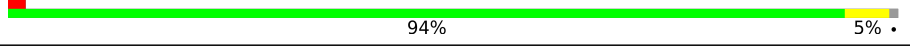
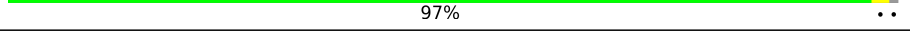
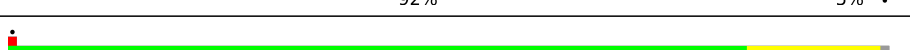
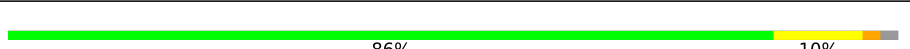
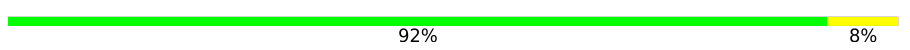
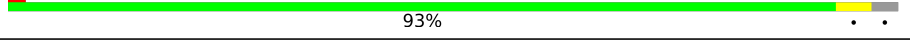
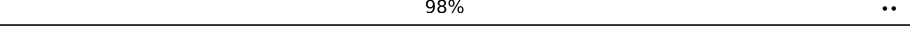
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| Mol | Chain | Length | Quality of chain                                                                     |
|-----|-------|--------|--------------------------------------------------------------------------------------|
| 4   | B     | 78     |    |
| 5   | C1    | 3396   |    |
| 6   | C2    | 1800   |    |
| 7   | C3    | 158    |    |
| 8   | C4    | 121    |    |
| 9   | LA    | 254    |    |
| 10  | LB    | 387    |    |
| 11  | LC    | 362    |    |
| 12  | LD    | 297    |    |
| 13  | LE    | 176    |    |
| 14  | LF    | 244    |    |
| 15  | LG    | 256    |  |
| 16  | LH    | 191    |  |
| 17  | LI    | 221    |  |
| 18  | LJ    | 174    |  |
| 19  | LL    | 199    |  |
| 20  | LM    | 138    |  |
| 21  | LN    | 204    |  |
| 22  | LO    | 199    |  |
| 23  | LP    | 184    |  |
| 24  | LQ    | 186    |  |
| 25  | LR    | 189    |  |
| 26  | LS    | 172    |  |
| 27  | LT    | 160    |  |
| 28  | LU    | 121    |  |

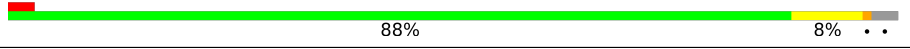
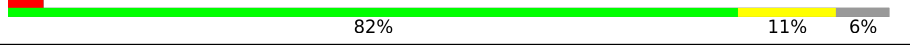
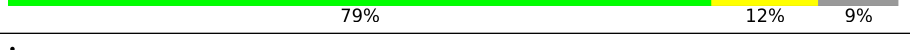
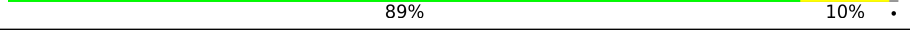
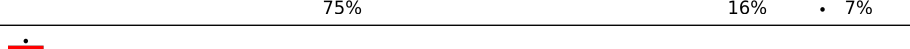
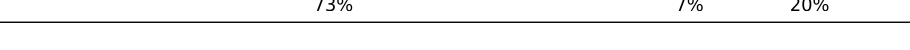
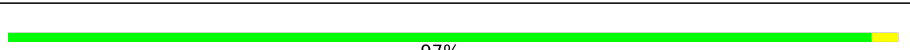
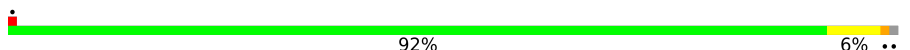
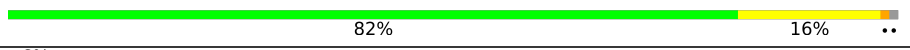
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| Mol | Chain | Length | Quality of chain                                                                     |
|-----|-------|--------|--------------------------------------------------------------------------------------|
| 29  | LV    | 137    |    |
| 30  | LW    | 155    |    |
| 31  | LX    | 142    |    |
| 32  | LY    | 127    |    |
| 33  | LZ    | 136    |    |
| 34  | La    | 149    |    |
| 35  | Lb    | 59     |    |
| 36  | Lc    | 105    |    |
| 37  | Ld    | 113    |    |
| 38  | Le    | 130    |   |
| 39  | Lf    | 107    |  |
| 40  | Lg    | 121    |  |
| 41  | Lh    | 120    |  |
| 42  | Li    | 100    |  |
| 43  | Lj    | 88     |  |
| 44  | Lk    | 78     |  |
| 45  | Ll    | 51     |  |
| 46  | Ln    | 25     |  |
| 47  | Lo    | 106    |  |
| 48  | Lp    | 92     |  |
| 49  | SA    | 252    |  |
| 50  | SB    | 255    |  |
| 51  | SC    | 254    |  |
| 52  | SD    | 240    |  |
| 53  | SE    | 261    |  |

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| Mol | Chain | Length | Quality of chain                                                                     |
|-----|-------|--------|--------------------------------------------------------------------------------------|
| 54  | SF    | 225    |    |
| 55  | SG    | 236    |    |
| 56  | SH    | 190    |    |
| 57  | SI    | 200    |    |
| 58  | SJ    | 197    |    |
| 59  | SK    | 105    |    |
| 60  | SL    | 156    |    |
| 61  | SN    | 151    |    |
| 62  | SO    | 137    |    |
| 63  | SP    | 142    |    |
| 64  | SQ    | 143    |    |
| 65  | SR    | 136    |  |
| 66  | SS    | 146    |  |
| 67  | ST    | 144    |  |
| 68  | SU    | 121    |  |
| 69  | SV    | 87     |  |
| 70  | SW    | 130    |  |
| 71  | SX    | 145    |  |
| 72  | SY    | 135    |  |
| 73  | SZ    | 108    |  |
| 74  | Sa    | 119    |  |
| 75  | Sb    | 82     |  |
| 76  | Sc    | 67     |  |
| 77  | Sd    | 56     |  |
| 78  | Se    | 63     |  |

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| Mol | Chain | Length | Quality of chain                                                                                                                                                                                                                                                                                                                                                                                |
|-----|-------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 79  | Sg    | 319    |  A horizontal bar chart showing the quality of chain 79 (Sg, length 319). The bar is divided into three segments: a small red segment at the beginning, a large green segment labeled '86%', and a small yellow segment at the end labeled '12%'. A small grey segment is visible at the very end of the bar. |

## 2 Entry composition

There are 79 unique types of molecules in this entry. The entry contains 339215 atoms, of which 144425 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 mRNA\_Flag-Pgk-1-70.

| Mol | Chain | Residues | Atoms |    |    |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|----|----|----|----|---|---------|-------|
| 1   | 5     | 7        | Total | C  | H  | N  | O  | P | 0       | 0     |
|     |       |          | 229   | 68 | 76 | 29 | 49 | 7 |         |       |

- Molecule 2 is a RNA chain called tRNA Methionin elongator.

| Mol | Chain | Residues | Atoms |     |     |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|-----|----|---------|-------|
| 2   | 6     | 76       | Total | C   | H   | N   | O   | P  | 0       | 0     |
|     |       |          | 2440  | 724 | 820 | 292 | 528 | 76 |         |       |

- Molecule 3 is a protein called Ribosome-associated molecular chaperone SSB1.

| Mol | Chain | Residues | Atoms |     |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|-----|---|---------|-------|
| 3   | A     | 214      | Total | C   | H   | N   | O   | S | 0       | 0     |
|     |       |          | 2293  | 788 | 999 | 247 | 258 | 1 |         |       |

- Molecule 4 is a protein called Phosphoglycerate kinase.

| Mol | Chain | Residues | Atoms |    |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|----|-----|----|----|---|---------|-------|
| 4   | B     | 17       | Total | C  | H   | N  | O  | S | 0       | 0     |
|     |       |          | 283   | 89 | 143 | 29 | 19 | 3 |         |       |

There are 13 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment               | Reference  |
|-------|---------|----------|--------|-----------------------|------------|
| B     | 1       | MET      | -      | initiating methionine | UNP P00560 |
| B     | 2       | ASP      | -      | expression tag        | UNP P00560 |
| B     | 3       | TYR      | -      | expression tag        | UNP P00560 |
| B     | 4       | LYS      | -      | expression tag        | UNP P00560 |
| B     | 5       | ASP      | -      | expression tag        | UNP P00560 |
| B     | 6       | ASP      | -      | expression tag        | UNP P00560 |
| B     | 7       | ASP      | -      | expression tag        | UNP P00560 |
| B     | 8       | ASP      | -      | expression tag        | UNP P00560 |
| B     | 9       | LYS      | -      | expression tag        | UNP P00560 |

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| Chain | Residue | Modelled | Actual | Comment        | Reference  |
|-------|---------|----------|--------|----------------|------------|
| B     | 10      | GLU      | -      | expression tag | UNP P00560 |
| B     | 76      | MET      | -      | expression tag | UNP P00560 |
| B     | 77      | MET      | -      | expression tag | UNP P00560 |
| B     | 78      | MET      | -      | expression tag | UNP P00560 |

- Molecule 5 is a RNA chain called 25S ribosomal RNA.

| Mol | Chain | Residues | Atoms |       |       |       |       |      | AltConf | Trace |
|-----|-------|----------|-------|-------|-------|-------|-------|------|---------|-------|
| 5   | C1    | 3063     | Total | C     | H     | N     | O     | P    | 0       | 0     |
|     |       |          | 98461 | 29271 | 32927 | 11830 | 21370 | 3063 |         |       |

- Molecule 6 is a RNA chain called RNA (1642-MER).

| Mol | Chain | Residues | Atoms |       |       |      |       |      | AltConf | Trace |
|-----|-------|----------|-------|-------|-------|------|-------|------|---------|-------|
| 6   | C2    | 1642     | Total | C     | H     | N    | O     | P    | 0       | 0     |
|     |       |          | 52622 | 15656 | 17607 | 6227 | 11490 | 1642 |         |       |

- Molecule 7 is a RNA chain called 5.8S ribosomal RNA.

| Mol | Chain | Residues | Atoms |      |      |     |      |     | AltConf | Trace |
|-----|-------|----------|-------|------|------|-----|------|-----|---------|-------|
| 7   | C3    | 158      | Total | C    | H    | N   | O    | P   | 0       | 0     |
|     |       |          | 5048  | 1500 | 1695 | 586 | 1109 | 158 |         |       |

- Molecule 8 is a RNA chain called 5S ribosomal RNA.

| Mol | Chain | Residues | Atoms |      |      |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|------|------|-----|-----|-----|---------|-------|
| 8   | C4    | 121      | Total | C    | H    | N   | O   | P   | 0       | 0     |
|     |       |          | 3883  | 1152 | 1304 | 461 | 845 | 121 |         |       |

- Molecule 9 is a protein called 60S ribosomal protein L2-A.

| Mol | Chain | Residues | Atoms |      |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|------|-----|-----|---|---------|-------|
| 9   | LA    | 251      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 3858  | 1182 | 1959 | 385 | 331 | 1 |         |       |

- Molecule 10 is a protein called 60S ribosomal protein L3.

| Mol | Chain | Residues | Atoms |      |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|------|-----|-----|---|---------|-------|
| 10  | LB    | 386      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 6241  | 1954 | 3162 | 584 | 533 | 8 |         |       |

- Molecule 11 is a protein called 60S ribosomal protein L4-A.

| Mol | Chain | Residues | Atoms |      |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|------|-----|-----|---|---------|-------|
| 11  | LC    | 361      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 5613  | 1730 | 2864 | 522 | 494 | 3 |         |       |

- Molecule 12 is a protein called 60S ribosomal protein L5.

| Mol | Chain | Residues | Atoms |      |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|------|-----|-----|---|---------|-------|
| 12  | LD    | 294      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 4646  | 1484 | 2295 | 410 | 455 | 2 |         |       |

- Molecule 13 is a protein called 60S ribosomal protein L6-B.

| Mol | Chain | Residues | Atoms |     |      |     |     |  | AltConf | Trace |
|-----|-------|----------|-------|-----|------|-----|-----|--|---------|-------|
| 13  | LE    | 156      | Total | C   | H    | N   | O   |  | 0       | 0     |
|     |       |          | 2565  | 802 | 1324 | 222 | 217 |  |         |       |

- Molecule 14 is a protein called 60S ribosomal protein L7-A.

| Mol | Chain | Residues | Atoms |      |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|------|-----|-----|---|---------|-------|
| 14  | LF    | 222      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 3648  | 1151 | 1864 | 324 | 308 | 1 |         |       |

- Molecule 15 is a protein called 60S ribosomal protein L8-A.

| Mol | Chain | Residues | Atoms |      |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|------|-----|-----|---|---------|-------|
| 15  | LG    | 229      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 3638  | 1138 | 1859 | 319 | 319 | 3 |         |       |

- Molecule 16 is a protein called 60S ribosomal protein L9-A.

| Mol | Chain | Residues | Atoms |     |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|------|-----|-----|---|---------|-------|
| 16  | LH    | 191      | Total | C   | H    | N   | O   | S | 0       | 0     |
|     |       |          | 3082  | 957 | 1574 | 274 | 273 | 4 |         |       |

- Molecule 17 is a protein called 60S ribosomal protein L10.

| Mol | Chain | Residues | Atoms |      |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|------|-----|-----|---|---------|-------|
| 17  | LI    | 208      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 3429  | 1076 | 1734 | 321 | 293 | 5 |         |       |

- Molecule 18 is a protein called 60S ribosomal protein L11-A.

| Mol | Chain | Residues | Atoms |     |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|------|-----|-----|---|---------|-------|
| 18  | LJ    | 169      | Total | C   | H    | N   | O   | S | 0       | 0     |
|     |       |          | 2733  | 846 | 1383 | 253 | 247 | 4 |         |       |

- Molecule 19 is a protein called 60S ribosomal protein L13-A.

| Mol | Chain | Residues | Atoms |     |      |     |     |  | AltConf | Trace |
|-----|-------|----------|-------|-----|------|-----|-----|--|---------|-------|
| 19  | LL    | 193      | Total | C   | H    | N   | O   |  | 0       | 0     |
|     |       |          | 3152  | 962 | 1609 | 315 | 266 |  |         |       |

- Molecule 20 is a protein called 60S ribosomal protein L14-A.

| Mol | Chain | Residues | Atoms |     |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|------|-----|-----|---|---------|-------|
| 20  | LM    | 136      | Total | C   | H    | N   | O   | S | 0       | 0     |
|     |       |          | 2203  | 675 | 1150 | 199 | 177 | 2 |         |       |

- Molecule 21 is a protein called 60S ribosomal protein L15-A.

| Mol | Chain | Residues | Atoms |      |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|------|-----|-----|---|---------|-------|
| 21  | LN    | 203      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 3500  | 1077 | 1780 | 361 | 281 | 1 |         |       |

- Molecule 22 is a protein called 60S ribosomal protein L16-A.

| Mol | Chain | Residues | Atoms |      |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|------|-----|-----|---|---------|-------|
| 22  | LO    | 197      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 3216  | 1003 | 1661 | 289 | 262 | 1 |         |       |

- Molecule 23 is a protein called 60S ribosomal protein L17-A.

| Mol | Chain | Residues | Atoms |     |      |     |     |  | AltConf | Trace |
|-----|-------|----------|-------|-----|------|-----|-----|--|---------|-------|
| 23  | LP    | 183      | Total | C   | H    | N   | O   |  | 0       | 0     |
|     |       |          | 2850  | 879 | 1434 | 284 | 253 |  |         |       |

- Molecule 24 is a protein called 60S ribosomal protein L18-A.

| Mol | Chain | Residues | Atoms |     |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|------|-----|-----|---|---------|-------|
| 24  | LQ    | 185      | Total | C   | H    | N   | O   | S | 0       | 0     |
|     |       |          | 2986  | 908 | 1545 | 290 | 241 | 2 |         |       |

- Molecule 25 is a protein called 60S ribosomal protein L19-A.

| Mol | Chain | Residues | Atoms |     |      |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|------|-----|-----|---------|-------|
| 25  | LR    | 188      | Total | C   | H    | N   | O   | 0       | 0     |
|     |       |          | 3122  | 932 | 1607 | 323 | 260 |         |       |

- Molecule 26 is a protein called 60S ribosomal protein L20-A.

| Mol | Chain | Residues | Atoms |     |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|------|-----|-----|---|---------|-------|
| 26  | LS    | 171      | Total | C   | H    | N   | O   | S | 0       | 0     |
|     |       |          | 2914  | 925 | 1477 | 266 | 243 | 3 |         |       |

- Molecule 27 is a protein called 60S ribosomal protein L21-A.

| Mol | Chain | Residues | Atoms |     |      |     |     | AltConf | Trace |   |
|-----|-------|----------|-------|-----|------|-----|-----|---------|-------|---|
| 27  | LT    | 159      | Total | C   | H    | N   | O   | S       | 0     | 0 |
|     |       |          | 2600  | 805 | 1324 | 246 | 221 | 4       |       |   |

- Molecule 28 is a protein called 60S ribosomal protein L22-A.

| Mol | Chain | Residues | Atoms |     |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|-----|---------|-------|
| 28  | LU    | 100      | Total | C   | H   | N   | O   | 0       | 0     |
|     |       |          | 1609  | 516 | 813 | 131 | 149 |         |       |

- Molecule 29 is a protein called 60S ribosomal protein L23-A.

| Mol | Chain | Residues | Atoms |     |      |     |     | AltConf | Trace |   |
|-----|-------|----------|-------|-----|------|-----|-----|---------|-------|---|
| 29  | LV    | 136      | Total | C   | H    | N   | O   | S       | 0     | 0 |
|     |       |          | 2052  | 628 | 1049 | 189 | 179 | 7       |       |   |

- Molecule 30 is a protein called Large ribosomal subunit protein eL24B.

| Mol | Chain | Residues | Atoms |     |     |     |    | AltConf | Trace |   |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|---|
| 30  | LW    | 63       | Total | C   | H   | N   | O  | S       | 0     | 0 |
|     |       |          | 1058  | 332 | 541 | 102 | 82 | 1       |       |   |

- Molecule 31 is a protein called 60S ribosomal protein L25.

| Mol | Chain | Residues | Atoms |     |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|------|-----|-----|---|---------|-------|
| 31  | LX    | 121      | Total | C   | H    | N   | O   | S | 0       | 0     |
|     |       |          | 1992  | 620 | 1027 | 169 | 174 | 2 |         |       |

- Molecule 32 is a protein called 60S ribosomal protein L26-A.

| Mol | Chain | Residues | Atoms |     |      |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|------|-----|-----|---------|-------|
| 32  | LY    | 125      | Total | C   | H    | N   | O   | 0       | 0     |
|     |       |          | 2060  | 620 | 1076 | 191 | 173 |         |       |

- Molecule 33 is a protein called 60S ribosomal protein L27-A.

| Mol | Chain | Residues | Atoms |     |      |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|------|-----|-----|---------|-------|
| 33  | LZ    | 135      | Total | C   | H    | N   | O   | 0       | 0     |
|     |       |          | 2248  | 710 | 1156 | 202 | 180 |         |       |

- Molecule 34 is a protein called 60S ribosomal protein L28.

| Mol | Chain | Residues | Atoms |     |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|------|-----|-----|---|---------|-------|
| 34  | La    | 148      | Total | C   | H    | N   | O   | S | 0       | 0     |
|     |       |          | 2391  | 749 | 1218 | 231 | 190 | 3 |         |       |

- Molecule 35 is a protein called 60S ribosomal protein L29.

| Mol | Chain | Residues | Atoms |     |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 35  | Lb    | 58       | Total | C   | H   | N   | O  | 0       | 0     |
|     |       |          | 956   | 289 | 494 | 100 | 73 |         |       |

- Molecule 36 is a protein called 60S ribosomal protein L30.

| Mol | Chain | Residues | Atoms |     |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|-----|---|---------|-------|
| 36  | Lc    | 96       | Total | C   | H   | N   | O   | S | 0       | 0     |
|     |       |          | 1530  | 476 | 793 | 123 | 137 | 1 |         |       |

- Molecule 37 is a protein called 60S ribosomal protein L31-A.

| Mol | Chain | Residues | Atoms |     |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|-----|---|---------|-------|
| 37  | Ld    | 108      | Total | C   | H   | N   | O   | S | 0       | 0     |
|     |       |          | 1782  | 553 | 911 | 166 | 151 | 1 |         |       |

- Molecule 38 is a protein called 60S ribosomal protein L32.

| Mol | Chain | Residues | Atoms |     |      |     |     | AltConf | Trace |   |
|-----|-------|----------|-------|-----|------|-----|-----|---------|-------|---|
| 38  | Le    | 127      | Total | C   | H    | N   | O   | S       | 0     | 0 |
|     |       |          | 2101  | 644 | 1084 | 205 | 167 | 1       |       |   |

- Molecule 39 is a protein called 60S ribosomal protein L33-A.

| Mol | Chain | Residues | Atoms |     |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|-----|---|---------|-------|
| 39  | Lf    | 106      | Total | C   | H   | N   | O   | S | 0       | 0     |
|     |       |          | 1731  | 540 | 881 | 165 | 144 | 1 |         |       |

- Molecule 40 is a protein called 60S ribosomal protein L34-A.

| Mol | Chain | Residues | Atoms |     |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|-----|---|---------|-------|
| 40  | Lg    | 112      | Total | C   | H   | N   | O   | S | 0       | 0     |
|     |       |          | 1827  | 545 | 947 | 179 | 152 | 4 |         |       |

- Molecule 41 is a protein called 60S ribosomal protein L35-A.

| Mol | Chain | Residues | Atoms |     |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|------|-----|-----|---|---------|-------|
| 41  | Lh    | 119      | Total | C   | H    | N   | O   | S | 0       | 0     |
|     |       |          | 2048  | 615 | 1079 | 186 | 167 | 1 |         |       |

- Molecule 42 is a protein called 60S ribosomal protein L36-A.

| Mol | Chain | Residues | Atoms |     |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|-----|---|---------|-------|
| 42  | Li    | 99       | Total | C   | H   | N   | O   | S | 0       | 0     |
|     |       |          | 1611  | 478 | 845 | 154 | 132 | 2 |         |       |

- Molecule 43 is a protein called 60S ribosomal protein L37-A.

| Mol | Chain | Residues | Atoms |     |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|-----|---|---------|-------|
| 43  | Lj    | 85       | Total | C   | H   | N   | O   | S | 0       | 0     |
|     |       |          | 1350  | 408 | 680 | 146 | 111 | 5 |         |       |

- Molecule 44 is a protein called 60S ribosomal protein L38.

| Mol | Chain | Residues | Atoms |     |     |     |     |  | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|-----|--|---------|-------|
| 44  | Lk    | 77       | Total | C   | H   | N   | O   |  | 0       | 0     |
|     |       |          | 1295  | 391 | 683 | 115 | 106 |  |         |       |

- Molecule 45 is a protein called 60S ribosomal protein L39.

| Mol | Chain | Residues | Atoms |     |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|----|---|---------|-------|
| 45  | Ll    | 50       | Total | C   | H   | N  | O  | S | 0       | 0     |
|     |       |          | 912   | 272 | 476 | 97 | 65 | 2 |         |       |

- Molecule 46 is a protein called Large ribosomal subunit protein eL41B.

| Mol | Chain | Residues | Atoms |     |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|----|---|---------|-------|
| 46  | Ln    | 25       | Total | C   | H   | N  | O  | S | 0       | 0     |
|     |       |          | 502   | 139 | 273 | 62 | 27 | 1 |         |       |

- Molecule 47 is a protein called 60S ribosomal protein L42-A.

| Mol | Chain | Residues | Atoms |     |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|-----|---|---------|-------|
| 47  | Lo    | 103      | Total | C   | H   | N   | O   | S | 0       | 0     |
|     |       |          | 1718  | 517 | 894 | 167 | 135 | 5 |         |       |

- Molecule 48 is a protein called 60S ribosomal protein L43-A.

| Mol | Chain | Residues | Atoms |     |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|-----|---|---------|-------|
| 48  | Lp    | 91       | Total | C   | H   | N   | O   | S | 0       | 0     |
|     |       |          | 1433  | 429 | 739 | 138 | 121 | 6 |         |       |

- Molecule 49 is a protein called 40S ribosomal protein S0-A.

| Mol | Chain | Residues | Atoms |      |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|------|-----|-----|---|---------|-------|
| 49  | SA    | 206      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 3214  | 1030 | 1611 | 284 | 287 | 2 |         |       |

- Molecule 50 is a protein called 40S ribosomal protein S1-A.

| Mol | Chain | Residues | Atoms |      |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|------|-----|-----|---|---------|-------|
| 50  | SB    | 226      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 3690  | 1139 | 1892 | 330 | 325 | 4 |         |       |

- Molecule 51 is a protein called 40S ribosomal protein S2.

| Mol | Chain | Residues | Atoms |      |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|------|-----|-----|---|---------|-------|
| 51  | SC    | 216      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 3343  | 1042 | 1717 | 287 | 295 | 2 |         |       |

- Molecule 52 is a protein called Small ribosomal subunit protein uS3.

| Mol | Chain | Residues | Atoms |      |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|------|-----|-----|---|---------|-------|
| 52  | SD    | 222      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 3543  | 1098 | 1814 | 312 | 313 | 6 |         |       |

- Molecule 53 is a protein called 40S ribosomal protein S4-A.

| Mol | Chain | Residues | Atoms |      |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|------|-----|-----|---|---------|-------|
| 53  | SE    | 258      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 4200  | 1308 | 2144 | 387 | 358 | 3 |         |       |

- Molecule 54 is a protein called 40S ribosomal protein S5.

| Mol | Chain | Residues | Atoms |     |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|------|-----|-----|---|---------|-------|
| 54  | SF    | 205      | Total | C   | H    | N   | O   | S | 0       | 0     |
|     |       |          | 3256  | 996 | 1662 | 298 | 297 | 3 |         |       |

- Molecule 55 is a protein called 40S ribosomal protein S6-A.

| Mol | Chain | Residues | Atoms |      |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|------|-----|-----|---|---------|-------|
| 55  | SG    | 228      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 3709  | 1138 | 1894 | 351 | 323 | 3 |         |       |

- Molecule 56 is a protein called 40S ribosomal protein S7-A.

| Mol | Chain | Residues | Atoms |     |      |     |     |  | AltConf | Trace |
|-----|-------|----------|-------|-----|------|-----|-----|--|---------|-------|
| 56  | SH    | 184      | Total | C   | H    | N   | O   |  | 0       | 0     |
|     |       |          | 3029  | 946 | 1556 | 263 | 264 |  |         |       |

- Molecule 57 is a protein called 40S ribosomal protein S8-A.

| Mol | Chain | Residues | Atoms |     |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|------|-----|-----|---|---------|-------|
| 57  | SI    | 187      | Total | C   | H    | N   | O   | S | 0       | 0     |
|     |       |          | 2980  | 916 | 1504 | 295 | 263 | 2 |         |       |

- Molecule 58 is a protein called 40S ribosomal protein S9-A.

| Mol | Chain | Residues | Atoms |     |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|------|-----|-----|---|---------|-------|
| 58  | SJ    | 184      | Total | C   | H    | N   | O   | S | 0       | 0     |
|     |       |          | 3035  | 935 | 1556 | 285 | 258 | 1 |         |       |

- Molecule 59 is a protein called 40S ribosomal protein S10-A.

| Mol | Chain | Residues | Atoms |     |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|-----|---|---------|-------|
| 59  | SK    | 80       | Total | C   | H   | N   | O   | S | 0       | 0     |
|     |       |          | 1363  | 446 | 678 | 109 | 128 | 2 |         |       |

- Molecule 60 is a protein called 40S ribosomal protein S11-A.

| Mol | Chain | Residues | Atoms |     |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|------|-----|-----|---|---------|-------|
| 60  | SL    | 142      | Total | C   | H    | N   | O   | S | 0       | 0     |
|     |       |          | 2360  | 735 | 1214 | 217 | 191 | 3 |         |       |

- Molecule 61 is a protein called 40S ribosomal protein S13.

| Mol | Chain | Residues | Atoms |     |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|------|-----|-----|---|---------|-------|
| 61  | SN    | 150      | Total | C   | H    | N   | O   | S | 0       | 0     |
|     |       |          | 2448  | 759 | 1256 | 224 | 207 | 2 |         |       |

- Molecule 62 is a protein called 40S ribosomal protein S14-A.

| Mol | Chain | Residues | Atoms |     |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|-----|---|---------|-------|
| 62  | SO    | 127      | Total | C   | H   | N   | O   | S | 0       | 0     |
|     |       |          | 1877  | 569 | 951 | 185 | 169 | 3 |         |       |

- Molecule 63 is a protein called 40S ribosomal protein S15.

| Mol | Chain | Residues | Atoms |     |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|-----|---|---------|-------|
| 63  | SP    | 114      | Total | C   | H   | N   | O   | S | 0       | 0     |
|     |       |          | 1817  | 571 | 922 | 168 | 150 | 6 |         |       |

- Molecule 64 is a protein called 40S ribosomal protein S16-A.

| Mol | Chain | Residues | Atoms |     |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|------|-----|-----|---|---------|-------|
| 64  | SQ    | 141      | Total | C   | H    | N   | O   | S | 0       | 0     |
|     |       |          | 2273  | 708 | 1168 | 203 | 194 |   |         |       |

- Molecule 65 is a protein called 40S ribosomal protein S17-B.

| Mol | Chain | Residues | Atoms |     |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|-----|---|---------|-------|
| 65  | SR    | 121      | Total | C   | H   | N   | O   | S | 0       | 0     |
|     |       |          | 1940  | 596 | 992 | 179 | 171 | 2 |         |       |

- Molecule 66 is a protein called 40S ribosomal protein S18-A.

| Mol | Chain | Residues | Atoms |     |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|------|-----|-----|---|---------|-------|
| 66  | SS    | 145      | Total | C   | H    | N   | O   | S | 0       | 0     |
|     |       |          | 2415  | 743 | 1223 | 237 | 210 | 2 |         |       |

- Molecule 67 is a protein called 40S ribosomal protein S19-A.

| Mol | Chain | Residues | Atoms |     |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|------|-----|-----|---|---------|-------|
| 67  | ST    | 143      | Total | C   | H    | N   | O   | S | 0       | 0     |
|     |       |          | 2237  | 694 | 1125 | 208 | 208 | 2 |         |       |

- Molecule 68 is a protein called Small ribosomal subunit protein uS10.

| Mol | Chain | Residues | Atoms |     |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|-----|---|---------|-------|
| 68  | SU    | 100      | Total | C   | H   | N   | O   | S | 0       | 0     |
|     |       |          | 1661  | 506 | 864 | 144 | 146 | 1 |         |       |

- Molecule 69 is a protein called 40S ribosomal protein S21-A.

| Mol | Chain | Residues | Atoms |     |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|-----|---|---------|-------|
| 69  | SV    | 87       | Total | C   | H   | N   | O   | S | 0       | 0     |
|     |       |          | 1335  | 415 | 662 | 125 | 131 | 2 |         |       |

- Molecule 70 is a protein called 40S ribosomal protein S22-A.

| Mol | Chain | Residues | Atoms |     |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|------|-----|-----|---|---------|-------|
| 70  | SW    | 129      | Total | C   | H    | N   | O   | S | 0       | 0     |
|     |       |          | 2082  | 650 | 1061 | 188 | 180 | 3 |         |       |

- Molecule 71 is a protein called 40S ribosomal protein S23-A.

| Mol | Chain | Residues | Atoms |     |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|------|-----|-----|---|---------|-------|
| 71  | SX    | 144      | Total | C   | H    | N   | O   | S | 0       | 0     |
|     |       |          | 2319  | 708 | 1198 | 220 | 191 | 2 |         |       |

- Molecule 72 is a protein called 40S ribosomal protein S24-A.

| Mol | Chain | Residues | Atoms |     |      |     |     |  | AltConf | Trace |
|-----|-------|----------|-------|-----|------|-----|-----|--|---------|-------|
| 72  | SY    | 133      | Total | C   | H    | N   | O   |  | 0       | 0     |
|     |       |          | 2195  | 673 | 1128 | 207 | 187 |  |         |       |

- Molecule 73 is a protein called 40S ribosomal protein S25-A.

| Mol | Chain | Residues | Atoms |     |     |    |    |  | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|----|--|---------|-------|
| 73  | SZ    | 67       | Total | C   | H   | N  | O  |  | 0       | 0     |
|     |       |          | 1124  | 346 | 585 | 98 | 95 |  |         |       |

- Molecule 74 is a protein called Small ribosomal subunit protein eS26A.

| Mol | Chain | Residues | Atoms |     |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|-----|---|---------|-------|
| 74  | Sa    | 97       | Total | C   | H   | N   | O   | S | 0       | 0     |
|     |       |          | 1587  | 475 | 818 | 160 | 129 | 5 |         |       |

- Molecule 75 is a protein called 40S ribosomal protein S27-A.

| Mol | Chain | Residues | Atoms |     |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|-----|---|---------|-------|
| 75  | Sb    | 81       | Total | C   | H   | N   | O   | S | 0       | 0     |
|     |       |          | 1245  | 382 | 635 | 110 | 113 | 5 |         |       |

- Molecule 76 is a protein called Small ribosomal subunit protein eS28B.

| Mol | Chain | Residues | Atoms |     |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|----|---|---------|-------|
| 76  | Sc    | 63       | Total | C   | H   | N  | O  | S | 0       | 0     |
|     |       |          | 1016  | 303 | 525 | 96 | 91 | 1 |         |       |

- Molecule 77 is a protein called Small ribosomal subunit protein uS14A.

| Mol | Chain | Residues | Atoms |     |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|----|---|---------|-------|
| 77  | Sd    | 45       | Total | C   | H   | N  | O  | S | 0       | 0     |
|     |       |          | 749   | 227 | 378 | 80 | 60 | 4 |         |       |

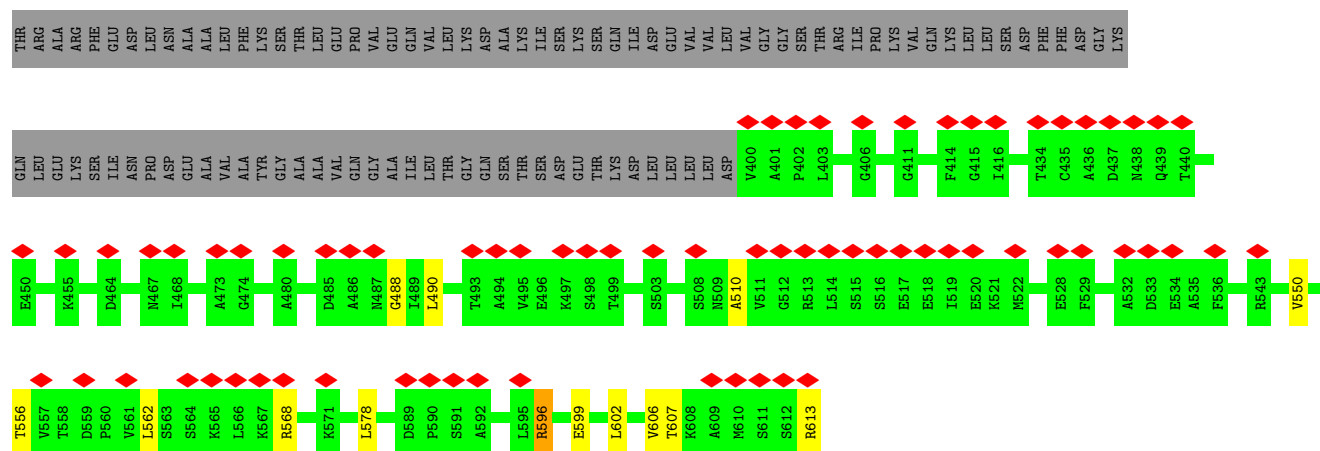
- Molecule 78 is a protein called 40S ribosomal protein S30-A.

| Mol | Chain | Residues | Atoms |     |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|----|---|---------|-------|
| 78  | Se    | 60       | Total | C   | H   | N  | O  | S | 0       | 0     |
|     |       |          | 994   | 298 | 522 | 97 | 76 | 1 |         |       |

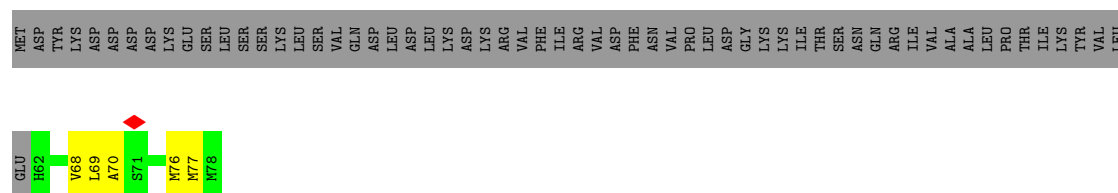
- Molecule 79 is a protein called Guanine nucleotide-binding protein subunit beta-like protein.

| Mol | Chain | Residues | Atoms |      |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|------|-----|-----|---|---------|-------|
| 79  | Sg    | 312      | Total | C    | H    | N   | O   | S | 0       | 0     |
|     |       |          | 4718  | 1514 | 2335 | 409 | 452 | 8 |         |       |

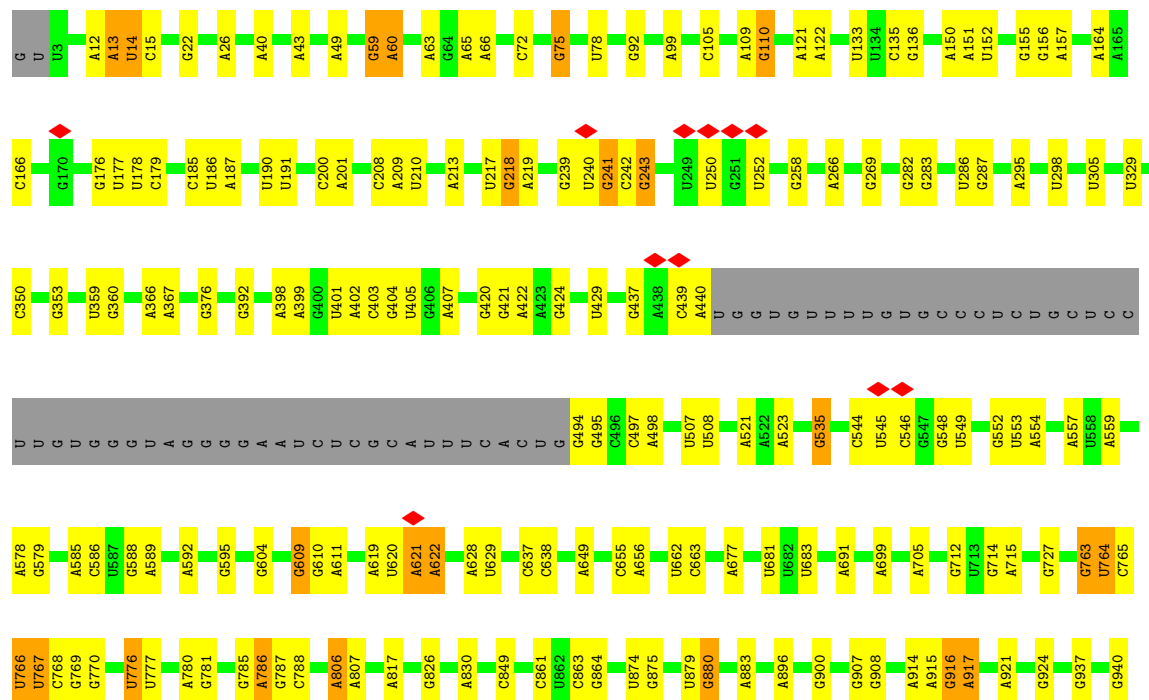


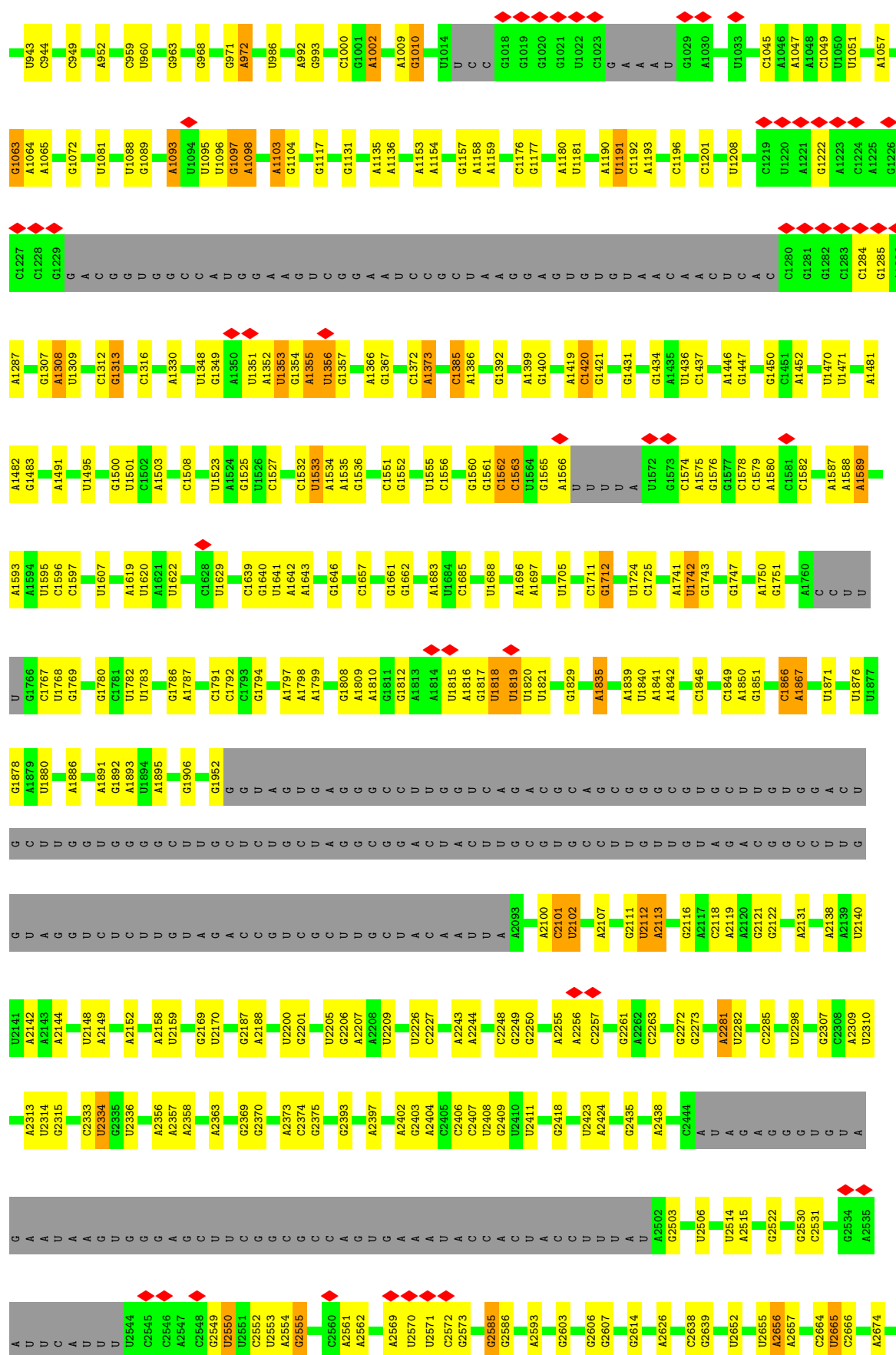


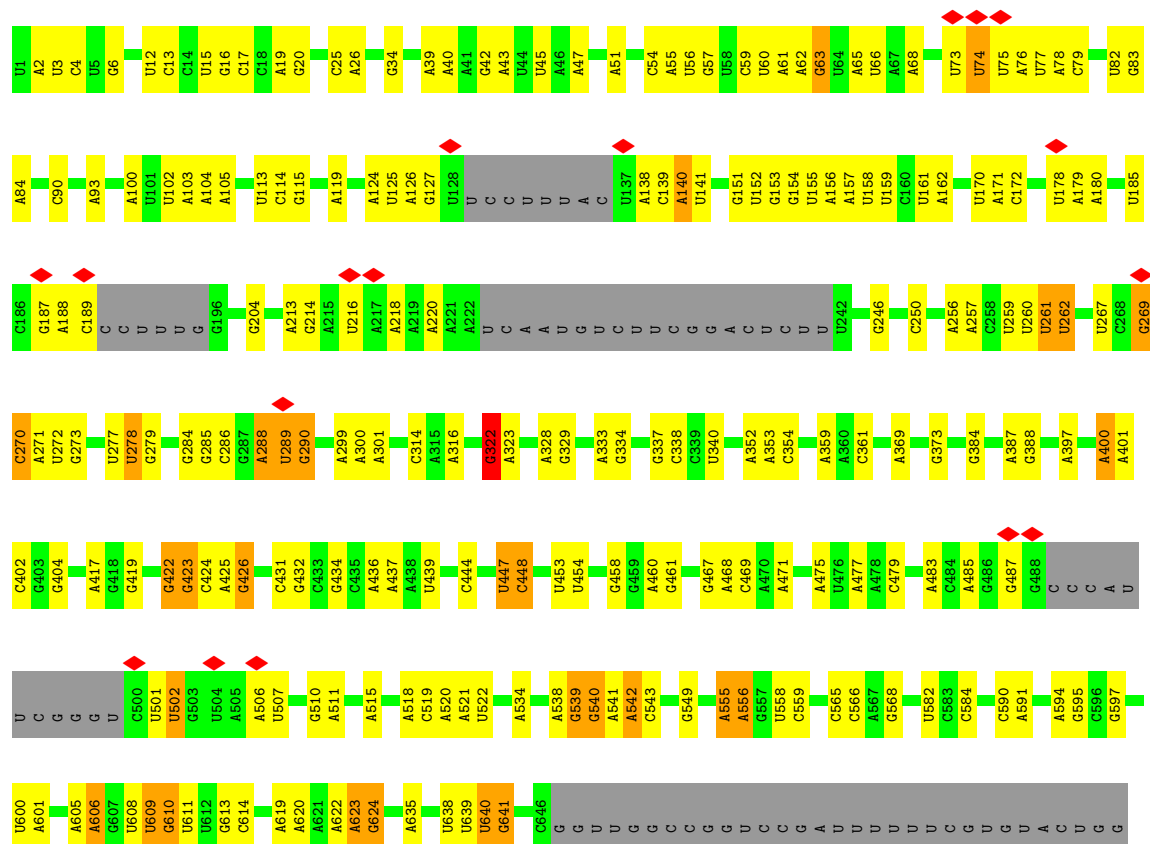
### • Molecule 4: Phosphoglycerate kinase



### • Molecule 5: 25S ribosomal RNA

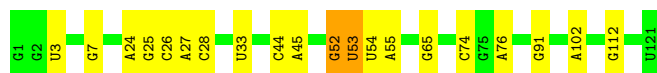








Chain C4:  83% 15% .



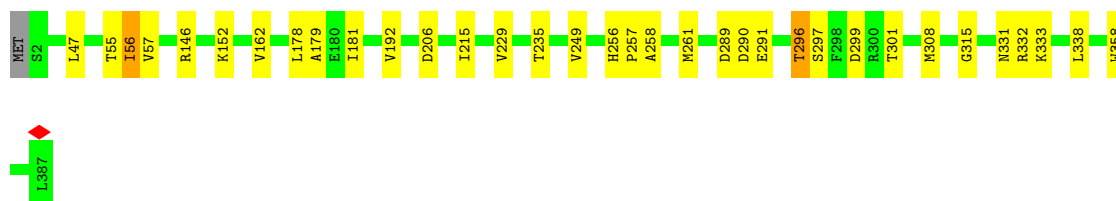
- Molecule 9: 60S ribosomal protein L2-A

Chain LA:  92% 7% .



- Molecule 10: 60S ribosomal protein L3

Chain LB:  91% 8% .



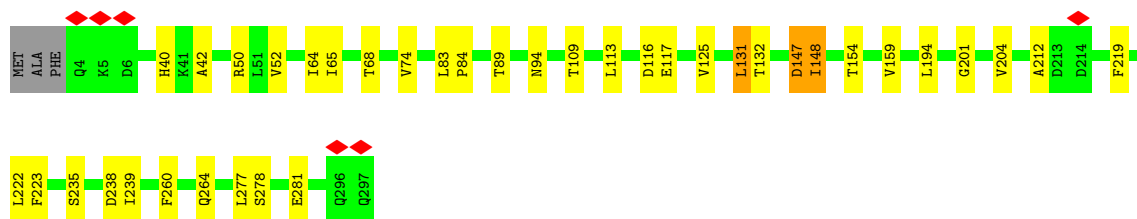
- Molecule 11: 60S ribosomal protein L4-A

Chain LC:  92% 7%



- Molecule 12: 60S ribosomal protein L5

Chain LD:  86% 12% ..



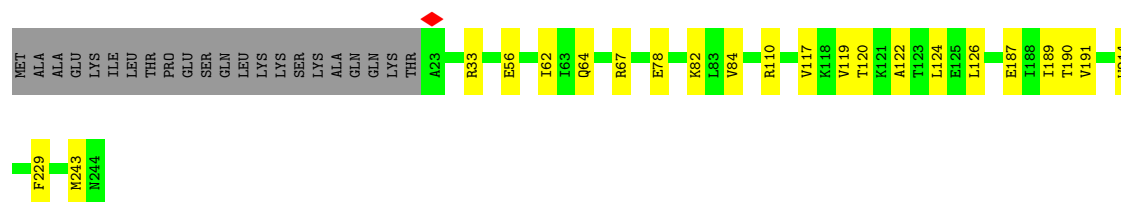
- Molecule 13: 60S ribosomal protein L6-B

Chain LE:  81% 7% 11%



- Molecule 14: 60S ribosomal protein L7-A

Chain LF:  82% 9% 9%

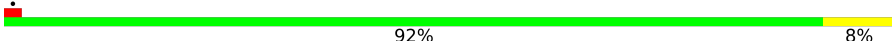


- Molecule 15: 60S ribosomal protein L8-A

Chain LG:  86% 11%



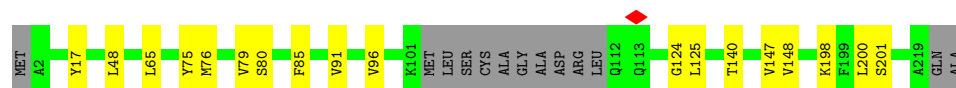
- Molecule 16: 60S ribosomal protein L9-A

Chain LH:  92% 8%



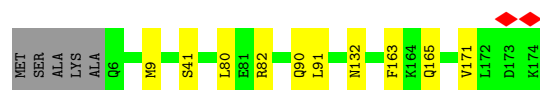
- Molecule 17: 60S ribosomal protein L10

Chain LI:  86% 8% 6%



- Molecule 18: 60S ribosomal protein L11-A

Chain LJ:  91% 6%

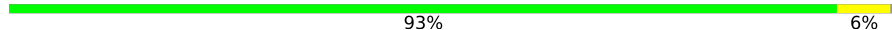


- Molecule 19: 60S ribosomal protein L13-A

Chain LL:  91% 5%



- Molecule 20: 60S ribosomal protein L14-A

Chain LM:  93% 6%



- Molecule 21: 60S ribosomal protein L15-A

Chain LN: 93% 6%



- Molecule 22: 60S ribosomal protein L16-A

Chain LO: 92% 7%



- Molecule 23: 60S ribosomal protein L17-A

Chain LP: 5% 92% 7%



- Molecule 24: 60S ribosomal protein L18-A

Chain LQ: 92% 7%



- Molecule 25: 60S ribosomal protein L19-A

Chain LR: 95%



- Molecule 26: 60S ribosomal protein L20-A

Chain LS: 85% 13%



- Molecule 27: 60S ribosomal protein L21-A

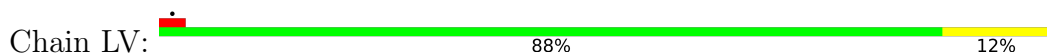
Chain LT: 89% 9%



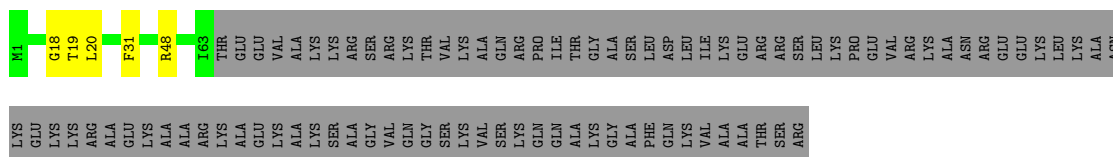
- Molecule 28: 60S ribosomal protein L22-A



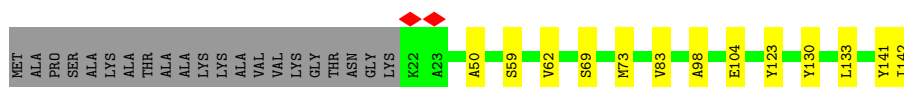
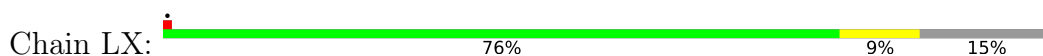
- Molecule 29: 60S ribosomal protein L23-A



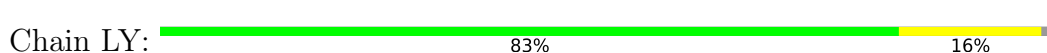
- Molecule 30: Large ribosomal subunit protein eL24B



- Molecule 31: 60S ribosomal protein L25



- Molecule 32: 60S ribosomal protein L26-A



- Molecule 33: 60S ribosomal protein L27-A



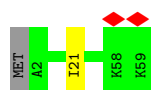
- Molecule 34: 60S ribosomal protein L28

Chain La:  94% 5%



- Molecule 35: 60S ribosomal protein L29

Chain Lb:  97%



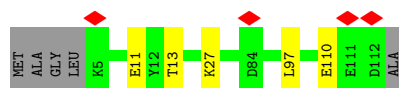
- Molecule 36: 60S ribosomal protein L30

Chain Lc:  86% 6% 9%



- Molecule 37: 60S ribosomal protein L31-A

Chain Ld:  91%



- Molecule 38: 60S ribosomal protein L32

Chain Le:  92% 6%



- Molecule 39: 60S ribosomal protein L33-A

Chain Lf:  92% 7%

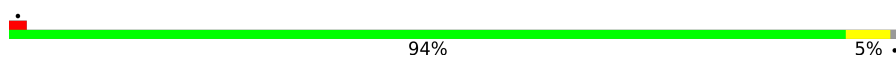


- Molecule 40: 60S ribosomal protein L34-A

Chain Lg:  84% 8% 7%

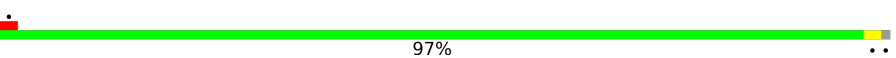


- Molecule 41: 60S ribosomal protein L35-A

Chain Lh:  94% 5%



- Molecule 42: 60S ribosomal protein L36-A

Chain Li:  97%



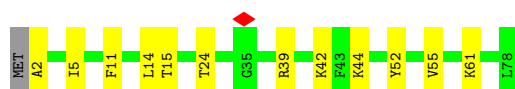
- Molecule 43: 60S ribosomal protein L37-A

Chain Lj:  92% 5%



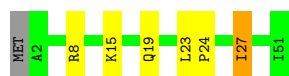
- Molecule 44: 60S ribosomal protein L38

Chain Lk:  83% 15%

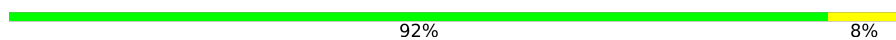


- Molecule 45: 60S ribosomal protein L39

Chain Ll:  86% 10%

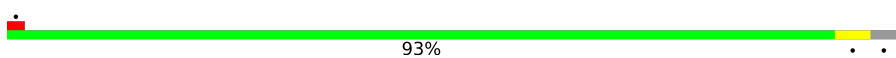


- Molecule 46: Large ribosomal subunit protein eL41B

Chain Ln:  92% 8%

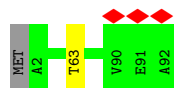


- Molecule 47: 60S ribosomal protein L42-A

Chain Lo:  93%



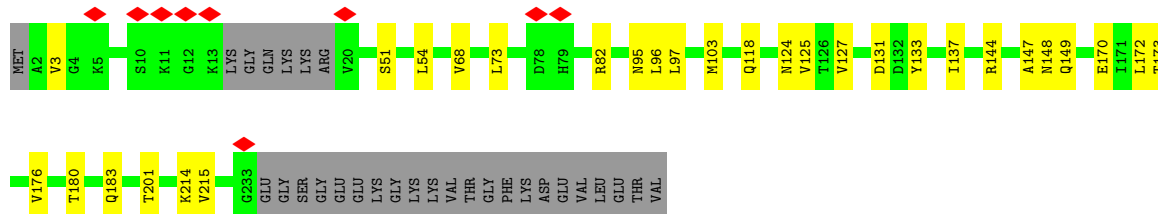
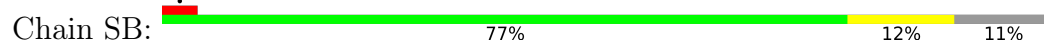
- Molecule 48: 60S ribosomal protein L43-A



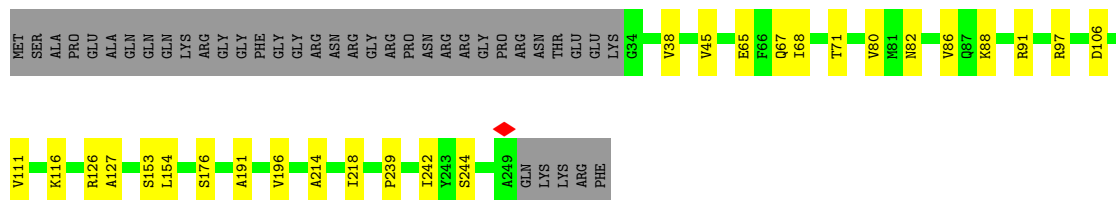
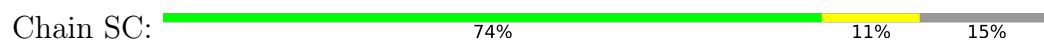
- Molecule 49: 40S ribosomal protein S0-A



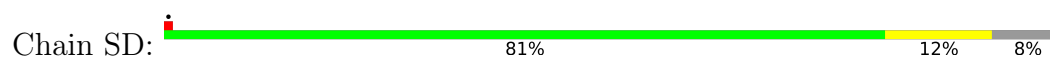
- Molecule 50: 40S ribosomal protein S1-A

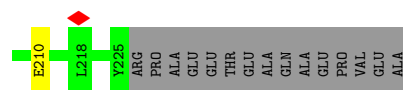


- Molecule 51: 40S ribosomal protein S2



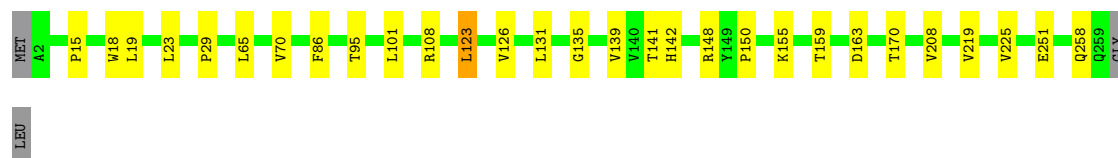
- Molecule 52: Small ribosomal subunit protein uS3





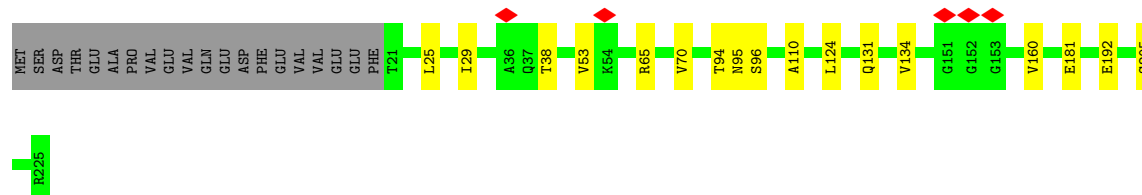
- Molecule 53: 40S ribosomal protein S4-A

Chain SE: 88% 11% .



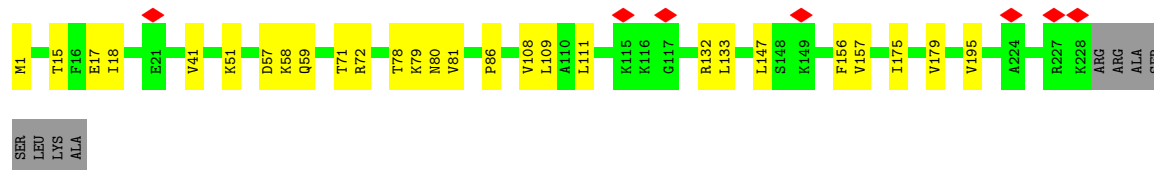
- Molecule 54: 40S ribosomal protein S5

Chain SF: 84% 8% 9%



- Molecule 55: 40S ribosomal protein S6-A

Chain SG: 85% 11% .



- Molecule 56: 40S ribosomal protein S7-A

Chain SH: 88% 8% . .



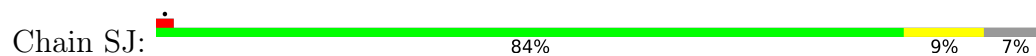
- Molecule 57: 40S ribosomal protein S8-A

Chain SI: 82% 11% 6%

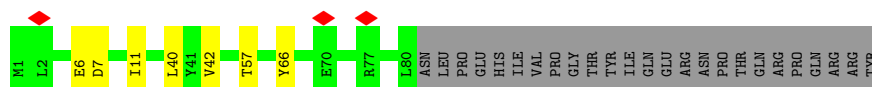




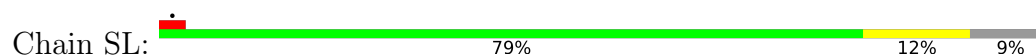
- Molecule 58: 40S ribosomal protein S9-A



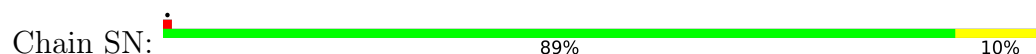
- Molecule 59: 40S ribosomal protein S10-A



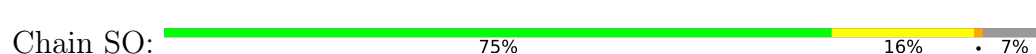
- Molecule 60: 40S ribosomal protein S11-A



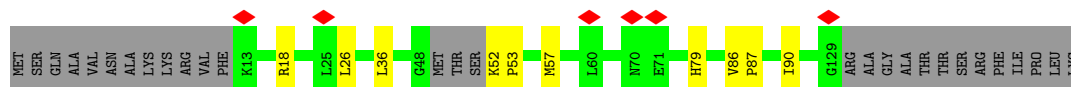
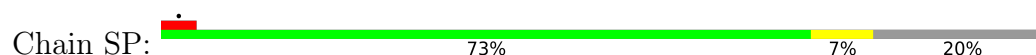
- Molecule 61: 40S ribosomal protein S13



- Molecule 62: 40S ribosomal protein S14-A



- Molecule 63: 40S ribosomal protein S15



- Molecule 64: 40S ribosomal protein S16-A

Chain SQ:  83% 15% .



- Molecule 65: 40S ribosomal protein S17-B

Chain SR:  76% 13% 11%



- Molecule 66: 40S ribosomal protein S18-A

Chain SS:  85% 13% ..



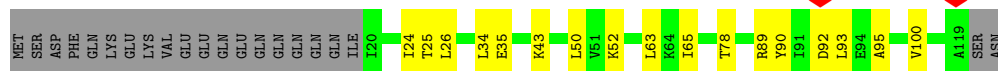
- Molecule 67: 40S ribosomal protein S19-A

Chain ST:  91% 8% .

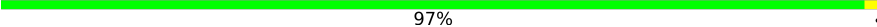


- Molecule 68: Small ribosomal subunit protein uS10

Chain SU:  69% 14% 17%



- Molecule 69: 40S ribosomal protein S21-A

Chain SV:  97% .

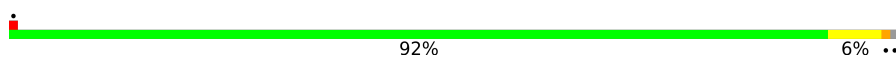


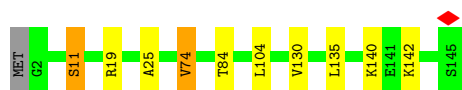
- Molecule 70: 40S ribosomal protein S22-A

Chain SW:  85% 13% ..



- Molecule 71: 40S ribosomal protein S23-A

Chain SX:  92% 6% ..



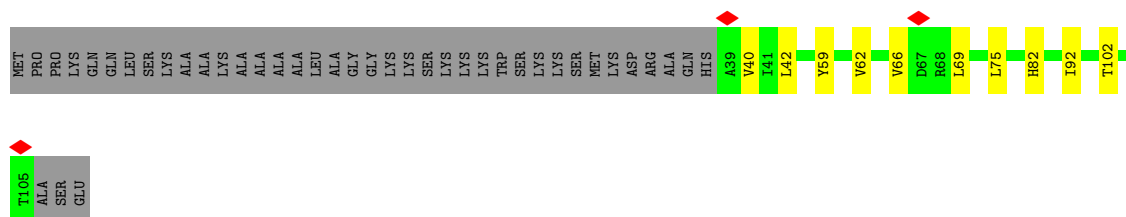
- Molecule 72: 40S ribosomal protein S24-A

Chain SY:  89% 10% .



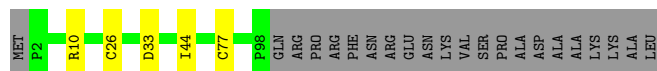
- Molecule 73: 40S ribosomal protein S25-A

Chain SZ:  53% 9% 38%



- Molecule 74: Small ribosomal subunit protein eS26A

Chain Sa:  77% 18%



- Molecule 75: 40S ribosomal protein S27-A

Chain Sb:  82% 16% ..

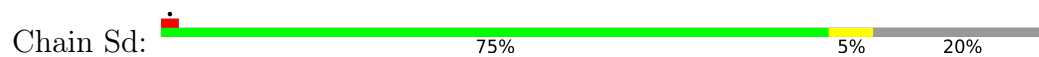


- Molecule 76: Small ribosomal subunit protein eS28B

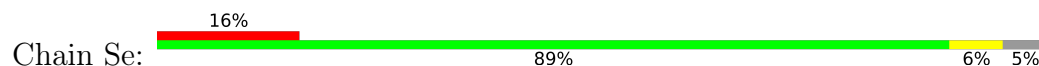
Chain Sc:  6% 81% 13% 6%



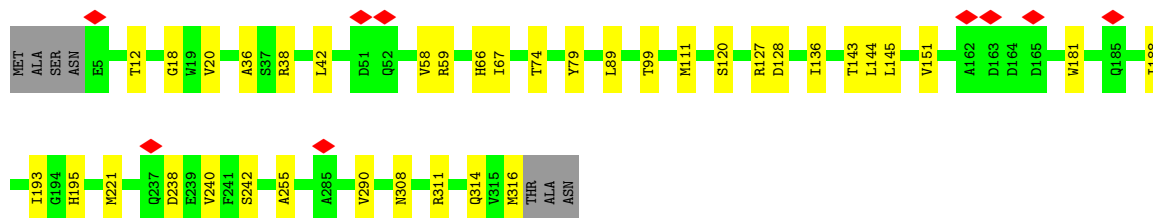
- Molecule 77: Small ribosomal subunit protein uS14A



- Molecule 78: 40S ribosomal protein S30-A



- Molecule 79: Guanine nucleotide-binding protein subunit beta-like protein



## 4 Experimental information

| Property                             | Value                                   | Source    |
|--------------------------------------|-----------------------------------------|-----------|
| EM reconstruction method             | SINGLE PARTICLE                         | Depositor |
| Imposed symmetry                     | POINT, C1                               | Depositor |
| Number of particles used             | 14049                                   | 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 ( $e^-/\text{\AA}^2$ ) | 40                                      | Depositor |
| Minimum defocus (nm)                 | 1000                                    | Depositor |
| Maximum defocus (nm)                 | 2000                                    | Depositor |
| Magnification                        | 130000                                  | Depositor |
| Image detector                       | FEI FALCON IV (4k x 4k)                 | Depositor |
| Maximum map value                    | 2.504                                   | Depositor |
| Minimum map value                    | -0.031                                  | Depositor |
| Average map value                    | 0.004                                   | Depositor |
| Map value standard deviation         | 0.050                                   | Depositor |
| Recommended contour level            | 0.0241                                  | Depositor |
| Map size (Å)                         | 476.00003, 476.00003, 476.00003         | wwPDB     |
| Map dimensions                       | 400, 400, 400                           | wwPDB     |
| Map angles (°)                       | 90.0, 90.0, 90.0                        | wwPDB     |
| Pixel spacing (Å)                    | 1.19, 1.19, 1.19                        | Depositor |

## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

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   | 5     | 0.49         | 0/171   | 1.07        | 1/265 (0.4%)   |
| 2   | 6     | 0.27         | 0/1811  | 0.35        | 0/2820         |
| 3   | A     | 0.13         | 0/1305  | 0.25        | 0/1785         |
| 4   | B     | 0.26         | 0/144   | 0.46        | 0/192          |
| 5   | C1    | 0.49         | 0/73353 | 0.37        | 0/114350       |
| 6   | C2    | 0.45         | 0/39167 | 0.37        | 1/61016 (0.0%) |
| 7   | C3    | 0.50         | 0/3746  | 0.38        | 0/5832         |
| 8   | C4    | 0.47         | 0/2883  | 0.34        | 0/4491         |
| 9   | LA    | 0.44         | 0/1933  | 0.37        | 0/2598         |
| 10  | LB    | 0.41         | 0/3150  | 0.36        | 0/4236         |
| 11  | LC    | 0.42         | 0/2801  | 0.36        | 0/3792         |
| 12  | LD    | 0.35         | 0/2400  | 0.34        | 0/3239         |
| 13  | LE    | 0.36         | 0/1263  | 0.36        | 0/1703         |
| 14  | LF    | 0.46         | 0/1821  | 0.35        | 0/2451         |
| 15  | LG    | 0.39         | 0/1811  | 0.34        | 0/2447         |
| 16  | LH    | 0.26         | 0/1529  | 0.29        | 0/2060         |
| 17  | LI    | 0.34         | 0/1731  | 0.33        | 0/2321         |
| 18  | LJ    | 0.29         | 0/1371  | 0.31        | 0/1838         |
| 19  | LL    | 0.41         | 0/1568  | 0.33        | 0/2106         |
| 20  | LM    | 0.38         | 0/1068  | 0.34        | 0/1438         |
| 21  | LN    | 0.46         | 0/1757  | 0.36        | 0/2354         |
| 22  | LO    | 0.45         | 0/1585  | 0.36        | 0/2128         |
| 23  | LP    | 0.41         | 0/1439  | 0.36        | 0/1938         |
| 24  | LQ    | 0.42         | 0/1465  | 0.37        | 0/1965         |
| 25  | LR    | 0.38         | 0/1532  | 0.31        | 0/2043         |
| 26  | LS    | 0.43         | 0/1473  | 0.36        | 0/1980         |
| 27  | LT    | 0.40         | 0/1300  | 0.34        | 0/1743         |
| 28  | LU    | 0.31         | 0/812   | 0.35        | 0/1099         |
| 29  | LV    | 0.38         | 0/1018  | 0.39        | 0/1369         |
| 30  | LW    | 0.46         | 0/529   | 0.37        | 0/702          |
| 31  | LX    | 0.42         | 0/980   | 0.38        | 0/1321         |
| 32  | LY    | 0.38         | 0/995   | 0.37        | 0/1329         |
| 33  | LZ    | 0.37         | 0/1118  | 0.32        | 0/1497         |
| 34  | La    | 0.46         | 0/1204  | 0.37        | 0/1612         |

| Mol | Chain | Bond lengths |         | Bond angles |         |
|-----|-------|--------------|---------|-------------|---------|
|     |       | RMSZ         | # Z  >5 | RMSZ        | # Z  >5 |
| 35  | Lb    | 0.36         | 0/473   | 0.35        | 0/629   |
| 36  | Lc    | 0.42         | 0/745   | 0.32        | 0/1001  |
| 37  | Ld    | 0.40         | 0/885   | 0.31        | 0/1189  |
| 38  | Le    | 0.44         | 0/1038  | 0.35        | 0/1390  |
| 39  | Lf    | 0.44         | 0/868   | 0.38        | 0/1168  |
| 40  | Lg    | 0.41         | 0/890   | 0.38        | 0/1189  |
| 41  | Lh    | 0.39         | 0/978   | 0.33        | 0/1301  |
| 42  | Li    | 0.38         | 0/772   | 0.35        | 0/1026  |
| 43  | Lj    | 0.46         | 0/685   | 0.36        | 0/908   |
| 44  | Lk    | 0.31         | 0/618   | 0.33        | 0/826   |
| 45  | Ll    | 0.45         | 0/443   | 0.32        | 0/588   |
| 46  | Ln    | 0.40         | 0/230   | 0.38        | 0/296   |
| 47  | Lo    | 0.39         | 0/836   | 0.35        | 0/1104  |
| 48  | Lp    | 0.41         | 0/701   | 0.37        | 0/934   |
| 49  | SA    | 0.39         | 0/1644  | 0.36        | 0/2249  |
| 50  | SB    | 0.34         | 0/1823  | 0.34        | 0/2447  |
| 51  | SC    | 0.39         | 0/1656  | 0.35        | 0/2251  |
| 52  | SD    | 0.29         | 0/1754  | 0.32        | 0/2361  |
| 53  | SE    | 0.35         | 0/2097  | 0.34        | 0/2823  |
| 54  | SF    | 0.32         | 0/1613  | 0.36        | 0/2181  |
| 55  | SG    | 0.25         | 0/1839  | 0.32        | 0/2460  |
| 56  | SH    | 0.28         | 0/1498  | 0.32        | 0/2019  |
| 57  | SI    | 0.38         | 0/1501  | 0.35        | 0/2006  |
| 58  | SJ    | 0.34         | 0/1504  | 0.35        | 0/2016  |
| 59  | SK    | 0.21         | 0/701   | 0.26        | 0/944   |
| 60  | SL    | 0.40         | 0/1172  | 0.33        | 0/1580  |
| 61  | SN    | 0.38         | 0/1215  | 0.35        | 0/1638  |
| 62  | SO    | 0.37         | 0/937   | 0.43        | 0/1261  |
| 63  | SP    | 0.22         | 0/914   | 0.28        | 0/1228  |
| 64  | SQ    | 0.33         | 0/1125  | 0.33        | 0/1510  |
| 65  | SR    | 0.32         | 0/957   | 0.33        | 0/1283  |
| 66  | SS    | 0.25         | 0/1211  | 0.30        | 0/1628  |
| 67  | ST    | 0.29         | 0/1130  | 0.32        | 0/1517  |
| 68  | SU    | 0.26         | 0/807   | 0.31        | 0/1091  |
| 69  | SV    | 0.38         | 0/682   | 0.31        | 0/921   |
| 70  | SW    | 0.46         | 0/1038  | 0.37        | 0/1395  |
| 71  | SX    | 0.37         | 0/1139  | 0.36        | 0/1518  |
| 72  | SY    | 0.30         | 0/1081  | 0.30        | 0/1441  |
| 73  | SZ    | 0.25         | 0/546   | 0.32        | 0/734   |
| 74  | Sa    | 0.40         | 0/782   | 0.38        | 0/1047  |
| 75  | Sb    | 0.36         | 0/620   | 0.34        | 0/838   |
| 76  | Sc    | 0.33         | 0/493   | 0.35        | 0/663   |
| 77  | Sd    | 0.36         | 0/376   | 0.32        | 0/495   |

| Mol | Chain | Bond lengths |          | Bond angles |                 |
|-----|-------|--------------|----------|-------------|-----------------|
|     |       | RMSZ         | # Z  >5  | RMSZ        | # Z  >5         |
| 78  | Se    | 0.30         | 0/480    | 0.33        | 0/639           |
| 79  | Sg    | 0.22         | 0/2436   | 0.30        | 0/3318          |
| All | All   | 0.44         | 0/209166 | 0.36        | 2/307111 (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 |
|-----|-------|---------------------|---------------------|
| 3   | A     | 0                   | 3                   |
| 62  | SO    | 0                   | 1                   |
| All | All   | 0                   | 4                   |

There are no bond length outliers.

All (2) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms       | Z    | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-------------|------|-------------|----------|
| 1   | 5     | 42  | G    | OP1-P-O3'   | 5.75 | 125.26      | 108.00   |
| 6   | C2    | 322 | G    | C2'-C3'-O3' | 5.09 | 117.14      | 109.50   |

There are no chirality outliers.

All (4) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group     |
|-----|-------|-----|------|-----------|
| 3   | A     | 568 | ARG  | Sidechain |
| 3   | A     | 596 | ARG  | Sidechain |
| 3   | A     | 613 | ARG  | Sidechain |
| 62  | SO    | 124 | ASP  | Peptide   |

## 5.2 Too-close contacts ⓘ

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

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | 5     | 153   | 76       | 76       | 0       | 0            |
| 2   | 6     | 1620  | 820      | 820      | 11      | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 3   | A     | 1294  | 999      | 998      | 8       | 0            |
| 4   | B     | 140   | 143      | 142      | 5       | 0            |
| 5   | C1    | 65534 | 32927    | 32937    | 211     | 0            |
| 6   | C2    | 35015 | 17607    | 17617    | 241     | 0            |
| 7   | C3    | 3353  | 1695     | 1695     | 12      | 0            |
| 8   | C4    | 2579  | 1304     | 1304     | 8       | 0            |
| 9   | LA    | 1899  | 1959     | 1957     | 9       | 0            |
| 10  | LB    | 3079  | 3162     | 3158     | 24      | 0            |
| 11  | LC    | 2749  | 2864     | 2863     | 19      | 0            |
| 12  | LD    | 2351  | 2295     | 2294     | 22      | 0            |
| 13  | LE    | 1241  | 1324     | 1322     | 8       | 0            |
| 14  | LF    | 1784  | 1864     | 1862     | 12      | 0            |
| 15  | LG    | 1779  | 1859     | 1858     | 7       | 0            |
| 16  | LH    | 1508  | 1574     | 1572     | 10      | 0            |
| 17  | LI    | 1695  | 1734     | 1732     | 15      | 0            |
| 18  | LJ    | 1350  | 1383     | 1381     | 7       | 0            |
| 19  | LL    | 1543  | 1609     | 1608     | 6       | 0            |
| 20  | LM    | 1053  | 1150     | 1149     | 6       | 0            |
| 21  | LN    | 1720  | 1780     | 1779     | 8       | 0            |
| 22  | LO    | 1555  | 1661     | 1659     | 8       | 0            |
| 23  | LP    | 1416  | 1434     | 1433     | 7       | 0            |
| 24  | LQ    | 1441  | 1545     | 1543     | 9       | 0            |
| 25  | LR    | 1515  | 1607     | 1606     | 6       | 0            |
| 26  | LS    | 1437  | 1477     | 1475     | 17      | 0            |
| 27  | LT    | 1276  | 1324     | 1323     | 14      | 0            |
| 28  | LU    | 796   | 813      | 812      | 14      | 0            |
| 29  | LV    | 1003  | 1049     | 1048     | 11      | 0            |
| 30  | LW    | 517   | 541      | 540      | 3       | 0            |
| 31  | LX    | 965   | 1027     | 1025     | 15      | 0            |
| 32  | LY    | 984   | 1076     | 1075     | 14      | 0            |
| 33  | LZ    | 1092  | 1156     | 1155     | 8       | 0            |
| 34  | La    | 1173  | 1218     | 1215     | 8       | 0            |
| 35  | Lb    | 462   | 494      | 491      | 1       | 0            |
| 36  | Lc    | 737   | 793      | 792      | 3       | 0            |
| 37  | Ld    | 871   | 911      | 910      | 2       | 0            |
| 38  | Le    | 1017  | 1084     | 1081     | 5       | 0            |
| 39  | Lf    | 850   | 881      | 880      | 4       | 0            |
| 40  | Lg    | 880   | 947      | 945      | 8       | 0            |
| 41  | Lh    | 969   | 1079     | 1078     | 5       | 0            |
| 42  | Li    | 766   | 845      | 844      | 1       | 0            |
| 43  | Lj    | 670   | 680      | 677      | 4       | 0            |
| 44  | Lk    | 612   | 683      | 682      | 8       | 0            |

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| Mol | Chain | Non-H  | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|--------|----------|----------|---------|--------------|
| 45  | Ll    | 436    | 476      | 475      | 5       | 0            |
| 46  | Ln    | 229    | 273      | 273      | 1       | 0            |
| 47  | Lo    | 824    | 894      | 892      | 2       | 0            |
| 48  | Lp    | 694    | 739      | 738      | 0       | 0            |
| 49  | SA    | 1603   | 1611     | 1610     | 22      | 0            |
| 50  | SB    | 1798   | 1892     | 1890     | 30      | 0            |
| 51  | SC    | 1626   | 1717     | 1715     | 13      | 0            |
| 52  | SD    | 1729   | 1814     | 1812     | 13      | 0            |
| 53  | SE    | 2056   | 2144     | 2140     | 17      | 0            |
| 54  | SF    | 1594   | 1662     | 1660     | 12      | 0            |
| 55  | SG    | 1815   | 1894     | 1894     | 21      | 0            |
| 56  | SH    | 1473   | 1556     | 1555     | 10      | 0            |
| 57  | SI    | 1476   | 1504     | 1501     | 17      | 0            |
| 58  | SJ    | 1479   | 1556     | 1556     | 13      | 0            |
| 59  | SK    | 685    | 678      | 677      | 4       | 0            |
| 60  | SL    | 1146   | 1214     | 1213     | 10      | 0            |
| 61  | SN    | 1192   | 1256     | 1255     | 11      | 0            |
| 62  | SO    | 926    | 951      | 950      | 17      | 0            |
| 63  | SP    | 895    | 922      | 919      | 7       | 0            |
| 64  | SQ    | 1105   | 1168     | 1166     | 16      | 0            |
| 65  | SR    | 948    | 992      | 990      | 14      | 0            |
| 66  | SS    | 1192   | 1223     | 1222     | 17      | 0            |
| 67  | ST    | 1112   | 1125     | 1124     | 8       | 0            |
| 68  | SU    | 797    | 864      | 863      | 15      | 0            |
| 69  | SV    | 673    | 662      | 662      | 2       | 0            |
| 70  | SW    | 1021   | 1061     | 1060     | 9       | 0            |
| 71  | SX    | 1121   | 1198     | 1196     | 8       | 0            |
| 72  | SY    | 1067   | 1128     | 1127     | 10      | 0            |
| 73  | SZ    | 539    | 585      | 583      | 12      | 0            |
| 74  | Sa    | 769    | 818      | 818      | 3       | 0            |
| 75  | Sb    | 610    | 635      | 633      | 11      | 0            |
| 76  | Sc    | 491    | 525      | 524      | 7       | 0            |
| 77  | Sd    | 371    | 378      | 377      | 3       | 0            |
| 78  | Se    | 472    | 522      | 521      | 5       | 0            |
| 79  | Sg    | 2383   | 2335     | 2332     | 24      | 0            |
| All | All   | 194790 | 144425   | 144336   | 1100    | 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 3.

All (1100) 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) |
|--------------------|--------------------|--------------------------|-------------------|
| 6:C2:40:A:H62      | 6:C2:467:G:N2      | 1.36                     | 1.23              |
| 6:C2:40:A:N6       | 6:C2:467:G:H21     | 1.44                     | 1.16              |
| 27:LT:40:VAL:HG21  | 27:LT:96:ILE:HD11  | 1.47                     | 0.95              |
| 6:C2:819:G:C6      | 6:C2:853:G:C2      | 2.58                     | 0.91              |
| 64:SQ:89:LEU:HD21  | 64:SQ:105:LEU:HD13 | 1.57                     | 0.86              |
| 6:C2:819:G:C5      | 6:C2:853:G:N2      | 2.43                     | 0.85              |
| 6:C2:819:G:C6      | 6:C2:853:G:N2      | 2.45                     | 0.84              |
| 14:LF:119:VAL:HG13 | 14:LF:124:LEU:HD21 | 1.65                     | 0.78              |
| 10:LB:229:VAL:HG11 | 10:LB:249:VAL:HG23 | 1.65                     | 0.77              |
| 5:C1:2555:G:N7     | 40:Lg:95:ILE:HD11  | 2.00                     | 0.77              |
| 6:C2:895:G:H21     | 62:SO:38:THR:HG21  | 1.50                     | 0.77              |
| 29:LV:79:VAL:HG13  | 29:LV:118:VAL:HG13 | 1.67                     | 0.76              |
| 4:B:76:MET:HE2     | 5:C1:2872:A:N7     | 1.99                     | 0.76              |
| 9:LA:201:GLY:HA2   | 9:LA:204:MET:HE3   | 1.67                     | 0.75              |
| 6:C2:819:G:O6      | 6:C2:853:G:N1      | 2.19                     | 0.75              |
| 11:LC:150:LEU:HD21 | 11:LC:172:VAL:CG1  | 2.16                     | 0.75              |
| 6:C2:40:A:H62      | 6:C2:467:G:H21     | 0.75                     | 0.73              |
| 31:LX:73:MET:HA    | 31:LX:73:MET:HE2   | 1.71                     | 0.73              |
| 40:Lg:22:VAL:HG12  | 40:Lg:30:LEU:HD12  | 1.70                     | 0.72              |
| 5:C1:2356:A:H61    | 5:C1:2983:C:H5     | 1.33                     | 0.72              |
| 62:SO:85:ALA:H     | 62:SO:119:THR:HG22 | 1.55                     | 0.72              |
| 79:Sg:67:ILE:HD12  | 79:Sg:67:ILE:H     | 1.52                     | 0.72              |
| 79:Sg:188:ILE:HD12 | 79:Sg:188:ILE:O    | 1.90                     | 0.71              |
| 28:LU:49:ASN:OD1   | 28:LU:49:ASN:O     | 2.09                     | 0.71              |
| 77:Sd:31:ILE:HG22  | 77:Sd:38:ILE:O     | 1.89                     | 0.71              |
| 37:Ld:97:LEU:HD23  | 37:Ld:97:LEU:H     | 1.56                     | 0.70              |
| 70:SW:11:LEU:HD12  | 70:SW:74:VAL:HG13  | 1.72                     | 0.70              |
| 31:LX:62:VAL:HG11  | 31:LX:98:ALA:HB2   | 1.74                     | 0.69              |
| 50:SB:180:THR:HG22 | 50:SB:183:GLN:OE1  | 1.92                     | 0.69              |
| 6:C2:819:G:O6      | 6:C2:853:G:C2      | 2.44                     | 0.69              |
| 62:SO:42:VAL:HG12  | 62:SO:67:VAL:HG13  | 1.77                     | 0.67              |
| 27:LT:40:VAL:CG2   | 27:LT:96:ILE:HD11  | 2.23                     | 0.66              |
| 50:SB:125:VAL:HG12 | 50:SB:127:VAL:HG13 | 1.78                     | 0.66              |
| 12:LD:277:LEU:HD22 | 12:LD:281:GLU:HB2  | 1.78                     | 0.66              |
| 36:Lc:103:THR:HG22 | 36:Lc:104:LEU:H    | 1.60                     | 0.66              |
| 16:LH:134:ILE:HG23 | 16:LH:144:ILE:HD11 | 1.78                     | 0.66              |
| 24:LQ:41:ASP:OD1   | 24:LQ:41:ASP:O     | 2.13                     | 0.66              |
| 17:LI:96:VAL:HG12  | 17:LI:125:LEU:HD22 | 1.78                     | 0.66              |
| 3:A:488:GLY:O      | 3:A:510:ALA:HB3    | 1.94                     | 0.66              |
| 6:C2:156:A:H2'     | 6:C2:157:A:O4'     | 1.96                     | 0.65              |
| 5:C1:2728:G:C6     | 27:LT:80:VAL:HG11  | 2.32                     | 0.65              |
| 6:C2:540:G:N2      | 6:C2:542:A:N7      | 2.45                     | 0.65              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 68:SU:24:ILE:HG22  | 68:SU:26:LEU:HD11  | 1.77                     | 0.65              |
| 79:Sg:111:MET:HE2  | 79:Sg:127:ARG:NH1  | 2.12                     | 0.64              |
| 53:SE:208:VAL:HG11 | 53:SE:225:VAL:HG21 | 1.80                     | 0.64              |
| 11:LC:142:VAL:HG12 | 11:LC:142:VAL:O    | 1.97                     | 0.64              |
| 20:LM:65:LEU:HD13  | 26:LS:172:TYR:OH   | 1.98                     | 0.63              |
| 5:C1:1385:C:HO2'   | 13:LE:2:THR:N      | 1.96                     | 0.63              |
| 26:LS:90:MET:HE1   | 26:LS:114:HIS:CE1  | 2.34                     | 0.63              |
| 40:Lg:22:VAL:CG1   | 40:Lg:30:LEU:HD12  | 2.28                     | 0.63              |
| 10:LB:215:ILE:HD12 | 10:LB:338:LEU:HD12 | 1.81                     | 0.63              |
| 6:C2:778:G:H22     | 72:SY:10:ARG:NH2   | 1.97                     | 0.62              |
| 34:La:22:ILE:HD12  | 34:La:22:ILE:H     | 1.62                     | 0.62              |
| 64:SQ:36:ILE:O     | 64:SQ:39:VAL:HG23  | 2.00                     | 0.62              |
| 5:C1:971:G:HO2'    | 5:C1:972:A:H8      | 1.48                     | 0.62              |
| 17:LI:124:GLY:O    | 17:LI:125:LEU:HD23 | 1.98                     | 0.62              |
| 70:SW:38:LEU:O     | 70:SW:47:ILE:HD11  | 2.00                     | 0.62              |
| 66:SS:15:LEU:HD22  | 66:SS:66:LEU:HD11  | 1.82                     | 0.62              |
| 11:LC:156:LEU:HD12 | 11:LC:159:ILE:HD12 | 1.82                     | 0.61              |
| 45:LI:23:LEU:HD23  | 45:LI:24:PRO:O     | 2.00                     | 0.61              |
| 23:LP:128:ARG:HE   | 23:LP:136:ILE:HG21 | 1.65                     | 0.61              |
| 17:LI:75:TYR:O     | 17:LI:79:VAL:HG12  | 2.01                     | 0.61              |
| 33:LZ:89:VAL:HG22  | 33:LZ:89:VAL:O     | 2.01                     | 0.60              |
| 52:SD:80:ALA:O     | 52:SD:83:THR:HG22  | 2.01                     | 0.60              |
| 66:SS:57:ARG:CZ    | 73:SZ:40:VAL:HG11  | 2.31                     | 0.60              |
| 16:LH:112:ILE:HD11 | 16:LH:134:ILE:HD13 | 1.82                     | 0.60              |
| 6:C2:540:G:C2      | 6:C2:542:A:N6      | 2.69                     | 0.60              |
| 6:C2:1672:G:H2'    | 6:C2:1673:G:C8     | 2.37                     | 0.60              |
| 32:LY:105:VAL:HG13 | 32:LY:105:VAL:O    | 2.01                     | 0.60              |
| 66:SS:4:VAL:HG22   | 73:SZ:82:HIS:ND1   | 2.16                     | 0.60              |
| 66:SS:45:LEU:HD21  | 66:SS:81:ILE:HG23  | 1.83                     | 0.60              |
| 12:LD:52:VAL:HG21  | 12:LD:65:ILE:HD12  | 1.84                     | 0.60              |
| 18:LJ:90:GLN:C     | 18:LJ:91:LEU:HD12  | 2.26                     | 0.60              |
| 5:C1:986:U:H1'     | 14:LF:126:LEU:HD11 | 1.82                     | 0.60              |
| 27:LT:11:THR:O     | 27:LT:11:THR:HG22  | 2.01                     | 0.60              |
| 7:C3:52:A:N6       | 45:LI:27:ILE:HD13  | 2.16                     | 0.59              |
| 5:C1:2555:G:C5     | 40:Lg:95:ILE:HD11  | 2.37                     | 0.59              |
| 18:LJ:9:MET:HE2    | 18:LJ:9:MET:HA     | 1.84                     | 0.59              |
| 56:SH:27:LEU:HD23  | 56:SH:38:LEU:CD2   | 2.33                     | 0.59              |
| 6:C2:271:A:H2      | 6:C2:284:G:H22     | 1.49                     | 0.59              |
| 17:LI:96:VAL:HG12  | 17:LI:125:LEU:CD2  | 2.30                     | 0.59              |
| 38:Le:83:GLU:O     | 38:Le:86:THR:HG23  | 2.02                     | 0.59              |
| 42:Li:90:MET:HE2   | 42:Li:90:MET:HA    | 1.84                     | 0.59              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 53:SE:126:VAL:HG21 | 53:SE:155:LYS:O    | 2.02                     | 0.59              |
| 17:LI:200:LEU:HD13 | 17:LI:201:SER:N    | 2.18                     | 0.59              |
| 11:LC:22:LEU:HD21  | 11:LC:26:PHE:HB2   | 1.85                     | 0.58              |
| 10:LB:55:THR:O     | 10:LB:56:ILE:HD12  | 2.03                     | 0.58              |
| 15:LG:203:VAL:HG11 | 15:LG:211:LEU:HD12 | 1.85                     | 0.58              |
| 20:LM:14:LEU:HD13  | 26:LS:149:LYS:HB2  | 1.85                     | 0.58              |
| 23:LP:108:ASP:C    | 23:LP:108:ASP:OD1  | 2.47                     | 0.58              |
| 73:SZ:62:VAL:O     | 73:SZ:66:VAL:HG23  | 2.03                     | 0.58              |
| 60:SL:109:VAL:HG12 | 60:SL:137:PHE:HB2  | 1.86                     | 0.57              |
| 4:B:68:VAL:HG13    | 4:B:69:LEU:H       | 1.69                     | 0.57              |
| 34:La:130:VAL:HG11 | 34:La:145:VAL:HG11 | 1.86                     | 0.57              |
| 23:LP:168:LEU:HD12 | 23:LP:172:GLN:HB3  | 1.87                     | 0.57              |
| 50:SB:96:LEU:O     | 50:SB:97:LEU:HD23  | 2.04                     | 0.57              |
| 68:SU:34:LEU:HD21  | 68:SU:89:ARG:NE    | 2.19                     | 0.57              |
| 49:SA:180:GLU:OE1  | 49:SA:180:GLU:HA   | 2.02                     | 0.57              |
| 27:LT:11:THR:HG23  | 27:LT:14:MET:HE2   | 1.86                     | 0.56              |
| 32:LY:70:ILE:HG23  | 32:LY:80:VAL:HG22  | 1.88                     | 0.56              |
| 44:Lk:42:LYS:HD3   | 44:Lk:55:VAL:HG22  | 1.86                     | 0.56              |
| 55:SG:57:ASP:OD1   | 55:SG:57:ASP:C     | 2.48                     | 0.56              |
| 32:LY:35:LEU:CD1   | 32:LY:106:ILE:HD11 | 2.34                     | 0.56              |
| 50:SB:127:VAL:HG21 | 50:SB:176:VAL:HB   | 1.88                     | 0.56              |
| 75:Sb:3:LEU:O      | 75:Sb:3:LEU:HD23   | 2.05                     | 0.56              |
| 54:SF:53:VAL:HG21  | 54:SF:134:VAL:HG12 | 1.88                     | 0.56              |
| 67:ST:104:VAL:O    | 67:ST:108:LEU:HD23 | 2.04                     | 0.56              |
| 5:C1:2553:U:C4     | 40:Lg:95:ILE:HG22  | 2.41                     | 0.56              |
| 17:LI:140:THR:HG21 | 17:LI:148:VAL:HG11 | 1.86                     | 0.56              |
| 66:SS:17:LEU:HD11  | 66:SS:66:LEU:HD13  | 1.86                     | 0.56              |
| 51:SC:106:ASP:OD1  | 51:SC:106:ASP:O    | 2.24                     | 0.56              |
| 5:C1:3319:U:H4'    | 5:C1:3320:A:OP2    | 2.05                     | 0.56              |
| 5:C1:863:C:H2'     | 5:C1:864:G:O4'     | 2.06                     | 0.56              |
| 4:B:68:VAL:HG13    | 4:B:69:LEU:N       | 2.21                     | 0.55              |
| 14:LF:84:VAL:HG23  | 14:LF:117:VAL:HG12 | 1.86                     | 0.55              |
| 29:LV:79:VAL:CG1   | 29:LV:118:VAL:HG22 | 2.36                     | 0.55              |
| 67:ST:111:ILE:HG23 | 67:ST:113:ILE:HG12 | 1.89                     | 0.55              |
| 79:Sg:238:ASP:OD1  | 79:Sg:238:ASP:C    | 2.49                     | 0.55              |
| 26:LS:139:TYR:CD1  | 26:LS:140:VAL:HG23 | 2.42                     | 0.55              |
| 34:La:22:ILE:HD12  | 34:La:22:ILE:N     | 2.21                     | 0.55              |
| 66:SS:121:ALA:O    | 66:SS:125:ILE:HD12 | 2.07                     | 0.55              |
| 26:LS:97:VAL:HG12  | 26:LS:97:VAL:O     | 2.07                     | 0.55              |
| 51:SC:111:VAL:HG11 | 51:SC:191:ALA:HB2  | 1.87                     | 0.55              |
| 62:SO:42:VAL:HG12  | 62:SO:67:VAL:CG1   | 2.36                     | 0.55              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 70:SW:90:THR:HB    | 70:SW:94:LEU:HD12  | 1.89                     | 0.55              |
| 11:LC:142:VAL:O    | 11:LC:142:VAL:CG1  | 2.54                     | 0.55              |
| 5:C1:1063:G:N1     | 27:LT:109:VAL:HG13 | 2.21                     | 0.55              |
| 6:C2:767:U:O4'     | 6:C2:767:U:O2      | 2.25                     | 0.55              |
| 50:SB:68:VAL:HG21  | 50:SB:73:LEU:HD11  | 1.87                     | 0.55              |
| 5:C1:553:U:H2'     | 5:C1:554:A:O4'     | 2.08                     | 0.55              |
| 29:LV:89:ASP:OD1   | 29:LV:89:ASP:C     | 2.50                     | 0.55              |
| 68:SU:52:LYS:HB3   | 68:SU:93:LEU:HD13  | 1.88                     | 0.55              |
| 64:SQ:89:LEU:CD2   | 64:SQ:105:LEU:HD13 | 2.34                     | 0.54              |
| 9:LA:5:ILE:HG22    | 9:LA:208:ASP:O     | 2.06                     | 0.54              |
| 16:LH:28:VAL:HG13  | 16:LH:33:THR:HG22  | 1.90                     | 0.54              |
| 6:C2:819:G:H1'     | 6:C2:820:U:OP2     | 2.08                     | 0.54              |
| 9:LA:101:VAL:C     | 9:LA:102:LEU:HD12  | 2.32                     | 0.54              |
| 5:C1:63:A:H5''     | 21:LN:174:ILE:HG21 | 1.89                     | 0.54              |
| 5:C1:1866:C:H5'    | 5:C1:1867:A:OP2    | 2.08                     | 0.54              |
| 79:Sg:128:ASP:C    | 79:Sg:128:ASP:OD1  | 2.50                     | 0.54              |
| 79:Sg:193:ILE:N    | 79:Sg:193:ILE:HD12 | 2.22                     | 0.54              |
| 49:SA:198:MET:HE3  | 65:SR:85:VAL:HG22  | 1.90                     | 0.54              |
| 53:SE:141:THR:HG22 | 53:SE:142:HIS:N    | 2.23                     | 0.54              |
| 55:SG:79:LYS:HD2   | 55:SG:86:PRO:HG2   | 1.90                     | 0.54              |
| 6:C2:959:U:H2'     | 6:C2:959:U:O2      | 2.07                     | 0.54              |
| 10:LB:235:THR:HG21 | 10:LB:249:VAL:HG22 | 1.89                     | 0.54              |
| 16:LH:1:MET:HE1    | 26:LS:138:GLN:HG3  | 1.89                     | 0.54              |
| 33:LZ:46:ILE:HG12  | 33:LZ:68:ILE:HG23  | 1.90                     | 0.53              |
| 50:SB:125:VAL:HG11 | 50:SB:173:THR:CG2  | 2.38                     | 0.53              |
| 12:LD:40:HIS:CE1   | 12:LD:42:ALA:HB3   | 2.43                     | 0.53              |
| 14:LF:189:ILE:HG23 | 14:LF:190:THR:HG23 | 1.91                     | 0.53              |
| 50:SB:96:LEU:C     | 50:SB:97:LEU:HD23  | 2.33                     | 0.53              |
| 6:C2:1339:C:O2'    | 6:C2:1341:A:N7     | 2.42                     | 0.53              |
| 15:LG:81:THR:HG21  | 15:LG:181:LYS:HG2  | 1.89                     | 0.53              |
| 75:Sb:2:VAL:HG11   | 75:Sb:5:GLN:OE1    | 2.08                     | 0.53              |
| 6:C2:841:U:H2'     | 6:C2:842:C:C6      | 2.44                     | 0.53              |
| 24:LQ:80:THR:HG23  | 24:LQ:100:THR:HG23 | 1.89                     | 0.53              |
| 70:SW:105:THR:HB   | 70:SW:126:LEU:HD11 | 1.91                     | 0.53              |
| 5:C1:1895:A:O2'    | 5:C1:3053:G:H4'    | 2.09                     | 0.53              |
| 6:C2:518:A:HO2'    | 6:C2:519:C:C5'     | 2.22                     | 0.53              |
| 54:SF:25:LEU:HD12  | 54:SF:29:ILE:HD12  | 1.91                     | 0.53              |
| 58:SJ:49:LEU:HD22  | 58:SJ:53:ARG:NH1   | 2.24                     | 0.53              |
| 6:C2:40:A:N6       | 6:C2:467:G:N2      | 2.19                     | 0.53              |
| 19:LL:109:PHE:O    | 19:LL:113:VAL:HG23 | 2.09                     | 0.53              |
| 5:C1:2897:A:O2'    | 5:C1:2898:G:O5'    | 2.27                     | 0.53              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 22:LO:186:ALA:C    | 22:LO:187:GLU:OE1  | 2.51                     | 0.53              |
| 31:LX:73:MET:HE1   | 31:LX:141:TYR:HE2  | 1.74                     | 0.53              |
| 51:SC:38:VAL:HG22  | 51:SC:65:GLU:OE2   | 2.09                     | 0.53              |
| 6:C2:1203:A:C2     | 6:C2:1556:A:N3     | 2.76                     | 0.52              |
| 6:C2:1499:G:OP2    | 67:ST:73:VAL:HG22  | 2.08                     | 0.52              |
| 12:LD:94:ASN:C     | 12:LD:94:ASN:OD1   | 2.52                     | 0.52              |
| 55:SG:17:GLU:C     | 55:SG:18:ILE:HD13  | 2.34                     | 0.52              |
| 5:C1:2897:A:C2'    | 5:C1:2898:G:O5'    | 2.57                     | 0.52              |
| 55:SG:1:MET:HE1    | 55:SG:109:LEU:HB2  | 1.91                     | 0.52              |
| 6:C2:269:G:H3'     | 6:C2:270:C:H5''    | 1.90                     | 0.52              |
| 66:SS:60:GLU:OE1   | 66:SS:60:GLU:HA    | 2.09                     | 0.52              |
| 49:SA:62:ARG:HH11  | 69:SV:39:VAL:HG13  | 1.74                     | 0.52              |
| 56:SH:49:ILE:HD12  | 56:SH:172:VAL:HG23 | 1.91                     | 0.52              |
| 62:SO:117:ASP:OD1  | 62:SO:119:THR:HG23 | 2.10                     | 0.52              |
| 5:C1:1095:U:C2     | 27:LT:127:GLN:HG3  | 2.45                     | 0.52              |
| 32:LY:58:VAL:HG21  | 32:LY:63:LYS:O     | 2.09                     | 0.52              |
| 55:SG:108:VAL:HG12 | 55:SG:109:LEU:N    | 2.25                     | 0.52              |
| 12:LD:83:LEU:N     | 12:LD:84:PRO:HD2   | 2.24                     | 0.52              |
| 27:LT:27:LEU:O     | 27:LT:31:LEU:HD23  | 2.10                     | 0.52              |
| 63:SP:86:VAL:HG22  | 63:SP:87:PRO:HD2   | 1.90                     | 0.52              |
| 6:C2:623:A:H3'     | 6:C2:624:G:H5''    | 1.91                     | 0.52              |
| 14:LF:84:VAL:HG23  | 14:LF:117:VAL:CG1  | 2.40                     | 0.52              |
| 28:LU:59:ASP:OD1   | 28:LU:59:ASP:O     | 2.28                     | 0.52              |
| 5:C1:208:C:H2'     | 5:C1:209:A:O4'     | 2.10                     | 0.52              |
| 7:C3:69:U:H2'      | 7:C3:70:G:O4'      | 2.09                     | 0.52              |
| 26:LS:109:ASP:C    | 26:LS:109:ASP:OD1  | 2.52                     | 0.52              |
| 51:SC:67:GLN:O     | 51:SC:71:THR:HG22  | 2.10                     | 0.52              |
| 5:C1:2369:G:H2'    | 5:C1:2370:G:C8     | 2.45                     | 0.52              |
| 6:C2:447:U:H2'     | 6:C2:448:C:O4'     | 2.09                     | 0.52              |
| 55:SG:80:ASN:O     | 55:SG:81:VAL:HG23  | 2.10                     | 0.52              |
| 6:C2:1256:A:H4'    | 6:C2:1257:U:O5'    | 2.09                     | 0.51              |
| 32:LY:83:ASP:O     | 32:LY:84:LYS:HG3   | 2.10                     | 0.51              |
| 6:C2:288:A:H3'     | 6:C2:289:U:H4'     | 1.91                     | 0.51              |
| 6:C2:539:G:O2'     | 6:C2:540:G:P       | 2.68                     | 0.51              |
| 5:C1:1661:G:H2'    | 5:C1:1662:G:C8     | 2.45                     | 0.51              |
| 12:LD:148:ILE:HD13 | 12:LD:159:VAL:HG11 | 1.93                     | 0.51              |
| 39:Lf:49:ILE:HG23  | 39:Lf:98:VAL:CG1   | 2.41                     | 0.51              |
| 72:SY:121:THR:HG23 | 72:SY:123:LYS:HG3  | 1.92                     | 0.51              |
| 5:C1:3121:U:H4'    | 5:C1:3122:A:OP1    | 2.11                     | 0.51              |
| 7:C3:26:U:H2'      | 7:C3:27:U:C6       | 2.45                     | 0.51              |
| 10:LB:178:LEU:HD23 | 10:LB:179:ALA:N    | 2.24                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 54:SF:181:GLU:C    | 54:SF:181:GLU:OE1  | 2.53                     | 0.51              |
| 6:C2:270:C:H2'     | 6:C2:271:A:C8      | 2.46                     | 0.51              |
| 6:C2:59:C:O2'      | 6:C2:60:U:C6       | 2.61                     | 0.51              |
| 71:SX:130:VAL:HG23 | 71:SX:140:LYS:HE3  | 1.92                     | 0.51              |
| 5:C1:3214:U:H2'    | 20:LM:121:MET:HE2  | 1.93                     | 0.51              |
| 52:SD:122:VAL:O    | 52:SD:126:VAL:HG23 | 2.10                     | 0.51              |
| 72:SY:12:VAL:HG22  | 72:SY:23:PHE:HB3   | 1.92                     | 0.51              |
| 5:C1:497:C:H2'     | 5:C1:498:A:O4'     | 2.10                     | 0.51              |
| 6:C2:885:G:H2'     | 6:C2:886:U:C6      | 2.46                     | 0.51              |
| 10:LB:331:ASN:C    | 10:LB:331:ASN:OD1  | 2.54                     | 0.51              |
| 50:SB:180:THR:HG23 | 50:SB:183:GLN:H    | 1.75                     | 0.51              |
| 5:C1:3350:C:O2'    | 5:C1:3351:U:P      | 2.69                     | 0.51              |
| 6:C2:1564:U:H2'    | 6:C2:1565:C:C6     | 2.46                     | 0.51              |
| 12:LD:235:SER:O    | 12:LD:239:ILE:HG23 | 2.11                     | 0.51              |
| 32:LY:35:LEU:HD11  | 32:LY:106:ILE:HD11 | 1.93                     | 0.51              |
| 6:C2:153:G:C2      | 6:C2:154:G:N7      | 2.79                     | 0.51              |
| 6:C2:1107:G:O2'    | 6:C2:1108:G:H5'    | 2.11                     | 0.51              |
| 76:Sc:19:THR:HG21  | 76:Sc:27:GLN:OE1   | 2.11                     | 0.51              |
| 32:LY:70:ILE:HD12  | 32:LY:80:VAL:HG21  | 1.93                     | 0.50              |
| 60:SL:84:ILE:C     | 60:SL:84:ILE:HD12  | 2.36                     | 0.50              |
| 73:SZ:92:ILE:HD11  | 73:SZ:102:THR:HB   | 1.91                     | 0.50              |
| 10:LB:289:ASP:C    | 10:LB:289:ASP:OD1  | 2.54                     | 0.50              |
| 60:SL:61:THR:HG22  | 60:SL:61:THR:O     | 2.10                     | 0.50              |
| 5:C1:2550:U:O2     | 5:C1:2550:U:O5'    | 2.29                     | 0.50              |
| 6:C2:271:A:C2      | 6:C2:285:G:C2      | 2.98                     | 0.50              |
| 55:SG:78:THR:HG22  | 55:SG:79:LYS:N     | 2.27                     | 0.50              |
| 64:SQ:6:SER:O      | 64:SQ:7:VAL:HG23   | 2.12                     | 0.50              |
| 72:SY:27:VAL:HG11  | 72:SY:35:VAL:HG21  | 1.93                     | 0.50              |
| 5:C1:916:G:H5'     | 5:C1:917:A:OP1     | 2.11                     | 0.50              |
| 6:C2:65:A:H2       | 6:C2:84:A:H62      | 1.58                     | 0.50              |
| 16:LH:112:ILE:HD11 | 16:LH:134:ILE:CD1  | 2.42                     | 0.50              |
| 56:SH:156:SER:O    | 56:SH:159:VAL:HG12 | 2.10                     | 0.50              |
| 57:SI:85:PRO:O     | 60:SL:11:ARG:HD2   | 2.11                     | 0.50              |
| 50:SB:54:LEU:HD23  | 50:SB:54:LEU:H     | 1.76                     | 0.50              |
| 66:SS:4:VAL:HG22   | 73:SZ:82:HIS:CE1   | 2.46                     | 0.50              |
| 5:C1:971:G:O2'     | 5:C1:972:A:H8      | 1.94                     | 0.50              |
| 24:LQ:83:VAL:HG11  | 24:LQ:87:VAL:HG22  | 1.93                     | 0.50              |
| 49:SA:164:ASN:C    | 49:SA:164:ASN:OD1  | 2.53                     | 0.50              |
| 49:SA:195:TRP:CZ2  | 49:SA:197:ILE:HD12 | 2.46                     | 0.50              |
| 71:SX:135:LEU:HD21 | 71:SX:142:LYS:HG2  | 1.94                     | 0.50              |
| 5:C1:3184:A:O2'    | 5:C1:3185:U:H5'    | 2.12                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 6:C2:555:A:HO2'    | 6:C2:556:A:P       | 2.35                     | 0.50              |
| 6:C2:1449:U:H2'    | 6:C2:1450:U:O4'    | 2.11                     | 0.50              |
| 13:LE:98:VAL:CG1   | 13:LE:98:VAL:O     | 2.60                     | 0.50              |
| 18:LJ:91:LEU:HD13  | 18:LJ:163:PHE:CZ   | 2.47                     | 0.50              |
| 5:C1:176:G:H2'     | 5:C1:177:U:O4'     | 2.12                     | 0.49              |
| 5:C1:1747:G:H21    | 44:Lk:2:ALA:HA     | 1.77                     | 0.49              |
| 6:C2:820:U:H3'     | 6:C2:821:U:C5'     | 2.42                     | 0.49              |
| 50:SB:147:ALA:O    | 50:SB:148:ASN:OD1  | 2.29                     | 0.49              |
| 11:LC:12:THR:O     | 11:LC:12:THR:HG22  | 2.12                     | 0.49              |
| 61:SN:138:ASN:OD1  | 61:SN:138:ASN:C    | 2.54                     | 0.49              |
| 6:C2:39:A:H5'      | 58:SJ:6:ARG:HD3    | 1.93                     | 0.49              |
| 6:C2:692:C:H2'     | 6:C2:693:U:O4'     | 2.12                     | 0.49              |
| 66:SS:32:LEU:O     | 66:SS:35:ILE:HD12  | 2.12                     | 0.49              |
| 5:C1:619:A:H4'     | 5:C1:620:U:C6      | 2.47                     | 0.49              |
| 5:C1:3298:C:C2     | 5:C1:3299:A:C8     | 3.00                     | 0.49              |
| 6:C2:613:G:H4'     | 6:C2:614:C:OP1     | 2.11                     | 0.49              |
| 55:SG:147:LEU:HD21 | 55:SG:156:PHE:CD1  | 2.47                     | 0.49              |
| 6:C2:1332:C:O2'    | 52:SD:162:GLN:HB3  | 2.13                     | 0.49              |
| 15:LG:211:LEU:HD23 | 15:LG:211:LEU:O    | 2.12                     | 0.49              |
| 70:SW:81:VAL:HG12  | 70:SW:82:LYS:O     | 2.13                     | 0.49              |
| 75:Sb:2:VAL:HG13   | 75:Sb:3:LEU:H      | 1.77                     | 0.49              |
| 6:C2:1545:A:C2     | 6:C2:1567:U:C2     | 3.01                     | 0.49              |
| 31:LX:73:MET:SD    | 31:LX:142:ILE:HD11 | 2.53                     | 0.49              |
| 32:LY:58:VAL:HG12  | 32:LY:104:LEU:CD2  | 2.42                     | 0.49              |
| 44:Lk:39:ARG:HH11  | 44:Lk:39:ARG:HG2   | 1.77                     | 0.49              |
| 79:Sg:66:HIS:ND1   | 79:Sg:67:ILE:HD12  | 2.27                     | 0.49              |
| 5:C1:1595:U:C2     | 5:C1:1596:C:C5     | 3.01                     | 0.49              |
| 6:C2:288:A:H4'     | 6:C2:289:U:OP2     | 2.11                     | 0.49              |
| 6:C2:819:G:C6      | 6:C2:853:G:N1      | 2.75                     | 0.49              |
| 6:C2:1727:G:H2'    | 6:C2:1728:A:C8     | 2.47                     | 0.49              |
| 5:C1:655:C:H2'     | 5:C1:656:A:H8      | 1.77                     | 0.49              |
| 15:LG:71:VAL:HG12  | 21:LN:21:PHE:CZ    | 2.48                     | 0.49              |
| 76:Sc:22:ARG:HG3   | 76:Sc:22:ARG:HH11  | 1.78                     | 0.49              |
| 5:C1:1786:G:H2'    | 5:C1:1787:A:C8     | 2.48                     | 0.49              |
| 64:SQ:5:PRO:HB3    | 64:SQ:96:TYR:CE2   | 2.48                     | 0.49              |
| 5:C1:13:A:H5'      | 5:C1:14:U:OP2      | 2.12                     | 0.49              |
| 5:C1:3223:A:H2'    | 5:C1:3224:G:O4'    | 2.12                     | 0.49              |
| 6:C2:1066:C:H4'    | 50:SB:149:GLN:NE2  | 2.28                     | 0.49              |
| 27:LT:105:PHE:O    | 27:LT:109:VAL:HG23 | 2.13                     | 0.49              |
| 32:LY:45:ILE:HD12  | 32:LY:122:LYS:HB2  | 1.95                     | 0.49              |
| 50:SB:148:ASN:OD1  | 50:SB:148:ASN:C    | 2.55                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 74:Sa:33:ASP:C     | 74:Sa:33:ASP:OD1   | 2.56                     | 0.48              |
| 5:C1:1696:A:H2'    | 5:C1:1697:A:C8     | 2.48                     | 0.48              |
| 6:C2:640:U:O2'     | 6:C2:641:G:P       | 2.71                     | 0.48              |
| 6:C2:826:U:H2'     | 6:C2:827:C:C6      | 2.48                     | 0.48              |
| 50:SB:125:VAL:HG11 | 50:SB:173:THR:HG22 | 1.95                     | 0.48              |
| 66:SS:45:LEU:HD21  | 66:SS:81:ILE:HD12  | 1.95                     | 0.48              |
| 5:C1:1791:C:H2'    | 5:C1:1792:C:C6     | 2.48                     | 0.48              |
| 5:C1:3287:U:C4     | 5:C1:3288:G:N7     | 2.81                     | 0.48              |
| 53:SE:95:THR:O     | 53:SE:95:THR:HG22  | 2.12                     | 0.48              |
| 6:C2:422:G:H4'     | 6:C2:423:G:OP1     | 2.13                     | 0.48              |
| 12:LD:89:THR:O     | 12:LD:89:THR:HG22  | 2.12                     | 0.48              |
| 19:LL:57:VAL:HG22  | 19:LL:69:VAL:CG1   | 2.42                     | 0.48              |
| 26:LS:81:TYR:CE1   | 26:LS:90:MET:HE3   | 2.47                     | 0.48              |
| 31:LX:104:GLU:HA   | 31:LX:104:GLU:OE1  | 2.14                     | 0.48              |
| 44:Lk:61:LYS:NZ    | 44:Lk:61:LYS:HB3   | 2.28                     | 0.48              |
| 49:SA:17:LEU:HD13  | 49:SA:50:VAL:CG1   | 2.43                     | 0.48              |
| 50:SB:125:VAL:HG12 | 50:SB:127:VAL:CG1  | 2.43                     | 0.48              |
| 51:SC:116:LYS:HG2  | 51:SC:127:ALA:HB3  | 1.96                     | 0.48              |
| 58:SJ:161:THR:O    | 58:SJ:161:THR:HG22 | 2.14                     | 0.48              |
| 5:C1:769:G:O2'     | 5:C1:770:G:H5'     | 2.13                     | 0.48              |
| 6:C2:74:U:O2'      | 6:C2:75:U:C5       | 2.63                     | 0.48              |
| 6:C2:1446:A:C8     | 6:C2:1448:G:N7     | 2.81                     | 0.48              |
| 25:LR:28:GLU:HA    | 25:LR:28:GLU:OE1   | 2.13                     | 0.48              |
| 56:SH:109:VAL:HG12 | 56:SH:110:GLN:H    | 1.79                     | 0.48              |
| 61:SN:4:MET:HE2    | 61:SN:124:ARG:NH1  | 2.29                     | 0.48              |
| 5:C1:2917:G:OP1    | 29:LV:46:LEU:O     | 2.30                     | 0.48              |
| 16:LH:104:VAL:HG12 | 16:LH:105:GLU:N    | 2.28                     | 0.48              |
| 27:LT:80:VAL:HG23  | 27:LT:80:VAL:O     | 2.12                     | 0.48              |
| 54:SF:94:THR:HG23  | 54:SF:110:ALA:HB1  | 1.96                     | 0.48              |
| 65:SR:73:LEU:HD13  | 65:SR:73:LEU:C     | 2.38                     | 0.48              |
| 5:C1:3165:A:H2'    | 5:C1:3166:C:C6     | 2.49                     | 0.48              |
| 53:SE:65:LEU:HD23  | 53:SE:70:VAL:HG11  | 1.96                     | 0.48              |
| 73:SZ:40:VAL:O     | 73:SZ:75:LEU:CD1   | 2.62                     | 0.48              |
| 5:C1:3214:U:O2     | 5:C1:3214:U:O5'    | 2.31                     | 0.48              |
| 6:C2:871:G:H2'     | 6:C2:872:G:C8      | 2.49                     | 0.48              |
| 6:C2:1360:A:C2     | 6:C2:1364:G:C6     | 3.01                     | 0.48              |
| 6:C2:1458:G:C5'    | 6:C2:1459:C:OP2    | 2.62                     | 0.48              |
| 12:LD:201:GLY:O    | 12:LD:204:VAL:HG12 | 2.13                     | 0.48              |
| 53:SE:15:PRO:HG2   | 53:SE:18:TRP:CD2   | 2.49                     | 0.48              |
| 61:SN:129:TYR:CD1  | 61:SN:134:VAL:HG21 | 2.49                     | 0.48              |
| 63:SP:52:LYS:N     | 63:SP:53:PRO:CD    | 2.76                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 26:LS:139:TYR:CE1  | 26:LS:140:VAL:HG23 | 2.49                     | 0.48              |
| 29:LV:79:VAL:HG11  | 29:LV:118:VAL:HG22 | 1.95                     | 0.48              |
| 44:Lk:39:ARG:HG2   | 44:Lk:39:ARG:NH1   | 2.29                     | 0.48              |
| 3:A:602:LEU:O      | 3:A:606:VAL:HG13   | 2.14                     | 0.48              |
| 5:C1:1355:A:H1'    | 5:C1:1356:U:OP2    | 2.14                     | 0.48              |
| 6:C2:153:G:C2      | 6:C2:154:G:C5      | 3.02                     | 0.48              |
| 6:C2:755:A:HO2'    | 6:C2:756:A:P       | 2.37                     | 0.48              |
| 6:C2:1330:G:H21    | 65:SR:8:THR:HG21   | 1.79                     | 0.48              |
| 6:C2:1611:A:O2'    | 54:SF:95:ASN:HB3   | 2.14                     | 0.48              |
| 5:C1:2897:A:O2'    | 5:C1:2898:G:P      | 2.70                     | 0.47              |
| 6:C2:125:U:H4'     | 53:SE:148:ARG:NH1  | 2.29                     | 0.47              |
| 6:C2:448:C:OP1     | 53:SE:29:PRO:HD3   | 2.13                     | 0.47              |
| 66:SS:138:THR:O    | 66:SS:138:THR:HG22 | 2.14                     | 0.47              |
| 2:6:62:U:H2'       | 2:6:63:C:C6        | 2.48                     | 0.47              |
| 11:LC:152:VAL:HG11 | 11:LC:172:VAL:HG21 | 1.96                     | 0.47              |
| 55:SG:58:LYS:O     | 55:SG:59:GLN:OE1   | 2.32                     | 0.47              |
| 60:SL:84:ILE:HD12  | 60:SL:84:ILE:O     | 2.13                     | 0.47              |
| 3:A:602:LEU:O      | 3:A:606:VAL:HG22   | 2.14                     | 0.47              |
| 5:C1:3324:C:H4'    | 37:Ld:13:THR:HG23  | 1.96                     | 0.47              |
| 6:C2:19:A:H2'      | 6:C2:20:G:O4'      | 2.15                     | 0.47              |
| 6:C2:501:U:HO2'    | 6:C2:502:U:H6      | 1.63                     | 0.47              |
| 12:LD:125:VAL:HG23 | 12:LD:125:VAL:O    | 2.14                     | 0.47              |
| 14:LF:64:GLN:HA    | 14:LF:64:GLN:OE1   | 2.14                     | 0.47              |
| 14:LF:110:ARG:HE   | 24:LQ:3:ILE:HG12   | 1.79                     | 0.47              |
| 55:SG:71:THR:HG22  | 55:SG:72:ARG:N     | 2.29                     | 0.47              |
| 57:SI:193:LEU:O    | 57:SI:197:THR:HG22 | 2.14                     | 0.47              |
| 59:SK:40:LEU:C     | 59:SK:40:LEU:HD13  | 2.39                     | 0.47              |
| 6:C2:1471:A:H4'    | 6:C2:1472:C:OP1    | 2.15                     | 0.47              |
| 22:LO:187:GLU:OE1  | 22:LO:187:GLU:N    | 2.47                     | 0.47              |
| 28:LU:83:TYR:CD1   | 28:LU:83:TYR:C     | 2.92                     | 0.47              |
| 54:SF:124:LEU:HD11 | 73:SZ:59:TYR:HB3   | 1.96                     | 0.47              |
| 5:C1:209:A:C8      | 11:LC:162:THR:HG21 | 2.49                     | 0.47              |
| 5:C1:1534:A:H2'    | 5:C1:1535:A:C8     | 2.50                     | 0.47              |
| 5:C1:1578:C:H2'    | 5:C1:1579:C:C6     | 2.50                     | 0.47              |
| 5:C1:2784:G:H2'    | 5:C1:2785:A:O4'    | 2.15                     | 0.47              |
| 26:LS:24:LEU:HD11  | 26:LS:59:VAL:HG21  | 1.97                     | 0.47              |
| 64:SQ:97:VAL:HG12  | 64:SQ:98:ASP:H     | 1.79                     | 0.47              |
| 5:C1:185:C:H2'     | 5:C1:186:U:O4'     | 2.14                     | 0.47              |
| 5:C1:900:G:H1'     | 5:C1:1589:A:N6     | 2.29                     | 0.47              |
| 5:C1:1794:G:H4'    | 9:LA:191:LEU:HD12  | 1.96                     | 0.47              |
| 6:C2:819:G:N2      | 6:C2:820:U:C4      | 2.82                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 10:LB:152:LYS:CG   | 10:LB:192:VAL:HG11 | 2.45                     | 0.47              |
| 5:C1:2200:U:H2'    | 5:C1:2201:G:O4'    | 2.14                     | 0.47              |
| 5:C1:3047:U:O2'    | 5:C1:3048:A:H5'    | 2.14                     | 0.47              |
| 6:C2:1281:G:OP1    | 68:SU:78:THR:HG21  | 2.15                     | 0.47              |
| 7:C3:81:U:HO2'     | 7:C3:83:C:P        | 2.38                     | 0.47              |
| 10:LB:206:ASP:OD1  | 10:LB:206:ASP:C    | 2.57                     | 0.47              |
| 13:LE:52:VAL:HG21  | 13:LE:65:VAL:HG11  | 1.95                     | 0.47              |
| 26:LS:19:VAL:HG22  | 26:LS:19:VAL:O     | 2.15                     | 0.47              |
| 26:LS:106:LEU:HD13 | 26:LS:106:LEU:C    | 2.39                     | 0.47              |
| 28:LU:13:LYS:O     | 28:LU:66:VAL:HG13  | 2.15                     | 0.47              |
| 49:SA:120:LEU:HD21 | 49:SA:144:ILE:HD12 | 1.96                     | 0.47              |
| 53:SE:139:VAL:HG13 | 53:SE:150:PRO:HG3  | 1.97                     | 0.47              |
| 53:SE:258:GLN:O    | 53:SE:258:GLN:HG3  | 2.14                     | 0.47              |
| 55:SG:57:ASP:OD1   | 55:SG:58:LYS:O     | 2.33                     | 0.47              |
| 5:C1:72:C:H1'      | 19:LL:61:PRO:O     | 2.15                     | 0.47              |
| 5:C1:2918:G:C2     | 5:C1:2919:A:N7     | 2.83                     | 0.47              |
| 6:C2:400:A:H5''    | 57:SI:25:ARG:HD3   | 1.97                     | 0.47              |
| 6:C2:1245:G:HO2'   | 6:C2:1246:C:P      | 2.37                     | 0.47              |
| 6:C2:1287:A:H4'    | 6:C2:1288:G:OP1    | 2.15                     | 0.47              |
| 9:LA:62:VAL:O      | 9:LA:62:VAL:HG13   | 2.15                     | 0.47              |
| 50:SB:124:ASN:C    | 50:SB:124:ASN:OD1  | 2.57                     | 0.47              |
| 57:SI:72:ILE:HD12  | 57:SI:72:ILE:C     | 2.40                     | 0.47              |
| 5:C1:109:A:H4'     | 5:C1:110:G:OP1     | 2.15                     | 0.47              |
| 5:C1:1312:C:H2'    | 5:C1:1313:G:O4'    | 2.15                     | 0.47              |
| 5:C1:2836:C:N3     | 5:C1:2837:A:C6     | 2.83                     | 0.47              |
| 58:SJ:164:PHE:N    | 58:SJ:164:PHE:CD1  | 2.81                     | 0.47              |
| 61:SN:145:THR:HG22 | 61:SN:145:THR:O    | 2.15                     | 0.47              |
| 65:SR:27:ASP:OD1   | 65:SR:27:ASP:C     | 2.58                     | 0.47              |
| 5:C1:2256:A:H62    | 6:C2:1756:A:H2'    | 1.78                     | 0.47              |
| 5:C1:3281:U:H2'    | 5:C1:3282:U:C6     | 2.50                     | 0.47              |
| 6:C2:555:A:O2'     | 6:C2:556:A:P       | 2.73                     | 0.47              |
| 13:LE:91:VAL:HG13  | 13:LE:91:VAL:O     | 2.14                     | 0.47              |
| 50:SB:3:VAL:HG23   | 62:SO:48:VAL:O     | 2.14                     | 0.47              |
| 79:Sg:66:HIS:CE1   | 79:Sg:67:ILE:CD1   | 2.98                     | 0.47              |
| 5:C1:786:A:H4'     | 5:C1:787:G:OP1     | 2.15                     | 0.46              |
| 17:LI:17:TYR:O     | 17:LI:96:VAL:HG22  | 2.14                     | 0.46              |
| 17:LI:80:SER:HB2   | 17:LI:147:VAL:HG11 | 1.97                     | 0.46              |
| 38:Le:72:LYS:NZ    | 38:Le:72:LYS:HB3   | 2.30                     | 0.46              |
| 38:Le:123:LYS:HB2  | 38:Le:123:LYS:NZ   | 2.29                     | 0.46              |
| 57:SI:76:THR:HG21  | 57:SI:104:ILE:HB   | 1.96                     | 0.46              |
| 23:LP:172:GLN:O    | 23:LP:176:ILE:HD12 | 2.15                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 28:LU:61:THR:HG23  | 28:LU:62:VAL:HG23  | 1.95                     | 0.46              |
| 40:Lg:39:ALA:HB3   | 40:Lg:56:THR:HG22  | 1.97                     | 0.46              |
| 51:SC:82:ASN:OD1   | 51:SC:82:ASN:C     | 2.57                     | 0.46              |
| 75:Sb:36:LYS:HG3   | 75:Sb:43:ILE:HG22  | 1.97                     | 0.46              |
| 5:C1:2118:C:H2'    | 5:C1:2119:A:O4'    | 2.15                     | 0.46              |
| 6:C2:12:U:H2'      | 6:C2:13:C:C6       | 2.51                     | 0.46              |
| 6:C2:802:G:O2'     | 70:SW:107:SER:HB3  | 2.14                     | 0.46              |
| 32:LY:39:LEU:HD11  | 32:LY:107:THR:O    | 2.15                     | 0.46              |
| 5:C1:628:A:H2'     | 5:C1:629:U:O4'     | 2.15                     | 0.46              |
| 6:C2:15:U:H2'      | 6:C2:16:G:O4'      | 2.15                     | 0.46              |
| 14:LF:62:ILE:HG23  | 14:LF:78:GLU:OE1   | 2.16                     | 0.46              |
| 75:Sb:2:VAL:HG13   | 75:Sb:3:LEU:N      | 2.30                     | 0.46              |
| 8:C4:24:A:O2'      | 8:C4:25:G:H5'      | 2.15                     | 0.46              |
| 10:LB:162:VAL:HG21 | 10:LB:181:ILE:HD12 | 1.97                     | 0.46              |
| 12:LD:147:ASP:OD1  | 12:LD:147:ASP:C    | 2.58                     | 0.46              |
| 18:LJ:165:GLN:OE1  | 18:LJ:165:GLN:C    | 2.58                     | 0.46              |
| 25:LR:7:GLN:HG2    | 25:LR:32:ILE:HG22  | 1.96                     | 0.46              |
| 57:SI:164:ARG:HB2  | 57:SI:164:ARG:NH1  | 2.30                     | 0.46              |
| 79:Sg:38:ARG:HA    | 79:Sg:67:ILE:HG23  | 1.97                     | 0.46              |
| 79:Sg:290:VAL:HG12 | 79:Sg:290:VAL:O    | 2.15                     | 0.46              |
| 5:C1:916:G:C5'     | 5:C1:917:A:OP1     | 2.64                     | 0.46              |
| 6:C2:277:U:O2'     | 6:C2:278:U:P       | 2.74                     | 0.46              |
| 6:C2:1145:U:O2     | 6:C2:1145:U:O5'    | 2.34                     | 0.46              |
| 6:C2:1178:G:C6     | 6:C2:1462:G:C6     | 3.04                     | 0.46              |
| 27:LT:11:THR:HG21  | 27:LT:15:PHE:CD2   | 2.50                     | 0.46              |
| 27:LT:91:LEU:HD12  | 27:LT:91:LEU:O     | 2.15                     | 0.46              |
| 28:LU:19:VAL:HG22  | 28:LU:19:VAL:O     | 2.15                     | 0.46              |
| 30:LW:18:GLY:HA3   | 30:LW:31:PHE:O     | 2.16                     | 0.46              |
| 49:SA:121:VAL:CG2  | 49:SA:143:VAL:HG22 | 2.46                     | 0.46              |
| 65:SR:73:LEU:HD13  | 65:SR:73:LEU:O     | 2.15                     | 0.46              |
| 79:Sg:144:LEU:HD23 | 79:Sg:181:TRP:CE3  | 2.50                     | 0.46              |
| 5:C1:787:G:H2'     | 5:C1:788:C:C6      | 2.50                     | 0.46              |
| 6:C2:781:U:H2'     | 6:C2:782:U:O4'     | 2.16                     | 0.46              |
| 6:C2:1451:C:C2     | 6:C2:1452:U:C5     | 3.04                     | 0.46              |
| 5:C1:1782:U:H2'    | 5:C1:1783:U:O4'    | 2.16                     | 0.46              |
| 6:C2:1170:G:C2     | 6:C2:1171:A:C8     | 3.03                     | 0.46              |
| 6:C2:1536:G:C6     | 6:C2:1538:U:O2     | 2.69                     | 0.46              |
| 6:C2:1560:U:O2     | 6:C2:1560:U:O4'    | 2.33                     | 0.46              |
| 6:C2:1680:G:H1'    | 6:C2:1721:A:N6     | 2.31                     | 0.46              |
| 49:SA:180:GLU:O    | 49:SA:184:LEU:HD23 | 2.15                     | 0.46              |
| 53:SE:123:LEU:HD12 | 53:SE:159:THR:OG1  | 2.16                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 54:SF:70:VAL:HG22  | 54:SF:70:VAL:O     | 2.16                     | 0.46              |
| 76:Sc:22:ARG:HG3   | 76:Sc:22:ARG:NH1   | 2.30                     | 0.46              |
| 5:C1:177:U:N3      | 5:C1:178:U:C5      | 2.84                     | 0.46              |
| 5:C1:366:A:H2'     | 5:C1:367:A:O4'     | 2.16                     | 0.46              |
| 6:C2:63:G:C5'      | 6:C2:269:G:OP1     | 2.64                     | 0.46              |
| 15:LG:161:GLU:N    | 15:LG:161:GLU:OE1  | 2.48                     | 0.46              |
| 53:SE:19:LEU:HD11  | 53:SE:108:ARG:HD2  | 1.97                     | 0.46              |
| 56:SH:38:LEU:HD12  | 56:SH:38:LEU:O     | 2.16                     | 0.46              |
| 67:ST:65:ILE:CD1   | 67:ST:71:VAL:HG22  | 2.46                     | 0.46              |
| 79:Sg:99:THR:HG23  | 79:Sg:99:THR:O     | 2.15                     | 0.46              |
| 2:6:63:C:H2'       | 2:6:64:C:C6        | 2.51                     | 0.46              |
| 5:C1:151:A:C5      | 5:C1:152:U:C5      | 3.03                     | 0.46              |
| 6:C2:813:U:HO2'    | 6:C2:814:A:P       | 2.39                     | 0.46              |
| 9:LA:101:VAL:HG22  | 9:LA:165:VAL:HG22  | 1.97                     | 0.46              |
| 16:LH:188:THR:HG22 | 16:LH:188:THR:O    | 2.15                     | 0.46              |
| 65:SR:32:LYS:HG3   | 65:SR:47:ARG:NH1   | 2.31                     | 0.46              |
| 5:C1:1447:G:OP1    | 23:LP:65:SER:HB3   | 2.16                     | 0.45              |
| 6:C2:1274:C:H1'    | 6:C2:1275:A:OP2    | 2.16                     | 0.45              |
| 10:LB:290:ASP:OD1  | 10:LB:291:GLU:O    | 2.34                     | 0.45              |
| 12:LD:109:THR:O    | 12:LD:113:LEU:HD13 | 2.16                     | 0.45              |
| 31:LX:59:SER:HA    | 31:LX:62:VAL:HG12  | 1.97                     | 0.45              |
| 51:SC:80:VAL:O     | 51:SC:80:VAL:HG23  | 2.15                     | 0.45              |
| 60:SL:80:MET:HG3   | 60:SL:83:THR:HB    | 1.97                     | 0.45              |
| 68:SU:24:ILE:HG22  | 68:SU:26:LEU:CD1   | 2.43                     | 0.45              |
| 68:SU:25:THR:C     | 68:SU:26:LEU:HD12  | 2.41                     | 0.45              |
| 68:SU:92:ASP:C     | 68:SU:93:LEU:HD22  | 2.41                     | 0.45              |
| 5:C1:1420:C:C5     | 11:LC:189:ALA:HB2  | 2.52                     | 0.45              |
| 6:C2:220:A:C2      | 6:C2:842:C:N3      | 2.85                     | 0.45              |
| 8:C4:45:A:H4'      | 12:LD:154:THR:HG21 | 1.98                     | 0.45              |
| 25:LR:23:TRP:CE3   | 25:LR:51:VAL:HG22  | 2.52                     | 0.45              |
| 33:LZ:89:VAL:O     | 33:LZ:89:VAL:CG2   | 2.63                     | 0.45              |
| 55:SG:58:LYS:O     | 55:SG:59:GLN:HB2   | 2.16                     | 0.45              |
| 60:SL:14:GLN:OE1   | 60:SL:14:GLN:HA    | 2.16                     | 0.45              |
| 62:SO:91:THR:O     | 62:SO:92:LYS:HB2   | 2.17                     | 0.45              |
| 68:SU:92:ASP:O     | 68:SU:93:LEU:HD22  | 2.16                     | 0.45              |
| 71:SX:74:VAL:HG21  | 71:SX:104:LEU:HD11 | 1.98                     | 0.45              |
| 5:C1:209:A:N9      | 11:LC:162:THR:HG21 | 2.31                     | 0.45              |
| 5:C1:952:A:H4'     | 5:C1:968:G:N2      | 2.31                     | 0.45              |
| 5:C1:1135:A:C2     | 5:C1:1136:A:C8     | 3.04                     | 0.45              |
| 5:C1:2298:U:O2     | 5:C1:2920:U:O2     | 2.34                     | 0.45              |
| 6:C2:113:U:O2'     | 6:C2:115:G:H2'     | 2.16                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 6:C2:555:A:C8      | 6:C2:590:C:O2'     | 2.69                     | 0.45              |
| 6:C2:1347:U:H2'    | 6:C2:1347:U:O2     | 2.17                     | 0.45              |
| 6:C2:1489:U:O2     | 6:C2:1489:U:O5'    | 2.34                     | 0.45              |
| 49:SA:77:SER:HB2   | 49:SA:86:VAL:HG21  | 1.99                     | 0.45              |
| 71:SX:11:SER:O     | 71:SX:11:SER:OG    | 2.35                     | 0.45              |
| 5:C1:806:A:H1'     | 5:C1:2812:C:O2'    | 2.17                     | 0.45              |
| 6:C2:831:U:H2'     | 6:C2:832:U:C6      | 2.52                     | 0.45              |
| 6:C2:1618:C:H4'    | 6:C2:1619:C:OP1    | 2.16                     | 0.45              |
| 10:LB:47:LEU:HD11  | 10:LB:179:ALA:HB3  | 1.98                     | 0.45              |
| 36:Lc:42:ILE:HD11  | 36:Lc:67:VAL:HG22  | 1.98                     | 0.45              |
| 74:Sa:10:ARG:HB2   | 74:Sa:33:ASP:OD1   | 2.16                     | 0.45              |
| 6:C2:152:U:O2'     | 55:SG:15:THR:HG22  | 2.15                     | 0.45              |
| 50:SB:137:ILE:N    | 50:SB:137:ILE:HD12 | 2.32                     | 0.45              |
| 51:SC:214:ALA:O    | 51:SC:218:ILE:HG22 | 2.15                     | 0.45              |
| 55:SG:71:THR:HG22  | 55:SG:72:ARG:H     | 1.81                     | 0.45              |
| 56:SH:14:THR:HG22  | 56:SH:15:GLU:N     | 2.32                     | 0.45              |
| 75:Sb:67:THR:HG22  | 75:Sb:68:GLY:H     | 1.82                     | 0.45              |
| 79:Sg:12:THR:HG22  | 79:Sg:311:ARG:HG2  | 1.97                     | 0.45              |
| 79:Sg:120:SER:HA   | 79:Sg:136:ILE:HD13 | 1.99                     | 0.45              |
| 6:C2:640:U:HO2'    | 6:C2:641:G:P       | 2.40                     | 0.45              |
| 6:C2:1025:A:H5'    | 6:C2:1774:G:H4'    | 1.98                     | 0.45              |
| 6:C2:1261:G:H2'    | 6:C2:1262:U:C6     | 2.51                     | 0.45              |
| 57:SI:101:ILE:HD12 | 57:SI:101:ILE:N    | 2.32                     | 0.45              |
| 62:SO:122:PRO:HB2  | 62:SO:125:SER:HB3  | 1.99                     | 0.45              |
| 5:C1:2100:A:O3'    | 5:C1:2101:C:O4'    | 2.35                     | 0.45              |
| 5:C1:2152:A:O4'    | 5:C1:2243:A:C2     | 2.70                     | 0.45              |
| 5:C1:2665:U:H4'    | 5:C1:2666:C:OP1    | 2.17                     | 0.45              |
| 6:C2:158:U:O2'     | 6:C2:159:U:H3'     | 2.16                     | 0.45              |
| 6:C2:992:A:O2'     | 6:C2:1785:U:O2     | 2.34                     | 0.45              |
| 79:Sg:240:VAL:HG13 | 79:Sg:255:ALA:O    | 2.17                     | 0.45              |
| 5:C1:1157:G:H2'    | 5:C1:1158:A:O4'    | 2.17                     | 0.45              |
| 6:C2:329:G:H5'     | 57:SI:99:ALA:HB3   | 1.98                     | 0.45              |
| 6:C2:1338:C:H1'    | 6:C2:1410:A:C4     | 2.52                     | 0.45              |
| 6:C2:1383:G:O2'    | 68:SU:35:GLU:OE2   | 2.33                     | 0.45              |
| 17:LI:65:LEU:HD21  | 17:LI:91:VAL:CG2   | 2.47                     | 0.45              |
| 17:LI:200:LEU:HD13 | 17:LI:200:LEU:C    | 2.40                     | 0.45              |
| 33:LZ:46:ILE:HG21  | 33:LZ:49:TYR:CD1   | 2.51                     | 0.45              |
| 50:SB:131:ASP:OD1  | 50:SB:133:TYR:HD2  | 2.00                     | 0.45              |
| 79:Sg:36:ALA:HB2   | 79:Sg:42:LEU:HD23  | 1.99                     | 0.45              |
| 58:SJ:82:ARG:HE    | 58:SJ:149:ARG:HD2  | 1.81                     | 0.45              |
| 5:C1:1818:U:O2'    | 5:C1:1819:U:P      | 2.74                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 6:C2:82:U:H2'      | 6:C2:83:G:O4'      | 2.16                     | 0.45              |
| 10:LB:332:ARG:O    | 10:LB:333:LYS:HB2  | 2.17                     | 0.45              |
| 21:LN:146:ALA:HB3  | 41:Lh:101:THR:HG22 | 1.98                     | 0.45              |
| 50:SB:172:LEU:O    | 50:SB:176:VAL:HG23 | 2.17                     | 0.45              |
| 75:Sb:67:THR:HG22  | 75:Sb:68:GLY:N     | 2.32                     | 0.45              |
| 5:C1:3157:U:H1'    | 5:C1:3158:G:C8     | 2.52                     | 0.44              |
| 20:LM:123:LEU:HD21 | 22:LO:193:GLN:OE1  | 2.17                     | 0.44              |
| 28:LU:80:THR:O     | 28:LU:84:LEU:HD12  | 2.17                     | 0.44              |
| 54:SF:65:ARG:HA    | 54:SF:65:ARG:NE    | 2.32                     | 0.44              |
| 5:C1:359:U:O2'     | 5:C1:360:G:H5'     | 2.18                     | 0.44              |
| 5:C1:1093:A:N3     | 5:C1:1096:U:N3     | 2.65                     | 0.44              |
| 5:C1:2406:C:H2'    | 5:C1:2407:C:C6     | 2.52                     | 0.44              |
| 6:C2:151:G:C2      | 6:C2:152:U:C4      | 3.05                     | 0.44              |
| 6:C2:156:A:O2'     | 6:C2:157:A:H5'     | 2.16                     | 0.44              |
| 6:C2:1246:C:C2     | 6:C2:1247:U:C5     | 3.06                     | 0.44              |
| 6:C2:1349:G:C6     | 6:C2:1350:U:C4     | 3.05                     | 0.44              |
| 6:C2:1550:A:H2'    | 6:C2:1551:U:H6     | 1.83                     | 0.44              |
| 6:C2:1767:G:OP1    | 6:C2:1770:U:H4'    | 2.17                     | 0.44              |
| 10:LB:296:THR:HG22 | 10:LB:297:SER:H    | 1.82                     | 0.44              |
| 17:LI:124:GLY:C    | 17:LI:125:LEU:HD23 | 2.43                     | 0.44              |
| 26:LS:97:VAL:O     | 26:LS:97:VAL:CG1   | 2.65                     | 0.44              |
| 28:LU:93:ILE:HG22  | 28:LU:94:ARG:N     | 2.32                     | 0.44              |
| 45:LI:15:LYS:O     | 45:LI:19:GLN:HG3   | 2.16                     | 0.44              |
| 61:SN:84:ILE:HD13  | 61:SN:149:LEU:HD21 | 1.99                     | 0.44              |
| 61:SN:132:VAL:HG23 | 61:SN:134:VAL:HG13 | 1.99                     | 0.44              |
| 61:SN:137:PRO:O    | 61:SN:138:ASN:CG   | 2.61                     | 0.44              |
| 65:SR:47:ARG:NH1   | 65:SR:48:ASN:OD1   | 2.50                     | 0.44              |
| 68:SU:65:ILE:HD12  | 77:Sd:31:ILE:HD11  | 1.98                     | 0.44              |
| 3:A:606:VAL:HG23   | 3:A:607:THR:N      | 2.33                     | 0.44              |
| 5:C1:2261:G:O2'    | 5:C1:2263:C:N4     | 2.50                     | 0.44              |
| 5:C1:3232:G:C6     | 5:C1:3256:G:C6     | 3.05                     | 0.44              |
| 6:C2:140:A:H1'     | 55:SG:179:VAL:HG11 | 1.99                     | 0.44              |
| 6:C2:1427:A:O2'    | 6:C2:1428:G:OP2    | 2.32                     | 0.44              |
| 6:C2:1527:C:O2     | 6:C2:1527:C:H2'    | 2.16                     | 0.44              |
| 12:LD:131:LEU:C    | 12:LD:132:THR:HG22 | 2.43                     | 0.44              |
| 31:LX:133:LEU:CD1  | 31:LX:142:ILE:HG21 | 2.47                     | 0.44              |
| 52:SD:142:LEU:CD1  | 52:SD:150:MET:HG3  | 2.48                     | 0.44              |
| 5:C1:241:G:C6      | 5:C1:242:C:C4      | 3.06                     | 0.44              |
| 5:C1:949:C:O2'     | 5:C1:971:G:OP1     | 2.32                     | 0.44              |
| 5:C1:3028:G:H2'    | 5:C1:3029:A:O4'    | 2.17                     | 0.44              |
| 5:C1:3174:A:OP1    | 39:Lf:97:SER:OG    | 2.32                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 5:C1:3340:G:H4'    | 5:C1:3341:U:OP1    | 2.18                     | 0.44              |
| 6:C2:40:A:N6       | 6:C2:467:G:C2      | 2.78                     | 0.44              |
| 6:C2:269:G:O5'     | 6:C2:270:C:H5''    | 2.17                     | 0.44              |
| 23:LP:78:VAL:HG22  | 23:LP:80:LYS:H     | 1.82                     | 0.44              |
| 44:Lk:5:ILE:HD11   | 44:Lk:14:LEU:HD22  | 2.00                     | 0.44              |
| 49:SA:150:ASP:OD1  | 49:SA:150:ASP:C    | 2.59                     | 0.44              |
| 58:SJ:66:ASP:OD1   | 58:SJ:67:PRO:HD2   | 2.18                     | 0.44              |
| 62:SO:39:ILE:HD12  | 62:SO:76:ILE:CD1   | 2.48                     | 0.44              |
| 66:SS:100:THR:O    | 66:SS:101:LEU:HD22 | 2.17                     | 0.44              |
| 79:Sg:151:VAL:O    | 79:Sg:151:VAL:HG13 | 2.17                     | 0.44              |
| 5:C1:2101:C:O2'    | 5:C1:2102:U:P      | 2.75                     | 0.44              |
| 6:C2:540:G:N2      | 6:C2:542:A:H62     | 2.14                     | 0.44              |
| 6:C2:1171:A:H2'    | 6:C2:1172:G:C8     | 2.53                     | 0.44              |
| 6:C2:1471:A:C8     | 6:C2:1540:G:H1'    | 2.52                     | 0.44              |
| 6:C2:1677:C:H42    | 6:C2:1724:U:H3     | 1.65                     | 0.44              |
| 7:C3:78:G:H2'      | 7:C3:79:A:O4'      | 2.17                     | 0.44              |
| 11:LC:310:THR:HG22 | 11:LC:310:THR:O    | 2.15                     | 0.44              |
| 24:LQ:102:ALA:HA   | 24:LQ:122:ILE:O    | 2.18                     | 0.44              |
| 28:LU:80:THR:HG22  | 28:LU:84:LEU:CD1   | 2.47                     | 0.44              |
| 32:LY:77:LYS:O     | 32:LY:78:PHE:C     | 2.60                     | 0.44              |
| 51:SC:239:PRO:HA   | 51:SC:242:ILE:HG22 | 1.98                     | 0.44              |
| 61:SN:4:MET:HE2    | 61:SN:124:ARG:CZ   | 2.47                     | 0.44              |
| 5:C1:437:G:H1      | 5:C1:622:A:H61     | 1.63                     | 0.44              |
| 6:C2:119:A:H1'     | 6:C2:397:A:C5      | 2.53                     | 0.44              |
| 6:C2:260:U:N3      | 57:SI:43:ILE:HD12  | 2.33                     | 0.44              |
| 7:C3:85:G:O2'      | 7:C3:86:U:P        | 2.76                     | 0.44              |
| 15:LG:71:VAL:HG23  | 15:LG:76:ALA:HB2   | 1.99                     | 0.44              |
| 16:LH:4:ILE:HG13   | 26:LS:142:GLN:OE1  | 2.18                     | 0.44              |
| 22:LO:16:VAL:HG13  | 22:LO:17:GLY:N     | 2.33                     | 0.44              |
| 65:SR:21:TYR:N     | 65:SR:22:PRO:HD2   | 2.33                     | 0.44              |
| 5:C1:359:U:H2'     | 5:C1:360:G:O5'     | 2.17                     | 0.44              |
| 6:C2:1174:C:H2'    | 6:C2:1175:U:O4'    | 2.18                     | 0.44              |
| 6:C2:1471:A:O2'    | 6:C2:1472:C:P      | 2.75                     | 0.44              |
| 38:Le:86:THR:HG22  | 38:Le:115:LEU:HD13 | 1.99                     | 0.44              |
| 59:SK:57:THR:HG22  | 59:SK:66:TYR:CD2   | 2.53                     | 0.44              |
| 64:SQ:22:VAL:HG13  | 64:SQ:63:ILE:CG2   | 2.48                     | 0.44              |
| 64:SQ:89:LEU:C     | 64:SQ:89:LEU:HD23  | 2.42                     | 0.44              |
| 65:SR:20:TYR:CE1   | 65:SR:38:ILE:HD12  | 2.52                     | 0.44              |
| 73:SZ:69:LEU:O     | 73:SZ:69:LEU:HD12  | 2.18                     | 0.44              |
| 3:A:490:LEU:CB     | 3:A:510:ALA:HB2    | 2.48                     | 0.44              |
| 5:C1:404:G:C5      | 5:C1:405:U:C5      | 3.06                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 6:C2:354:C:H5''    | 57:SI:16:ALA:HB2   | 1.98                     | 0.44              |
| 6:C2:895:G:H2'     | 6:C2:896:U:C6      | 2.53                     | 0.44              |
| 6:C2:929:A:H1'     | 62:SO:123:SER:O    | 2.17                     | 0.44              |
| 6:C2:1738:U:H2'    | 6:C2:1739:C:C6     | 2.53                     | 0.44              |
| 11:LC:76:ARG:HA    | 11:LC:87:GLN:O     | 2.17                     | 0.44              |
| 54:SF:160:VAL:HG13 | 76:Sc:43:ASN:HB2   | 2.00                     | 0.44              |
| 5:C1:1562:C:O2'    | 5:C1:1563:C:P      | 2.76                     | 0.44              |
| 6:C2:555:A:C2'     | 6:C2:556:A:O5'     | 2.65                     | 0.44              |
| 6:C2:1338:C:C6     | 6:C2:1410:A:C2     | 3.05                     | 0.44              |
| 6:C2:1796:C:H4'    | 6:C2:1797:A:OP2    | 2.18                     | 0.44              |
| 10:LB:299:ASP:OD1  | 10:LB:301:THR:HG22 | 2.18                     | 0.44              |
| 11:LC:150:LEU:HD21 | 11:LC:172:VAL:HG13 | 1.98                     | 0.44              |
| 27:LT:9:SER:O      | 27:LT:55:LYS:HE2   | 2.18                     | 0.44              |
| 33:LZ:68:ILE:O     | 33:LZ:115:LYS:HE3  | 2.18                     | 0.44              |
| 52:SD:23:GLU:HA    | 52:SD:26:THR:HG22  | 2.00                     | 0.44              |
| 68:SU:50:LEU:HD13  | 68:SU:95:ALA:HB2   | 1.99                     | 0.44              |
| 70:SW:14:ILE:HG23  | 70:SW:65:LEU:HD21  | 2.00                     | 0.44              |
| 72:SY:121:THR:CG2  | 72:SY:123:LYS:HG3  | 2.47                     | 0.44              |
| 78:Se:10:ARG:O     | 78:Se:10:ARG:HG2   | 2.18                     | 0.44              |
| 5:C1:3110:C:H2'    | 5:C1:3111:U:C6     | 2.53                     | 0.43              |
| 6:C2:1344:A:O2'    | 6:C2:1345:A:P      | 2.76                     | 0.43              |
| 12:LD:74:VAL:O     | 12:LD:74:VAL:HG23  | 2.17                     | 0.43              |
| 17:LI:85:PHE:CB    | 17:LI:140:THR:HG22 | 2.47                     | 0.43              |
| 17:LI:140:THR:HG21 | 17:LI:148:VAL:CG1  | 2.48                     | 0.43              |
| 31:LX:130:TYR:CD1  | 31:LX:130:TYR:N    | 2.86                     | 0.43              |
| 56:SH:109:VAL:HG12 | 56:SH:110:GLN:N    | 2.32                     | 0.43              |
| 56:SH:116:ARG:HG3  | 56:SH:116:ARG:HH11 | 1.83                     | 0.43              |
| 57:SI:8:ARG:HB3    | 57:SI:8:ARG:NH1    | 2.33                     | 0.43              |
| 62:SO:84:ARG:HG3   | 62:SO:85:ALA:N     | 2.32                     | 0.43              |
| 5:C1:1798:A:H2'    | 5:C1:1799:A:C8     | 2.52                     | 0.43              |
| 5:C1:2333:C:H2'    | 5:C1:2334:U:O4'    | 2.18                     | 0.43              |
| 6:C2:609:U:H4'     | 6:C2:610:G:O5'     | 2.19                     | 0.43              |
| 32:LY:113:LYS:NZ   | 32:LY:113:LYS:HB3  | 2.32                     | 0.43              |
| 58:SJ:134:ILE:HG22 | 58:SJ:135:ALA:N    | 2.32                     | 0.43              |
| 3:A:596:ARG:O      | 3:A:599:GLU:HB3    | 2.18                     | 0.43              |
| 5:C1:763:G:O2'     | 5:C1:764:U:P       | 2.75                     | 0.43              |
| 5:C1:3320:A:H2'    | 5:C1:3321:C:H6     | 1.83                     | 0.43              |
| 6:C2:608:U:O2      | 6:C2:608:U:O5'     | 2.36                     | 0.43              |
| 6:C2:1245:G:O2'    | 6:C2:1246:C:O5'    | 2.32                     | 0.43              |
| 6:C2:1474:G:H2'    | 6:C2:1475:A:C8     | 2.54                     | 0.43              |
| 6:C2:1494:C:C2     | 6:C2:1495:C:C5     | 3.06                     | 0.43              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 12:LD:260:PHE:HB3  | 12:LD:264:GLN:OE1 | 2.18                     | 0.43              |
| 24:LQ:3:ILE:HG22   | 24:LQ:4:ASP:N     | 2.32                     | 0.43              |
| 52:SD:137:VAL:HG22 | 52:SD:185:LYS:HB2 | 2.00                     | 0.43              |
| 56:SH:39:ARG:N     | 56:SH:40:PRO:HD2  | 2.34                     | 0.43              |
| 57:SI:173:PRO:HG3  | 57:SI:179:CYS:SG  | 2.58                     | 0.43              |
| 79:Sg:151:VAL:O    | 79:Sg:151:VAL:CG1 | 2.66                     | 0.43              |
| 5:C1:424:G:O2'     | 38:Le:23:ASP:OD2  | 2.32                     | 0.43              |
| 5:C1:3280:U:C2     | 5:C1:3281:U:C5    | 3.06                     | 0.43              |
| 6:C2:1430:U:O2'    | 6:C2:1431:C:P     | 2.77                     | 0.43              |
| 52:SD:132:LYS:HB2  | 52:SD:132:LYS:NZ  | 2.33                     | 0.43              |
| 61:SN:28:LEU:HD23  | 61:SN:28:LEU:H    | 1.83                     | 0.43              |
| 66:SS:17:LEU:HD21  | 66:SS:66:LEU:HD22 | 2.00                     | 0.43              |
| 70:SW:27:ILE:HG12  | 70:SW:61:ILE:HB   | 1.99                     | 0.43              |
| 75:Sb:55:THR:HG22  | 75:Sb:62:ILE:HD13 | 1.98                     | 0.43              |
| 79:Sg:314:GLN:HB3  | 79:Sg:316:MET:HE3 | 2.01                     | 0.43              |
| 5:C1:768:C:H2'     | 5:C1:769:G:O5'    | 2.18                     | 0.43              |
| 5:C1:1711:C:H2'    | 5:C1:1712:G:O5'   | 2.18                     | 0.43              |
| 6:C2:815:G:C2'     | 6:C2:816:G:OP1    | 2.66                     | 0.43              |
| 6:C2:855:A:H3'     | 6:C2:856:A:H5''   | 2.01                     | 0.43              |
| 16:LH:3:TYR:CD1    | 16:LH:3:TYR:N     | 2.87                     | 0.43              |
| 22:LO:49:ARG:CZ    | 22:LO:49:ARG:HB3  | 2.48                     | 0.43              |
| 62:SO:51:ASP:HA    | 62:SO:54:GLU:OE2  | 2.18                     | 0.43              |
| 79:Sg:18:GLY:C     | 79:Sg:308:ASN:OD1 | 2.61                     | 0.43              |
| 79:Sg:58:VAL:HG13  | 79:Sg:59:ARG:N    | 2.34                     | 0.43              |
| 2:6:34:C:H5'       | 6:C2:1191:U:O2    | 2.17                     | 0.43              |
| 4:B:77:MET:HE3     | 4:B:77:MET:HA     | 2.01                     | 0.43              |
| 5:C1:353:G:O6      | 43:Lj:52:LYS:HE3  | 2.18                     | 0.43              |
| 5:C1:1353:U:O2'    | 13:LE:9:TRP:HE3   | 2.01                     | 0.43              |
| 5:C1:1525:G:C8     | 5:C1:1829:G:C5    | 3.07                     | 0.43              |
| 5:C1:2982:A:O3'    | 5:C1:2983:C:O2    | 2.37                     | 0.43              |
| 6:C2:322:G:P       | 6:C2:322:G:H3'    | 2.58                     | 0.43              |
| 6:C2:540:G:N3      | 6:C2:542:A:C5     | 2.87                     | 0.43              |
| 6:C2:610:G:H21     | 71:SX:19:ARG:CZ   | 2.31                     | 0.43              |
| 6:C2:1382:A:O2'    | 6:C2:1383:G:OP1   | 2.34                     | 0.43              |
| 9:LA:46:LYS:HD2    | 9:LA:46:LYS:HA    | 1.84                     | 0.43              |
| 10:LB:257:PRO:O    | 10:LB:258:ALA:HB3 | 2.17                     | 0.43              |
| 30:LW:19:THR:HG22  | 30:LW:20:LEU:N    | 2.33                     | 0.43              |
| 67:ST:30:VAL:HG13  | 67:ST:34:VAL:HG11 | 2.01                     | 0.43              |
| 73:SZ:66:VAL:O     | 73:SZ:66:VAL:HG12 | 2.18                     | 0.43              |
| 5:C1:1741:A:H2'    | 5:C1:1742:U:H5'   | 1.99                     | 0.43              |
| 5:C1:2585:G:N3     | 5:C1:2585:G:H2'   | 2.34                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 6:C2:333:A:N6      | 57:SI:27:PHE:HB2   | 2.33                     | 0.43              |
| 6:C2:829:A:H2'     | 6:C2:830:U:H5      | 1.84                     | 0.43              |
| 6:C2:1781:A:H2'    | 6:C2:1782:A:O4'    | 2.19                     | 0.43              |
| 14:LF:214:TRP:CH2  | 14:LF:243:MET:CE   | 3.02                     | 0.43              |
| 31:LX:73:MET:HE2   | 31:LX:73:MET:CA    | 2.45                     | 0.43              |
| 55:SG:18:ILE:HD13  | 55:SG:18:ILE:N     | 2.33                     | 0.43              |
| 78:Se:26:LYS:HB2   | 78:Se:26:LYS:HE2   | 1.88                     | 0.43              |
| 2:6:66:C:H2'       | 2:6:67:U:C6        | 2.54                     | 0.43              |
| 5:C1:407:A:C2      | 7:C3:17:A:H1'      | 2.53                     | 0.43              |
| 5:C1:3279:A:H2'    | 5:C1:3280:U:C6     | 2.53                     | 0.43              |
| 6:C2:453:U:H2'     | 6:C2:454:U:H5''    | 1.99                     | 0.43              |
| 6:C2:1172:G:H2'    | 6:C2:1173:C:C6     | 2.54                     | 0.43              |
| 10:LB:229:VAL:HG11 | 10:LB:249:VAL:CG2  | 2.42                     | 0.43              |
| 18:LJ:171:VAL:HG23 | 18:LJ:171:VAL:O    | 2.18                     | 0.43              |
| 52:SD:132:LYS:HD3  | 52:SD:156:PHE:CE1  | 2.53                     | 0.43              |
| 57:SI:81:VAL:HG22  | 57:SI:102:VAL:HG12 | 2.00                     | 0.43              |
| 63:SP:26:LEU:HD21  | 63:SP:90:ILE:HD11  | 2.01                     | 0.43              |
| 5:C1:548:G:H2'     | 5:C1:549:U:O4'     | 2.19                     | 0.43              |
| 5:C1:992:A:O2'     | 5:C1:993:G:H5'     | 2.18                     | 0.43              |
| 5:C1:1596:C:H2'    | 5:C1:1597:C:C6     | 2.54                     | 0.43              |
| 5:C1:2408:U:O2'    | 5:C1:2409:G:H5'    | 2.18                     | 0.43              |
| 10:LB:152:LYS:HG2  | 10:LB:192:VAL:HG11 | 1.99                     | 0.43              |
| 33:LZ:86:THR:HG22  | 33:LZ:87:LEU:N     | 2.34                     | 0.43              |
| 43:Lj:18:LEU:HD12  | 45:Ll:8:ARG:CD     | 2.49                     | 0.43              |
| 43:Lj:24:ARG:O     | 43:Lj:24:ARG:HG2   | 2.19                     | 0.43              |
| 52:SD:42:THR:HG23  | 52:SD:43:PRO:HD2   | 2.00                     | 0.43              |
| 73:SZ:75:LEU:O     | 73:SZ:75:LEU:HD23  | 2.19                     | 0.43              |
| 5:C1:621:A:H4'     | 5:C1:622:A:OP1     | 2.19                     | 0.43              |
| 5:C1:2226:U:H2'    | 5:C1:2227:C:O4'    | 2.19                     | 0.43              |
| 6:C2:864:U:O2      | 6:C2:864:U:O4'     | 2.36                     | 0.43              |
| 26:LS:132:THR:O    | 26:LS:133:ALA:HB3  | 2.19                     | 0.43              |
| 28:LU:90:ARG:C     | 28:LU:91:ASP:OD1   | 2.61                     | 0.43              |
| 36:Lc:81:VAL:HG23  | 36:Lc:83:LYS:HG2   | 2.00                     | 0.43              |
| 49:SA:90:ALA:HB1   | 49:SA:95:ALA:O     | 2.18                     | 0.43              |
| 57:SI:101:ILE:N    | 57:SI:101:ILE:CD1  | 2.82                     | 0.43              |
| 3:A:556:THR:HG23   | 3:A:562:LEU:HD13   | 2.00                     | 0.42              |
| 5:C1:1372:C:O2'    | 5:C1:1373:A:P      | 2.77                     | 0.42              |
| 5:C1:3181:C:O2     | 5:C1:3181:C:O4'    | 2.36                     | 0.42              |
| 6:C2:55:A:H1'      | 6:C2:426:G:N2      | 2.33                     | 0.42              |
| 10:LB:57:VAL:HG12  | 10:LB:358:TRP:HB3  | 2.01                     | 0.42              |
| 50:SB:201:THR:O    | 50:SB:201:THR:CG2  | 2.67                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 6:C2:127:G:N2      | 55:SG:195:VAL:HG22 | 2.34                     | 0.42              |
| 6:C2:1367:G:C2     | 6:C2:1368:G:C8     | 3.07                     | 0.42              |
| 6:C2:1611:A:C5     | 6:C2:1612:U:C5     | 3.07                     | 0.42              |
| 6:C2:1673:G:C5     | 6:C2:1674:C:C5     | 3.07                     | 0.42              |
| 13:LE:74:VAL:HG23  | 13:LE:74:VAL:O     | 2.19                     | 0.42              |
| 23:LP:84:PRO:HB2   | 23:LP:87:SER:OG    | 2.19                     | 0.42              |
| 50:SB:103:MET:HB3  | 50:SB:215:VAL:HG12 | 2.00                     | 0.42              |
| 51:SC:86:VAL:HG23  | 51:SC:97:ARG:HG2   | 2.00                     | 0.42              |
| 55:SG:41:VAL:O     | 55:SG:41:VAL:HG22  | 2.18                     | 0.42              |
| 63:SP:18:ARG:O     | 66:SS:95:GLY:HA3   | 2.19                     | 0.42              |
| 76:Sc:42:ARG:HA    | 76:Sc:63:ALA:HB2   | 2.01                     | 0.42              |
| 2:6:71:G:C6        | 2:6:72:C:C4        | 3.07                     | 0.42              |
| 2:6:75:C:H2'       | 2:6:76:A:C4        | 2.53                     | 0.42              |
| 5:C1:2144:A:C4     | 5:C1:2281:A:N6     | 2.87                     | 0.42              |
| 5:C1:2423:U:H2'    | 5:C1:2424:A:C8     | 2.54                     | 0.42              |
| 5:C1:3174:A:H2'    | 5:C1:3175:U:C5'    | 2.49                     | 0.42              |
| 6:C2:153:G:N3      | 6:C2:162:A:C2      | 2.87                     | 0.42              |
| 6:C2:269:G:H3'     | 6:C2:270:C:C5'     | 2.48                     | 0.42              |
| 7:C3:104:A:H3'     | 7:C3:105:A:H5''    | 2.01                     | 0.42              |
| 8:C4:52:G:HO2'     | 8:C4:53:U:P        | 2.43                     | 0.42              |
| 12:LD:50:ARG:O     | 12:LD:64:ILE:HA    | 2.19                     | 0.42              |
| 62:SO:20:TYR:C     | 62:SO:20:TYR:CD1   | 2.97                     | 0.42              |
| 5:C1:880:G:O6      | 5:C1:883:A:H5'     | 2.20                     | 0.42              |
| 5:C1:900:G:H1'     | 5:C1:1589:A:H62    | 1.84                     | 0.42              |
| 6:C2:63:G:H5''     | 6:C2:269:G:P       | 2.59                     | 0.42              |
| 6:C2:288:A:O3'     | 6:C2:290:G:OP2     | 2.37                     | 0.42              |
| 6:C2:820:U:H3'     | 6:C2:821:U:H5''    | 2.01                     | 0.42              |
| 6:C2:1338:C:O2'    | 6:C2:1339:C:H5'    | 2.19                     | 0.42              |
| 6:C2:1609:U:H2'    | 6:C2:1610:G:O5'    | 2.19                     | 0.42              |
| 13:LE:43:LEU:HD11  | 13:LE:85:ILE:HG13  | 2.01                     | 0.42              |
| 14:LF:122:ALA:O    | 14:LF:126:LEU:HD13 | 2.19                     | 0.42              |
| 29:LV:13:ILE:HG13  | 29:LV:53:SER:OG    | 2.19                     | 0.42              |
| 29:LV:15:LEU:HD13  | 29:LV:51:ALA:HB3   | 2.00                     | 0.42              |
| 40:Lg:16:ARG:HG3   | 40:Lg:16:ARG:HH11  | 1.84                     | 0.42              |
| 64:SQ:53:LEU:HD12  | 64:SQ:53:LEU:N     | 2.34                     | 0.42              |
| 65:SR:110:VAL:HG21 | 65:SR:119:LEU:HD11 | 2.01                     | 0.42              |
| 5:C1:3121:U:C2     | 5:C1:3122:A:N7     | 2.88                     | 0.42              |
| 6:C2:825:U:H2'     | 6:C2:826:U:C6      | 2.55                     | 0.42              |
| 6:C2:1215:C:N3     | 6:C2:1216:C:C4     | 2.88                     | 0.42              |
| 6:C2:1252:C:H2'    | 6:C2:1253:U:O4'    | 2.19                     | 0.42              |
| 6:C2:1391:A:C5     | 6:C2:1392:U:C5     | 3.07                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 6:C2:1590:G:OP1    | 67:ST:91:TYR:HB2   | 2.19                     | 0.42              |
| 12:LD:235:SER:O    | 12:LD:238:ASP:OD1  | 2.37                     | 0.42              |
| 33:LZ:53:VAL:HG21  | 33:LZ:62:VAL:HG22  | 2.01                     | 0.42              |
| 47:Lo:21:THR:HG22  | 47:Lo:22:GLN:N     | 2.34                     | 0.42              |
| 47:Lo:35:LEU:H     | 47:Lo:35:LEU:HD12  | 1.84                     | 0.42              |
| 49:SA:103:THR:HG23 | 49:SA:103:THR:O    | 2.18                     | 0.42              |
| 50:SB:131:ASP:OD1  | 50:SB:131:ASP:C    | 2.62                     | 0.42              |
| 50:SB:215:VAL:O    | 50:SB:215:VAL:HG13 | 2.20                     | 0.42              |
| 52:SD:109:LEU:HB3  | 52:SD:177:MET:HE1  | 2.00                     | 0.42              |
| 53:SE:23:LEU:HD21  | 58:SJ:6:ARG:NH1    | 2.34                     | 0.42              |
| 53:SE:86:PHE:CD1   | 53:SE:86:PHE:O     | 2.72                     | 0.42              |
| 53:SE:141:THR:HG22 | 53:SE:142:HIS:H    | 1.83                     | 0.42              |
| 63:SP:36:LEU:O     | 63:SP:36:LEU:HD12  | 2.18                     | 0.42              |
| 65:SR:14:LYS:O     | 65:SR:18:GLU:HG2   | 2.19                     | 0.42              |
| 79:Sg:143:THR:O    | 79:Sg:145:LEU:HD12 | 2.19                     | 0.42              |
| 5:C1:535:G:C4      | 5:C1:554:A:N6      | 2.87                     | 0.42              |
| 5:C1:1000:C:C2     | 5:C1:1045:C:N4     | 2.87                     | 0.42              |
| 5:C1:1176:C:H2'    | 5:C1:1177:G:N2     | 2.34                     | 0.42              |
| 5:C1:2655:U:H4'    | 5:C1:2656:A:O4'    | 2.19                     | 0.42              |
| 5:C1:2664:C:C2'    | 5:C1:2665:U:O5'    | 2.68                     | 0.42              |
| 6:C2:1021:C:C4     | 6:C2:1022:C:C5     | 3.07                     | 0.42              |
| 6:C2:1046:G:C6     | 6:C2:1073:G:C6     | 3.08                     | 0.42              |
| 6:C2:1216:C:C5     | 6:C2:1444:A:C2     | 3.07                     | 0.42              |
| 12:LD:116:ASP:OD1  | 12:LD:116:ASP:C    | 2.62                     | 0.42              |
| 14:LF:120:THR:O    | 14:LF:124:LEU:HD23 | 2.19                     | 0.42              |
| 16:LH:118:LEU:HD21 | 16:LH:177:ASP:OD2  | 2.19                     | 0.42              |
| 21:LN:196:THR:O    | 21:LN:196:THR:HG23 | 2.19                     | 0.42              |
| 50:SB:144:ARG:HG3  | 50:SB:144:ARG:HH11 | 1.85                     | 0.42              |
| 61:SN:101:HIS:NE2  | 61:SN:105:ASN:OD1  | 2.53                     | 0.42              |
| 5:C1:1009:A:H2'    | 5:C1:1010:G:O4'    | 2.19                     | 0.42              |
| 5:C1:3269:U:O2     | 5:C1:3269:U:O5'    | 2.37                     | 0.42              |
| 6:C2:328:A:H2'     | 6:C2:329:G:O4'     | 2.19                     | 0.42              |
| 6:C2:555:A:H8      | 6:C2:591:A:H5'     | 1.85                     | 0.42              |
| 6:C2:600:U:H2'     | 6:C2:601:A:O4'     | 2.19                     | 0.42              |
| 6:C2:1138:A:OP1    | 6:C2:1138:A:H4'    | 2.19                     | 0.42              |
| 6:C2:1182:U:O2     | 6:C2:1182:U:O4'    | 2.38                     | 0.42              |
| 6:C2:1305:U:H4'    | 6:C2:1306:C:OP2    | 2.20                     | 0.42              |
| 10:LB:256:HIS:HA   | 10:LB:258:ALA:N    | 2.35                     | 0.42              |
| 10:LB:261:MET:HE2  | 22:LO:64:PHE:HA    | 2.01                     | 0.42              |
| 15:LG:160:ILE:O    | 15:LG:164:VAL:HG13 | 2.18                     | 0.42              |
| 28:LU:59:ASP:O     | 28:LU:59:ASP:CG    | 2.63                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 60:SL:49:ILE:HG22  | 60:SL:50:GLU:OE2   | 2.20                     | 0.42              |
| 64:SQ:63:ILE:HG22  | 64:SQ:64:ASP:N     | 2.35                     | 0.42              |
| 64:SQ:122:ARG:O    | 64:SQ:123:ARG:HD2  | 2.19                     | 0.42              |
| 2:6:44:A:H2'       | 2:6:45:G:O4'       | 2.20                     | 0.42              |
| 5:C1:75:G:H5'      | 19:LL:58:VAL:CG1   | 2.50                     | 0.42              |
| 5:C1:714:G:N1      | 34:La:72:VAL:HG11  | 2.35                     | 0.42              |
| 5:C1:1711:C:C2'    | 5:C1:1712:G:O5'    | 2.68                     | 0.42              |
| 6:C2:1031:U:H4'    | 6:C2:1032:G:OP2    | 2.19                     | 0.42              |
| 6:C2:1525:A:H1'    | 6:C2:1589:C:O2'    | 2.19                     | 0.42              |
| 6:C2:1679:G:H2'    | 6:C2:1680:G:O4'    | 2.20                     | 0.42              |
| 8:C4:52:G:O2'      | 8:C4:53:U:P        | 2.77                     | 0.42              |
| 11:LC:187:LEU:HD22 | 11:LC:193:LYS:HD3  | 2.01                     | 0.42              |
| 11:LC:282:SER:HG   | 24:LQ:125:ASP:CG   | 2.26                     | 0.42              |
| 50:SB:180:THR:HG22 | 50:SB:183:GLN:CG   | 2.50                     | 0.42              |
| 56:SH:153:LEU:N    | 56:SH:153:LEU:HD12 | 2.33                     | 0.42              |
| 79:Sg:195:HIS:NE2  | 79:Sg:221:MET:HG3  | 2.34                     | 0.42              |
| 5:C1:595:G:H1      | 5:C1:609:G:H5''    | 1.85                     | 0.42              |
| 5:C1:1500:G:H2'    | 5:C1:1501:U:O4'    | 2.20                     | 0.42              |
| 5:C1:2689:A:H2'    | 5:C1:2689:A:N3     | 2.34                     | 0.42              |
| 5:C1:3329:U:H5''   | 10:LB:308:MET:HE2  | 2.02                     | 0.42              |
| 6:C2:610:G:H21     | 71:SX:19:ARG:NH1   | 2.18                     | 0.42              |
| 6:C2:829:A:H2'     | 6:C2:830:U:C5      | 2.55                     | 0.42              |
| 26:LS:152:LEU:HD12 | 26:LS:172:TYR:CE2  | 2.55                     | 0.42              |
| 31:LX:50:ALA:HB2   | 41:Lh:80:LEU:HD13  | 2.02                     | 0.42              |
| 49:SA:41:ARG:CG    | 49:SA:42:PRO:HD2   | 2.50                     | 0.42              |
| 49:SA:62:ARG:NH1   | 69:SV:39:VAL:HG13  | 2.34                     | 0.42              |
| 49:SA:121:VAL:HG22 | 49:SA:142:PRO:O    | 2.19                     | 0.42              |
| 60:SL:123:VAL:CG2  | 60:SL:139:VAL:HG13 | 2.50                     | 0.42              |
| 68:SU:24:ILE:O     | 68:SU:90:TYR:HA    | 2.20                     | 0.42              |
| 68:SU:26:LEU:HD12  | 68:SU:26:LEU:N     | 2.34                     | 0.42              |
| 5:C1:2148:U:H2'    | 5:C1:2149:A:C8     | 2.55                     | 0.42              |
| 5:C1:2727:A:C2     | 34:La:43:ILE:HG23  | 2.55                     | 0.42              |
| 5:C1:3305:A:H2'    | 5:C1:3306:U:O4'    | 2.20                     | 0.42              |
| 6:C2:73:U:C2       | 6:C2:75:U:O4       | 2.72                     | 0.42              |
| 6:C2:590:C:H2'     | 6:C2:591:A:C8      | 2.55                     | 0.42              |
| 30:LW:48:ARG:HG3   | 30:LW:48:ARG:NH1   | 2.35                     | 0.42              |
| 31:LX:69:SER:O     | 31:LX:73:MET:HG2   | 2.20                     | 0.42              |
| 46:Ln:1:MET:O      | 46:Ln:2:ARG:C      | 2.63                     | 0.42              |
| 55:SG:157:VAL:HG21 | 55:SG:175:ILE:HD11 | 2.02                     | 0.42              |
| 5:C1:150:A:C4      | 5:C1:151:A:C8      | 3.08                     | 0.41              |
| 5:C1:585:A:H2'     | 5:C1:586:C:C6      | 2.55                     | 0.41              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 5:C1:1308:A:OP2   | 5:C1:1308:A:C8     | 2.73                     | 0.41              |
| 6:C2:140:A:OP2    | 6:C2:140:A:H4'     | 2.20                     | 0.41              |
| 6:C2:898:A:H5'    | 62:SO:46:MET:HE1   | 2.01                     | 0.41              |
| 6:C2:1160:A:H2'   | 6:C2:1161:C:O4'    | 2.19                     | 0.41              |
| 9:LA:117:GLU:O    | 9:LA:162:ALA:HB1   | 2.20                     | 0.41              |
| 33:LZ:88:ASP:OD1  | 33:LZ:90:GLU:HG2   | 2.20                     | 0.41              |
| 50:SB:103:MET:HE2 | 50:SB:214:LYS:HA   | 2.02                     | 0.41              |
| 51:SC:45:VAL:HG21 | 51:SC:68:ILE:HG23  | 2.02                     | 0.41              |
| 52:SD:132:LYS:HE2 | 52:SD:192:PRO:HD2  | 2.02                     | 0.41              |
| 58:SJ:106:GLU:O   | 58:SJ:106:GLU:CD   | 2.62                     | 0.41              |
| 62:SO:29:HIS:O    | 62:SO:29:HIS:CD2   | 2.73                     | 0.41              |
| 72:SY:75:VAL:O    | 72:SY:75:VAL:HG13  | 2.20                     | 0.41              |
| 5:C1:217:U:C2'    | 5:C1:218:G:OP1     | 2.68                     | 0.41              |
| 5:C1:662:U:H2'    | 5:C1:663:C:C6      | 2.55                     | 0.41              |
| 5:C1:2357:A:H2'   | 5:C1:2358:A:H8     | 1.84                     | 0.41              |
| 6:C2:755:A:O2'    | 6:C2:756:A:P       | 2.78                     | 0.41              |
| 11:LC:7:THR:HG22  | 11:LC:8:VAL:N      | 2.36                     | 0.41              |
| 12:LD:222:LEU:O   | 12:LD:223:PHE:HB2  | 2.20                     | 0.41              |
| 18:LJ:132:ASN:OD1 | 18:LJ:132:ASN:C    | 2.63                     | 0.41              |
| 44:Lk:44:LYS:HA   | 44:Lk:52:TYR:O     | 2.20                     | 0.41              |
| 64:SQ:97:VAL:HG12 | 64:SQ:98:ASP:N     | 2.35                     | 0.41              |
| 66:SS:52:VAL:O    | 66:SS:54:LEU:HD12  | 2.21                     | 0.41              |
| 68:SU:65:ILE:HG23 | 77:Sd:31:ILE:CD1   | 2.50                     | 0.41              |
| 75:Sb:37:CYS:SG   | 75:Sb:40:CYS:HB3   | 2.60                     | 0.41              |
| 4:B:77:MET:HE3    | 4:B:77:MET:CA      | 2.50                     | 0.41              |
| 5:C1:164:A:N1     | 5:C1:258:G:C6      | 2.89                     | 0.41              |
| 5:C1:1097:G:H1'   | 5:C1:1098:A:OP2    | 2.19                     | 0.41              |
| 5:C1:1551:C:H2'   | 5:C1:1552:G:O4'    | 2.20                     | 0.41              |
| 5:C1:2149:A:H4'   | 9:LA:179:LEU:O     | 2.20                     | 0.41              |
| 5:C1:3280:U:HO2'  | 5:C1:3281:U:P      | 2.43                     | 0.41              |
| 6:C2:828:U:H2'    | 6:C2:829:A:O4'     | 2.20                     | 0.41              |
| 6:C2:832:U:H3'    | 6:C2:833:U:H5''    | 2.02                     | 0.41              |
| 6:C2:1147:A:OP1   | 51:SC:91:ARG:HG2   | 2.19                     | 0.41              |
| 7:C3:26:U:O2'     | 11:LC:51:ALA:O     | 2.39                     | 0.41              |
| 32:LY:105:VAL:O   | 32:LY:105:VAL:CG1  | 2.68                     | 0.41              |
| 55:SG:78:THR:HG22 | 55:SG:79:LYS:H     | 1.86                     | 0.41              |
| 55:SG:132:ARG:C   | 55:SG:133:LEU:HD12 | 2.45                     | 0.41              |
| 58:SJ:80:LEU:HD22 | 58:SJ:85:VAL:HG11  | 2.02                     | 0.41              |
| 75:Sb:23:THR:HG22 | 75:Sb:24:LEU:N     | 2.36                     | 0.41              |
| 2:6:48:C:C4       | 2:6:59:A:C8        | 3.08                     | 0.41              |
| 5:C1:178:U:C2     | 5:C1:179:C:C5      | 3.08                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 5:C1:3228:C:H4'    | 5:C1:3229:G:O5'    | 2.20                     | 0.41              |
| 5:C1:3379:C:H4'    | 10:LB:315:GLY:HA2  | 2.01                     | 0.41              |
| 6:C2:566:C:O2'     | 78:Se:10:ARG:HD2   | 2.20                     | 0.41              |
| 6:C2:610:G:H21     | 71:SX:19:ARG:NH2   | 2.18                     | 0.41              |
| 6:C2:825:U:H2'     | 6:C2:826:U:O4'     | 2.21                     | 0.41              |
| 6:C2:901:G:C6      | 6:C2:902:G:C6      | 3.08                     | 0.41              |
| 11:LC:302:ALA:HB2  | 24:LQ:39:ARG:NH2   | 2.36                     | 0.41              |
| 21:LN:174:ILE:O    | 21:LN:175:ASN:OD1  | 2.37                     | 0.41              |
| 31:LX:133:LEU:HD11 | 31:LX:142:ILE:HG21 | 2.02                     | 0.41              |
| 67:ST:113:ILE:HD13 | 67:ST:113:ILE:N    | 2.36                     | 0.41              |
| 2:6:68:G:C2        | 2:6:69:G:C8        | 3.08                     | 0.41              |
| 5:C1:176:G:C4      | 5:C1:177:U:C6      | 3.08                     | 0.41              |
| 5:C1:359:U:C2'     | 5:C1:360:G:O5'     | 2.69                     | 0.41              |
| 5:C1:1742:U:H2'    | 5:C1:1743:G:O4'    | 2.21                     | 0.41              |
| 6:C2:259:U:O2'     | 6:C2:260:U:H5      | 2.03                     | 0.41              |
| 6:C2:850:A:OP1     | 25:LR:165:LYS:HD3  | 2.20                     | 0.41              |
| 6:C2:931:C:O2'     | 50:SB:118:GLN:O    | 2.36                     | 0.41              |
| 6:C2:1410:A:H2'    | 6:C2:1411:A:O4'    | 2.20                     | 0.41              |
| 8:C4:27:A:H2'      | 8:C4:28:C:C6       | 2.54                     | 0.41              |
| 12:LD:116:ASP:OD1  | 12:LD:117:GLU:N    | 2.53                     | 0.41              |
| 13:LE:60:ASP:O     | 13:LE:61:ASN:HB2   | 2.21                     | 0.41              |
| 34:La:97:GLU:OE1   | 34:La:97:GLU:N     | 2.54                     | 0.41              |
| 49:SA:198:MET:HE3  | 65:SR:85:VAL:CG2   | 2.50                     | 0.41              |
| 54:SF:131:GLN:OE1  | 54:SF:131:GLN:CA   | 2.68                     | 0.41              |
| 59:SK:6:GLU:HG2    | 59:SK:7:ASP:N      | 2.35                     | 0.41              |
| 60:SL:16:GLN:NE2   | 60:SL:61:THR:HG22  | 2.35                     | 0.41              |
| 72:SY:127:LYS:HB3  | 72:SY:127:LYS:NZ   | 2.35                     | 0.41              |
| 3:A:550:VAL:HG13   | 3:A:578:LEU:HD11   | 2.02                     | 0.41              |
| 5:C1:1646:G:N3     | 5:C1:1808:G:C2     | 2.88                     | 0.41              |
| 5:C1:1891:A:O2'    | 5:C1:1892:G:H5'    | 2.20                     | 0.41              |
| 6:C2:256:A:H2'     | 6:C2:257:A:O4'     | 2.20                     | 0.41              |
| 6:C2:288:A:C3'     | 6:C2:290:G:OP2     | 2.69                     | 0.41              |
| 6:C2:521:A:H2'     | 6:C2:522:U:C6      | 2.55                     | 0.41              |
| 6:C2:820:U:C6      | 6:C2:821:U:H5''    | 2.56                     | 0.41              |
| 6:C2:1317:C:H2'    | 6:C2:1318:G:O4'    | 2.20                     | 0.41              |
| 6:C2:1456:C:OP1    | 6:C2:1457:C:H2'    | 2.21                     | 0.41              |
| 6:C2:1458:G:H5''   | 6:C2:1459:C:OP2    | 2.21                     | 0.41              |
| 7:C3:86:U:H5'      | 7:C3:87:G:OP1      | 2.21                     | 0.41              |
| 8:C4:25:G:C2'      | 8:C4:26:C:O5'      | 2.69                     | 0.41              |
| 25:LR:15:VAL:O     | 25:LR:15:VAL:HG12  | 2.19                     | 0.41              |
| 31:LX:83:VAL:HG22  | 31:LX:123:TYR:HD1  | 1.86                     | 0.41              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 32:LY:118:LEU:O   | 32:LY:122:LYS:HG3 | 2.20                     | 0.41              |
| 35:Lb:21:ILE:O    | 35:Lb:21:ILE:HG22 | 2.19                     | 0.41              |
| 39:Lf:93:THR:O    | 39:Lf:93:THR:CG2  | 2.68                     | 0.41              |
| 52:SD:106:LYS:HE2 | 52:SD:174:HIS:O   | 2.20                     | 0.41              |
| 65:SR:24:LEU:HB2  | 65:SR:58:MET:HE2  | 2.02                     | 0.41              |
| 75:Sb:37:CYS:HB3  | 75:Sb:63:LEU:HD21 | 2.03                     | 0.41              |
| 5:C1:63:A:N3      | 5:C1:78:U:O2'     | 2.48                     | 0.41              |
| 5:C1:507:U:H2'    | 5:C1:508:U:C6     | 2.56                     | 0.41              |
| 5:C1:826:G:C5     | 5:C1:900:G:O6     | 2.74                     | 0.41              |
| 5:C1:1532:C:H2'   | 5:C1:1533:U:C6    | 2.56                     | 0.41              |
| 5:C1:2553:U:C5    | 40:Lg:95:ILE:HG22 | 2.55                     | 0.41              |
| 5:C1:2786:G:C6    | 5:C1:2787:G:N7    | 2.89                     | 0.41              |
| 5:C1:3163:A:N6    | 5:C1:3288:G:O6    | 2.53                     | 0.41              |
| 6:C2:213:A:H2'    | 6:C2:214:G:C5'    | 2.50                     | 0.41              |
| 6:C2:1211:A:C6    | 6:C2:1453:G:N1    | 2.89                     | 0.41              |
| 76:Sc:44:VAL:HG12 | 76:Sc:45:LYS:N    | 2.36                     | 0.41              |
| 2:6:41:U:H3'      | 2:6:42:G:H5''     | 2.03                     | 0.41              |
| 2:6:58:A:C6       | 2:6:61:C:C6       | 3.08                     | 0.41              |
| 5:C1:1470:U:C2    | 5:C1:1471:U:C5    | 3.09                     | 0.41              |
| 5:C1:1532:C:H2'   | 5:C1:1533:U:O4'   | 2.20                     | 0.41              |
| 5:C1:1767:C:H2'   | 5:C1:1768:U:O4'   | 2.21                     | 0.41              |
| 5:C1:1809:A:H2'   | 5:C1:1810:A:O4'   | 2.21                     | 0.41              |
| 6:C2:1051:G:H3'   | 6:C2:1052:U:C5'   | 2.50                     | 0.41              |
| 6:C2:1592:A:C4    | 6:C2:1593:A:C8    | 3.08                     | 0.41              |
| 6:C2:1762:A:O2'   | 6:C2:1783:C:H5'   | 2.21                     | 0.41              |
| 29:LV:109:MET:HE2 | 29:LV:132:ASN:OD1 | 2.21                     | 0.41              |
| 44:Lk:11:PHE:O    | 44:Lk:15:THR:HG23 | 2.20                     | 0.41              |
| 62:SO:42:VAL:CG1  | 62:SO:67:VAL:HG13 | 2.48                     | 0.41              |
| 66:SS:4:VAL:HG22  | 73:SZ:82:HIS:HD1  | 1.84                     | 0.41              |
| 67:ST:18:TYR:CZ   | 67:ST:22:LEU:HD11 | 2.56                     | 0.41              |
| 5:C1:12:A:H2'     | 5:C1:13:A:C8      | 2.56                     | 0.41              |
| 5:C1:3007:U:OP1   | 22:LO:73:PHE:HA   | 2.21                     | 0.41              |
| 5:C1:3187:A:H2    | 5:C1:3205:G:H22   | 1.69                     | 0.41              |
| 6:C2:63:G:H5'     | 6:C2:269:G:OP1    | 2.20                     | 0.41              |
| 6:C2:300:A:O2'    | 6:C2:301:A:H5'    | 2.21                     | 0.41              |
| 6:C2:458:G:OP1    | 72:SY:109:LYS:NZ  | 2.54                     | 0.41              |
| 6:C2:479:C:O3'    | 58:SJ:120:LYS:HE2 | 2.21                     | 0.41              |
| 6:C2:605:A:C8     | 6:C2:606:A:H2'    | 2.56                     | 0.41              |
| 6:C2:1083:G:O2'   | 6:C2:1084:A:H5'   | 2.21                     | 0.41              |
| 6:C2:1108:G:H2'   | 71:SX:25:ALA:HB1  | 2.01                     | 0.41              |
| 8:C4:52:G:C2'     | 8:C4:53:U:O5'     | 2.69                     | 0.41              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 14:LF:229:PHE:CD1 | 14:LF:229:PHE:C    | 2.99                     | 0.41              |
| 17:LI:76:MET:O    | 17:LI:80:SER:HB3   | 2.20                     | 0.41              |
| 18:LJ:91:LEU:HD13 | 18:LJ:163:PHE:HZ   | 1.86                     | 0.41              |
| 19:LL:126:PHE:CD1 | 19:LL:126:PHE:N    | 2.88                     | 0.41              |
| 20:LM:64:VAL:O    | 20:LM:64:VAL:HG13  | 2.21                     | 0.41              |
| 21:LN:107:GLY:HA3 | 21:LN:160:GLU:OE2  | 2.21                     | 0.41              |
| 22:LO:61:ALA:HA   | 22:LO:70:PRO:HD2   | 2.03                     | 0.41              |
| 29:LV:32:ARG:HG2  | 29:LV:64:LYS:O     | 2.21                     | 0.41              |
| 29:LV:45:ARG:HD2  | 29:LV:46:LEU:H     | 1.85                     | 0.41              |
| 49:SA:64:ILE:HG21 | 49:SA:181:VAL:HG21 | 2.03                     | 0.41              |
| 49:SA:198:MET:SD  | 65:SR:89:SER:HB3   | 2.61                     | 0.41              |
| 52:SD:68:GLU:CD   | 52:SD:68:GLU:C     | 2.88                     | 0.41              |
| 57:SI:76:THR:CG2  | 57:SI:77:ARG:N     | 2.84                     | 0.41              |
| 61:SN:26:PHE:CZ   | 61:SN:28:LEU:HD21  | 2.56                     | 0.41              |
| 64:SQ:20:ALA:HB2  | 64:SQ:84:ALA:HB1   | 2.03                     | 0.41              |
| 64:SQ:132:LYS:O   | 64:SQ:132:LYS:HG2  | 2.21                     | 0.41              |
| 73:SZ:42:LEU:H    | 73:SZ:42:LEU:HD23  | 1.86                     | 0.41              |
| 74:Sa:26:CYS:SG   | 74:Sa:77:CYS:SG    | 3.18                     | 0.41              |
| 5:C1:59:G:H4'     | 5:C1:60:A:OP1      | 2.21                     | 0.41              |
| 5:C1:2138:A:C5    | 43:Lj:3:LYS:HG2    | 2.55                     | 0.41              |
| 5:C1:2255:A:C8    | 5:C1:2261:G:N2     | 2.89                     | 0.41              |
| 6:C2:152:U:H2'    | 6:C2:153:G:O4'     | 2.20                     | 0.41              |
| 6:C2:961:U:C2     | 6:C2:962:C:C5      | 3.09                     | 0.41              |
| 6:C2:1614:A:H2'   | 6:C2:1615:C:H5'    | 2.03                     | 0.41              |
| 20:LM:55:ARG:HE   | 26:LS:70:THR:HB    | 1.86                     | 0.41              |
| 28:LU:19:VAL:HG23 | 28:LU:105:LEU:HD12 | 2.03                     | 0.41              |
| 49:SA:22:THR:O    | 49:SA:22:THR:CG2   | 2.68                     | 0.41              |
| 49:SA:74:VAL:HG23 | 49:SA:118:PRO:HB3  | 2.03                     | 0.41              |
| 51:SC:153:SER:OG  | 51:SC:154:LEU:N    | 2.53                     | 0.41              |
| 63:SP:57:MET:HE2  | 63:SP:57:MET:HA    | 2.01                     | 0.41              |
| 5:C1:776:U:O2     | 5:C1:2737:C:O2     | 2.39                     | 0.40              |
| 5:C1:943:U:C5     | 34:La:12:ARG:NH1   | 2.88                     | 0.40              |
| 5:C1:1002:A:N1    | 5:C1:1051:U:C6     | 2.88                     | 0.40              |
| 5:C1:1640:G:O2'   | 5:C1:1641:U:H5'    | 2.21                     | 0.40              |
| 5:C1:2960:C:H2'   | 5:C1:2961:G:C8     | 2.56                     | 0.40              |
| 5:C1:3351:U:H4'   | 5:C1:3352:U:OP2    | 2.21                     | 0.40              |
| 6:C2:63:G:H5''    | 6:C2:269:G:OP1     | 2.21                     | 0.40              |
| 6:C2:1320:U:O2'   | 6:C2:1322:A:OP1    | 2.37                     | 0.40              |
| 6:C2:1341:A:C2    | 6:C2:1342:C:C6     | 3.09                     | 0.40              |
| 12:LD:212:ALA:HA  | 12:LD:219:PHE:CD2  | 2.56                     | 0.40              |
| 19:LL:92:THR:HB   | 41:Lh:114:ARG:HG2  | 2.02                     | 0.40              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 21:LN:180:PHE:O    | 21:LN:184:LYS:HG3  | 2.21                     | 0.40              |
| 25:LR:6:THR:HG23   | 25:LR:7:GLN:OE1    | 2.21                     | 0.40              |
| 39:Lf:59:VAL:CG1   | 39:Lf:60:ARG:N     | 2.84                     | 0.40              |
| 41:Lh:53:CYS:O     | 41:Lh:56:THR:HG22  | 2.20                     | 0.40              |
| 50:SB:125:VAL:HG11 | 50:SB:173:THR:HG23 | 2.03                     | 0.40              |
| 50:SB:131:ASP:OD2  | 50:SB:180:THR:OG1  | 2.38                     | 0.40              |
| 53:SE:86:PHE:O     | 53:SE:101:LEU:O    | 2.39                     | 0.40              |
| 58:SJ:57:ARG:HH11  | 58:SJ:57:ARG:HG3   | 1.85                     | 0.40              |
| 70:SW:102:VAL:O    | 70:SW:102:VAL:HG13 | 2.21                     | 0.40              |
| 72:SY:52:LYS:O     | 72:SY:55:VAL:HG12  | 2.21                     | 0.40              |
| 5:C1:155:G:C2      | 5:C1:266:A:C6      | 3.09                     | 0.40              |
| 5:C1:1190:A:H5'    | 5:C1:1191:U:OP1    | 2.21                     | 0.40              |
| 5:C1:3298:C:C4     | 5:C1:3299:A:N7     | 2.89                     | 0.40              |
| 6:C2:534:A:N3      | 6:C2:534:A:H2'     | 2.36                     | 0.40              |
| 6:C2:919:A:H2'     | 6:C2:920:U:C6      | 2.56                     | 0.40              |
| 6:C2:1450:U:H2'    | 6:C2:1451:C:H6     | 1.85                     | 0.40              |
| 27:LT:141:VAL:HG23 | 27:LT:141:VAL:O    | 2.22                     | 0.40              |
| 28:LU:19:VAL:HG23  | 28:LU:105:LEU:CD1  | 2.51                     | 0.40              |
| 34:La:22:ILE:H     | 34:La:22:ILE:CD1   | 2.33                     | 0.40              |
| 49:SA:206:ASP:N    | 49:SA:207:PRO:CD   | 2.84                     | 0.40              |
| 50:SB:201:THR:O    | 50:SB:201:THR:HG22 | 2.20                     | 0.40              |
| 53:SE:131:LEU:HD22 | 53:SE:135:GLY:HA2  | 2.02                     | 0.40              |
| 54:SF:131:GLN:OE1  | 54:SF:131:GLN:HA   | 2.20                     | 0.40              |
| 64:SQ:7:VAL:HG21   | 64:SQ:92:TYR:HA    | 2.03                     | 0.40              |
| 68:SU:63:LEU:N     | 68:SU:63:LEU:HD12  | 2.35                     | 0.40              |
| 79:Sg:74:THR:HG21  | 79:Sg:79:TYR:HB2   | 2.02                     | 0.40              |
| 5:C1:1103:A:O2'    | 5:C1:1104:G:H5'    | 2.22                     | 0.40              |
| 5:C1:2885:C:O2'    | 5:C1:2886:U:H5'    | 2.20                     | 0.40              |
| 5:C1:3350:C:HO2'   | 5:C1:3351:U:P      | 2.44                     | 0.40              |
| 6:C2:103:A:H4'     | 6:C2:105:A:C8      | 2.57                     | 0.40              |
| 6:C2:260:U:O2      | 57:SI:41:LYS:HD3   | 2.21                     | 0.40              |
| 6:C2:584:C:O2      | 78:Se:18:THR:HG21  | 2.21                     | 0.40              |
| 6:C2:1176:G:C6     | 6:C2:1464:G:O6     | 2.74                     | 0.40              |
| 6:C2:1504:G:H2'    | 6:C2:1505:A:O4'    | 2.21                     | 0.40              |
| 8:C4:3:U:H4'       | 8:C4:25:G:N2       | 2.36                     | 0.40              |
| 10:LB:57:VAL:CG1   | 10:LB:358:TRP:HB3  | 2.51                     | 0.40              |
| 24:LQ:20:LYS:O     | 24:LQ:20:LYS:HG3   | 2.19                     | 0.40              |
| 59:SK:11:ILE:HD12  | 59:SK:42:VAL:HG22  | 2.04                     | 0.40              |
| 62:SO:61:MET:SD    | 76:Sc:60:GLU:HG3   | 2.62                     | 0.40              |
| 66:SS:126:ARG:HD3  | 66:SS:131:LEU:HB2  | 2.03                     | 0.40              |
| 5:C1:242:C:O2      | 5:C1:243:G:C8      | 2.75                     | 0.40              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 5:C1:1525:G:H2'   | 5:C1:1525:G:N3     | 2.35                     | 0.40              |
| 5:C1:2112:U:C4'   | 5:C1:2113:A:OP2    | 2.69                     | 0.40              |
| 5:C1:2530:G:C6    | 5:C1:2531:C:C5     | 3.09                     | 0.40              |
| 5:C1:2882:U:H2'   | 5:C1:2883:U:O4'    | 2.21                     | 0.40              |
| 5:C1:3299:A:C5    | 5:C1:3300:U:C5     | 3.09                     | 0.40              |
| 6:C2:261:U:O2'    | 6:C2:262:U:O5'     | 2.39                     | 0.40              |
| 6:C2:640:U:O2'    | 6:C2:641:G:OP1     | 2.39                     | 0.40              |
| 6:C2:690:G:H2'    | 6:C2:691:C:C6      | 2.57                     | 0.40              |
| 11:LC:310:THR:O   | 11:LC:310:THR:CG2  | 2.70                     | 0.40              |
| 28:LU:20:SER:HB3  | 28:LU:61:THR:OG1   | 2.21                     | 0.40              |
| 31:LX:50:ALA:HB2  | 41:Lh:80:LEU:CD1   | 2.51                     | 0.40              |
| 54:SF:53:VAL:CG2  | 54:SF:134:VAL:HG12 | 2.50                     | 0.40              |
| 58:SJ:123:HIS:CE1 | 78:Se:37:ARG:HD3   | 2.56                     | 0.40              |
| 63:SP:52:LYS:N    | 63:SP:53:PRO:HD2   | 2.36                     | 0.40              |
| 5:C1:494:G:C2     | 5:C1:495:G:C8      | 3.09                     | 0.40              |
| 5:C1:655:C:H2'    | 5:C1:656:A:C8      | 2.56                     | 0.40              |
| 5:C1:766:U:H4'    | 5:C1:767:U:O4'     | 2.22                     | 0.40              |
| 5:C1:1088:U:C4    | 5:C1:1089:G:N7     | 2.90                     | 0.40              |
| 5:C1:1495:U:H5    | 5:C1:1835:A:N1     | 2.20                     | 0.40              |
| 5:C1:2832:C:O2'   | 5:C1:2833:A:H5'    | 2.21                     | 0.40              |
| 5:C1:3350:C:O2'   | 5:C1:3351:U:O5'    | 2.39                     | 0.40              |
| 6:C2:54:C:O2'     | 72:SY:109:LYS:HE3  | 2.22                     | 0.40              |
| 6:C2:1178:G:H2'   | 6:C2:1179:G:O4'    | 2.21                     | 0.40              |
| 6:C2:1335:U:O2'   | 6:C2:1336:A:H5'    | 2.21                     | 0.40              |
| 6:C2:1430:U:H4'   | 6:C2:1431:C:OP1    | 2.21                     | 0.40              |
| 6:C2:1651:A:C2    | 6:C2:1652:C:C5     | 3.10                     | 0.40              |
| 7:C3:26:U:H2'     | 7:C3:27:U:H6       | 1.85                     | 0.40              |
| 7:C3:52:A:H62     | 45:LI:27:ILE:HD13  | 1.84                     | 0.40              |
| 17:LI:17:TYR:CD2  | 17:LI:96:VAL:CG2   | 3.05                     | 0.40              |
| 21:LN:58:GLY:HA3  | 21:LN:142:ILE:HD11 | 2.04                     | 0.40              |
| 29:LV:115:THR:O   | 29:LV:115:THR:HG23 | 2.22                     | 0.40              |
| 31:LX:73:MET:SD   | 31:LX:142:ILE:CD1  | 3.10                     | 0.40              |
| 64:SQ:82:ARG:HG3  | 64:SQ:116:LEU:HD23 | 2.03                     | 0.40              |

There are no symmetry-related clashes.

## 5.3 Torsion angles ⓘ

### 5.3.1 Protein backbone ⓘ

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

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

| Mol | Chain | Analysed      | Favoured  | Allowed | Outliers | Percentiles |     |
|-----|-------|---------------|-----------|---------|----------|-------------|-----|
| 3   | A     | 212/613 (35%) | 208 (98%) | 4 (2%)  | 0        | 100         | 100 |
| 4   | B     | 15/78 (19%)   | 10 (67%)  | 4 (27%) | 1 (7%)   | 1           | 5   |
| 9   | LA    | 249/254 (98%) | 231 (93%) | 18 (7%) | 0        | 100         | 100 |
| 10  | LB    | 384/387 (99%) | 361 (94%) | 23 (6%) | 0        | 100         | 100 |
| 11  | LC    | 359/362 (99%) | 341 (95%) | 18 (5%) | 0        | 100         | 100 |
| 12  | LD    | 292/297 (98%) | 278 (95%) | 14 (5%) | 0        | 100         | 100 |
| 13  | LE    | 152/176 (86%) | 145 (95%) | 7 (5%)  | 0        | 100         | 100 |
| 14  | LF    | 220/244 (90%) | 210 (96%) | 9 (4%)  | 1 (0%)   | 25          | 61  |
| 15  | LG    | 227/256 (89%) | 221 (97%) | 6 (3%)  | 0        | 100         | 100 |
| 16  | LH    | 189/191 (99%) | 179 (95%) | 10 (5%) | 0        | 100         | 100 |
| 17  | LI    | 204/221 (92%) | 191 (94%) | 13 (6%) | 0        | 100         | 100 |
| 18  | LJ    | 167/174 (96%) | 163 (98%) | 4 (2%)  | 0        | 100         | 100 |
| 19  | LL    | 191/199 (96%) | 184 (96%) | 6 (3%)  | 1 (0%)   | 25          | 61  |
| 20  | LM    | 134/138 (97%) | 132 (98%) | 2 (2%)  | 0        | 100         | 100 |
| 21  | LN    | 201/204 (98%) | 193 (96%) | 8 (4%)  | 0        | 100         | 100 |
| 22  | LO    | 195/199 (98%) | 188 (96%) | 7 (4%)  | 0        | 100         | 100 |
| 23  | LP    | 181/184 (98%) | 169 (93%) | 12 (7%) | 0        | 100         | 100 |
| 24  | LQ    | 183/186 (98%) | 170 (93%) | 13 (7%) | 0        | 100         | 100 |
| 25  | LR    | 186/189 (98%) | 183 (98%) | 3 (2%)  | 0        | 100         | 100 |
| 26  | LS    | 169/172 (98%) | 159 (94%) | 10 (6%) | 0        | 100         | 100 |
| 27  | LT    | 157/160 (98%) | 153 (98%) | 4 (2%)  | 0        | 100         | 100 |
| 28  | LU    | 98/121 (81%)  | 91 (93%)  | 7 (7%)  | 0        | 100         | 100 |
| 29  | LV    | 134/137 (98%) | 127 (95%) | 7 (5%)  | 0        | 100         | 100 |
| 30  | LW    | 61/155 (39%)  | 57 (93%)  | 4 (7%)  | 0        | 100         | 100 |
| 31  | LX    | 119/142 (84%) | 115 (97%) | 4 (3%)  | 0        | 100         | 100 |

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| Mol | Chain | Analysed      | Favoured  | Allowed  | Outliers | Percentiles |     |
|-----|-------|---------------|-----------|----------|----------|-------------|-----|
| 32  | LY    | 123/127 (97%) | 117 (95%) | 6 (5%)   | 0        | 100         | 100 |
| 33  | LZ    | 133/136 (98%) | 129 (97%) | 4 (3%)   | 0        | 100         | 100 |
| 34  | La    | 146/149 (98%) | 129 (88%) | 17 (12%) | 0        | 100         | 100 |
| 35  | Lb    | 56/59 (95%)   | 54 (96%)  | 2 (4%)   | 0        | 100         | 100 |
| 36  | Lc    | 94/105 (90%)  | 92 (98%)  | 2 (2%)   | 0        | 100         | 100 |
| 37  | Ld    | 106/113 (94%) | 104 (98%) | 2 (2%)   | 0        | 100         | 100 |
| 38  | Le    | 125/130 (96%) | 123 (98%) | 2 (2%)   | 0        | 100         | 100 |
| 39  | Lf    | 104/107 (97%) | 101 (97%) | 3 (3%)   | 0        | 100         | 100 |
| 40  | Lg    | 110/121 (91%) | 108 (98%) | 2 (2%)   | 0        | 100         | 100 |
| 41  | Lh    | 117/120 (98%) | 116 (99%) | 1 (1%)   | 0        | 100         | 100 |
| 42  | Li    | 97/100 (97%)  | 93 (96%)  | 4 (4%)   | 0        | 100         | 100 |
| 43  | Lj    | 83/88 (94%)   | 77 (93%)  | 6 (7%)   | 0        | 100         | 100 |
| 44  | Lk    | 75/78 (96%)   | 73 (97%)  | 2 (3%)   | 0        | 100         | 100 |
| 45  | Ll    | 48/51 (94%)   | 47 (98%)  | 1 (2%)   | 0        | 100         | 100 |
| 46  | Ln    | 23/25 (92%)   | 22 (96%)  | 1 (4%)   | 0        | 100         | 100 |
| 47  | Lo    | 101/106 (95%) | 92 (91%)  | 9 (9%)   | 0        | 100         | 100 |
| 48  | Lp    | 89/92 (97%)   | 79 (89%)  | 10 (11%) | 0        | 100         | 100 |
| 49  | SA    | 204/252 (81%) | 194 (95%) | 10 (5%)  | 0        | 100         | 100 |
| 50  | SB    | 222/255 (87%) | 211 (95%) | 11 (5%)  | 0        | 100         | 100 |
| 51  | SC    | 214/254 (84%) | 209 (98%) | 5 (2%)   | 0        | 100         | 100 |
| 52  | SD    | 220/240 (92%) | 213 (97%) | 7 (3%)   | 0        | 100         | 100 |
| 53  | SE    | 256/261 (98%) | 243 (95%) | 13 (5%)  | 0        | 100         | 100 |
| 54  | SF    | 203/225 (90%) | 198 (98%) | 5 (2%)   | 0        | 100         | 100 |
| 55  | SG    | 226/236 (96%) | 214 (95%) | 12 (5%)  | 0        | 100         | 100 |
| 56  | SH    | 182/190 (96%) | 172 (94%) | 10 (6%)  | 0        | 100         | 100 |
| 57  | SI    | 183/200 (92%) | 177 (97%) | 6 (3%)   | 0        | 100         | 100 |
| 58  | SJ    | 182/197 (92%) | 174 (96%) | 8 (4%)   | 0        | 100         | 100 |
| 59  | SK    | 78/105 (74%)  | 76 (97%)  | 2 (3%)   | 0        | 100         | 100 |
| 60  | SL    | 140/156 (90%) | 135 (96%) | 5 (4%)   | 0        | 100         | 100 |
| 61  | SN    | 148/151 (98%) | 143 (97%) | 5 (3%)   | 0        | 100         | 100 |
| 62  | SO    | 125/137 (91%) | 119 (95%) | 6 (5%)   | 0        | 100         | 100 |

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| Mol | Chain | Analysed          | Favoured    | Allowed  | Outliers | Percentiles |     |
|-----|-------|-------------------|-------------|----------|----------|-------------|-----|
| 63  | SP    | 110/142 (78%)     | 107 (97%)   | 3 (3%)   | 0        | 100         | 100 |
| 64  | SQ    | 139/143 (97%)     | 138 (99%)   | 1 (1%)   | 0        | 100         | 100 |
| 65  | SR    | 117/136 (86%)     | 114 (97%)   | 3 (3%)   | 0        | 100         | 100 |
| 66  | SS    | 143/146 (98%)     | 135 (94%)   | 8 (6%)   | 0        | 100         | 100 |
| 67  | ST    | 141/144 (98%)     | 134 (95%)   | 7 (5%)   | 0        | 100         | 100 |
| 68  | SU    | 98/121 (81%)      | 90 (92%)    | 8 (8%)   | 0        | 100         | 100 |
| 69  | SV    | 85/87 (98%)       | 81 (95%)    | 4 (5%)   | 0        | 100         | 100 |
| 70  | SW    | 127/130 (98%)     | 122 (96%)   | 5 (4%)   | 0        | 100         | 100 |
| 71  | SX    | 142/145 (98%)     | 139 (98%)   | 3 (2%)   | 0        | 100         | 100 |
| 72  | SY    | 131/135 (97%)     | 126 (96%)   | 5 (4%)   | 0        | 100         | 100 |
| 73  | SZ    | 65/108 (60%)      | 64 (98%)    | 1 (2%)   | 0        | 100         | 100 |
| 74  | Sa    | 95/119 (80%)      | 90 (95%)    | 5 (5%)   | 0        | 100         | 100 |
| 75  | Sb    | 79/82 (96%)       | 74 (94%)    | 5 (6%)   | 0        | 100         | 100 |
| 76  | Sc    | 61/67 (91%)       | 57 (93%)    | 4 (7%)   | 0        | 100         | 100 |
| 77  | Sd    | 43/56 (77%)       | 41 (95%)    | 2 (5%)   | 0        | 100         | 100 |
| 78  | Se    | 58/63 (92%)       | 53 (91%)    | 5 (9%)   | 0        | 100         | 100 |
| 79  | Sg    | 310/319 (97%)     | 294 (95%)   | 16 (5%)  | 0        | 100         | 100 |
| All | All   | 10836/12148 (89%) | 10352 (96%) | 481 (4%) | 3 (0%)   | 100         | 100 |

All (3) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 4   | B     | 70  | ALA  |
| 19  | LL    | 61  | PRO  |
| 14  | LF    | 191 | VAL  |

### 5.3.2 Protein sidechains ⓘ

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

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

| Mol | Chain | Analysed       | Rotameric  | Outliers | Percentiles |     |
|-----|-------|----------------|------------|----------|-------------|-----|
| 3   | A     | 75/509 (15%)   | 75 (100%)  | 0        | 100         | 100 |
| 4   | B     | 15/73 (20%)    | 15 (100%)  | 0        | 100         | 100 |
| 9   | LA    | 190/196 (97%)  | 185 (97%)  | 5 (3%)   | 41          | 72  |
| 10  | LB    | 321/323 (99%)  | 318 (99%)  | 3 (1%)   | 75          | 89  |
| 11  | LC    | 288/289 (100%) | 281 (98%)  | 7 (2%)   | 44          | 74  |
| 12  | LD    | 241/245 (98%)  | 235 (98%)  | 6 (2%)   | 42          | 73  |
| 13  | LE    | 135/155 (87%)  | 133 (98%)  | 2 (2%)   | 60          | 83  |
| 14  | LF    | 186/205 (91%)  | 181 (97%)  | 5 (3%)   | 40          | 71  |
| 15  | LG    | 184/208 (88%)  | 183 (100%) | 1 (0%)   | 86          | 94  |
| 16  | LH    | 168/171 (98%)  | 164 (98%)  | 4 (2%)   | 44          | 74  |
| 17  | LI    | 178/187 (95%)  | 176 (99%)  | 2 (1%)   | 70          | 87  |
| 18  | LJ    | 146/150 (97%)  | 143 (98%)  | 3 (2%)   | 48          | 77  |
| 19  | LL    | 154/159 (97%)  | 151 (98%)  | 3 (2%)   | 52          | 79  |
| 20  | LM    | 107/109 (98%)  | 105 (98%)  | 2 (2%)   | 52          | 79  |
| 21  | LN    | 175/176 (99%)  | 173 (99%)  | 2 (1%)   | 70          | 87  |
| 22  | LO    | 160/162 (99%)  | 157 (98%)  | 3 (2%)   | 52          | 79  |
| 23  | LP    | 138/146 (94%)  | 134 (97%)  | 4 (3%)   | 37          | 70  |
| 24  | LQ    | 150/151 (99%)  | 149 (99%)  | 1 (1%)   | 81          | 91  |
| 25  | LR    | 152/154 (99%)  | 152 (100%) | 0        | 100         | 100 |
| 26  | LS    | 155/156 (99%)  | 149 (96%)  | 6 (4%)   | 27          | 61  |
| 27  | LT    | 136/137 (99%)  | 134 (98%)  | 2 (2%)   | 60          | 83  |
| 28  | LU    | 87/107 (81%)   | 84 (97%)   | 3 (3%)   | 32          | 66  |
| 29  | LV    | 104/105 (99%)  | 102 (98%)  | 2 (2%)   | 52          | 79  |
| 30  | LW    | 54/128 (42%)   | 54 (100%)  | 0        | 100         | 100 |
| 31  | LX    | 104/118 (88%)  | 104 (100%) | 0        | 100         | 100 |
| 32  | LY    | 108/110 (98%)  | 106 (98%)  | 2 (2%)   | 52          | 79  |
| 33  | LZ    | 115/116 (99%)  | 114 (99%)  | 1 (1%)   | 75          | 89  |
| 34  | La    | 118/119 (99%)  | 117 (99%)  | 1 (1%)   | 79          | 90  |
| 35  | Lb    | 46/47 (98%)    | 46 (100%)  | 0        | 100         | 100 |
| 36  | Lc    | 81/88 (92%)    | 81 (100%)  | 0        | 100         | 100 |
| 37  | Ld    | 92/97 (95%)    | 89 (97%)   | 3 (3%)   | 33          | 67  |
| 38  | Le    | 108/111 (97%)  | 106 (98%)  | 2 (2%)   | 52          | 79  |

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| Mol | Chain | Analysed      | Rotameric  | Outliers | Percentiles |     |
|-----|-------|---------------|------------|----------|-------------|-----|
| 39  | Lf    | 90/91 (99%)   | 88 (98%)   | 2 (2%)   | 47          | 76  |
| 40  | Lg    | 95/103 (92%)  | 91 (96%)   | 4 (4%)   | 25          | 59  |
| 41  | Lh    | 104/105 (99%) | 103 (99%)  | 1 (1%)   | 73          | 88  |
| 42  | Li    | 80/82 (98%)   | 79 (99%)   | 1 (1%)   | 65          | 85  |
| 43  | Lj    | 69/71 (97%)   | 69 (100%)  | 0        | 100         | 100 |
| 44  | Lk    | 68/69 (99%)   | 67 (98%)   | 1 (2%)   | 60          | 83  |
| 45  | Ll    | 45/46 (98%)   | 44 (98%)   | 1 (2%)   | 47          | 76  |
| 46  | Ln    | 22/23 (96%)   | 22 (100%)  | 0        | 100         | 100 |
| 47  | Lo    | 87/91 (96%)   | 86 (99%)   | 1 (1%)   | 70          | 87  |
| 48  | Lp    | 71/72 (99%)   | 70 (99%)   | 1 (1%)   | 62          | 83  |
| 49  | SA    | 170/210 (81%) | 168 (99%)  | 2 (1%)   | 67          | 86  |
| 50  | SB    | 200/224 (89%) | 196 (98%)  | 4 (2%)   | 50          | 78  |
| 51  | SC    | 175/205 (85%) | 170 (97%)  | 5 (3%)   | 37          | 70  |
| 52  | SD    | 182/195 (93%) | 175 (96%)  | 7 (4%)   | 28          | 62  |
| 53  | SE    | 220/222 (99%) | 215 (98%)  | 5 (2%)   | 45          | 75  |
| 54  | SF    | 171/191 (90%) | 167 (98%)  | 4 (2%)   | 45          | 75  |
| 55  | SG    | 189/201 (94%) | 187 (99%)  | 2 (1%)   | 70          | 87  |
| 56  | SH    | 163/170 (96%) | 159 (98%)  | 4 (2%)   | 42          | 73  |
| 57  | SI    | 148/161 (92%) | 146 (99%)  | 2 (1%)   | 62          | 83  |
| 58  | SJ    | 156/166 (94%) | 155 (99%)  | 1 (1%)   | 84          | 93  |
| 59  | SK    | 74/98 (76%)   | 74 (100%)  | 0        | 100         | 100 |
| 60  | SL    | 127/137 (93%) | 121 (95%)  | 6 (5%)   | 22          | 56  |
| 61  | SN    | 127/128 (99%) | 126 (99%)  | 1 (1%)   | 79          | 90  |
| 62  | SO    | 91/105 (87%)  | 87 (96%)   | 4 (4%)   | 24          | 58  |
| 63  | SP    | 92/118 (78%)  | 91 (99%)   | 1 (1%)   | 70          | 87  |
| 64  | SQ    | 117/119 (98%) | 117 (100%) | 0        | 100         | 100 |
| 65  | SR    | 101/124 (82%) | 101 (100%) | 0        | 100         | 100 |
| 66  | SS    | 128/129 (99%) | 125 (98%)  | 3 (2%)   | 45          | 75  |
| 67  | ST    | 115/116 (99%) | 115 (100%) | 0        | 100         | 100 |
| 68  | SU    | 93/114 (82%)  | 91 (98%)   | 2 (2%)   | 47          | 76  |
| 69  | SV    | 71/74 (96%)   | 69 (97%)   | 2 (3%)   | 38          | 70  |

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| Mol | Chain | Analysed         | Rotameric  | Outliers | Percentiles |     |
|-----|-------|------------------|------------|----------|-------------|-----|
| 70  | SW    | 110/111 (99%)    | 107 (97%)  | 3 (3%)   | 40          | 71  |
| 71  | SX    | 119/120 (99%)    | 116 (98%)  | 3 (2%)   | 42          | 73  |
| 72  | SY    | 111/113 (98%)    | 110 (99%)  | 1 (1%)   | 75          | 89  |
| 73  | SZ    | 59/89 (66%)      | 59 (100%)  | 0        | 100         | 100 |
| 74  | Sa    | 83/101 (82%)     | 82 (99%)   | 1 (1%)   | 67          | 86  |
| 75  | Sb    | 70/71 (99%)      | 69 (99%)   | 1 (1%)   | 62          | 83  |
| 76  | Sc    | 55/60 (92%)      | 55 (100%)  | 0        | 100         | 100 |
| 77  | Sd    | 39/49 (80%)      | 38 (97%)   | 1 (3%)   | 41          | 72  |
| 78  | Se    | 50/54 (93%)      | 50 (100%)  | 0        | 100         | 100 |
| 79  | Sg    | 250/262 (95%)    | 247 (99%)  | 3 (1%)   | 67          | 86  |
| All | All   | 9058/10197 (89%) | 8903 (98%) | 155 (2%) | 56          | 81  |

All (155) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 9   | LA    | 24  | GLN  |
| 9   | LA    | 31  | THR  |
| 9   | LA    | 70  | ARG  |
| 9   | LA    | 126 | LEU  |
| 9   | LA    | 184 | ARG  |
| 10  | LB    | 56  | ILE  |
| 10  | LB    | 146 | ARG  |
| 10  | LB    | 296 | THR  |
| 11  | LC    | 6   | VAL  |
| 11  | LC    | 92  | ASN  |
| 11  | LC    | 187 | LEU  |
| 11  | LC    | 213 | ASN  |
| 11  | LC    | 259 | ASP  |
| 11  | LC    | 266 | THR  |
| 11  | LC    | 284 | SER  |
| 12  | LD    | 68  | THR  |
| 12  | LD    | 131 | LEU  |
| 12  | LD    | 147 | ASP  |
| 12  | LD    | 148 | ILE  |
| 12  | LD    | 194 | LEU  |
| 12  | LD    | 278 | SER  |
| 13  | LE    | 78  | ARG  |
| 13  | LE    | 93  | VAL  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 14  | LF    | 33  | ARG  |
| 14  | LF    | 56  | GLU  |
| 14  | LF    | 67  | ARG  |
| 14  | LF    | 82  | LYS  |
| 14  | LF    | 187 | GLU  |
| 15  | LG    | 33  | ASN  |
| 16  | LH    | 6   | THR  |
| 16  | LH    | 17  | THR  |
| 16  | LH    | 33  | THR  |
| 16  | LH    | 65  | VAL  |
| 17  | LI    | 48  | LEU  |
| 17  | LI    | 198 | LYS  |
| 18  | LJ    | 41  | SER  |
| 18  | LJ    | 80  | LEU  |
| 18  | LJ    | 82  | ARG  |
| 19  | LL    | 153 | ASP  |
| 19  | LL    | 164 | GLU  |
| 19  | LL    | 168 | ARG  |
| 20  | LM    | 28  | SER  |
| 20  | LM    | 41  | GLN  |
| 21  | LN    | 13  | LYS  |
| 21  | LN    | 109 | ARG  |
| 22  | LO    | 6   | VAL  |
| 22  | LO    | 67  | THR  |
| 22  | LO    | 180 | SER  |
| 23  | LP    | 31  | GLU  |
| 23  | LP    | 55  | GLN  |
| 23  | LP    | 108 | ASP  |
| 23  | LP    | 133 | HIS  |
| 24  | LQ    | 181 | SER  |
| 26  | LS    | 24  | LEU  |
| 26  | LS    | 39  | SER  |
| 26  | LS    | 60  | SER  |
| 26  | LS    | 85  | SER  |
| 26  | LS    | 120 | SER  |
| 26  | LS    | 164 | SER  |
| 27  | LT    | 31  | LEU  |
| 27  | LT    | 69  | LYS  |
| 28  | LU    | 56  | VAL  |
| 28  | LU    | 79  | LEU  |
| 28  | LU    | 99  | LYS  |
| 29  | LV    | 22  | ILE  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 29  | LV    | 125 | LEU  |
| 32  | LY    | 9   | SER  |
| 32  | LY    | 71  | SER  |
| 33  | LZ    | 46  | ILE  |
| 34  | La    | 6   | THR  |
| 37  | Ld    | 11  | GLU  |
| 37  | Ld    | 27  | LYS  |
| 37  | Ld    | 110 | GLU  |
| 38  | Le    | 14  | THR  |
| 38  | Le    | 51  | SER  |
| 39  | Lf    | 37  | THR  |
| 39  | Lf    | 84  | THR  |
| 40  | Lg    | 6   | THR  |
| 40  | Lg    | 20  | ILE  |
| 40  | Lg    | 33  | GLN  |
| 40  | Lg    | 100 | ILE  |
| 41  | Lh    | 98  | SER  |
| 42  | Li    | 21  | THR  |
| 44  | Lk    | 24  | THR  |
| 45  | Ll    | 27  | ILE  |
| 47  | Lo    | 64  | THR  |
| 48  | Lp    | 63  | THR  |
| 49  | SA    | 119 | ARG  |
| 49  | SA    | 147 | THR  |
| 50  | SB    | 51  | SER  |
| 50  | SB    | 82  | ARG  |
| 50  | SB    | 95  | ASN  |
| 50  | SB    | 170 | GLU  |
| 51  | SC    | 88  | LYS  |
| 51  | SC    | 126 | ARG  |
| 51  | SC    | 176 | SER  |
| 51  | SC    | 196 | VAL  |
| 51  | SC    | 244 | SER  |
| 52  | SD    | 45  | LYS  |
| 52  | SD    | 55  | THR  |
| 52  | SD    | 110 | LEU  |
| 52  | SD    | 129 | SER  |
| 52  | SD    | 189 | MET  |
| 52  | SD    | 207 | THR  |
| 52  | SD    | 210 | GLU  |
| 53  | SE    | 123 | LEU  |
| 53  | SE    | 163 | ASP  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 53  | SE    | 170 | THR  |
| 53  | SE    | 219 | VAL  |
| 53  | SE    | 251 | GLU  |
| 54  | SF    | 38  | THR  |
| 54  | SF    | 96  | SER  |
| 54  | SF    | 192 | GLU  |
| 54  | SF    | 205 | SER  |
| 55  | SG    | 51  | LYS  |
| 55  | SG    | 111 | LEU  |
| 56  | SH    | 76  | LYS  |
| 56  | SH    | 110 | GLN  |
| 56  | SH    | 114 | ARG  |
| 56  | SH    | 184 | GLU  |
| 57  | SI    | 32  | GLN  |
| 57  | SI    | 75  | LYS  |
| 58  | SJ    | 87  | SER  |
| 60  | SL    | 44  | THR  |
| 60  | SL    | 66  | ILE  |
| 60  | SL    | 91  | LEU  |
| 60  | SL    | 116 | ARG  |
| 60  | SL    | 124 | THR  |
| 60  | SL    | 141 | LYS  |
| 61  | SN    | 86  | GLU  |
| 62  | SO    | 54  | GLU  |
| 62  | SO    | 73  | GLU  |
| 62  | SO    | 92  | LYS  |
| 62  | SO    | 121 | VAL  |
| 63  | SP    | 79  | HIS  |
| 66  | SS    | 15  | LEU  |
| 66  | SS    | 17  | LEU  |
| 66  | SS    | 33  | THR  |
| 68  | SU    | 43  | LYS  |
| 68  | SU    | 100 | VAL  |
| 69  | SV    | 2   | GLU  |
| 69  | SV    | 74  | GLN  |
| 70  | SW    | 27  | ILE  |
| 70  | SW    | 104 | LEU  |
| 70  | SW    | 119 | LYS  |
| 71  | SX    | 11  | SER  |
| 71  | SX    | 74  | VAL  |
| 71  | SX    | 84  | THR  |
| 72  | SY    | 36  | SER  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 74  | Sa    | 44  | ILE  |
| 75  | Sb    | 3   | LEU  |
| 77  | Sd    | 26  | SER  |
| 79  | Sg    | 20  | VAL  |
| 79  | Sg    | 89  | LEU  |
| 79  | Sg    | 242 | SER  |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (86) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3   | A     | 540 | HIS  |
| 4   | B     | 62  | HIS  |
| 4   | B     | 63  | HIS  |
| 9   | LA    | 38  | HIS  |
| 10  | LB    | 182 | GLN  |
| 10  | LB    | 212 | ASN  |
| 10  | LB    | 377 | HIS  |
| 12  | LD    | 63  | GLN  |
| 12  | LD    | 81  | HIS  |
| 13  | LE    | 138 | GLN  |
| 14  | LF    | 81  | HIS  |
| 14  | LF    | 157 | ASN  |
| 14  | LF    | 200 | ASN  |
| 15  | LG    | 28  | HIS  |
| 15  | LG    | 33  | ASN  |
| 15  | LG    | 38  | GLN  |
| 16  | LH    | 139 | ASN  |
| 17  | LI    | 162 | GLN  |
| 18  | LJ    | 20  | ASN  |
| 18  | LJ    | 68  | HIS  |
| 19  | LL    | 137 | GLN  |
| 22  | LO    | 14  | HIS  |
| 22  | LO    | 65  | ASN  |
| 23  | LP    | 97  | ASN  |
| 23  | LP    | 121 | GLN  |
| 23  | LP    | 145 | HIS  |
| 24  | LQ    | 58  | ASN  |
| 26  | LS    | 49  | HIS  |
| 26  | LS    | 65  | ASN  |
| 26  | LS    | 88  | HIS  |
| 26  | LS    | 114 | HIS  |
| 26  | LS    | 154 | HIS  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 27  | LT    | 22  | HIS  |
| 27  | LT    | 26  | HIS  |
| 27  | LT    | 77  | ASN  |
| 28  | LU    | 49  | ASN  |
| 29  | LV    | 4   | ASN  |
| 32  | LY    | 110 | HIS  |
| 33  | LZ    | 106 | GLN  |
| 33  | LZ    | 128 | GLN  |
| 34  | La    | 11  | HIS  |
| 34  | La    | 14  | HIS  |
| 34  | La    | 39  | HIS  |
| 34  | La    | 49  | HIS  |
| 34  | La    | 65  | GLN  |
| 36  | Lc    | 75  | ASN  |
| 37  | Ld    | 43  | HIS  |
| 38  | Le    | 35  | GLN  |
| 38  | Le    | 52  | GLN  |
| 40  | Lg    | 33  | GLN  |
| 41  | Lh    | 113 | GLN  |
| 47  | Lo    | 59  | HIS  |
| 48  | Lp    | 33  | GLN  |
| 49  | SA    | 33  | GLN  |
| 49  | SA    | 131 | GLN  |
| 50  | SB    | 95  | ASN  |
| 50  | SB    | 199 | ASN  |
| 51  | SC    | 59  | HIS  |
| 51  | SC    | 152 | HIS  |
| 53  | SE    | 50  | ASN  |
| 53  | SE    | 96  | ASN  |
| 53  | SE    | 197 | HIS  |
| 53  | SE    | 201 | HIS  |
| 53  | SE    | 209 | HIS  |
| 53  | SE    | 258 | GLN  |
| 55  | SG    | 13  | GLN  |
| 56  | SH    | 71  | HIS  |
| 56  | SH    | 110 | GLN  |
| 58  | SJ    | 155 | HIS  |
| 60  | SL    | 81  | HIS  |
| 61  | SN    | 5   | HIS  |
| 61  | SN    | 105 | ASN  |
| 62  | SO    | 29  | HIS  |
| 64  | SQ    | 21  | HIS  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 65  | SR    | 101 | ASN  |
| 66  | SS    | 127 | HIS  |
| 67  | ST    | 106 | GLN  |
| 70  | SW    | 12  | ASN  |
| 70  | SW    | 42  | GLN  |
| 70  | SW    | 64  | GLN  |
| 72  | SY    | 110 | GLN  |
| 73  | SZ    | 95  | HIS  |
| 75  | Sb    | 19  | HIS  |
| 75  | Sb    | 42  | ASN  |
| 77  | Sd    | 37  | ASN  |
| 79  | Sg    | 288 | HIS  |

### 5.3.3 RNA [i](#)

| Mol | Chain | Analysed        | Backbone Outliers | Pucker Outliers |
|-----|-------|-----------------|-------------------|-----------------|
| 1   | 5     | 7/234 (2%)      | 2 (28%)           | 1 (14%)         |
| 2   | 6     | 75/76 (98%)     | 16 (21%)          | 1 (1%)          |
| 5   | C1    | 3052/3396 (89%) | 462 (15%)         | 29 (0%)         |
| 6   | C2    | 1632/1800 (90%) | 333 (20%)         | 33 (2%)         |
| 7   | C3    | 157/158 (99%)   | 24 (15%)          | 1 (0%)          |
| 8   | C4    | 120/121 (99%)   | 12 (10%)          | 1 (0%)          |
| All | All   | 5043/5785 (87%) | 849 (16%)         | 66 (1%)         |

All (849) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 5     | 43  | A    |
| 1   | 5     | 46  | A    |
| 2   | 6     | 7   | G    |
| 2   | 6     | 9   | A    |
| 2   | 6     | 17  | A    |
| 2   | 6     | 18  | G    |
| 2   | 6     | 19  | G    |
| 2   | 6     | 21  | A    |
| 2   | 6     | 33  | U    |
| 2   | 6     | 42  | G    |
| 2   | 6     | 47  | U    |
| 2   | 6     | 48  | C    |
| 2   | 6     | 50  | A    |
| 2   | 6     | 51  | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2   | 6     | 58  | A    |
| 2   | 6     | 59  | A    |
| 2   | 6     | 74  | C    |
| 2   | 6     | 76  | A    |
| 5   | C1    | 14  | U    |
| 5   | C1    | 15  | C    |
| 5   | C1    | 22  | G    |
| 5   | C1    | 26  | A    |
| 5   | C1    | 40  | A    |
| 5   | C1    | 43  | A    |
| 5   | C1    | 49  | A    |
| 5   | C1    | 59  | G    |
| 5   | C1    | 60  | A    |
| 5   | C1    | 65  | A    |
| 5   | C1    | 66  | A    |
| 5   | C1    | 75  | G    |
| 5   | C1    | 92  | G    |
| 5   | C1    | 99  | A    |
| 5   | C1    | 105 | C    |
| 5   | C1    | 110 | G    |
| 5   | C1    | 121 | A    |
| 5   | C1    | 122 | A    |
| 5   | C1    | 133 | U    |
| 5   | C1    | 135 | C    |
| 5   | C1    | 136 | G    |
| 5   | C1    | 156 | G    |
| 5   | C1    | 157 | A    |
| 5   | C1    | 166 | C    |
| 5   | C1    | 187 | A    |
| 5   | C1    | 190 | U    |
| 5   | C1    | 191 | U    |
| 5   | C1    | 200 | C    |
| 5   | C1    | 201 | A    |
| 5   | C1    | 210 | U    |
| 5   | C1    | 213 | A    |
| 5   | C1    | 218 | G    |
| 5   | C1    | 219 | A    |
| 5   | C1    | 240 | U    |
| 5   | C1    | 241 | G    |
| 5   | C1    | 243 | G    |
| 5   | C1    | 250 | U    |
| 5   | C1    | 252 | U    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 5   | C1    | 269 | G    |
| 5   | C1    | 282 | G    |
| 5   | C1    | 283 | G    |
| 5   | C1    | 286 | U    |
| 5   | C1    | 287 | G    |
| 5   | C1    | 295 | A    |
| 5   | C1    | 298 | U    |
| 5   | C1    | 305 | U    |
| 5   | C1    | 329 | U    |
| 5   | C1    | 350 | C    |
| 5   | C1    | 376 | G    |
| 5   | C1    | 392 | G    |
| 5   | C1    | 398 | A    |
| 5   | C1    | 399 | A    |
| 5   | C1    | 401 | U    |
| 5   | C1    | 402 | A    |
| 5   | C1    | 403 | C    |
| 5   | C1    | 420 | G    |
| 5   | C1    | 421 | G    |
| 5   | C1    | 422 | A    |
| 5   | C1    | 429 | U    |
| 5   | C1    | 440 | A    |
| 5   | C1    | 521 | A    |
| 5   | C1    | 523 | A    |
| 5   | C1    | 535 | G    |
| 5   | C1    | 544 | C    |
| 5   | C1    | 545 | U    |
| 5   | C1    | 546 | C    |
| 5   | C1    | 552 | G    |
| 5   | C1    | 557 | A    |
| 5   | C1    | 559 | A    |
| 5   | C1    | 578 | A    |
| 5   | C1    | 579 | G    |
| 5   | C1    | 589 | A    |
| 5   | C1    | 592 | A    |
| 5   | C1    | 604 | G    |
| 5   | C1    | 609 | G    |
| 5   | C1    | 610 | G    |
| 5   | C1    | 611 | A    |
| 5   | C1    | 621 | A    |
| 5   | C1    | 622 | A    |
| 5   | C1    | 637 | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 5   | C1    | 638 | C    |
| 5   | C1    | 649 | A    |
| 5   | C1    | 677 | A    |
| 5   | C1    | 681 | U    |
| 5   | C1    | 683 | U    |
| 5   | C1    | 691 | A    |
| 5   | C1    | 699 | A    |
| 5   | C1    | 705 | A    |
| 5   | C1    | 712 | G    |
| 5   | C1    | 715 | A    |
| 5   | C1    | 727 | G    |
| 5   | C1    | 764 | U    |
| 5   | C1    | 765 | C    |
| 5   | C1    | 766 | U    |
| 5   | C1    | 767 | U    |
| 5   | C1    | 776 | U    |
| 5   | C1    | 777 | U    |
| 5   | C1    | 780 | A    |
| 5   | C1    | 781 | G    |
| 5   | C1    | 785 | G    |
| 5   | C1    | 786 | A    |
| 5   | C1    | 806 | A    |
| 5   | C1    | 807 | A    |
| 5   | C1    | 817 | A    |
| 5   | C1    | 830 | A    |
| 5   | C1    | 849 | C    |
| 5   | C1    | 861 | C    |
| 5   | C1    | 874 | U    |
| 5   | C1    | 875 | G    |
| 5   | C1    | 879 | U    |
| 5   | C1    | 880 | G    |
| 5   | C1    | 896 | A    |
| 5   | C1    | 907 | G    |
| 5   | C1    | 908 | G    |
| 5   | C1    | 914 | A    |
| 5   | C1    | 915 | A    |
| 5   | C1    | 916 | G    |
| 5   | C1    | 917 | A    |
| 5   | C1    | 921 | A    |
| 5   | C1    | 924 | G    |
| 5   | C1    | 937 | G    |
| 5   | C1    | 940 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 5   | C1    | 944  | C    |
| 5   | C1    | 959  | C    |
| 5   | C1    | 960  | U    |
| 5   | C1    | 963  | G    |
| 5   | C1    | 972  | A    |
| 5   | C1    | 1002 | A    |
| 5   | C1    | 1010 | G    |
| 5   | C1    | 1047 | A    |
| 5   | C1    | 1049 | C    |
| 5   | C1    | 1057 | A    |
| 5   | C1    | 1063 | G    |
| 5   | C1    | 1064 | A    |
| 5   | C1    | 1065 | A    |
| 5   | C1    | 1072 | G    |
| 5   | C1    | 1081 | U    |
| 5   | C1    | 1093 | A    |
| 5   | C1    | 1097 | G    |
| 5   | C1    | 1098 | A    |
| 5   | C1    | 1103 | A    |
| 5   | C1    | 1117 | G    |
| 5   | C1    | 1131 | G    |
| 5   | C1    | 1153 | A    |
| 5   | C1    | 1154 | A    |
| 5   | C1    | 1159 | A    |
| 5   | C1    | 1180 | A    |
| 5   | C1    | 1181 | U    |
| 5   | C1    | 1191 | U    |
| 5   | C1    | 1192 | C    |
| 5   | C1    | 1193 | A    |
| 5   | C1    | 1196 | C    |
| 5   | C1    | 1201 | C    |
| 5   | C1    | 1208 | U    |
| 5   | C1    | 1222 | G    |
| 5   | C1    | 1285 | G    |
| 5   | C1    | 1287 | A    |
| 5   | C1    | 1307 | G    |
| 5   | C1    | 1308 | A    |
| 5   | C1    | 1309 | U    |
| 5   | C1    | 1313 | G    |
| 5   | C1    | 1316 | C    |
| 5   | C1    | 1330 | A    |
| 5   | C1    | 1348 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 5   | C1    | 1349 | G    |
| 5   | C1    | 1351 | U    |
| 5   | C1    | 1352 | A    |
| 5   | C1    | 1354 | G    |
| 5   | C1    | 1355 | A    |
| 5   | C1    | 1356 | U    |
| 5   | C1    | 1357 | G    |
| 5   | C1    | 1366 | A    |
| 5   | C1    | 1367 | G    |
| 5   | C1    | 1373 | A    |
| 5   | C1    | 1385 | C    |
| 5   | C1    | 1386 | A    |
| 5   | C1    | 1392 | G    |
| 5   | C1    | 1399 | A    |
| 5   | C1    | 1400 | G    |
| 5   | C1    | 1419 | A    |
| 5   | C1    | 1420 | C    |
| 5   | C1    | 1421 | G    |
| 5   | C1    | 1431 | G    |
| 5   | C1    | 1434 | G    |
| 5   | C1    | 1436 | U    |
| 5   | C1    | 1437 | C    |
| 5   | C1    | 1446 | A    |
| 5   | C1    | 1450 | G    |
| 5   | C1    | 1452 | A    |
| 5   | C1    | 1481 | A    |
| 5   | C1    | 1482 | A    |
| 5   | C1    | 1483 | G    |
| 5   | C1    | 1491 | A    |
| 5   | C1    | 1503 | A    |
| 5   | C1    | 1508 | C    |
| 5   | C1    | 1523 | U    |
| 5   | C1    | 1527 | C    |
| 5   | C1    | 1533 | U    |
| 5   | C1    | 1536 | G    |
| 5   | C1    | 1555 | U    |
| 5   | C1    | 1556 | C    |
| 5   | C1    | 1560 | G    |
| 5   | C1    | 1561 | G    |
| 5   | C1    | 1562 | C    |
| 5   | C1    | 1563 | C    |
| 5   | C1    | 1565 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 5   | C1    | 1566 | A    |
| 5   | C1    | 1574 | C    |
| 5   | C1    | 1575 | A    |
| 5   | C1    | 1576 | G    |
| 5   | C1    | 1580 | A    |
| 5   | C1    | 1582 | C    |
| 5   | C1    | 1587 | A    |
| 5   | C1    | 1588 | A    |
| 5   | C1    | 1589 | A    |
| 5   | C1    | 1593 | A    |
| 5   | C1    | 1607 | U    |
| 5   | C1    | 1619 | A    |
| 5   | C1    | 1620 | U    |
| 5   | C1    | 1622 | U    |
| 5   | C1    | 1629 | U    |
| 5   | C1    | 1639 | C    |
| 5   | C1    | 1642 | A    |
| 5   | C1    | 1643 | A    |
| 5   | C1    | 1657 | C    |
| 5   | C1    | 1683 | A    |
| 5   | C1    | 1685 | C    |
| 5   | C1    | 1688 | U    |
| 5   | C1    | 1705 | U    |
| 5   | C1    | 1712 | G    |
| 5   | C1    | 1724 | U    |
| 5   | C1    | 1725 | C    |
| 5   | C1    | 1742 | U    |
| 5   | C1    | 1750 | A    |
| 5   | C1    | 1751 | G    |
| 5   | C1    | 1769 | G    |
| 5   | C1    | 1780 | G    |
| 5   | C1    | 1797 | A    |
| 5   | C1    | 1812 | G    |
| 5   | C1    | 1816 | A    |
| 5   | C1    | 1817 | G    |
| 5   | C1    | 1818 | U    |
| 5   | C1    | 1819 | U    |
| 5   | C1    | 1820 | U    |
| 5   | C1    | 1821 | U    |
| 5   | C1    | 1835 | A    |
| 5   | C1    | 1839 | A    |
| 5   | C1    | 1840 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 5   | C1    | 1841 | A    |
| 5   | C1    | 1842 | A    |
| 5   | C1    | 1846 | C    |
| 5   | C1    | 1849 | C    |
| 5   | C1    | 1850 | A    |
| 5   | C1    | 1851 | G    |
| 5   | C1    | 1866 | C    |
| 5   | C1    | 1867 | A    |
| 5   | C1    | 1871 | U    |
| 5   | C1    | 1876 | U    |
| 5   | C1    | 1878 | G    |
| 5   | C1    | 1880 | U    |
| 5   | C1    | 1886 | A    |
| 5   | C1    | 1893 | A    |
| 5   | C1    | 1906 | G    |
| 5   | C1    | 1952 | G    |
| 5   | C1    | 2101 | C    |
| 5   | C1    | 2102 | U    |
| 5   | C1    | 2107 | A    |
| 5   | C1    | 2111 | G    |
| 5   | C1    | 2112 | U    |
| 5   | C1    | 2113 | A    |
| 5   | C1    | 2116 | G    |
| 5   | C1    | 2121 | G    |
| 5   | C1    | 2122 | G    |
| 5   | C1    | 2131 | A    |
| 5   | C1    | 2140 | U    |
| 5   | C1    | 2142 | A    |
| 5   | C1    | 2158 | A    |
| 5   | C1    | 2159 | U    |
| 5   | C1    | 2169 | G    |
| 5   | C1    | 2170 | U    |
| 5   | C1    | 2187 | G    |
| 5   | C1    | 2188 | A    |
| 5   | C1    | 2205 | U    |
| 5   | C1    | 2206 | G    |
| 5   | C1    | 2207 | A    |
| 5   | C1    | 2209 | U    |
| 5   | C1    | 2244 | A    |
| 5   | C1    | 2248 | C    |
| 5   | C1    | 2249 | G    |
| 5   | C1    | 2250 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 5   | C1    | 2257 | C    |
| 5   | C1    | 2272 | G    |
| 5   | C1    | 2273 | G    |
| 5   | C1    | 2281 | A    |
| 5   | C1    | 2282 | U    |
| 5   | C1    | 2285 | C    |
| 5   | C1    | 2307 | G    |
| 5   | C1    | 2309 | A    |
| 5   | C1    | 2310 | U    |
| 5   | C1    | 2313 | A    |
| 5   | C1    | 2314 | U    |
| 5   | C1    | 2315 | G    |
| 5   | C1    | 2334 | U    |
| 5   | C1    | 2336 | U    |
| 5   | C1    | 2363 | A    |
| 5   | C1    | 2373 | A    |
| 5   | C1    | 2374 | C    |
| 5   | C1    | 2375 | G    |
| 5   | C1    | 2393 | G    |
| 5   | C1    | 2397 | A    |
| 5   | C1    | 2402 | A    |
| 5   | C1    | 2403 | G    |
| 5   | C1    | 2404 | A    |
| 5   | C1    | 2411 | U    |
| 5   | C1    | 2418 | G    |
| 5   | C1    | 2435 | G    |
| 5   | C1    | 2438 | A    |
| 5   | C1    | 2503 | G    |
| 5   | C1    | 2506 | U    |
| 5   | C1    | 2514 | U    |
| 5   | C1    | 2515 | A    |
| 5   | C1    | 2522 | G    |
| 5   | C1    | 2549 | G    |
| 5   | C1    | 2550 | U    |
| 5   | C1    | 2552 | C    |
| 5   | C1    | 2554 | A    |
| 5   | C1    | 2555 | G    |
| 5   | C1    | 2561 | A    |
| 5   | C1    | 2562 | A    |
| 5   | C1    | 2569 | A    |
| 5   | C1    | 2570 | U    |
| 5   | C1    | 2571 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 5   | C1    | 2572 | C    |
| 5   | C1    | 2573 | G    |
| 5   | C1    | 2585 | G    |
| 5   | C1    | 2586 | G    |
| 5   | C1    | 2593 | A    |
| 5   | C1    | 2603 | G    |
| 5   | C1    | 2606 | G    |
| 5   | C1    | 2607 | G    |
| 5   | C1    | 2614 | G    |
| 5   | C1    | 2626 | A    |
| 5   | C1    | 2638 | C    |
| 5   | C1    | 2639 | G    |
| 5   | C1    | 2652 | U    |
| 5   | C1    | 2656 | A    |
| 5   | C1    | 2657 | A    |
| 5   | C1    | 2665 | U    |
| 5   | C1    | 2674 | A    |
| 5   | C1    | 2677 | G    |
| 5   | C1    | 2689 | A    |
| 5   | C1    | 2691 | A    |
| 5   | C1    | 2694 | A    |
| 5   | C1    | 2696 | A    |
| 5   | C1    | 2704 | A    |
| 5   | C1    | 2705 | A    |
| 5   | C1    | 2714 | G    |
| 5   | C1    | 2719 | U    |
| 5   | C1    | 2728 | G    |
| 5   | C1    | 2729 | U    |
| 5   | C1    | 2753 | G    |
| 5   | C1    | 2762 | A    |
| 5   | C1    | 2772 | C    |
| 5   | C1    | 2773 | C    |
| 5   | C1    | 2777 | G    |
| 5   | C1    | 2778 | G    |
| 5   | C1    | 2796 | G    |
| 5   | C1    | 2800 | G    |
| 5   | C1    | 2801 | A    |
| 5   | C1    | 2803 | A    |
| 5   | C1    | 2810 | C    |
| 5   | C1    | 2817 | A    |
| 5   | C1    | 2821 | C    |
| 5   | C1    | 2861 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 5   | C1    | 2866 | U    |
| 5   | C1    | 2871 | G    |
| 5   | C1    | 2872 | A    |
| 5   | C1    | 2875 | U    |
| 5   | C1    | 2887 | A    |
| 5   | C1    | 2888 | U    |
| 5   | C1    | 2889 | C    |
| 5   | C1    | 2898 | G    |
| 5   | C1    | 2900 | A    |
| 5   | C1    | 2911 | A    |
| 5   | C1    | 2914 | G    |
| 5   | C1    | 2923 | U    |
| 5   | C1    | 2935 | U    |
| 5   | C1    | 2936 | A    |
| 5   | C1    | 2941 | A    |
| 5   | C1    | 2942 | C    |
| 5   | C1    | 2947 | G    |
| 5   | C1    | 2955 | U    |
| 5   | C1    | 2971 | A    |
| 5   | C1    | 2983 | C    |
| 5   | C1    | 2990 | G    |
| 5   | C1    | 2997 | G    |
| 5   | C1    | 3003 | G    |
| 5   | C1    | 3012 | A    |
| 5   | C1    | 3049 | A    |
| 5   | C1    | 3056 | U    |
| 5   | C1    | 3057 | U    |
| 5   | C1    | 3059 | G    |
| 5   | C1    | 3078 | U    |
| 5   | C1    | 3079 | U    |
| 5   | C1    | 3086 | A    |
| 5   | C1    | 3092 | C    |
| 5   | C1    | 3093 | C    |
| 5   | C1    | 3101 | G    |
| 5   | C1    | 3104 | U    |
| 5   | C1    | 3119 | U    |
| 5   | C1    | 3131 | U    |
| 5   | C1    | 3142 | A    |
| 5   | C1    | 3143 | C    |
| 5   | C1    | 3153 | U    |
| 5   | C1    | 3155 | U    |
| 5   | C1    | 3156 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 5   | C1    | 3165 | A    |
| 5   | C1    | 3173 | G    |
| 5   | C1    | 3174 | A    |
| 5   | C1    | 3175 | U    |
| 5   | C1    | 3176 | G    |
| 5   | C1    | 3179 | U    |
| 5   | C1    | 3180 | A    |
| 5   | C1    | 3181 | C    |
| 5   | C1    | 3182 | G    |
| 5   | C1    | 3187 | A    |
| 5   | C1    | 3196 | U    |
| 5   | C1    | 3198 | U    |
| 5   | C1    | 3207 | U    |
| 5   | C1    | 3209 | A    |
| 5   | C1    | 3217 | C    |
| 5   | C1    | 3218 | A    |
| 5   | C1    | 3219 | G    |
| 5   | C1    | 3229 | G    |
| 5   | C1    | 3242 | G    |
| 5   | C1    | 3243 | A    |
| 5   | C1    | 3247 | G    |
| 5   | C1    | 3253 | G    |
| 5   | C1    | 3259 | U    |
| 5   | C1    | 3260 | G    |
| 5   | C1    | 3270 | U    |
| 5   | C1    | 3273 | A    |
| 5   | C1    | 3276 | G    |
| 5   | C1    | 3281 | U    |
| 5   | C1    | 3289 | G    |
| 5   | C1    | 3294 | A    |
| 5   | C1    | 3304 | U    |
| 5   | C1    | 3316 | A    |
| 5   | C1    | 3318 | G    |
| 5   | C1    | 3319 | U    |
| 5   | C1    | 3320 | A    |
| 5   | C1    | 3330 | A    |
| 5   | C1    | 3340 | G    |
| 5   | C1    | 3341 | U    |
| 5   | C1    | 3342 | A    |
| 5   | C1    | 3345 | G    |
| 5   | C1    | 3347 | A    |
| 5   | C1    | 3351 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 5   | C1    | 3352 | U    |
| 5   | C1    | 3369 | G    |
| 5   | C1    | 3378 | C    |
| 5   | C1    | 3390 | G    |
| 6   | C2    | 2    | A    |
| 6   | C2    | 3    | U    |
| 6   | C2    | 4    | C    |
| 6   | C2    | 6    | G    |
| 6   | C2    | 17   | C    |
| 6   | C2    | 25   | C    |
| 6   | C2    | 26   | A    |
| 6   | C2    | 34   | G    |
| 6   | C2    | 42   | G    |
| 6   | C2    | 43   | A    |
| 6   | C2    | 45   | U    |
| 6   | C2    | 47   | A    |
| 6   | C2    | 51   | A    |
| 6   | C2    | 56   | U    |
| 6   | C2    | 57   | G    |
| 6   | C2    | 61   | A    |
| 6   | C2    | 62   | A    |
| 6   | C2    | 63   | G    |
| 6   | C2    | 66   | U    |
| 6   | C2    | 68   | A    |
| 6   | C2    | 74   | U    |
| 6   | C2    | 76   | A    |
| 6   | C2    | 78   | A    |
| 6   | C2    | 79   | C    |
| 6   | C2    | 90   | C    |
| 6   | C2    | 93   | A    |
| 6   | C2    | 100  | A    |
| 6   | C2    | 102  | U    |
| 6   | C2    | 104  | A    |
| 6   | C2    | 114  | C    |
| 6   | C2    | 124  | A    |
| 6   | C2    | 126  | A    |
| 6   | C2    | 138  | A    |
| 6   | C2    | 140  | A    |
| 6   | C2    | 141  | U    |
| 6   | C2    | 155  | U    |
| 6   | C2    | 161  | U    |
| 6   | C2    | 170  | U    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 6   | C2    | 171 | A    |
| 6   | C2    | 172 | C    |
| 6   | C2    | 178 | U    |
| 6   | C2    | 179 | A    |
| 6   | C2    | 180 | A    |
| 6   | C2    | 185 | U    |
| 6   | C2    | 187 | G    |
| 6   | C2    | 188 | A    |
| 6   | C2    | 189 | C    |
| 6   | C2    | 204 | G    |
| 6   | C2    | 216 | U    |
| 6   | C2    | 218 | A    |
| 6   | C2    | 246 | G    |
| 6   | C2    | 250 | C    |
| 6   | C2    | 261 | U    |
| 6   | C2    | 262 | U    |
| 6   | C2    | 267 | U    |
| 6   | C2    | 269 | G    |
| 6   | C2    | 270 | C    |
| 6   | C2    | 272 | U    |
| 6   | C2    | 273 | G    |
| 6   | C2    | 278 | U    |
| 6   | C2    | 279 | G    |
| 6   | C2    | 286 | C    |
| 6   | C2    | 289 | U    |
| 6   | C2    | 290 | G    |
| 6   | C2    | 299 | A    |
| 6   | C2    | 314 | C    |
| 6   | C2    | 316 | A    |
| 6   | C2    | 322 | G    |
| 6   | C2    | 323 | A    |
| 6   | C2    | 334 | G    |
| 6   | C2    | 337 | G    |
| 6   | C2    | 338 | C    |
| 6   | C2    | 340 | U    |
| 6   | C2    | 352 | A    |
| 6   | C2    | 353 | A    |
| 6   | C2    | 359 | A    |
| 6   | C2    | 361 | C    |
| 6   | C2    | 369 | A    |
| 6   | C2    | 373 | G    |
| 6   | C2    | 384 | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 6   | C2    | 388 | G    |
| 6   | C2    | 400 | A    |
| 6   | C2    | 401 | A    |
| 6   | C2    | 402 | C    |
| 6   | C2    | 404 | G    |
| 6   | C2    | 417 | A    |
| 6   | C2    | 419 | G    |
| 6   | C2    | 423 | G    |
| 6   | C2    | 424 | C    |
| 6   | C2    | 425 | A    |
| 6   | C2    | 426 | G    |
| 6   | C2    | 431 | C    |
| 6   | C2    | 432 | G    |
| 6   | C2    | 434 | G    |
| 6   | C2    | 436 | A    |
| 6   | C2    | 437 | A    |
| 6   | C2    | 439 | U    |
| 6   | C2    | 444 | C    |
| 6   | C2    | 447 | U    |
| 6   | C2    | 448 | C    |
| 6   | C2    | 460 | A    |
| 6   | C2    | 461 | G    |
| 6   | C2    | 468 | A    |
| 6   | C2    | 469 | C    |
| 6   | C2    | 471 | A    |
| 6   | C2    | 475 | A    |
| 6   | C2    | 477 | A    |
| 6   | C2    | 483 | A    |
| 6   | C2    | 485 | A    |
| 6   | C2    | 487 | G    |
| 6   | C2    | 502 | U    |
| 6   | C2    | 506 | A    |
| 6   | C2    | 507 | U    |
| 6   | C2    | 510 | G    |
| 6   | C2    | 511 | A    |
| 6   | C2    | 515 | A    |
| 6   | C2    | 520 | A    |
| 6   | C2    | 538 | A    |
| 6   | C2    | 540 | G    |
| 6   | C2    | 541 | A    |
| 6   | C2    | 542 | A    |
| 6   | C2    | 543 | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 6   | C2    | 549 | G    |
| 6   | C2    | 556 | A    |
| 6   | C2    | 558 | U    |
| 6   | C2    | 559 | C    |
| 6   | C2    | 565 | C    |
| 6   | C2    | 568 | G    |
| 6   | C2    | 582 | U    |
| 6   | C2    | 594 | A    |
| 6   | C2    | 595 | G    |
| 6   | C2    | 597 | G    |
| 6   | C2    | 606 | A    |
| 6   | C2    | 610 | G    |
| 6   | C2    | 611 | U    |
| 6   | C2    | 619 | A    |
| 6   | C2    | 620 | A    |
| 6   | C2    | 622 | A    |
| 6   | C2    | 623 | A    |
| 6   | C2    | 624 | G    |
| 6   | C2    | 635 | A    |
| 6   | C2    | 638 | U    |
| 6   | C2    | 639 | U    |
| 6   | C2    | 640 | U    |
| 6   | C2    | 641 | G    |
| 6   | C2    | 688 | G    |
| 6   | C2    | 694 | U    |
| 6   | C2    | 696 | C    |
| 6   | C2    | 697 | C    |
| 6   | C2    | 698 | U    |
| 6   | C2    | 741 | C    |
| 6   | C2    | 742 | U    |
| 6   | C2    | 743 | U    |
| 6   | C2    | 744 | U    |
| 6   | C2    | 745 | U    |
| 6   | C2    | 754 | A    |
| 6   | C2    | 755 | A    |
| 6   | C2    | 756 | A    |
| 6   | C2    | 765 | G    |
| 6   | C2    | 766 | U    |
| 6   | C2    | 774 | A    |
| 6   | C2    | 775 | G    |
| 6   | C2    | 780 | A    |
| 6   | C2    | 781 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 6   | C2    | 782  | U    |
| 6   | C2    | 783  | G    |
| 6   | C2    | 789  | A    |
| 6   | C2    | 792  | U    |
| 6   | C2    | 812  | A    |
| 6   | C2    | 813  | U    |
| 6   | C2    | 814  | A    |
| 6   | C2    | 815  | G    |
| 6   | C2    | 816  | G    |
| 6   | C2    | 819  | G    |
| 6   | C2    | 820  | U    |
| 6   | C2    | 821  | U    |
| 6   | C2    | 833  | U    |
| 6   | C2    | 841  | U    |
| 6   | C2    | 856  | A    |
| 6   | C2    | 863  | A    |
| 6   | C2    | 876  | G    |
| 6   | C2    | 886  | U    |
| 6   | C2    | 912  | U    |
| 6   | C2    | 913  | G    |
| 6   | C2    | 929  | A    |
| 6   | C2    | 933  | A    |
| 6   | C2    | 935  | U    |
| 6   | C2    | 942  | G    |
| 6   | C2    | 945  | U    |
| 6   | C2    | 946  | U    |
| 6   | C2    | 960  | U    |
| 6   | C2    | 966  | A    |
| 6   | C2    | 970  | A    |
| 6   | C2    | 971  | A    |
| 6   | C2    | 989  | U    |
| 6   | C2    | 992  | A    |
| 6   | C2    | 993  | A    |
| 6   | C2    | 1006 | C    |
| 6   | C2    | 1026 | A    |
| 6   | C2    | 1028 | C    |
| 6   | C2    | 1039 | A    |
| 6   | C2    | 1042 | G    |
| 6   | C2    | 1052 | U    |
| 6   | C2    | 1076 | A    |
| 6   | C2    | 1082 | C    |
| 6   | C2    | 1083 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 6   | C2    | 1092 | A    |
| 6   | C2    | 1096 | C    |
| 6   | C2    | 1100 | G    |
| 6   | C2    | 1109 | G    |
| 6   | C2    | 1138 | A    |
| 6   | C2    | 1150 | G    |
| 6   | C2    | 1158 | C    |
| 6   | C2    | 1159 | C    |
| 6   | C2    | 1160 | A    |
| 6   | C2    | 1170 | G    |
| 6   | C2    | 1185 | U    |
| 6   | C2    | 1186 | U    |
| 6   | C2    | 1194 | A    |
| 6   | C2    | 1196 | A    |
| 6   | C2    | 1198 | G    |
| 6   | C2    | 1199 | G    |
| 6   | C2    | 1200 | G    |
| 6   | C2    | 1217 | A    |
| 6   | C2    | 1218 | G    |
| 6   | C2    | 1227 | A    |
| 6   | C2    | 1228 | G    |
| 6   | C2    | 1229 | G    |
| 6   | C2    | 1241 | G    |
| 6   | C2    | 1243 | G    |
| 6   | C2    | 1244 | A    |
| 6   | C2    | 1245 | G    |
| 6   | C2    | 1246 | C    |
| 6   | C2    | 1252 | C    |
| 6   | C2    | 1257 | U    |
| 6   | C2    | 1258 | U    |
| 6   | C2    | 1273 | G    |
| 6   | C2    | 1274 | C    |
| 6   | C2    | 1275 | A    |
| 6   | C2    | 1280 | C    |
| 6   | C2    | 1285 | U    |
| 6   | C2    | 1286 | U    |
| 6   | C2    | 1301 | U    |
| 6   | C2    | 1308 | G    |
| 6   | C2    | 1314 | U    |
| 6   | C2    | 1321 | A    |
| 6   | C2    | 1322 | A    |
| 6   | C2    | 1337 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 6   | C2    | 1344 | A    |
| 6   | C2    | 1345 | A    |
| 6   | C2    | 1346 | A    |
| 6   | C2    | 1347 | U    |
| 6   | C2    | 1348 | A    |
| 6   | C2    | 1349 | G    |
| 6   | C2    | 1360 | A    |
| 6   | C2    | 1361 | U    |
| 6   | C2    | 1363 | U    |
| 6   | C2    | 1364 | G    |
| 6   | C2    | 1371 | A    |
| 6   | C2    | 1372 | U    |
| 6   | C2    | 1381 | U    |
| 6   | C2    | 1382 | A    |
| 6   | C2    | 1383 | G    |
| 6   | C2    | 1390 | U    |
| 6   | C2    | 1398 | U    |
| 6   | C2    | 1399 | C    |
| 6   | C2    | 1400 | A    |
| 6   | C2    | 1414 | U    |
| 6   | C2    | 1415 | U    |
| 6   | C2    | 1427 | A    |
| 6   | C2    | 1428 | G    |
| 6   | C2    | 1431 | C    |
| 6   | C2    | 1432 | U    |
| 6   | C2    | 1433 | G    |
| 6   | C2    | 1445 | G    |
| 6   | C2    | 1457 | C    |
| 6   | C2    | 1458 | G    |
| 6   | C2    | 1459 | C    |
| 6   | C2    | 1460 | A    |
| 6   | C2    | 1468 | U    |
| 6   | C2    | 1469 | A    |
| 6   | C2    | 1472 | C    |
| 6   | C2    | 1478 | G    |
| 6   | C2    | 1493 | A    |
| 6   | C2    | 1506 | G    |
| 6   | C2    | 1514 | U    |
| 6   | C2    | 1516 | A    |
| 6   | C2    | 1521 | G    |
| 6   | C2    | 1522 | U    |
| 6   | C2    | 1523 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 6   | C2    | 1524 | A    |
| 6   | C2    | 1528 | U    |
| 6   | C2    | 1535 | U    |
| 6   | C2    | 1537 | C    |
| 6   | C2    | 1540 | G    |
| 6   | C2    | 1541 | G    |
| 6   | C2    | 1548 | G    |
| 6   | C2    | 1554 | U    |
| 6   | C2    | 1559 | A    |
| 6   | C2    | 1570 | A    |
| 6   | C2    | 1573 | A    |
| 6   | C2    | 1574 | G    |
| 6   | C2    | 1575 | G    |
| 6   | C2    | 1583 | A    |
| 6   | C2    | 1584 | G    |
| 6   | C2    | 1590 | G    |
| 6   | C2    | 1591 | C    |
| 6   | C2    | 1596 | C    |
| 6   | C2    | 1601 | G    |
| 6   | C2    | 1607 | G    |
| 6   | C2    | 1610 | G    |
| 6   | C2    | 1612 | U    |
| 6   | C2    | 1616 | G    |
| 6   | C2    | 1634 | C    |
| 6   | C2    | 1635 | A    |
| 6   | C2    | 1637 | C    |
| 6   | C2    | 1651 | A    |
| 6   | C2    | 1657 | U    |
| 6   | C2    | 1658 | G    |
| 6   | C2    | 1676 | U    |
| 6   | C2    | 1682 | U    |
| 6   | C2    | 1757 | G    |
| 6   | C2    | 1760 | G    |
| 6   | C2    | 1767 | G    |
| 6   | C2    | 1769 | U    |
| 6   | C2    | 1780 | G    |
| 6   | C2    | 1782 | A    |
| 6   | C2    | 1783 | C    |
| 6   | C2    | 1792 | G    |
| 6   | C2    | 1793 | G    |
| 6   | C2    | 1794 | A    |
| 6   | C2    | 1796 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 6   | C2    | 1799 | U    |
| 7   | C3    | 23   | U    |
| 7   | C3    | 34   | U    |
| 7   | C3    | 35   | C    |
| 7   | C3    | 49   | G    |
| 7   | C3    | 51   | G    |
| 7   | C3    | 52   | A    |
| 7   | C3    | 53   | A    |
| 7   | C3    | 59   | A    |
| 7   | C3    | 62   | C    |
| 7   | C3    | 63   | G    |
| 7   | C3    | 81   | U    |
| 7   | C3    | 82   | U    |
| 7   | C3    | 86   | U    |
| 7   | C3    | 87   | G    |
| 7   | C3    | 90   | U    |
| 7   | C3    | 91   | C    |
| 7   | C3    | 94   | C    |
| 7   | C3    | 95   | G    |
| 7   | C3    | 104  | A    |
| 7   | C3    | 106  | C    |
| 7   | C3    | 111  | A    |
| 7   | C3    | 125  | U    |
| 7   | C3    | 126  | A    |
| 7   | C3    | 144  | G    |
| 8   | C4    | 7    | G    |
| 8   | C4    | 33   | U    |
| 8   | C4    | 44   | C    |
| 8   | C4    | 53   | U    |
| 8   | C4    | 54   | U    |
| 8   | C4    | 55   | A    |
| 8   | C4    | 65   | G    |
| 8   | C4    | 74   | C    |
| 8   | C4    | 76   | A    |
| 8   | C4    | 91   | G    |
| 8   | C4    | 102  | A    |
| 8   | C4    | 112  | G    |

All (66) RNA pucker outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 5     | 42  | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 2   | 6     | 49   | G    |
| 5   | C1    | 13   | A    |
| 5   | C1    | 239  | G    |
| 5   | C1    | 282  | G    |
| 5   | C1    | 439  | C    |
| 5   | C1    | 588  | G    |
| 5   | C1    | 637  | C    |
| 5   | C1    | 763  | G    |
| 5   | C1    | 916  | G    |
| 5   | C1    | 1064 | A    |
| 5   | C1    | 1097 | G    |
| 5   | C1    | 1284 | C    |
| 5   | C1    | 1307 | G    |
| 5   | C1    | 1353 | U    |
| 5   | C1    | 1355 | A    |
| 5   | C1    | 1562 | C    |
| 5   | C1    | 1815 | U    |
| 5   | C1    | 1818 | U    |
| 5   | C1    | 2101 | C    |
| 5   | C1    | 2112 | U    |
| 5   | C1    | 2897 | A    |
| 5   | C1    | 2899 | C    |
| 5   | C1    | 3103 | A    |
| 5   | C1    | 3218 | A    |
| 5   | C1    | 3228 | C    |
| 5   | C1    | 3269 | U    |
| 5   | C1    | 3319 | U    |
| 5   | C1    | 3340 | G    |
| 5   | C1    | 3350 | C    |
| 5   | C1    | 3351 | U    |
| 6   | C2    | 77   | U    |
| 6   | C2    | 139  | C    |
| 6   | C2    | 261  | U    |
| 6   | C2    | 288  | A    |
| 6   | C2    | 322  | G    |
| 6   | C2    | 352  | A    |
| 6   | C2    | 387  | A    |
| 6   | C2    | 400  | A    |
| 6   | C2    | 422  | G    |
| 6   | C2    | 539  | G    |
| 6   | C2    | 555  | A    |
| 6   | C2    | 609  | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 6   | C2    | 639  | U    |
| 6   | C2    | 640  | U    |
| 6   | C2    | 755  | A    |
| 6   | C2    | 813  | U    |
| 6   | C2    | 819  | G    |
| 6   | C2    | 912  | U    |
| 6   | C2    | 928  | U    |
| 6   | C2    | 1185 | U    |
| 6   | C2    | 1245 | G    |
| 6   | C2    | 1256 | A    |
| 6   | C2    | 1273 | G    |
| 6   | C2    | 1274 | C    |
| 6   | C2    | 1285 | U    |
| 6   | C2    | 1344 | A    |
| 6   | C2    | 1382 | A    |
| 6   | C2    | 1399 | C    |
| 6   | C2    | 1427 | A    |
| 6   | C2    | 1430 | U    |
| 6   | C2    | 1471 | A    |
| 6   | C2    | 1633 | A    |
| 6   | C2    | 1636 | C    |
| 7   | C3    | 85   | G    |
| 8   | C4    | 52   | G    |

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

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

## 5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

There are no ligands in this entry.

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues

There are no chain breaks in this entry.

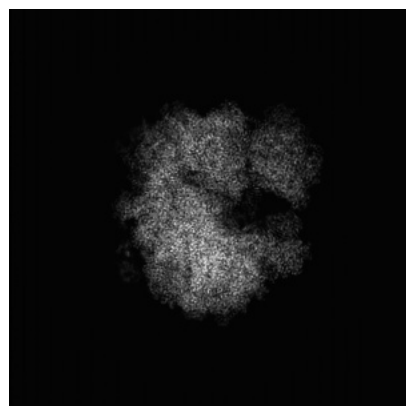
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-53861. These allow visual inspection of the internal detail of the map and identification of artifacts.

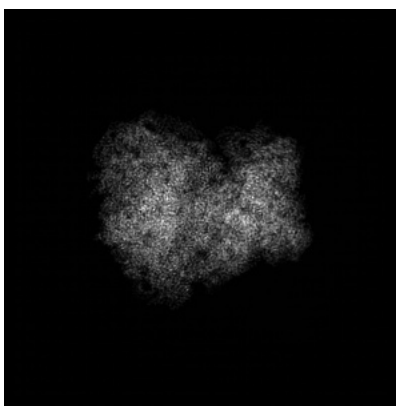
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

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

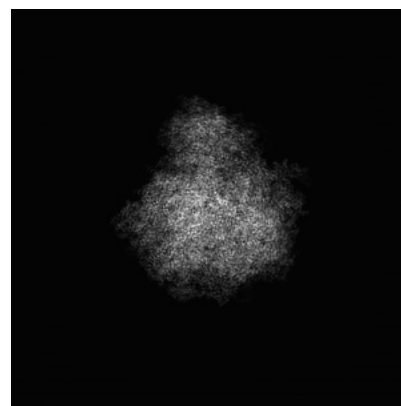
#### 6.1.1 Primary map



X

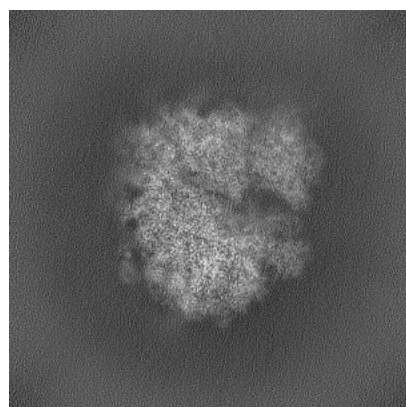


Y

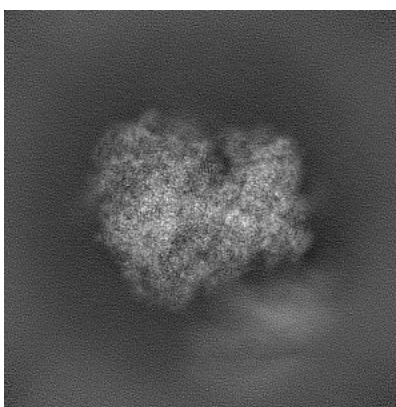


Z

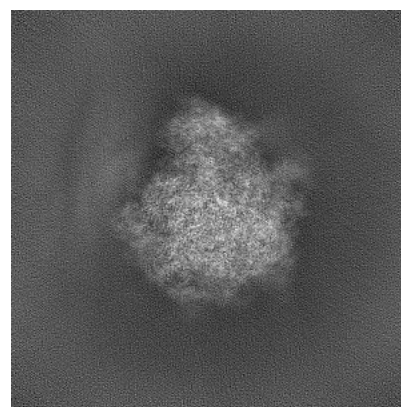
#### 6.1.2 Raw map



X



Y



Z

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

## 6.2 Central slices [i](#)

### 6.2.1 Primary map



X Index: 200

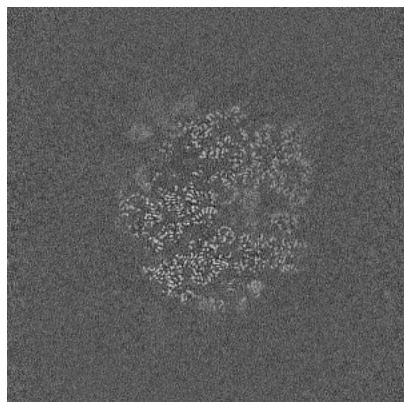


Y Index: 200

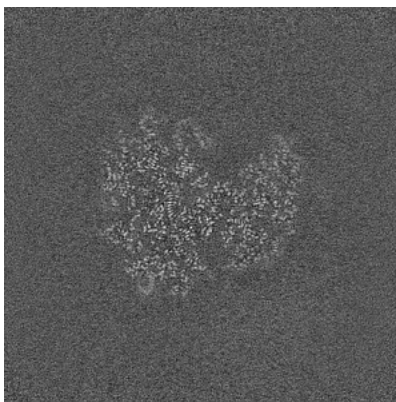


Z Index: 200

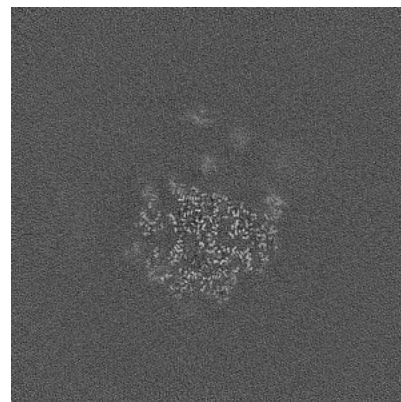
### 6.2.2 Raw map



X Index: 200



Y Index: 200



Z Index: 200

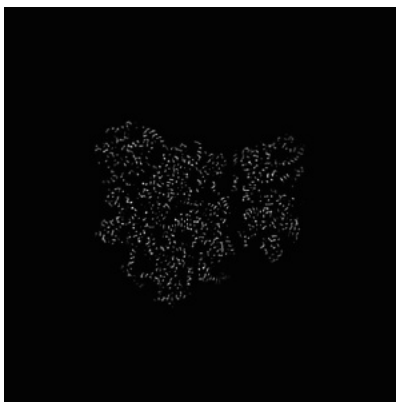
The images above show central slices of the map in three orthogonal directions.

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

### 6.3.1 Primary map



X Index: 189

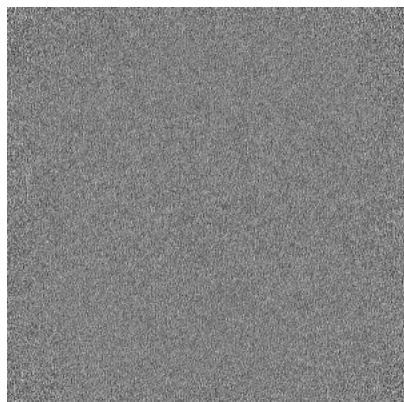


Y Index: 183

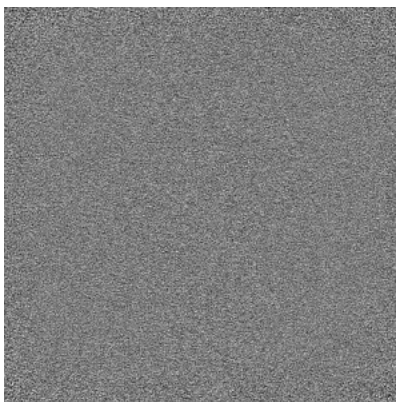


Z Index: 153

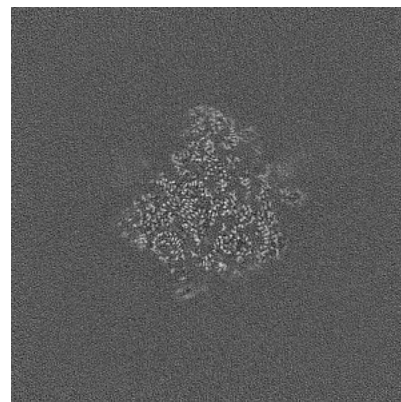
### 6.3.2 Raw map



X Index: 0



Y Index: 0

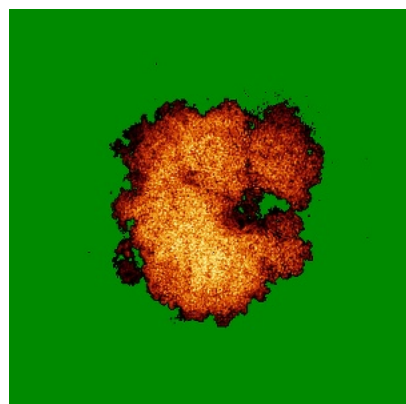


Z Index: 160

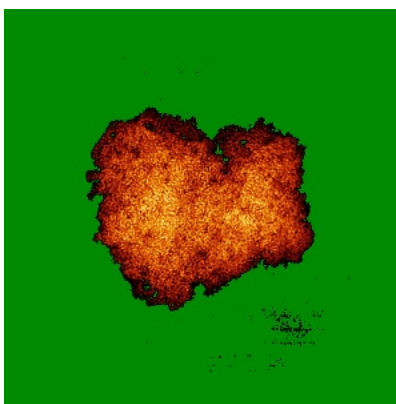
The images above show the largest variance slices of the map in three orthogonal directions.

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

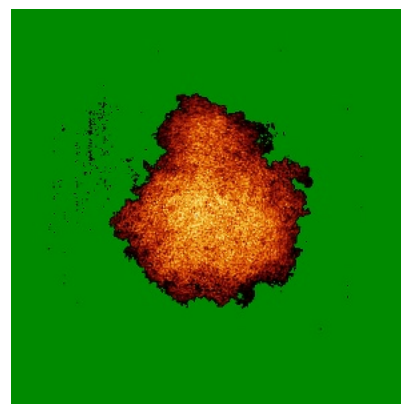
### 6.4.1 Primary map



X

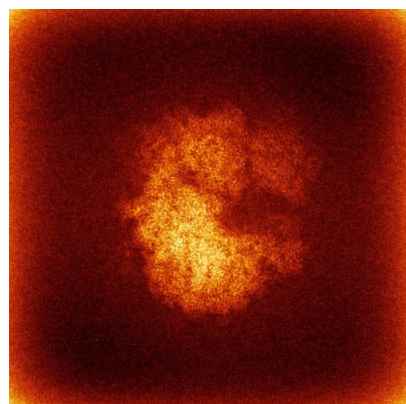


Y

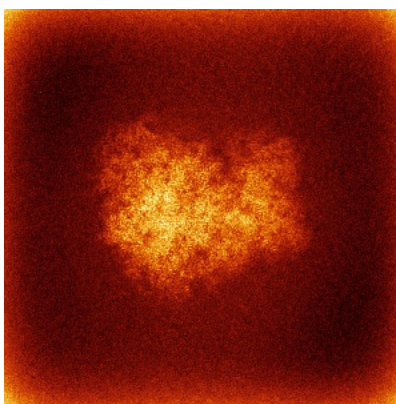


Z

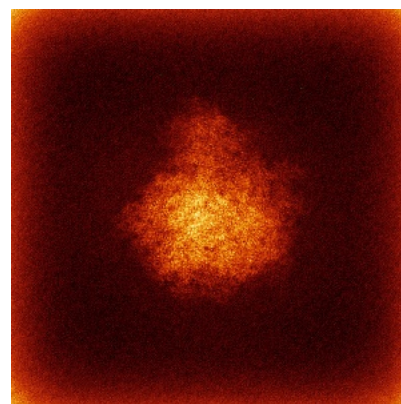
### 6.4.2 Raw map



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](#)

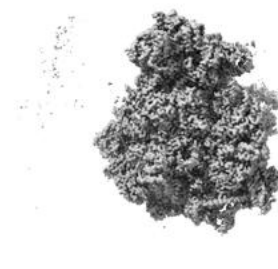
### 6.5.1 Primary map



X



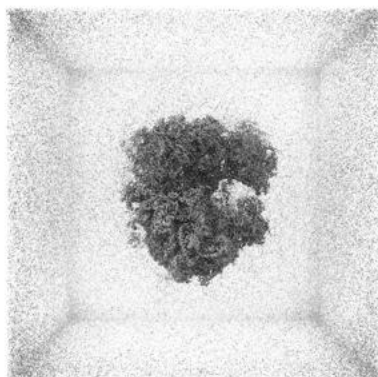
Y



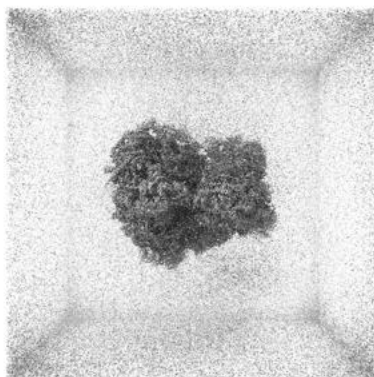
Z

The images above show the 3D surface view of the map at the recommended contour level 0.0241. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

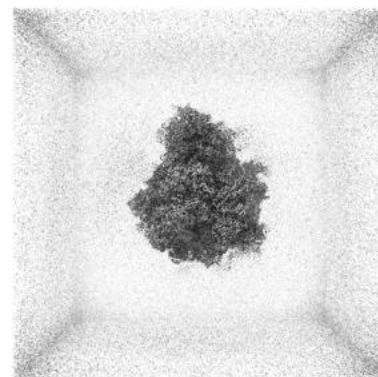
### 6.5.2 Raw map



X



Y



Z

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.

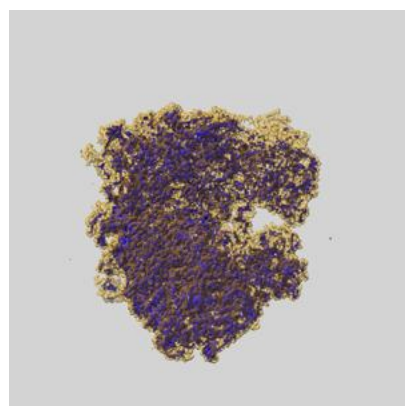
## 6.6 Mask visualisation [i](#)

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

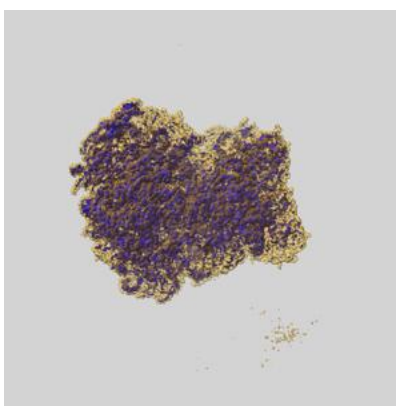
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

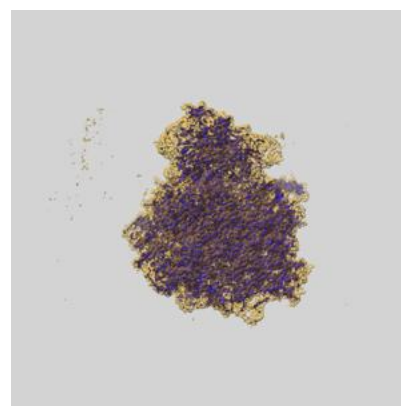
### 6.6.1 emd\_53861\_msk\_1.map [i](#)



X



Y

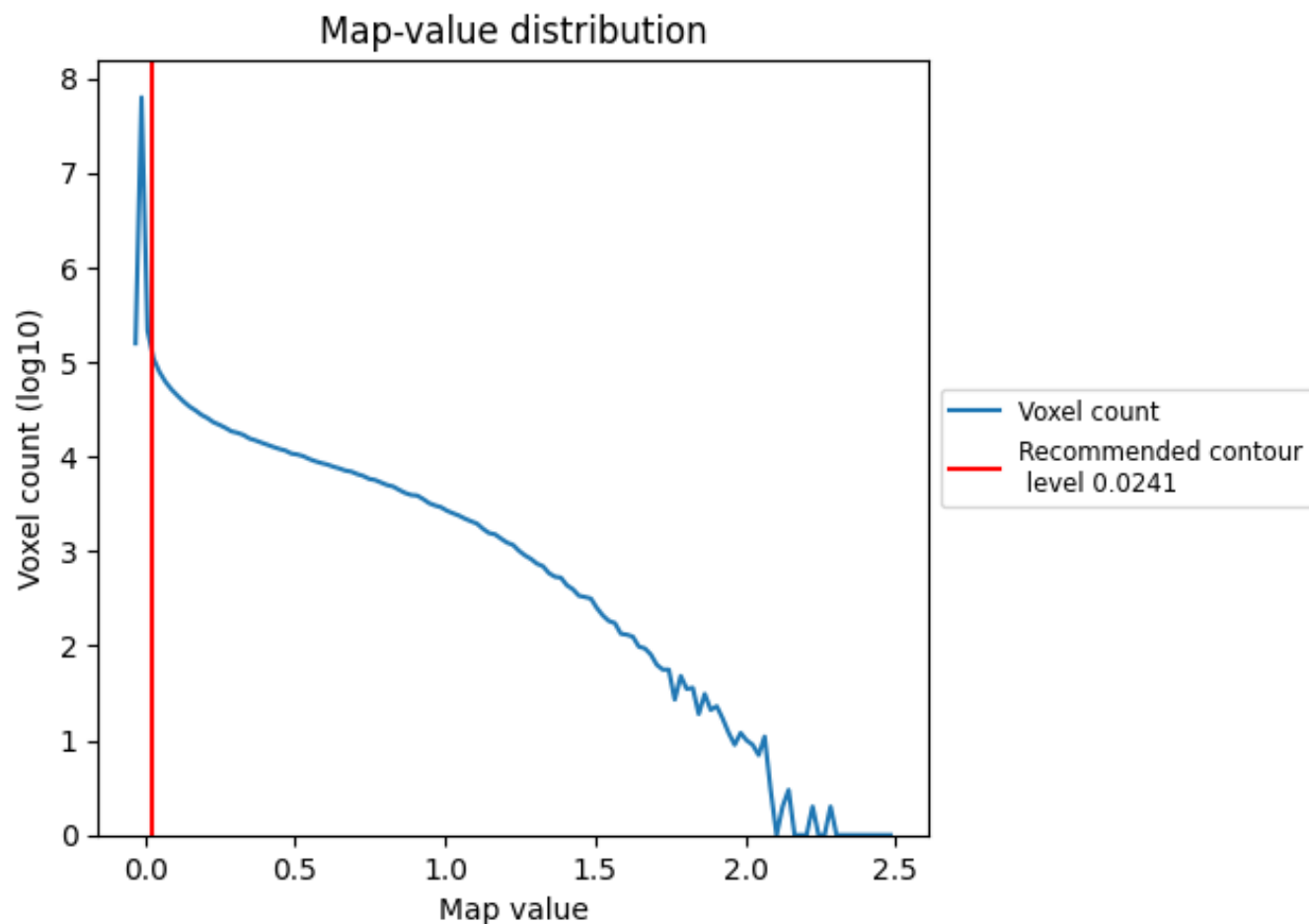


Z

## 7 Map analysis [i](#)

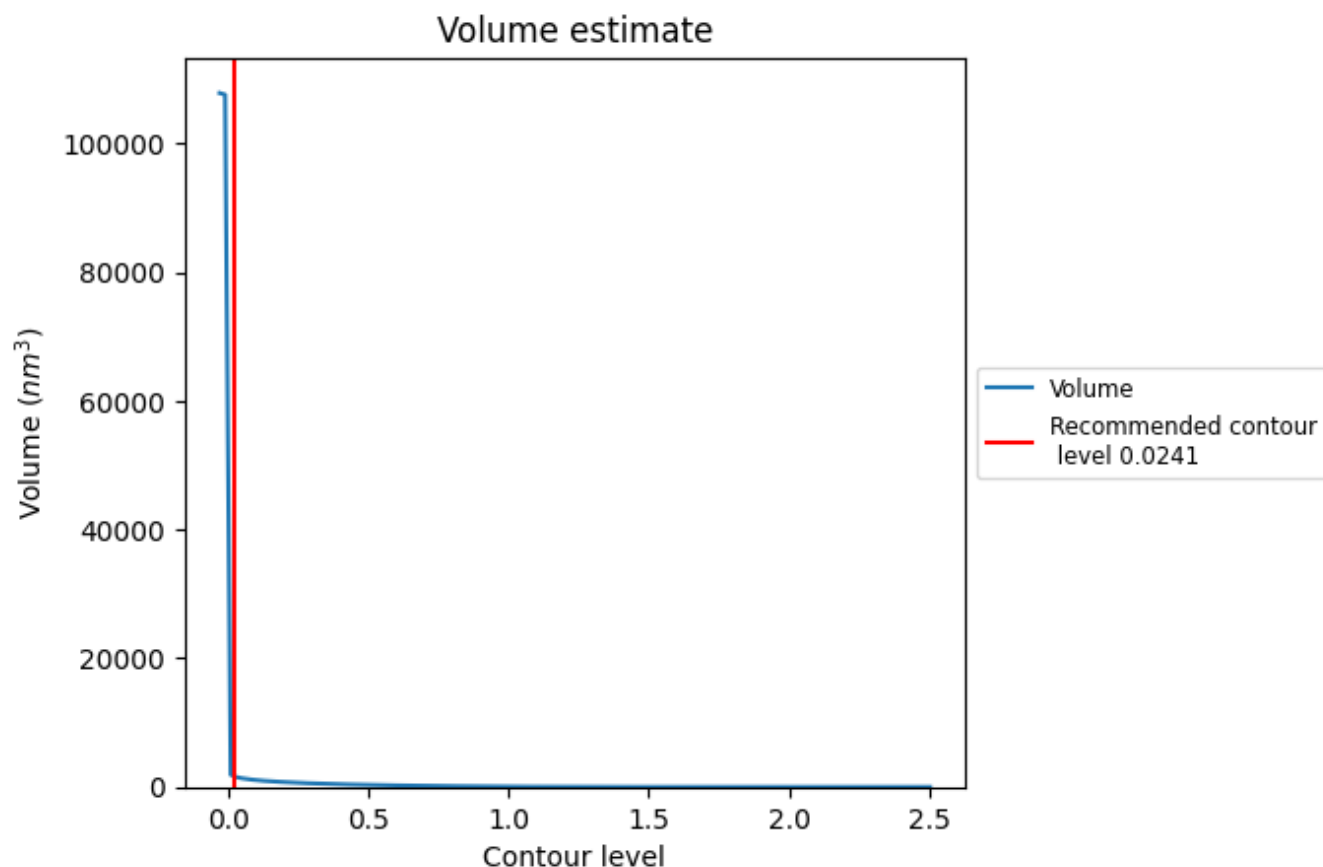
This section contains the results of statistical analysis of the map.

### 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.

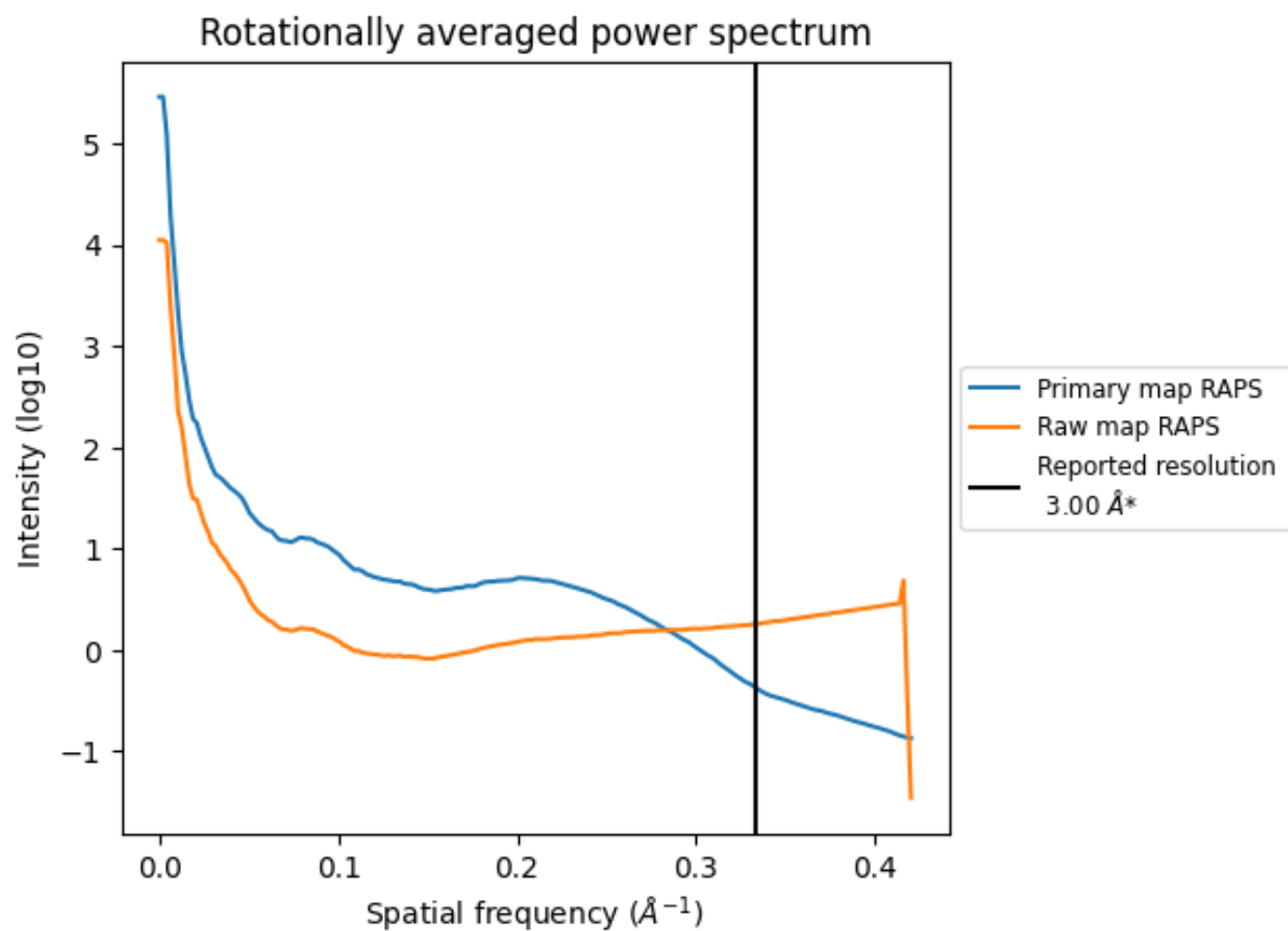
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 1616 nm<sup>3</sup>; this corresponds to an approximate mass of 1459 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 ⓘ

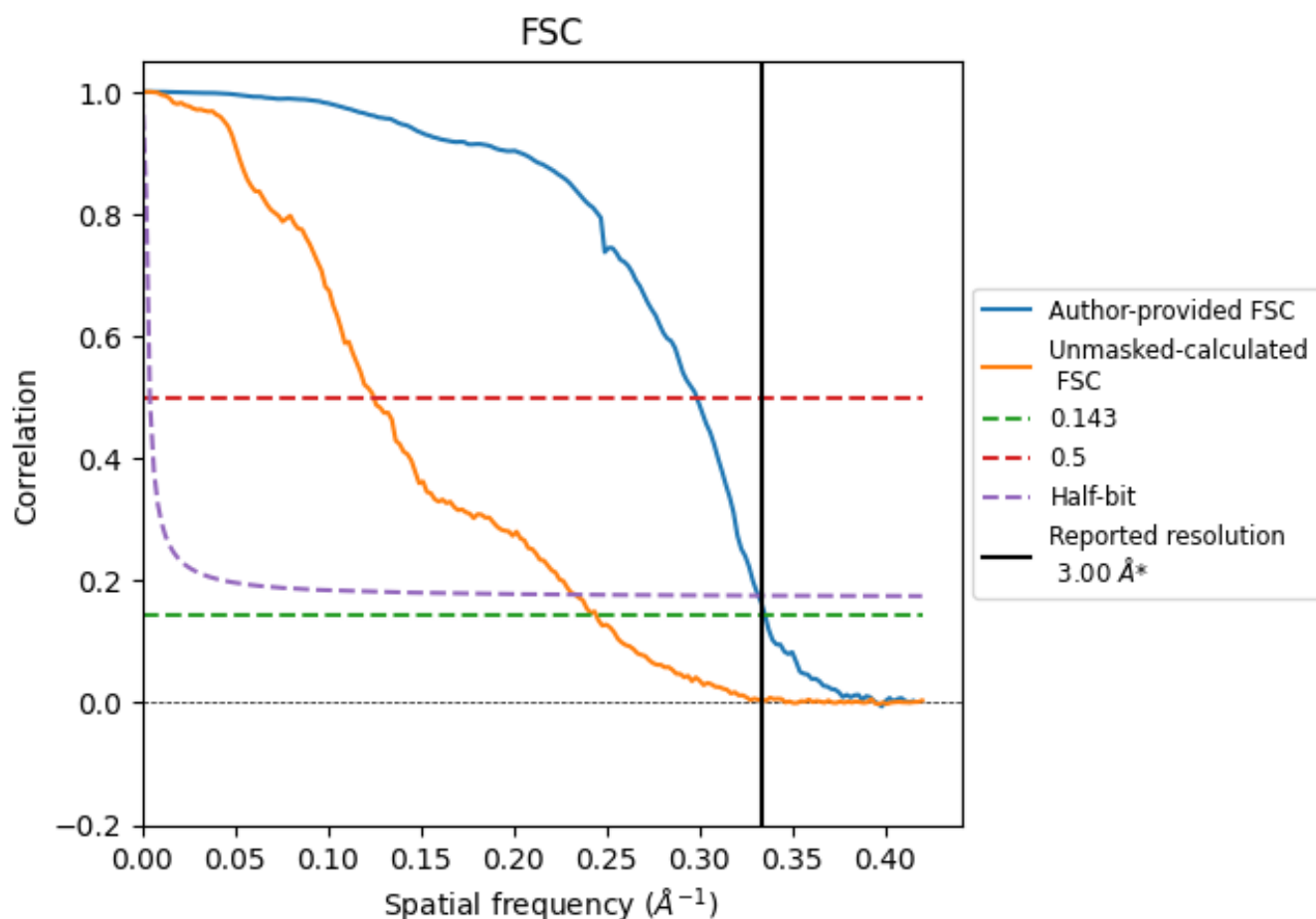


\*Reported resolution corresponds to spatial frequency of 0.333  $\text{\AA}^{-1}$

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

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

### 8.1 FSC [i](#)



\*Reported resolution corresponds to spatial frequency of 0.333  $\text{\AA}^{-1}$

## 8.2 Resolution estimates [i](#)

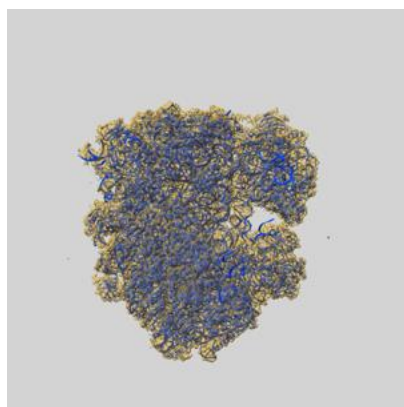
| Resolution estimate (Å)   | Estimation criterion (FSC cut-off) |      |          |
|---------------------------|------------------------------------|------|----------|
|                           | 0.143                              | 0.5  | Half-bit |
| Reported by author        | 3.00                               | -    | -        |
| Author-provided FSC curve | 2.98                               | 3.35 | 3.01     |
| Unmasked-calculated*      | 4.09                               | 8.02 | 4.28     |

\*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 4.09 differs from the reported value 3.0 by more than 10 %

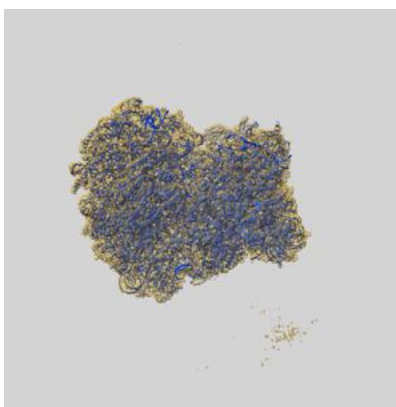
## 9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-53861 and PDB model 9R9P. Per-residue inclusion information can be found in section [3](#) on page [19](#).

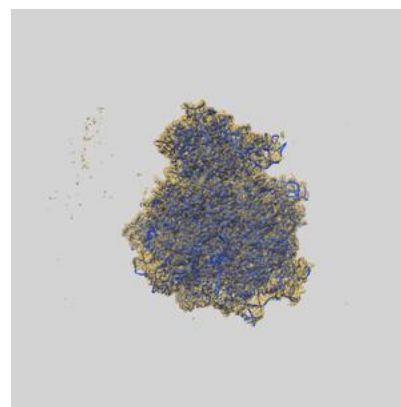
### 9.1 Map-model overlay [i](#)



X



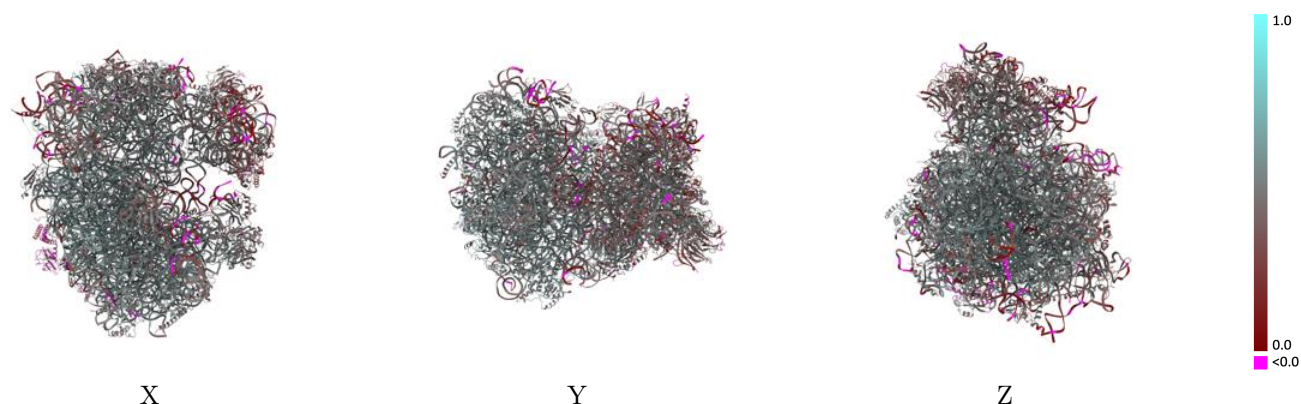
Y



Z

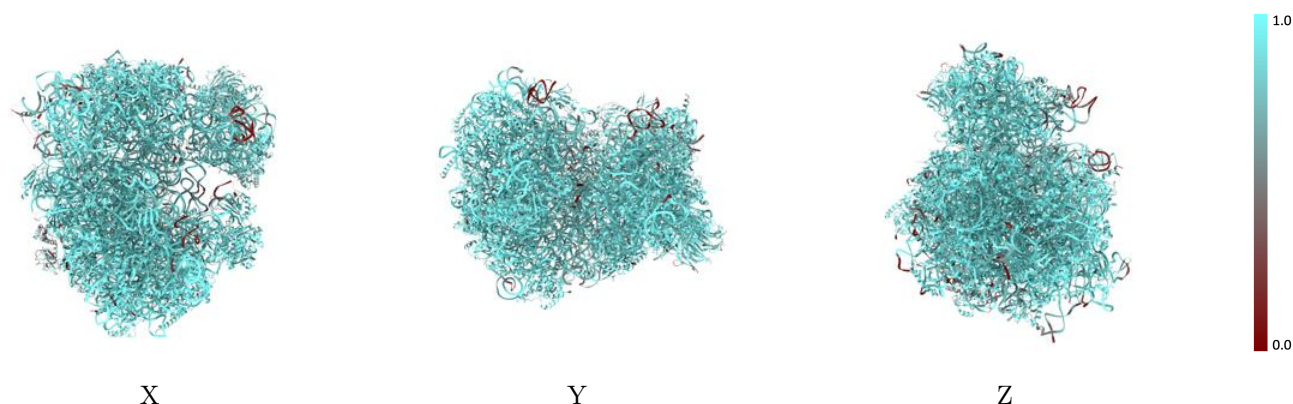
The images above show the 3D surface view of the map at the recommended contour level 0.0241 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



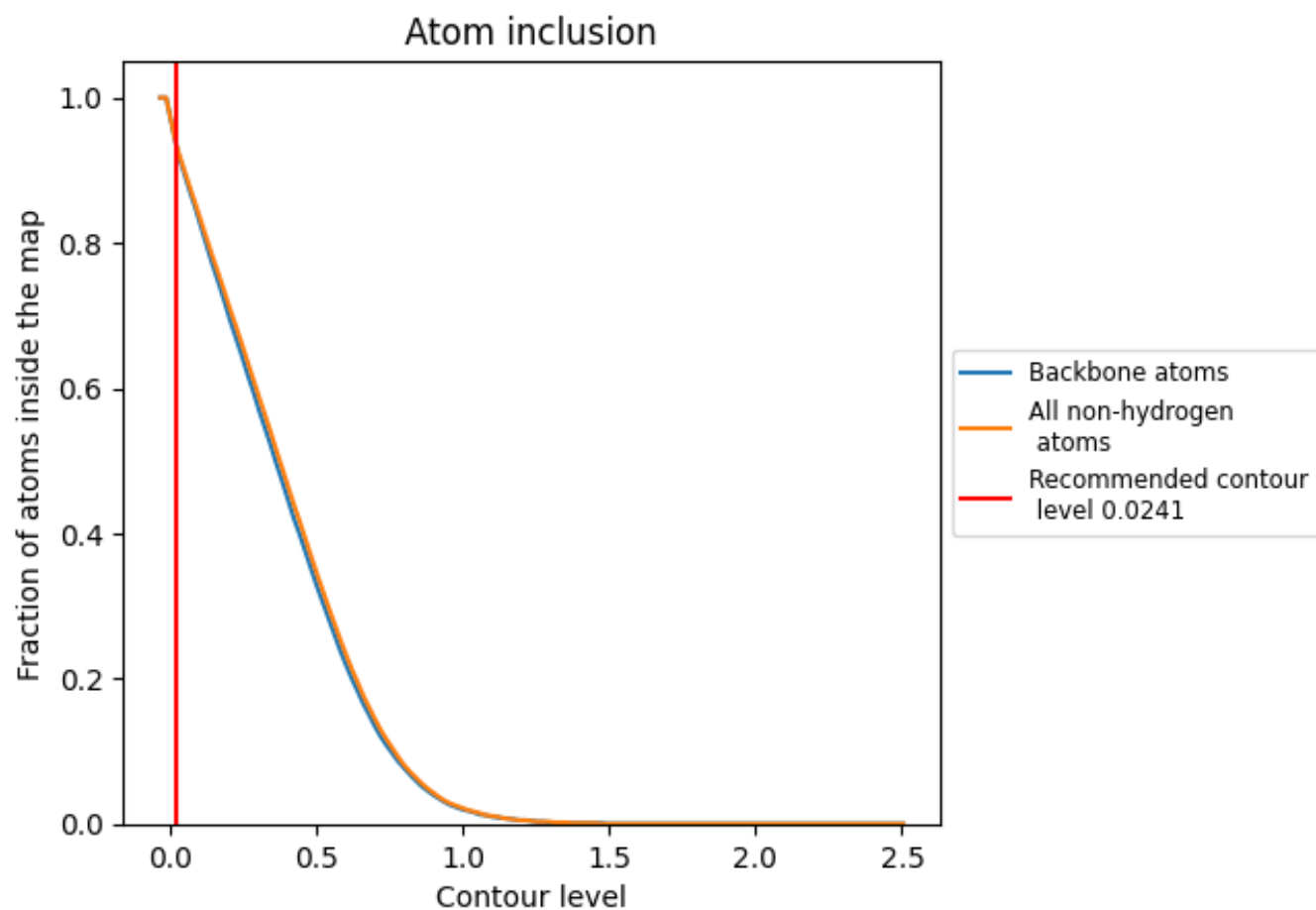
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.0241).

## 9.4 Atom inclusion [i](#)



At the recommended contour level, 93% of all backbone atoms, 93% 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 (0.0241) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion                                                                             | Q-score                                                                                    |
|-------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| All   |  0.9340   |  0.4710   |
| 5     |  0.9480   |  0.4600   |
| 6     |  0.7890   |  0.2920   |
| A     |  0.5760   |  0.1010   |
| B     |  0.7260   |  0.3160   |
| C1    |  0.9540   |  0.4940   |
| C2    |  0.9200   |  0.4330   |
| C3    |  0.9620   |  0.5280   |
| C4    |  0.9850   |  0.4960   |
| LA    |  0.9790   |  0.5540   |
| LB    |  0.9770   |  0.5340   |
| LC    |  0.9730   |  0.5460   |
| LD    |  0.9100   |  0.4510   |
| LE    |  0.9390   |  0.5010   |
| LF    |  0.9650  |  0.5260  |
| LG    |  0.9430 |  0.5110 |
| LH    |  0.8850 |  0.4120 |
| LI    |  0.9270 |  0.4600 |
| LJ    |  0.8910 |  0.4190 |
| LL    |  0.9540 |  0.5280 |
| LM    |  0.9610 |  0.4980 |
| LN    |  0.9840 |  0.5720 |
| LO    |  0.9760 |  0.5300 |
| LP    |  0.9400 |  0.5150 |
| LQ    |  0.9720 |  0.5400 |
| LR    |  0.9130 |  0.4880 |
| LS    |  0.9600 |  0.4980 |
| LT    |  0.9540 |  0.5130 |
| LU    |  0.9120 |  0.4480 |
| LV    |  0.9410 |  0.5100 |
| LW    |  0.9680 |  0.5240 |
| LX    |  0.9500 |  0.5320 |
| LY    |  0.9660 |  0.5480 |
| LZ    |  0.9300 |  0.4950 |
| La    |  0.9770 |  0.5490 |



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| Chain | Atom inclusion                                                                             | Q-score                                                                                    |
|-------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Lb    |  0.9140   |  0.4680   |
| Lc    |  0.9640   |  0.5130   |
| Ld    |  0.9390   |  0.5230   |
| Le    |  0.9700   |  0.5490   |
| Lf    |  0.9830   |  0.5370   |
| Lg    |  0.9290   |  0.5150   |
| Lh    |  0.9520   |  0.5330   |
| Li    |  0.9390   |  0.4960   |
| Lj    |  0.9890   |  0.5550   |
| Lk    |  0.9100   |  0.4740   |
| Ll    |  0.9830   |  0.5560   |
| Ln    |  0.9520   |  0.5020   |
| Lo    |  0.9290   |  0.5090   |
| Lp    |  0.9310   |  0.5100   |
| SA    |  0.9660   |  0.4850   |
| SB    |  0.8960   |  0.4530   |
| SC    |  0.9670   |  0.4940   |
| SD    |  0.8820   |  0.3870   |
| SE    |  0.9500   |  0.4770   |
| SF    |  0.9000  |  0.4200  |
| SG    |  0.8590 |  0.3700 |
| SH    |  0.8350 |  0.3720 |
| SI    |  0.9280 |  0.4910 |
| SJ    |  0.9210 |  0.4350 |
| SK    |  0.7690 |  0.2670 |
| SL    |  0.9320 |  0.5000 |
| SN    |  0.9520 |  0.4990 |
| SO    |  0.9650 |  0.5000 |
| SP    |  0.8250 |  0.3190 |
| SQ    |  0.9290 |  0.4240 |
| SR    |  0.9080 |  0.4400 |
| SS    |  0.8400 |  0.3490 |
| ST    |  0.8880 |  0.3780 |
| SU    |  0.8670 |  0.3660 |
| SV    |  0.9680 |  0.4950 |
| SW    |  0.9720 |  0.5170 |
| SX    |  0.9440 |  0.4910 |
| SY    |  0.8940 |  0.4040 |
| SZ    |  0.8280 |  0.3480 |
| Sa    |  0.9650 |  0.5040 |
| Sb    |  0.9400 |  0.4820 |
| Sc    |  0.8730 |  0.4160 |

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| Chain | Atom inclusion                                                                           | Q-score                                                                                  |
|-------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| Sd    |  0.9490 |  0.4460 |
| Se    |  0.7890 |  0.3770 |
| Sg    |  0.8470 |  0.3460 |