



## Full wwPDB EM Validation Report ⓘ

Feb 9, 2026 – 06:26 am GMT

PDB ID : 9S3D / pdb\_00009s3d  
EMDB ID : EMD-54530  
Title : NAC bound human RNC with 58 amino acid ARF1-linker  
Authors : Denk, T.; Berninghausen, O.; Beckmann, R.  
Deposited on : 2025-07-24  
Resolution : 2.32 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>.

---

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

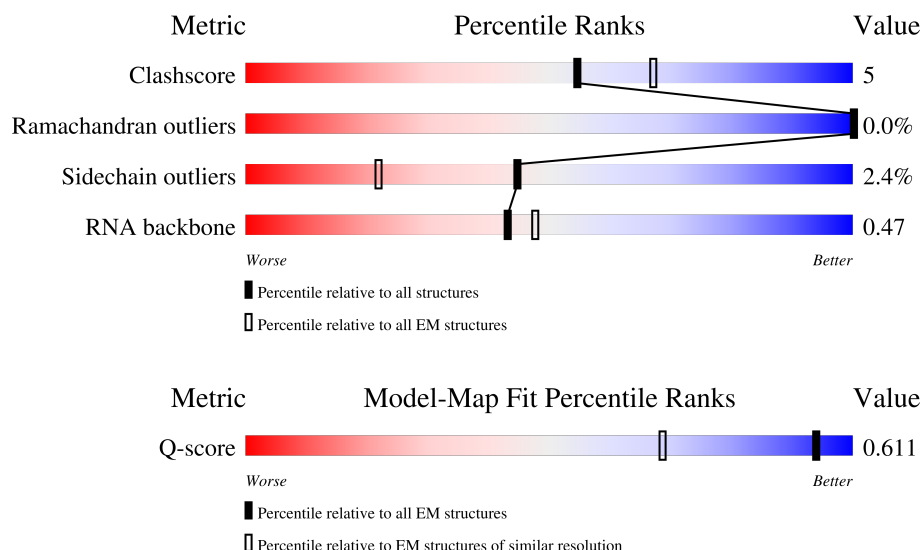
EMDB validation analysis : 0.0.1.dev131  
Mogul : 1.8.4, CSD as541be (2020)  
MolProbity : 4-5-2 with Phenix2.0  
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)  
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.48

# 1 Overall quality at a glance

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

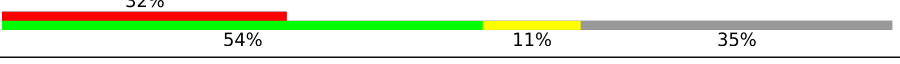
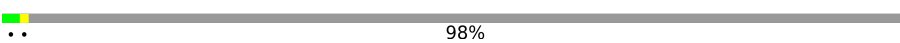
The reported resolution of this entry is 2.32 Å.

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                       | 4359 ( 1.82 - 2.82 )                                     |

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   | NA    | 215    |  |
| 2   | NB    | 162    |  |
| 3   | CM    | 586    |  |

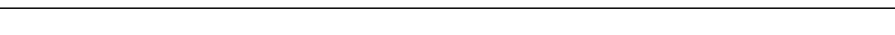
Continued on next page...

Continued from previous page...

| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 4   | CP    | 75     |                  |
| 5   | CR    | 437    |                  |
| 6   | CZ    | 95     |                  |
| 7   | L5    | 5070   |                  |
| 8   | L7    | 121    |                  |
| 9   | L8    | 157    |                  |
| 10  | LA    | 257    |                  |
| 11  | LB    | 403    |                  |
| 12  | LC    | 427    |                  |
| 13  | LD    | 297    |                  |
| 14  | LE    | 288    |                  |
| 15  | LF    | 248    |                  |
| 16  | LG    | 266    |                  |
| 17  | LH    | 192    |                  |
| 18  | LI    | 214    |                  |
| 19  | LJ    | 178    |                  |
| 20  | LL    | 211    |                  |
| 21  | LM    | 215    |                  |
| 22  | LN    | 204    |                  |
| 23  | LO    | 203    |                  |
| 24  | LP    | 184    |                  |
| 25  | LQ    | 188    |                  |
| 26  | LR    | 196    |                  |
| 27  | LS    | 176    |                  |
| 28  | LT    | 160    |                  |

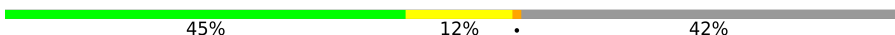
Continued on next page...

Continued from previous page...

| Mol | Chain | Length | Quality of chain                                                                     |
|-----|-------|--------|--------------------------------------------------------------------------------------|
| 29  | LU    | 128    |    |
| 30  | LV    | 140    |    |
| 31  | LW    | 157    |    |
| 32  | LX    | 156    |    |
| 33  | LY    | 145    |    |
| 34  | LZ    | 136    |    |
| 35  | La    | 148    |    |
| 36  | Lb    | 159    |    |
| 37  | Lc    | 115    |    |
| 38  | Ld    | 125    |    |
| 39  | Le    | 135    |    |
| 40  | Lf    | 110    |    |
| 41  | Lg    | 117    |  |
| 42  | Lh    | 123    |  |
| 43  | Li    | 105    |  |
| 44  | Lj    | 97     |  |
| 45  | Lk    | 70     |  |
| 46  | Ll    | 51     |  |
| 47  | Lm    | 128    |  |
| 48  | Ln    | 25     |  |
| 49  | Lo    | 106    |  |
| 50  | Lp    | 92     |  |
| 51  | Lr    | 137    |  |
| 52  | Ls    | 317    |  |
| 53  | Lt    | 165    |  |

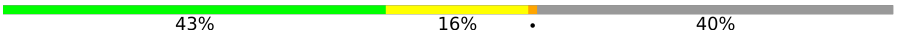
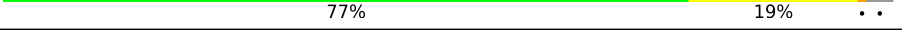
Continued on next page...

Continued from previous page...

| Mol | Chain | Length | Quality of chain                                                                     |
|-----|-------|--------|--------------------------------------------------------------------------------------|
| 54  | S2    | 1869   |    |
| 55  | SA    | 295    |    |
| 56  | SB    | 264    |    |
| 57  | SC    | 293    |    |
| 58  | SD    | 243    |    |
| 59  | SE    | 263    |    |
| 60  | SF    | 204    |    |
| 61  | SG    | 249    |    |
| 62  | SH    | 194    |    |
| 63  | SI    | 208    |    |
| 64  | SJ    | 194    |    |
| 65  | SK    | 165    |   |
| 66  | SL    | 158    |  |
| 67  | SM    | 132    |  |
| 68  | SN    | 151    |  |
| 69  | SO    | 151    |  |
| 70  | SP    | 145    |  |
| 71  | SQ    | 146    |  |
| 72  | SR    | 135    |  |
| 73  | SS    | 152    |  |
| 74  | ST    | 145    |  |
| 75  | SU    | 119    |  |
| 76  | SV    | 83     |  |
| 77  | SW    | 130    |  |
| 78  | SX    | 143    |  |

Continued on next page...

*Continued from previous page...*

| Mol | Chain | Length | Quality of chain                                                                             |
|-----|-------|--------|----------------------------------------------------------------------------------------------|
| 79  | SY    | 133    |  67%26%8%  |
| 80  | SZ    | 125    |  43%16%40% |
| 81  | Sa    | 115    |  73%13%14% |
| 82  | Sb    | 84     |  83%13%..  |
| 83  | Sc    | 69     |  62%29%9%  |
| 84  | Sd    | 56     |  75%20%5%  |
| 85  | Se    | 133    |  35%6%59%  |
| 86  | Sf    | 156    |  29%11%60% |
| 87  | Sg    | 317    |  77%19%..  |

## 2 Entry composition

There are 90 unique types of molecules in this entry. The entry contains 218816 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called Nascent polypeptide-associated complex subunit alpha.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 1   | NA    | 66       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 522   | 329 | 95 | 97 | 1 |         |       |

- Molecule 2 is a protein called Isoform 2 of Transcription factor BTF3.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 2   | NB    | 105      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 813   | 508 | 152 | 150 | 3 |         |       |

- Molecule 3 is a RNA chain called 58 amino acid ARF1-linker - V5 peptide - hCMV staller mRNA.

| Mol | Chain | Residues | Atoms |     |    |    |    | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|----|---------|-------|
| 3   | CM    | 12       | Total | C   | N  | O  | P  | 0       | 0     |
|     |       |          | 247   | 111 | 37 | 87 | 12 |         |       |

- Molecule 4 is a RNA chain called prolyl-tRNA.

| Mol | Chain | Residues | Atoms |     |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 4   | CP    | 75       | Total | C   | N   | O   | P  | 0       | 0     |
|     |       |          | 1602  | 713 | 284 | 530 | 75 |         |       |

- Molecule 5 is a protein called Eukaryotic peptide chain release factor subunit 1.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 5   | CR    | 414      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3269  | 2080 | 557 | 621 | 11 |         |       |

- Molecule 6 is a protein called nascent chain.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 6   | CZ    | 39       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 261   | 169 | 43 | 47 | 2 |         |       |

- Molecule 7 is a RNA chain called 28S rRNA.

| Mol | Chain | Residues | Atoms |       |       |       |      | AltConf | Trace |
|-----|-------|----------|-------|-------|-------|-------|------|---------|-------|
| 7   | L5    | 3648     | Total | C     | N     | O     | P    | 0       | 0     |
|     |       |          | 78199 | 34823 | 14307 | 25422 | 3647 |         |       |

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

| Mol | Chain | Residues | Atoms |      |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|-----|---------|-------|
| 8   | L7    | 120      | Total | C    | N   | O   | P   | 0       | 0     |
|     |       |          | 2558  | 1141 | 456 | 842 | 119 |         |       |

- Molecule 9 is a RNA chain called 5.8S rRNA.

| Mol | Chain | Residues | Atoms |      |     |      |     | AltConf | Trace |
|-----|-------|----------|-------|------|-----|------|-----|---------|-------|
| 9   | L8    | 156      | Total | C    | N   | O    | P   | 0       | 0     |
|     |       |          | 3314  | 1480 | 585 | 1094 | 155 |         |       |

- Molecule 10 is a protein called 60S ribosomal protein L8.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 10  | LA    | 248      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1898  | 1189 | 389 | 314 | 6 |         |       |

- Molecule 11 is a protein called 60S ribosomal protein L3.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 11  | LB    | 395      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3183  | 2027 | 597 | 545 | 14 |         |       |

- Molecule 12 is a protein called 60S ribosomal protein L4.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 12  | LC    | 364      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 2884  | 1814 | 576 | 479 | 15 |         |       |

- Molecule 13 is a protein called 60S ribosomal protein L5.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 13  | LD    | 293      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 2361  | 1496 | 430 | 421 | 14 |         |       |

- Molecule 14 is a protein called Large ribosomal subunit protein eL6.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 14  | LE    | 219      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1754  | 1129 | 334 | 287 | 4 |         |       |

- Molecule 15 is a protein called Large ribosomal subunit protein uL30.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 15  | LF    | 225      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1870  | 1202 | 358 | 301 | 9 |         |       |

- Molecule 16 is a protein called 60S ribosomal protein L7a.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 16  | LG    | 229      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1818  | 1157 | 351 | 306 | 4 |         |       |

- Molecule 17 is a protein called 60S ribosomal protein L9.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 17  | LH    | 190      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1510  | 950 | 282 | 272 | 6 |         |       |

- Molecule 18 is a protein called Ribosomal protein uL16-like.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 18  | LI    | 207      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 1666  | 1059 | 323 | 270 | 14 |         |       |

- Molecule 19 is a protein called 60S ribosomal protein L11.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 19  | LJ    | 169      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1329  | 841 | 250 | 232 | 6 |         |       |

- Molecule 20 is a protein called 60S ribosomal protein L13.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 20  | LL    | 205      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1630  | 1020 | 340 | 266 | 4 |         |       |

- Molecule 21 is a protein called 60S ribosomal protein L14.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 21  | LM    | 139      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1122  | 720 | 216 | 179 | 7 |         |       |

- Molecule 22 is a protein called 60S ribosomal protein L15.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 22  | LN    | 203      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1701  | 1072 | 359 | 266 | 4 |         |       |

- Molecule 23 is a protein called 60S ribosomal protein L13a.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 23  | LO    | 200      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1633  | 1053 | 318 | 257 | 5 |         |       |

- Molecule 24 is a protein called 60S ribosomal protein L17.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 24  | LP    | 153      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1234  | 771 | 240 | 214 | 9 |         |       |

- Molecule 25 is a protein called 60S ribosomal protein L18.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 25  | LQ    | 187      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1502  | 939 | 313 | 245 | 5 |         |       |

- Molecule 26 is a protein called 60S ribosomal protein L19.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 26  | LR    | 176      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1452  | 898 | 318 | 227 | 9 |         |       |

- Molecule 27 is a protein called 60S ribosomal protein L18a.

| Mol | Chain | Residues | Atoms |     |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 27  | LS    | 175      | Total | C   | N   | O   | S  | 0       | 0     |
|     |       |          | 1452  | 925 | 283 | 234 | 10 |         |       |

- Molecule 28 is a protein called 60S ribosomal protein L21.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 28  | LT    | 159      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1282  | 813 | 250 | 213 | 6 |         |       |

- Molecule 29 is a protein called 60S ribosomal protein L22.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 29  | LU    | 101      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 806   | 520 | 141 | 143 | 2 |         |       |

- Molecule 30 is a protein called 60S ribosomal protein L23.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 30  | LV    | 131      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 971   | 613 | 183 | 170 | 5 |         |       |

- Molecule 31 is a protein called 60S ribosomal protein L24.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 31  | LW    | 115      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 808   | 506 | 160 | 139 | 3 |         |       |

- Molecule 32 is a protein called 60S ribosomal protein L23a.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 32  | LX    | 120      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 981   | 627 | 184 | 169 | 1 |         |       |

- Molecule 33 is a protein called 60S ribosomal protein L26.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 33  | LY    | 134      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1111  | 697 | 225 | 186 | 3 |         |       |

- Molecule 34 is a protein called 60S ribosomal protein L27.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 34  | LZ    | 135      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1107  | 714 | 208 | 182 | 3 |         |       |

- Molecule 35 is a protein called 60S ribosomal protein L27a.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 35  | La    | 147      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1154  | 731 | 236 | 184 | 3 |         |       |

- Molecule 36 is a protein called 60S ribosomal protein L29.

| Mol | Chain | Residues | Atoms |     |     |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 36  | Lb    | 75       | Total | C   | N   | O  | S | 0       | 0     |
|     |       |          | 590   | 367 | 123 | 97 | 3 |         |       |

- Molecule 37 is a protein called 60S ribosomal protein L30.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 37  | Lc    | 97       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 742   | 473 | 130 | 133 | 6 |         |       |

- Molecule 38 is a protein called 60S ribosomal protein L31.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 38  | Ld    | 107      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 874   | 554 | 171 | 147 | 2 |         |       |

- Molecule 39 is a protein called 60S ribosomal protein L32.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 39  | Le    | 128      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1049  | 664 | 215 | 165 | 5 |         |       |

- Molecule 40 is a protein called 60S ribosomal protein L35a.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 40  | Lf    | 109      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 872   | 552 | 173 | 144 | 3 |         |       |

- Molecule 41 is a protein called 60S ribosomal protein L34.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 41  | Lg    | 114      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 889   | 557 | 184 | 142 | 6 |         |       |

- Molecule 42 is a protein called 60S ribosomal protein L35.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 42  | Lh    | 121      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1006  | 635 | 203 | 167 | 1 |         |       |

- Molecule 43 is a protein called 60S ribosomal protein L36.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 43  | Li    | 102      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 813   | 510 | 176 | 123 | 4 |         |       |

- Molecule 44 is a protein called Large ribosomal subunit protein eL37.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 44  | Lj    | 86       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 705   | 434 | 155 | 111 | 5 |         |       |

- Molecule 45 is a protein called 60S ribosomal protein L38.

| Mol | Chain | Residues | Atoms |     |     |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 45  | Lk    | 69       | Total | C   | N   | O  | S | 0       | 0     |
|     |       |          | 542   | 350 | 100 | 91 | 1 |         |       |

- Molecule 46 is a protein called 60S ribosomal protein L39.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 46  | Ll    | 50       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 444   | 281 | 98 | 64 | 1 |         |       |

- Molecule 47 is a protein called Ubiquitin-60S ribosomal protein L40.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 47  | Lm    | 52       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 425   | 264 | 90 | 65 | 6 |         |       |

- Molecule 48 is a protein called 60S ribosomal protein L41.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 48  | Ln    | 24       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 230   | 139 | 62 | 26 | 3 |         |       |

- Molecule 49 is a protein called 60S ribosomal protein L36a.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 49  | Lo    | 105      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 862   | 542 | 175 | 139 | 6 |         |       |

- Molecule 50 is a protein called 60S ribosomal protein L37a.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 50  | Lp    | 91       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 696   | 440 | 135 | 114 | 7 |         |       |

- Molecule 51 is a protein called 60S ribosomal protein L28.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 51  | Lr    | 125      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 997   | 618 | 207 | 168 | 4 |         |       |

- Molecule 52 is a protein called 60S acidic ribosomal protein P0.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 52  | Ls    | 212      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1640  | 1042 | 284 | 305 | 9 |         |       |

- Molecule 53 is a protein called Large ribosomal subunit protein uL11.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 53  | Lt    | 160      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1208  | 749 | 226 | 229 | 4 |         |       |

- Molecule 54 is a RNA chain called 18S rRNA.

| Mol | Chain | Residues | Atoms |       |      |       |      | AltConf | Trace |
|-----|-------|----------|-------|-------|------|-------|------|---------|-------|
| 54  | S2    | 1713     | Total | C     | N    | O     | P    | 0       | 0     |
|     |       |          | 36562 | 16320 | 6564 | 11966 | 1712 |         |       |

- Molecule 55 is a protein called 40S ribosomal protein SA.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 55  | SA    | 216      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1671  | 1068 | 297 | 298 | 8 |         |       |

- Molecule 56 is a protein called 40S ribosomal protein S3a.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 56  | SB    | 213      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 1718  | 1092 | 308 | 304 | 14 |         |       |

- Molecule 57 is a protein called 40S ribosomal protein S2.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 57  | SC    | 219      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 1661  | 1076 | 284 | 291 | 10 |         |       |

- Molecule 58 is a protein called 40S ribosomal protein S3.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 58  | SD    | 223      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1594  | 1023 | 291 | 273 | 7 |         |       |

- Molecule 59 is a protein called Small ribosomal subunit protein eS4, X isoform.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 59  | SE    | 262      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1972  | 1270 | 370 | 324 | 8 |         |       |

- Molecule 60 is a protein called 40S ribosomal protein S5.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 60  | SF    | 181      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1403  | 879 | 269 | 248 | 7 |         |       |

- Molecule 61 is a protein called 40S ribosomal protein S6.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 61  | SG    | 231      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1634  | 1026 | 332 | 269 | 7 |         |       |

- Molecule 62 is a protein called 40S ribosomal protein S7.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 62  | SH    | 183      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1274  | 819 | 242 | 213 |         |       |

- Molecule 63 is a protein called 40S ribosomal protein S8.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 63  | SI    | 206      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1574  | 989 | 308 | 272 | 5 |         |       |

- Molecule 64 is a protein called 40S ribosomal protein S9.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 64  | SJ    | 179      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1431  | 915 | 290 | 224 | 2 |         |       |

- Molecule 65 is a protein called 40S ribosomal protein S10.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 65  | SK    | 96       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 726   | 479 | 127 | 115 | 5 |         |       |

- Molecule 66 is a protein called 40S ribosomal protein S11.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 66  | SL    | 144      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1143  | 730 | 213 | 194 | 6 |         |       |

- Molecule 67 is a protein called 40S ribosomal protein S12.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 67  | SM    | 122      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 950   | 596 | 168 | 177 | 9 |         |       |

- Molecule 68 is a protein called 40S ribosomal protein S13.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 68  | SN    | 150      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1182  | 758 | 226 | 197 | 1 |         |       |

- Molecule 69 is a protein called 40S ribosomal protein S14.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 69  | SO    | 134      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 969   | 596 | 194 | 173 | 6 |         |       |

- Molecule 70 is a protein called 40S ribosomal protein S15.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 70  | SP    | 129      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 990   | 626 | 190 | 168 | 6 |         |       |

- Molecule 71 is a protein called 40S ribosomal protein S16.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 71  | SQ    | 142      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1075  | 689 | 204 | 179 | 3 |         |       |

- Molecule 72 is a protein called 40S ribosomal protein S17.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 72  | SR    | 131      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 942   | 600 | 179 | 159 | 4 |         |       |

- Molecule 73 is a protein called 40S ribosomal protein S18.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 73  | SS    | 141      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1130  | 712 | 232 | 185 | 1 |         |       |

- Molecule 74 is a protein called 40S ribosomal protein S19.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 74  | ST    | 143      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1081  | 679 | 210 | 189 | 3 |         |       |

- Molecule 75 is a protein called 40S ribosomal protein S20.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 75  | SU    | 101      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 713   | 447 | 137 | 125 | 4 |         |       |

- Molecule 76 is a protein called 40S ribosomal protein S21.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 76  | SV    | 83       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 618   | 385 | 115 | 113 | 5 |         |       |

- Molecule 77 is a protein called 40S ribosomal protein S15a.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 77  | SW    | 129      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1026  | 655 | 193 | 172 | 6 |         |       |

- Molecule 78 is a protein called 40S ribosomal protein S23.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 78  | SX    | 141      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1078  | 682 | 212 | 181 | 3 |         |       |

- Molecule 79 is a protein called 40S ribosomal protein S24.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 79  | SY    | 123      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 927   | 588 | 183 | 152 | 4 |         |       |

- Molecule 80 is a protein called 40S ribosomal protein S25.

| Mol | Chain | Residues | Atoms |     |     |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 80  | SZ    | 75       | Total | C   | N   | O  | S | 0       | 0     |
|     |       |          | 559   | 361 | 105 | 92 | 1 |         |       |

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

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 81  | Sa    | 99       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 781   | 487 | 165 | 124 | 5 |         |       |

- Molecule 82 is a protein called 40S ribosomal protein S27.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 82  | Sb    | 83       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 618   | 386 | 118 | 107 | 7 |         |       |

- Molecule 83 is a protein called 40S ribosomal protein S28.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 83  | Sc    | 63       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 472   | 289 | 92 | 89 | 2 |         |       |

- Molecule 84 is a protein called 40S ribosomal protein S29.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 84  | Sd    | 53       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 433   | 271 | 87 | 70 | 5 |         |       |

- Molecule 85 is a protein called Ubiquitin-like FUBI-ribosomal protein eS30 fusion protein.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 85  | Se    | 55       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 416   | 254 | 93 | 68 | 1 |         |       |

- Molecule 86 is a protein called Ubiquitin.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 86  | Sf    | 63       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 515   | 324 | 98 | 86 | 7 |         |       |

- Molecule 87 is a protein called Receptor of activated protein C kinase 1.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 87  | Sg    | 308      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 2180  | 1393 | 381 | 395 | 11 |         |       |

- Molecule 88 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

| Mol | Chain | Residues | Atoms |     | AltConf |
|-----|-------|----------|-------|-----|---------|
| 88  | L5    | 127      | Total | Mg  | 0       |
|     |       |          | 127   | 127 |         |
| 88  | L7    | 3        | Total | Mg  | 0       |
|     |       |          | 3     | 3   |         |
| 88  | L8    | 3        | Total | Mg  | 0       |
|     |       |          | 3     | 3   |         |
| 88  | LA    | 1        | Total | Mg  | 0       |
|     |       |          | 1     | 1   |         |
| 88  | LC    | 1        | Total | Mg  | 0       |
|     |       |          | 1     | 1   |         |
| 88  | LN    | 1        | Total | Mg  | 0       |
|     |       |          | 1     | 1   |         |
| 88  | LP    | 1        | Total | Mg  | 0       |
|     |       |          | 1     | 1   |         |
| 88  | LV    | 1        | Total | Mg  | 0       |
|     |       |          | 1     | 1   |         |
| 88  | S2    | 53       | Total | Mg  | 0       |
|     |       |          | 53    | 53  |         |

- Molecule 89 is ZINC ION (CCD ID: ZN) (formula: Zn).

| Mol | Chain | Residues | Atoms      |         | AltConf |
|-----|-------|----------|------------|---------|---------|
| 89  | Lg    | 1        | Total<br>1 | Zn<br>1 | 0       |
| 89  | Lj    | 1        | Total<br>1 | Zn<br>1 | 0       |
| 89  | Lm    | 1        | Total<br>1 | Zn<br>1 | 0       |
| 89  | Lo    | 1        | Total<br>1 | Zn<br>1 | 0       |
| 89  | Lp    | 1        | Total<br>1 | Zn<br>1 | 0       |
| 89  | Sa    | 1        | Total<br>1 | Zn<br>1 | 0       |
| 89  | Sd    | 1        | Total<br>1 | Zn<br>1 | 0       |
| 89  | Sf    | 1        | Total<br>1 | Zn<br>1 | 0       |

- Molecule 90 is water.

| Mol | Chain | Residues | Atoms      |        | AltConf |
|-----|-------|----------|------------|--------|---------|
| 90  | L5    | 4        | Total<br>4 | O<br>4 | 0       |
| 90  | L7    | 1        | Total<br>1 | O<br>1 | 0       |
| 90  | LI    | 1        | Total<br>1 | O<br>1 | 0       |
| 90  | LN    | 1        | Total<br>1 | O<br>1 | 0       |
| 90  | La    | 1        | Total<br>1 | O<br>1 | 0       |
| 90  | S2    | 3        | Total<br>3 | O<br>3 | 0       |





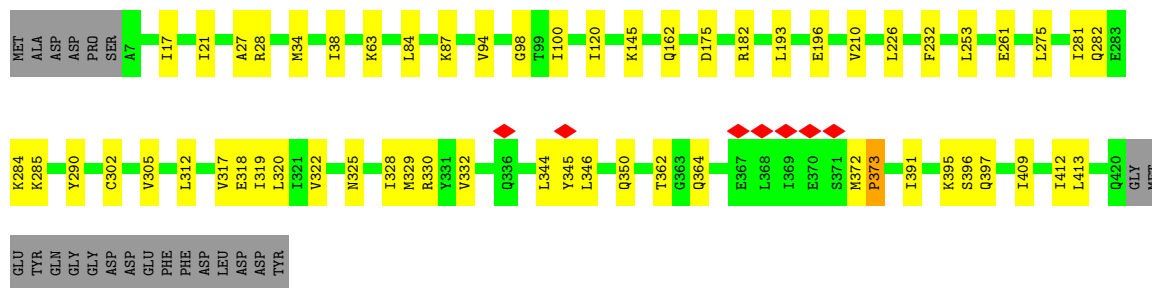
- Molecule 4: prolyl-tRNA

Chain CP: 60% 40%



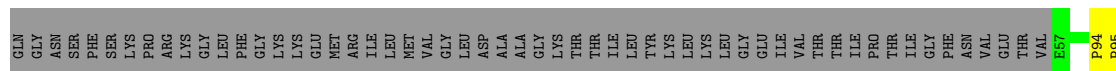
- Molecule 5: Eukaryotic peptide chain release factor subunit 1

Chain CR: 81% 13% 5%



- Molecule 6: nascent chain

Chain CZ: 39% 59%



- Molecule 7: 28S rRNA

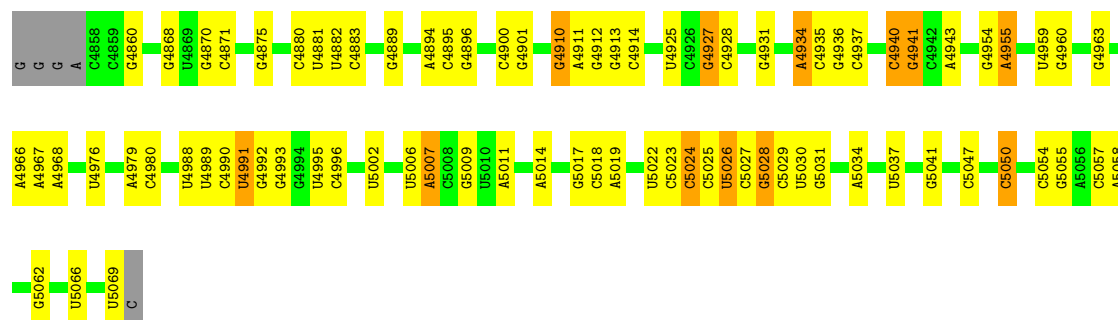
Chain L5: 48% 22% 28%





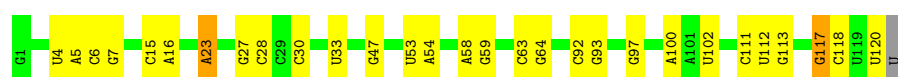






• Molecule 8: 5S rRNA

Chain L7: 75% 22% ..



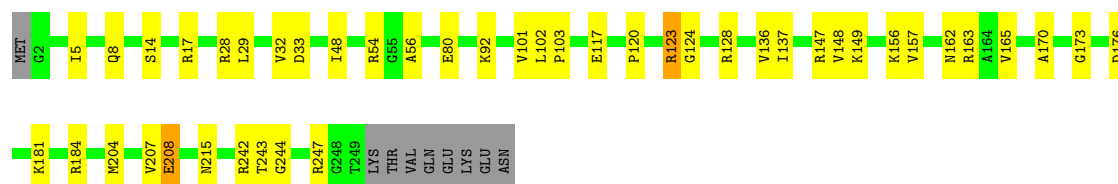
• Molecule 9: 5.8S rRNA

Chain L8: 69% 26% ..



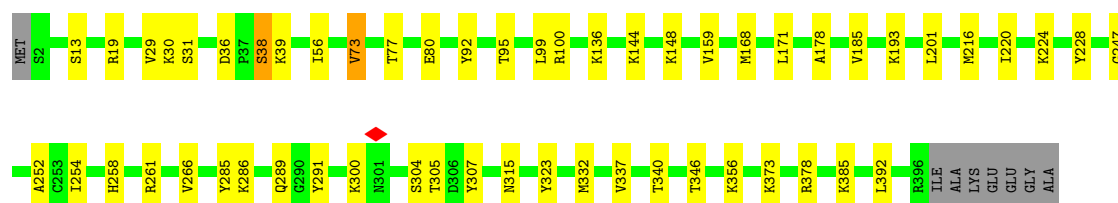
• Molecule 10: 60S ribosomal protein L8

Chain LA: 79% 16% ..



• Molecule 11: 60S ribosomal protein L3

Chain LB: 84% 13% .



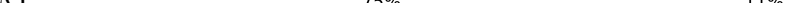
• Molecule 12: 60S ribosomal protein L4

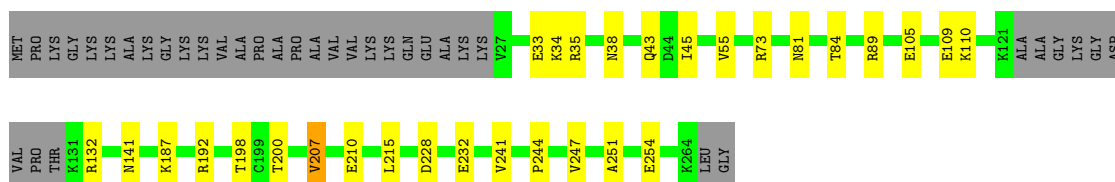
| Residue | Position | Frequency |
|---------|----------|-----------|
| THR     | L319     | 0.0000    |
| GLU     | L328     | 0.0000    |
| GLU     | L328     | 0.0000    |
| LYS     | L364     | 0.0000    |
| PRO     | ASP      | 0.0000    |
| ALA     | GLU      | 0.0000    |
| ALA     | LYS      | 0.0000    |
| ALA     | ALA      | 0.0000    |
| ALA     | VAL      | 0.0000    |
| ALA     | ALA      | 0.0000    |
| GLY     | GLY      | 0.0000    |
| LYS     | LYS      | 0.0000    |
| PRO     | R109     | 0.0000    |
| VAL     | W111     | 0.0000    |
| VAL     | H112     | 0.0000    |
| GLY     | R113     | 0.0000    |
| LYS     | LYS      | 0.0000    |
| GLY     | LYS      | 0.0000    |
| LYS     | LYS      | 0.0000    |
| ALA     | ALA      | 0.0000    |
| VAL     | VAL      | 0.0000    |
| GLY     | P151     | 0.0000    |
| VAL     | L152     | 0.0000    |
| LYS     | LYS      | 0.0000    |
| LYS     | K163     | 0.0000    |
| LYS     | E166     | 0.0000    |
| PRO     | K173     | 0.0000    |
| LEU     | L174     | 0.0000    |
| VAL     | K175     | 0.0000    |
| GLY     | GLY      | 0.0000    |
| LYS     | R188     | 0.0000    |
| LYS     | LYS      | 0.0000    |
| ALA     | ALA      | 0.0000    |
| ALA     | L229     | 0.0000    |
| THR     | L230     | 0.0000    |
| LYS     | LYS      | 0.0000    |
| PRO     | P242     | 0.0000    |
| ALA     | ALA      | 0.0000    |
| PRO     | PRO      | 0.0000    |
| GLU     | K294     | 0.0000    |
| LYS     | LYS      | 0.0000    |
| PRO     | A301     | 0.0000    |
| ALA     | L302     | 0.0000    |
| ALA     | R303     | 0.0000    |
| GLU     | K308     | 0.0000    |
| LYS     | LYS      | 0.0000    |
| PRO     | PRO      | 0.0000    |

- |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|
| K255 | S286 | Q291 | A294 | ALA  | GLU  | SER  |
| G2   | K5   | T28  | R33  | K41  | R50  | V55  |
| D59  | I60  | L61  | C62  | A65  | I74  | V75  |
| H81  | T93  | L105 | K117 | V125 | T126 | E133 |
| R152 | T153 | T154 | R179 | V194 | R209 | V210 |
| L211 | L212 | V219 | F223 | Y226 | P233 | D234 |
| W235 |      |      |      |      |      |      |

- |      |      |     |
|------|------|-----|
| ARG  | ALA  | MET |
| LYS  | T91  | ALA |
| PRO  | V92  | GLY |
| ARG  |      | GLU |
| HTS  | P95  | LYS |
| GLN  | V95  | VAL |
| GLU  | G97  | GLU |
| GLY  | G98  | LYS |
| GLU  | D99  | PRO |
| ILE  | K100 | ASP |
| PHE  | N101 | THR |
| ASP  |      | LYS |
| THR  | R105 | GLU |
| THR  | V106 | LYS |
| K237 | V107 | LYS |
|      | K108 | PRO |
| D249 | L109 | GLU |
|      | R110 | ALA |
| N279 |      | LYS |
| F288 | E119 | LYS |
|      | R123 | VAL |
|      | K124 | ASP |
|      | L125 | ALA |
|      | L126 | GLY |
|      | S127 | LYS |
|      | H128 | VAL |
|      |      | LYS |
|      | P132 | LYS |
|      |      | GLY |
|      | Q135 | ASN |
|      | R141 | LEU |
|      |      | LYS |
|      | L165 | ALA |
|      |      | LYS |
|      | V175 | LYS |
|      | T176 | PRO |
|      |      | LYS |
|      | R183 | LYS |
|      | V184 | GLY |
|      |      | K41 |
|      | R188 |     |
|      | T189 | V51 |
|      | H190 |     |
|      | Q191 | K72 |
|      | K192 | A76 |
|      | F193 | LYS |
|      |      | LYS |
|      | N205 | SER |
|      |      | LYS |
|      | I208 | VAL |
|      | P209 | GLU |
|      | K210 | LYS |
|      | H211 | LYS |
|      |      | LYS |
|      | K219 | LYS |
|      | K220 | GLU |
|      | K221 | LYS |
|      |      | VAL |
|      |      | THR |

- |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| E152 | E153 | E154 | E155 | E156 | E157 | E158 | E159 | E160 | E161 | E162 | E163 | E164 | E165 | E166 | E167 | E168 | E169 | E170 | E171 | E172 | E173 | E174 | E175 | E176 | E177 | E178 | E179 | E180 | E181 | E182 | E183 | E184 | E185 | E186 | E187 | E188 | E189 | E190 | E191 | E192 | E193 | E194 | E195 | E196 | E197 | E198 | E199 | E200 | E201 | E202 | E203 | E204 | E205 | E206 | E207 | E208 | E209 | E210 | E211 | E212 | E213 | E214 | E215 | E216 | E217 | E218 | E219 | E220 | E221 | E222 | E223 | E224 | E225 | E226 | E227 | E228 | E229 | E230 | E231 | E232 | E233 | E234 | E235 | E236 | E237 | E238 | E239 | E240 | E241 | E242 | E243 | E244 | E245 | E246 | E247 | E248 | E249 | E250 | E251 | E252 | E253 | E254 | E255 | E256 | E257 | E258 | E259 | E260 | E261 | E262 | E263 | E264 | E265 | E266 | E267 | E268 | E269 | E270 | E271 | E272 | E273 | E274 | E275 | E276 | E277 | E278 | E279 | E280 | E281 | E282 | E283 | E284 | E285 | E286 | E287 | E288 | E289 | E290 | E291 | E292 | E293 | E294 | E295 | E296 | E297 | E298 | E299 | E300 | E301 | E302 | E303 | E304 | E305 | E306 | E307 | E308 | E309 | E310 | E311 | E312 | E313 | E314 | E315 | E316 | E317 | E318 | E319 | E320 | E321 | E322 | E323 | E324 | E325 | E326 | E327 | E328 | E329 | E330 | E331 | E332 | E333 | E334 | E335 | E336 | E337 | E338 | E339 | E340 | E341 | E342 | E343 | E344 | E345 | E346 | E347 | E348 | E349 | E350 | E351 | E352 | E353 | E354 | E355 | E356 | E357 | E358 | E359 | E360 | E361 | E362 | E363 | E364 | E365 | E366 | E367 | E368 | E369 | E370 | E371 | E372 | E373 | E374 | E375 | E376 | E377 | E378 | E379 | E380 | E381 | E382 | E383 | E384 | E385 | E386 | E387 | E388 | E389 | E390 | E391 | E392 | E393 | E394 | E395 | E396 | E397 | E398 | E399 | E400 | E401 | E402 | E403 | E404 | E405 | E406 | E407 | E408 | E409 | E410 | E411 | E412 | E413 | E414 | E415 | E416 | E417 | E418 | E419 | E420 | E421 | E422 | E423 | E424 | E425 | E426 | E427 | E428 | E429 | E430 | E431 | E432 | E433 | E434 | E435 | E436 | E437 | E438 | E439 | E440 | E441 | E442 | E443 | E444 | E445 | E446 | E447 | E448 | E449 | E450 | E451 | E452 | E453 | E454 | E455 | E456 | E457 | E458 | E459 | E460 | E461 | E462 | E463 | E464 | E465 | E466 | E467 | E468 | E469 | E470 | E471 | E472 | E473 | E474 | E475 | E476 | E477 | E478 | E479 | E480 | E481 | E482 | E483 | E484 | E485 | E486 | E487 | E488 | E489 | E490 | E491 | E492 | E493 | E494 | E495 | E496 | E497 | E498 | E499 | E500 | E501 | E502 | E503 | E504 | E505 | E506 | E507 | E508 | E509 | E510 | E511 | E512 | E513 | E514 | E515 | E516 | E517 | E518 | E519 | E520 | E521 | E522 | E523 | E524 | E525 | E526 | E527 | E528 | E529 | E530 | E531 | E532 | E533 | E534 | E535 | E536 | E537 | E538 | E539 | E540 | E541 | E542 | E543 | E544 | E545 | E546 | E547 | E548 | E549 | E550 | E551 | E552 | E553 | E554 | E555 | E556 | E557 | E558 | E559 | E560 | E561 | E562 | E563 | E564 | E565 | E566 | E567 | E568 | E569 | E570 | E571 | E572 | E573 | E574 | E575 | E576 | E577 | E578 | E579 | E580 | E581 | E582 | E583 | E584 | E585 | E586 | E587 | E588 | E589 | E590 | E591 | E592 | E593 | E594 | E595 | E596 | E597 | E598 | E599 | E600 | E601 | E602 | E603 | E604 | E605 | E606 | E607 | E608 | E609 | E610 | E611 | E612 | E613 | E614 | E615 | E616 | E617 | E618 | E619 | E620 | E621 | E622 | E623 | E624 | E625 | E626 | E627 | E628 | E629 | E630 | E631 | E632 | E633 | E634 | E635 | E636 | E637 | E638 | E639 | E640 | E641 | E642 | E643 | E644 | E645 | E646 | E647 | E648 | E649 | E650 | E651 | E652 | E653 | E654 | E655 | E656 | E657 | E658 | E659 | E660 | E661 | E662 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|

- Chain LG: 



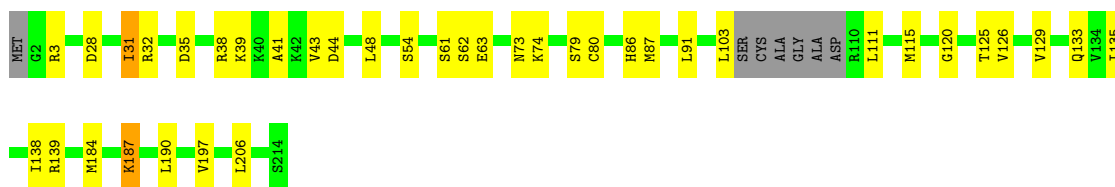
- Molecule 17: 60S ribosomal protein L9

Chain LH: 82% 17% ..



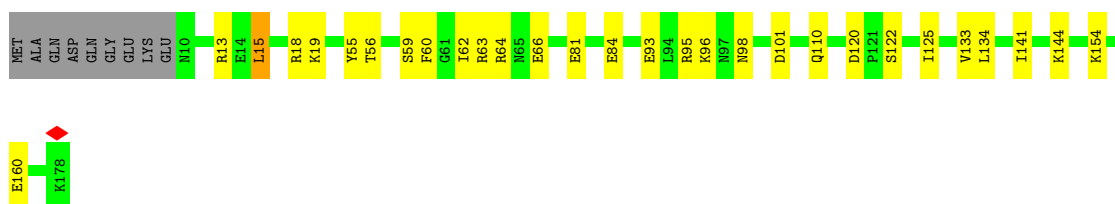
- Molecule 18: Ribosomal protein uL16-like

Chain LI: 79% 17% ..



- Molecule 19: 60S ribosomal protein L11

Chain LJ: 79% 16% 5%



- Molecule 20: 60S ribosomal protein L13

Chain LL: 83% 13% ..



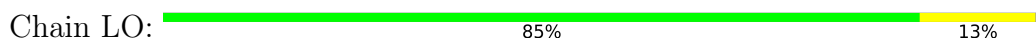
- Molecule 21: 60S ribosomal protein L14

Chain LM: 57% 8% 35%

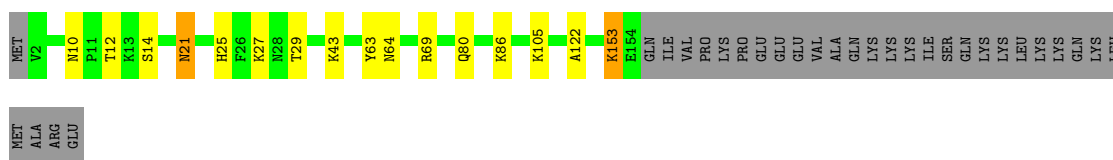
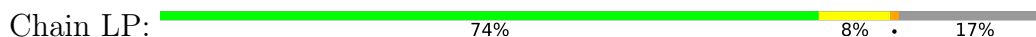
- Molecule 22: 60S ribosomal protein L15



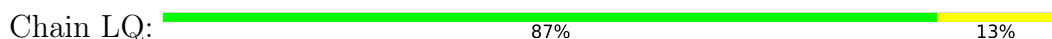
- Molecule 23: 60S ribosomal protein L13a



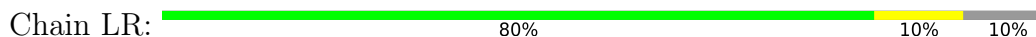
- Molecule 24: 60S ribosomal protein L17



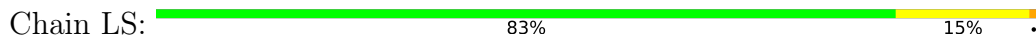
- Molecule 25: 60S ribosomal protein L18



- Molecule 26: 60S ribosomal protein L19



- Molecule 27: 60S ribosomal protein L18a



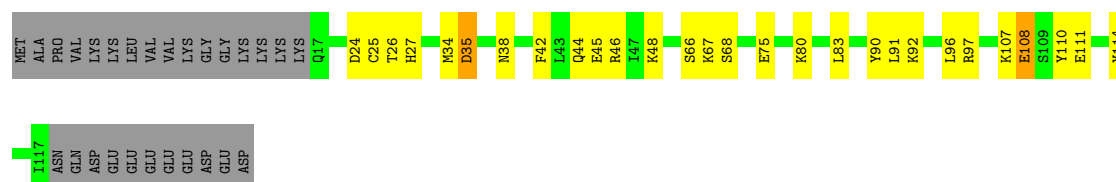
- Molecule 28: 60S ribosomal protein L21

Chain LT:  82% 18%



- Molecule 29: 60S ribosomal protein L22

Chain LU:  57% 20% 21%



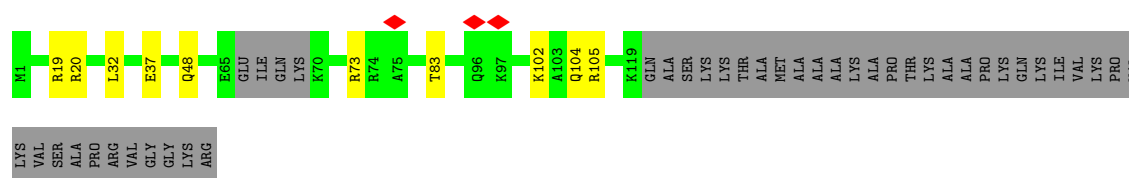
- Molecule 30: 60S ribosomal protein L23

Chain LV:  76% 17% 6%



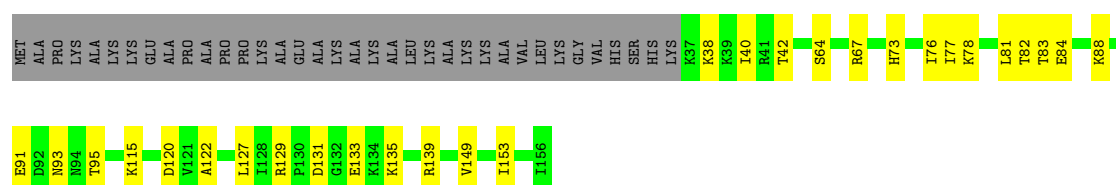
- Molecule 31: 60S ribosomal protein L24

Chain LW:  67% 6% 27%



- Molecule 32: 60S ribosomal protein L23a

Chain LX:  59% 18% 23%



- Molecule 33: 60S ribosomal protein L26

Chain LY:  77% 15% 8%





- Molecule 34: 60S ribosomal protein L27

Chain LZ: 87% 12% ..



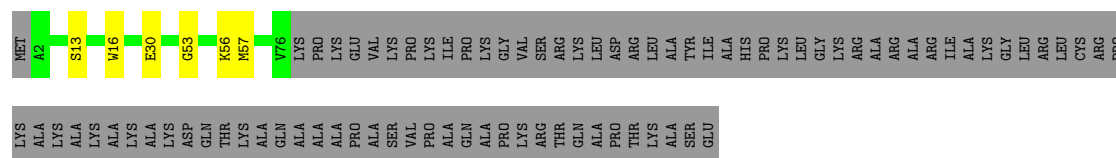
- Molecule 35: 60S ribosomal protein L27a

Chain La: 86% 13% .



- Molecule 36: 60S ribosomal protein L29

Chain Lb: 43% 53% .



- Molecule 37: 60S ribosomal protein L30

Chain Lc: 69% 16% 16%



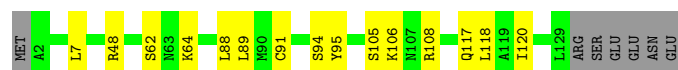
- Molecule 38: 60S ribosomal protein L31

Chain Ld: 74% 12% 14%



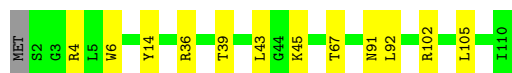
- Molecule 39: 60S ribosomal protein L32

Chain Le: 84% 11% 5%



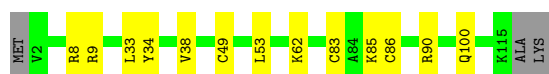
- Molecule 40: 60S ribosomal protein L35a

Chain Lf:  88% 11% .



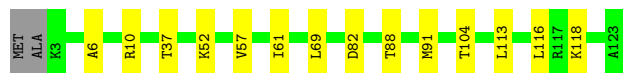
- Molecule 41: 60S ribosomal protein L34

Chain Lg:  86% 11% .



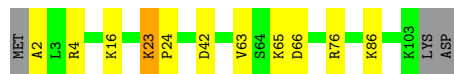
- Molecule 42: 60S ribosomal protein L35

Chain Lh:  87% 11% .



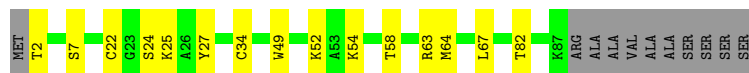
- Molecule 43: 60S ribosomal protein L36

Chain Li:  87% 10% . .



- Molecule 44: Large ribosomal subunit protein eL37

Chain Lj:  73% 15% 11%



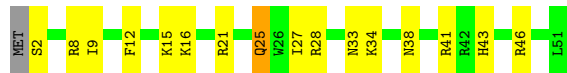
- Molecule 45: 60S ribosomal protein L38

Chain Lk:  74% 17% 7% .

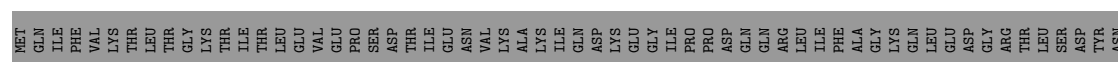
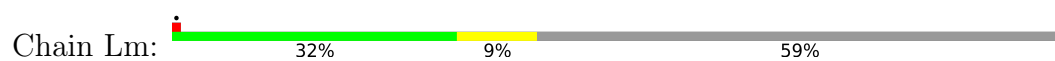


- Molecule 46: 60S ribosomal protein L39

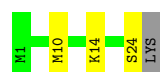
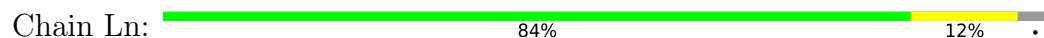
Chain Ll:  67% 29% . .



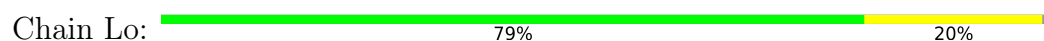
- Molecule 47: Ubiquitin-60S ribosomal protein L40



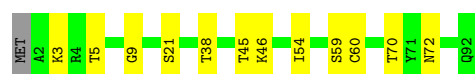
- Molecule 48: 60S ribosomal protein L41



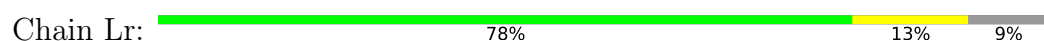
- Molecule 49: 60S ribosomal protein L36a



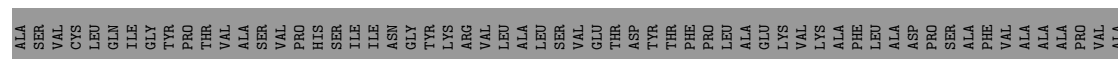
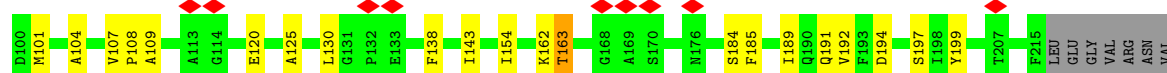
- Molecule 50: 60S ribosomal protein L37a

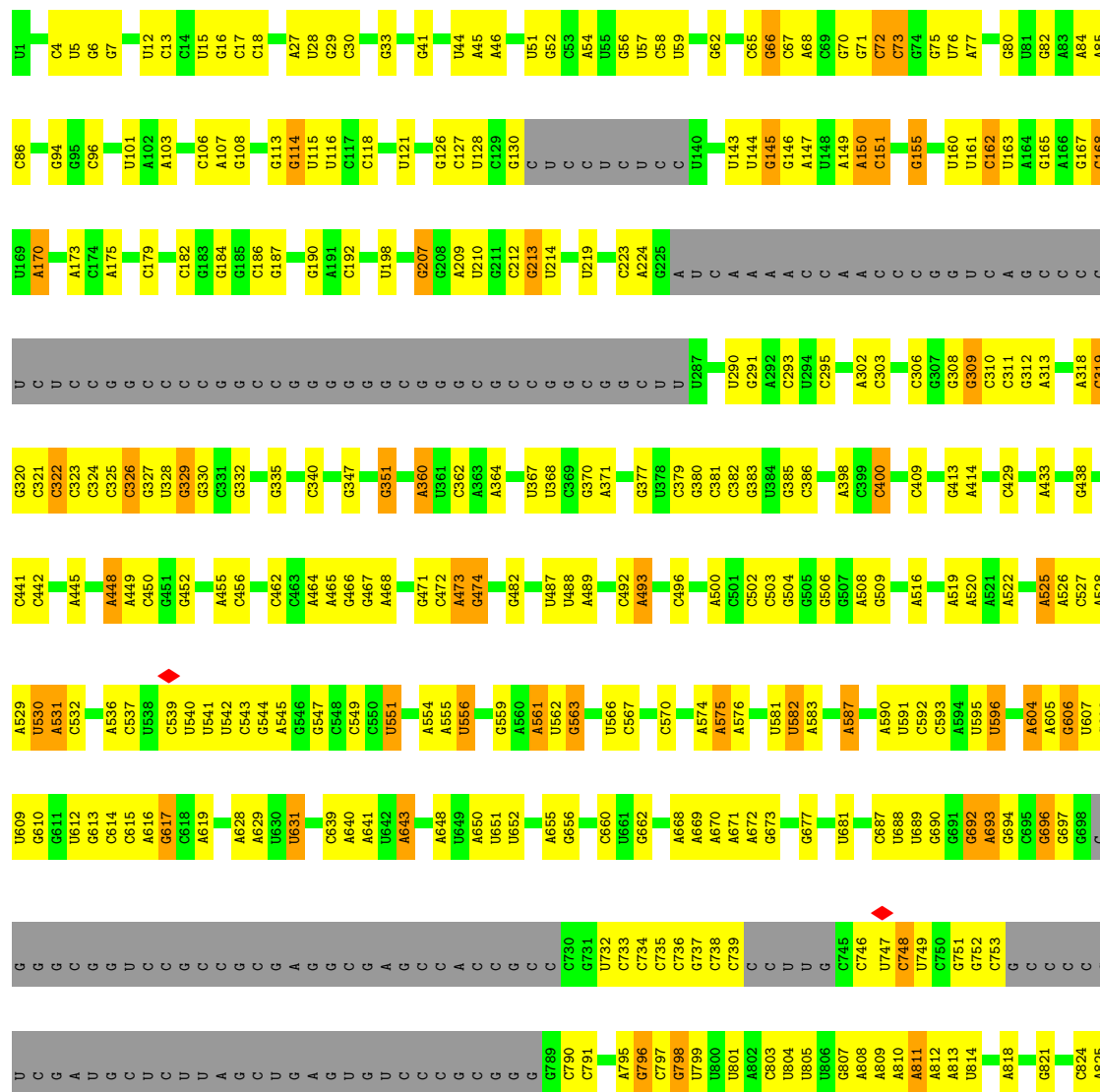


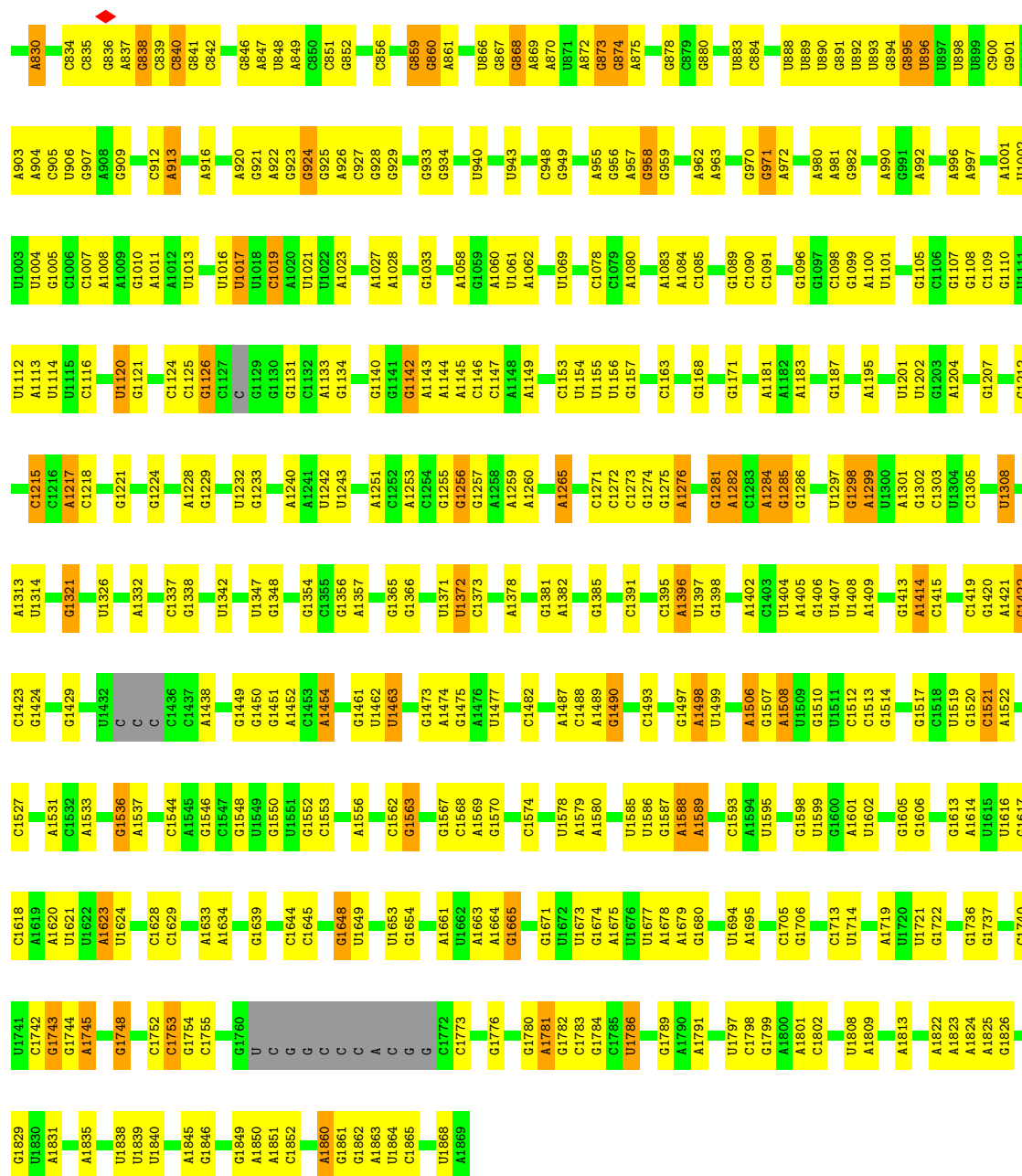
- Molecule 51: 60S ribosomal protein L28



- Molecule 52: 60S acidic ribosomal protein P0

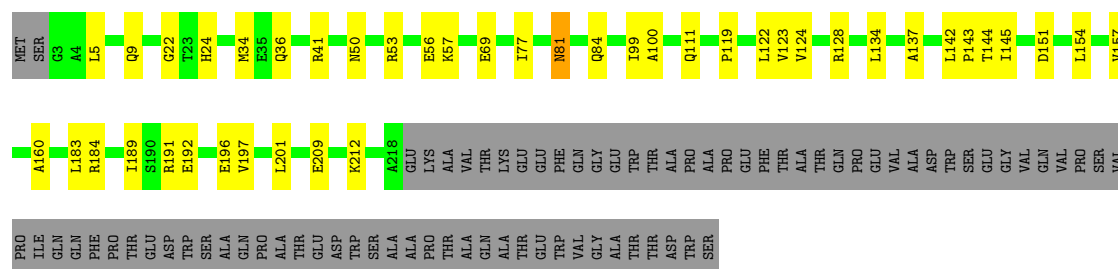






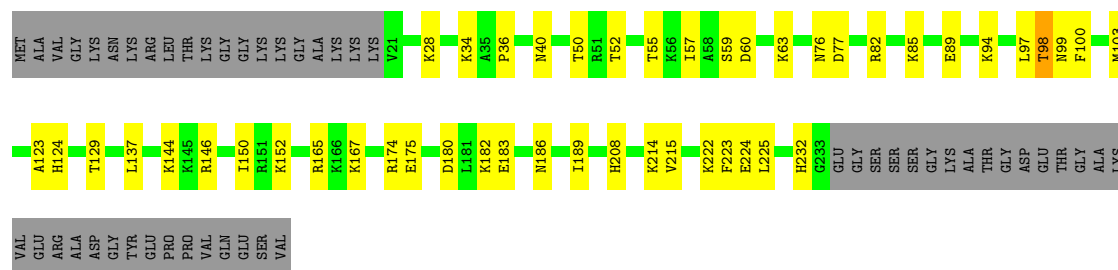
• Molecule 55: 40S ribosomal protein SA

Chain SA: 59% 14% 27%



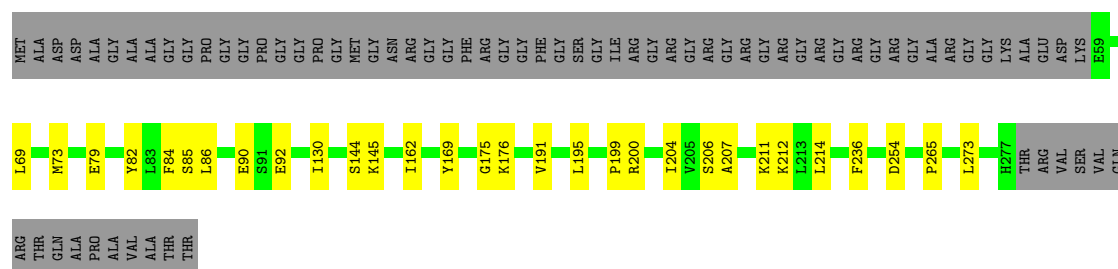
- Molecule 56: 40S ribosomal protein S3a

Chain SB:



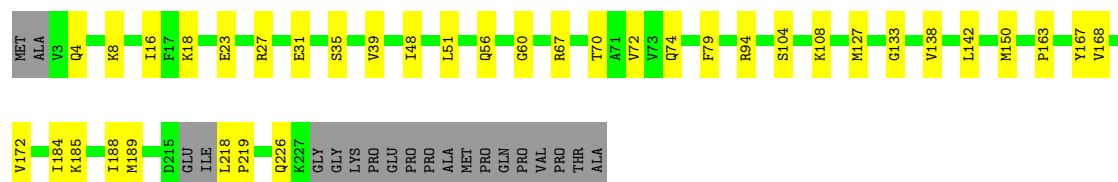
- Molecule 57: 40S ribosomal protein S2

Chain SC:



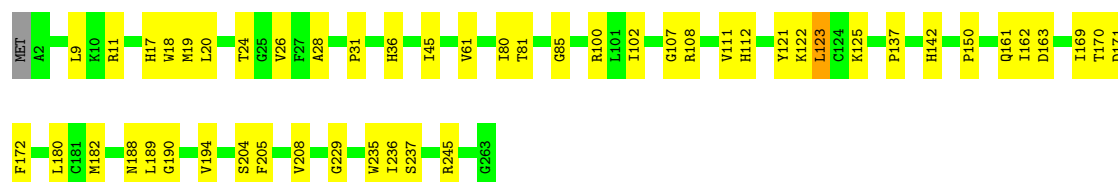
- Molecule 58: 40S ribosomal protein S3

Chain SD:



- Molecule 59: Small ribosomal subunit protein eS4, X isoform

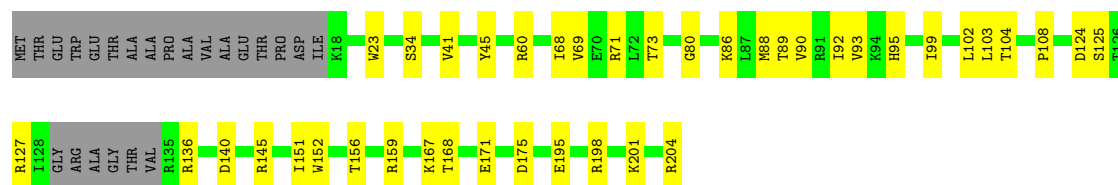
Chain SE:



- Molecule 60: 40S ribosomal protein S5

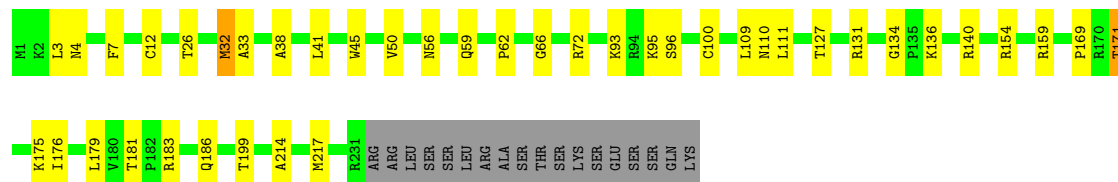
Chain SF:





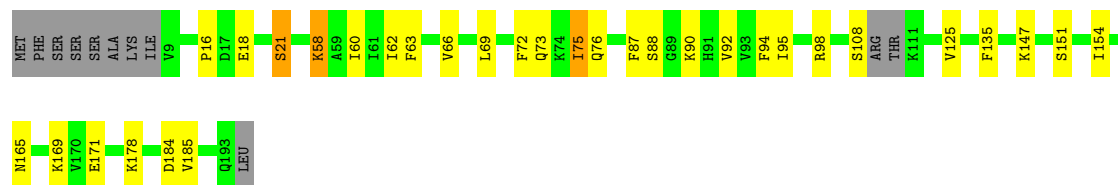
- Molecule 61: 40S ribosomal protein S6

Chain SG: 76% 16% • 7%



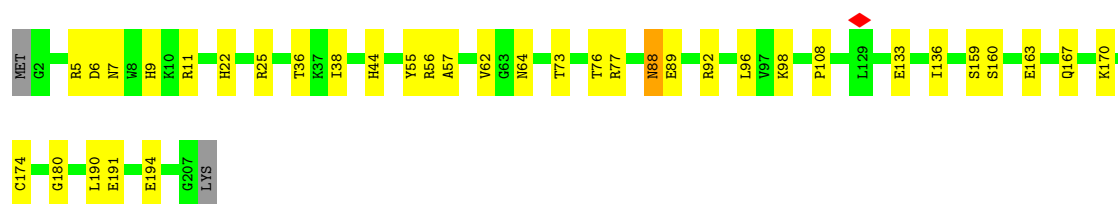
- Molecule 62: 40S ribosomal protein S7

Chain SH: 78% 15% • 6%



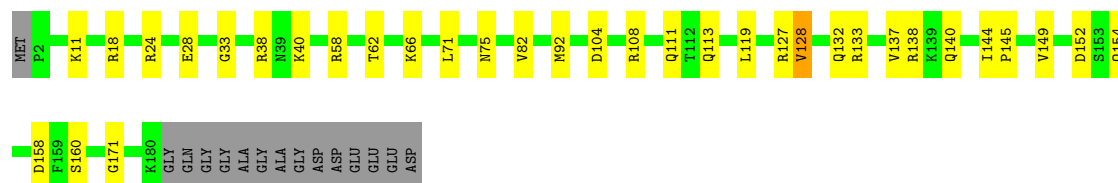
- Molecule 63: 40S ribosomal protein S8

Chain SI: 82% 17% •

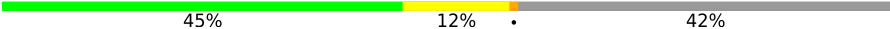


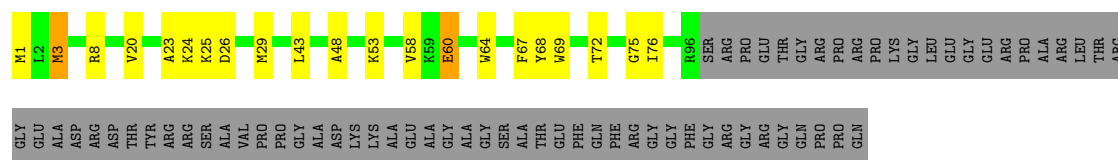
- Molecule 64: 40S ribosomal protein S9

Chain SJ: 75% 17% • 8%



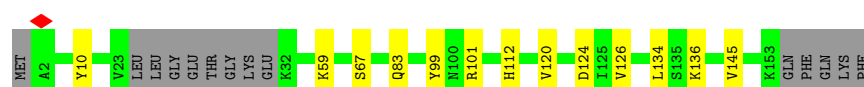
- Molecule 65: 40S ribosomal protein S10

Chain SK: 



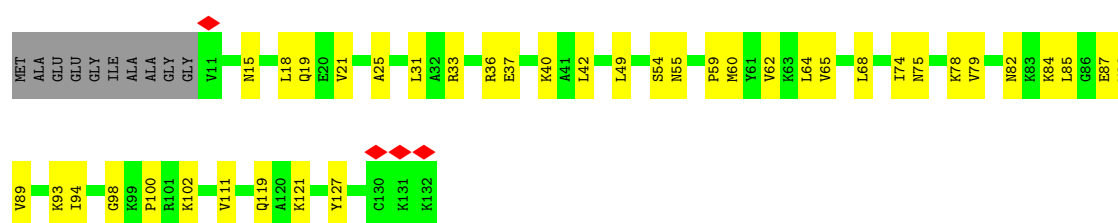
- Molecule 66: 40S ribosomal protein S11

Chain SL: 



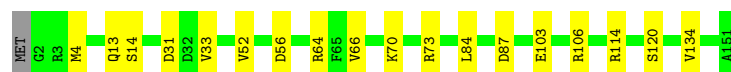
- Molecule 67: 40S ribosomal protein S12

Chain SM: 



- Molecule 68: 40S ribosomal protein S13

Chain SN: 



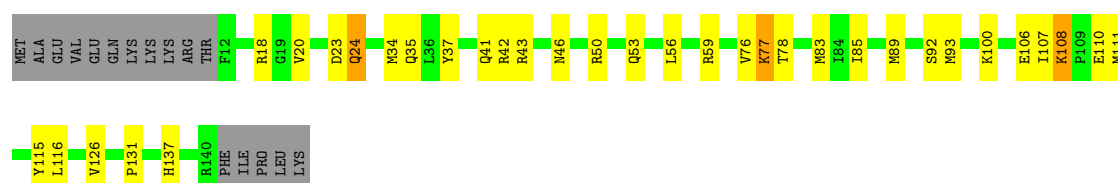
- Molecule 69: 40S ribosomal protein S14

Chain SO: 



- Molecule 70: 40S ribosomal protein S15

Chain SP: 



- Molecule 71: 40S ribosomal protein S16

Chain SQ:  79% 18%



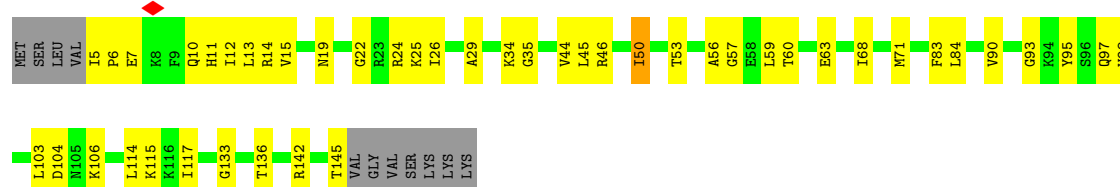
- Molecule 72: 40S ribosomal protein S17

Chain SR:  79% 19%



- Molecule 73: 40S ribosomal protein S18

Chain SS:  63% 30% 7%



- Molecule 74: 40S ribosomal protein S19

Chain ST:  76% 21%



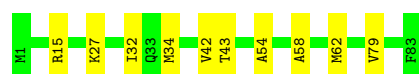
- Molecule 75: 40S ribosomal protein S20

Chain SU:  68% 16% 15%



- Molecule 76: 40S ribosomal protein S21

Chain SV:  88% 12%



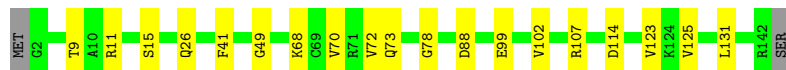
- Molecule 77: 40S ribosomal protein S15a

Chain SW:  87% 12% .



- Molecule 78: 40S ribosomal protein S23

Chain SX:  85% 13% .

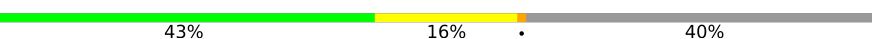


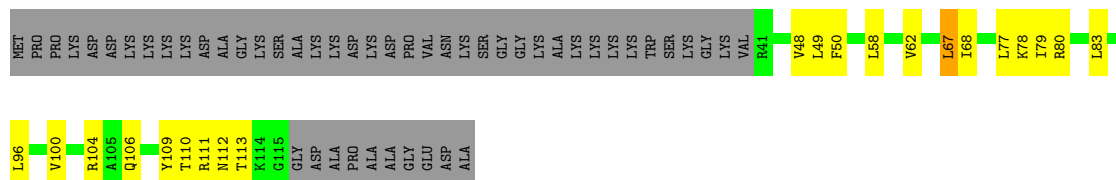
- Molecule 79: 40S ribosomal protein S24

Chain SY:  67% 26% 8%



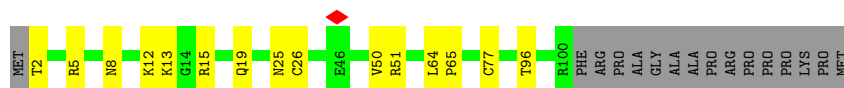
- Molecule 80: 40S ribosomal protein S25

Chain SZ:  43% 16% 40%



- Molecule 81: 40S ribosomal protein S26

Chain Sa:  73% 13% 14%



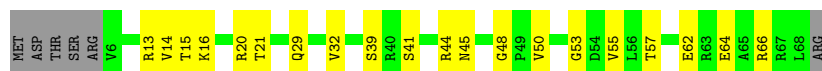
- Molecule 82: 40S ribosomal protein S27

Chain Sb:  83% 13% ..



- Molecule 83: 40S ribosomal protein S28

Chain Sc:  62% 29% 9%



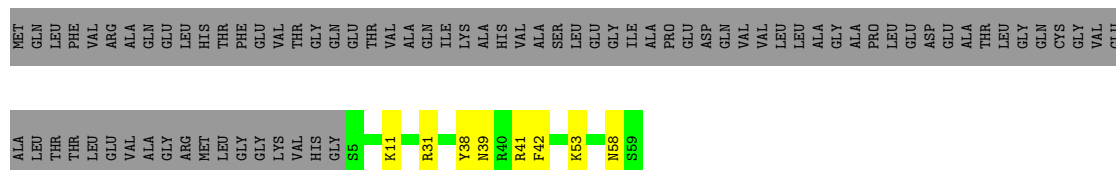
- Molecule 84: 40S ribosomal protein S29

Chain Sd:  75% 20% 5%



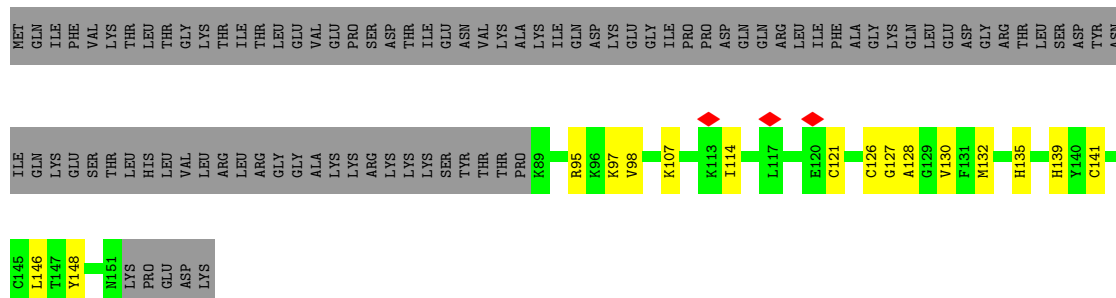
- Molecule 85: Ubiquitin-like FUBI-ribosomal protein eS30 fusion protein

Chain Se:  35% 6% 59%



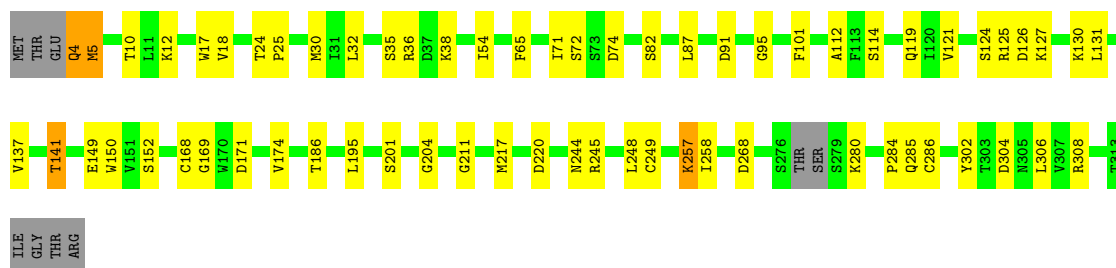
- Molecule 86: Ubiquitin

Chain Sf:  29% 11% 60%



- Molecule 87: Receptor of activated protein C kinase 1

Chain Sg:  77% 19% ..



## 4 Experimental information

| Property                             | Value                                   | Source    |
|--------------------------------------|-----------------------------------------|-----------|
| EM reconstruction method             | SINGLE PARTICLE                         | Depositor |
| Imposed symmetry                     | POINT, Not provided                     |           |
| Number of particles used             | 74754                                   | 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)                 | 500                                     | Depositor |
| Maximum defocus (nm)                 | 3500                                    | Depositor |
| Magnification                        | Not provided                            |           |
| Image detector                       | FEI FALCON IV (4k x 4k)                 | Depositor |
| Maximum map value                    | 6.553                                   | Depositor |
| Minimum map value                    | -3.110                                  | Depositor |
| Average map value                    | 0.007                                   | Depositor |
| Map value standard deviation         | 0.139                                   | Depositor |
| Recommended contour level            | 0.0635                                  | Depositor |
| Map size (Å)                         | 465.28, 465.28, 465.28                  | wwPDB     |
| Map dimensions                       | 640, 640, 640                           | wwPDB     |
| Map angles (°)                       | 90.0, 90.0, 90.0                        | wwPDB     |
| Pixel spacing (Å)                    | 0.727, 0.727, 0.727                     | Depositor |

## 5 Model quality ⓘ

### 5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: ZN, LYO, MG

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   | NA    | 0.11         | 0/527         | 0.32        | 0/704         |
| 2   | NB    | 0.19         | 0/821         | 0.52        | 0/1101        |
| 3   | CM    | 0.25         | 0/273         | 0.40        | 0/421         |
| 4   | CP    | 0.25         | 0/1789        | 0.44        | 0/2788        |
| 5   | CR    | 0.36         | 3/3311 (0.1%) | 0.67        | 7/4452 (0.2%) |
| 6   | CZ    | 0.26         | 0/266         | 0.56        | 0/364         |
| 7   | L5    | 0.28         | 0/87471       | 0.34        | 0/136443      |
| 8   | L7    | 0.27         | 0/2858        | 0.31        | 0/4455        |
| 9   | L8    | 0.28         | 0/3701        | 0.32        | 0/5766        |
| 10  | LA    | 0.30         | 0/1936        | 0.55        | 0/2596        |
| 11  | LB    | 0.28         | 0/3251        | 0.54        | 2/4352 (0.0%) |
| 12  | LC    | 0.26         | 0/2938        | 0.47        | 2/3947 (0.1%) |
| 13  | LD    | 0.24         | 0/2407        | 0.52        | 1/3227 (0.0%) |
| 14  | LE    | 0.27         | 0/1788        | 0.59        | 0/2399        |
| 15  | LF    | 0.28         | 0/1905        | 0.52        | 0/2539        |
| 16  | LG    | 0.27         | 0/1849        | 0.59        | 0/2496        |
| 17  | LH    | 0.29         | 0/1529        | 0.61        | 0/2058        |
| 18  | LI    | 0.28         | 0/1705        | 0.60        | 3/2277 (0.1%) |
| 19  | LJ    | 0.29         | 0/1352        | 0.69        | 0/1813        |
| 20  | LL    | 0.30         | 0/1661        | 0.67        | 4/2229 (0.2%) |
| 21  | LM    | 0.26         | 0/1145        | 0.54        | 0/1536        |
| 22  | LN    | 0.28         | 0/1746        | 0.48        | 1/2338 (0.0%) |
| 23  | LO    | 0.28         | 0/1665        | 0.55        | 1/2229 (0.0%) |
| 24  | LP    | 0.30         | 0/1260        | 0.56        | 1/1692 (0.1%) |
| 25  | LQ    | 0.27         | 0/1526        | 0.47        | 0/2038        |
| 26  | LR    | 0.28         | 0/1468        | 0.59        | 0/1945        |
| 27  | LS    | 0.27         | 0/1492        | 0.50        | 1/2003 (0.0%) |
| 28  | LT    | 0.28         | 0/1310        | 0.65        | 0/1752        |
| 29  | LU    | 0.40         | 0/820         | 0.99        | 3/1102 (0.3%) |
| 30  | LV    | 0.28         | 0/985         | 0.54        | 0/1323        |
| 31  | LW    | 0.30         | 0/820         | 0.72        | 1/1104 (0.1%) |
| 32  | LX    | 0.30         | 0/998         | 0.65        | 0/1341        |

| Mol | Chain | Bond lengths |         | Bond angles |               |
|-----|-------|--------------|---------|-------------|---------------|
|     |       | RMSZ         | # Z  >5 | RMSZ        | # Z  >5       |
| 33  | LY    | 0.32         | 0/1128  | 0.68        | 1/1500 (0.1%) |
| 34  | LZ    | 0.27         | 0/1130  | 0.57        | 0/1507        |
| 35  | La    | 0.26         | 0/1183  | 0.43        | 0/1582        |
| 36  | Lb    | 0.28         | 0/600   | 0.64        | 0/796         |
| 37  | Lc    | 0.26         | 0/752   | 0.54        | 0/1011        |
| 38  | Ld    | 0.26         | 0/889   | 0.47        | 0/1198        |
| 39  | Le    | 0.28         | 0/1067  | 0.45        | 0/1425        |
| 40  | Lf    | 0.29         | 0/891   | 0.55        | 0/1194        |
| 41  | Lg    | 0.27         | 0/899   | 0.56        | 0/1200        |
| 42  | Lh    | 0.26         | 0/1014  | 0.60        | 0/1340        |
| 43  | Li    | 0.22         | 0/824   | 0.49        | 1/1093 (0.1%) |
| 44  | Lj    | 0.28         | 0/720   | 0.50        | 0/952         |
| 45  | Lk    | 0.32         | 0/548   | 0.83        | 1/730 (0.1%)  |
| 46  | Ll    | 0.32         | 0/454   | 0.62        | 0/599         |
| 47  | Lm    | 0.24         | 0/431   | 0.49        | 0/570         |
| 48  | Ln    | 0.25         | 0/231   | 0.43        | 0/294         |
| 49  | Lo    | 0.31         | 0/876   | 0.66        | 0/1156        |
| 50  | Lp    | 0.27         | 0/706   | 0.55        | 0/939         |
| 51  | Lr    | 0.28         | 0/1012  | 0.50        | 0/1358        |
| 52  | Ls    | 0.28         | 0/1666  | 0.73        | 2/2250 (0.1%) |
| 53  | Lt    | 0.33         | 0/1224  | 0.88        | 5/1651 (0.3%) |
| 54  | S2    | 0.27         | 0/40882 | 0.38        | 0/63715       |
| 55  | SA    | 0.31         | 0/1708  | 0.69        | 0/2324        |
| 56  | SB    | 0.25         | 0/1745  | 0.55        | 1/2337 (0.0%) |
| 57  | SC    | 0.29         | 0/1697  | 0.56        | 0/2301        |
| 58  | SD    | 0.28         | 0/1620  | 0.65        | 2/2198 (0.1%) |
| 59  | SE    | 0.26         | 0/2014  | 0.53        | 0/2726        |
| 60  | SF    | 0.29         | 0/1423  | 0.68        | 2/1913 (0.1%) |
| 61  | SG    | 0.24         | 0/1657  | 0.62        | 1/2247 (0.0%) |
| 62  | SH    | 0.26         | 0/1295  | 0.61        | 3/1763 (0.2%) |
| 63  | SI    | 0.26         | 0/1603  | 0.54        | 0/2161        |
| 64  | SJ    | 0.28         | 0/1456  | 0.61        | 0/1957        |
| 65  | SK    | 0.30         | 0/750   | 0.70        | 0/1026        |
| 66  | SL    | 0.28         | 0/1163  | 0.48        | 0/1562        |
| 67  | SM    | 0.27         | 0/960   | 0.84        | 1/1286 (0.1%) |
| 68  | SN    | 0.27         | 0/1206  | 0.51        | 0/1626        |
| 69  | SO    | 0.28         | 0/982   | 0.65        | 0/1320        |
| 70  | SP    | 0.28         | 0/1010  | 0.69        | 1/1362 (0.1%) |
| 71  | SQ    | 0.26         | 0/1093  | 0.60        | 0/1470        |
| 72  | SR    | 0.30         | 0/955   | 0.79        | 2/1294 (0.2%) |
| 73  | SS    | 0.32         | 0/1148  | 0.77        | 0/1542        |
| 74  | ST    | 0.27         | 0/1100  | 0.56        | 0/1479        |
| 75  | SU    | 0.30         | 0/722   | 0.71        | 1/983 (0.1%)  |

| Mol | Chain | Bond lengths |                 | Bond angles |                  |
|-----|-------|--------------|-----------------|-------------|------------------|
|     |       | RMSZ         | # Z  >5         | RMSZ        | # Z  >5          |
| 76  | SV    | 0.30         | 0/625           | 0.60        | 0/837            |
| 77  | SW    | 0.28         | 0/1043          | 0.51        | 0/1396           |
| 78  | SX    | 0.29         | 0/1096          | 0.61        | 0/1467           |
| 79  | SY    | 0.28         | 0/944           | 0.67        | 0/1271           |
| 80  | SZ    | 0.32         | 0/565           | 0.74        | 0/764            |
| 81  | Sa    | 0.29         | 0/794           | 0.58        | 0/1065           |
| 82  | Sb    | 0.29         | 0/632           | 0.70        | 0/851            |
| 83  | Sc    | 0.29         | 0/474           | 0.79        | 0/638            |
| 84  | Sd    | 0.26         | 0/443           | 0.49        | 0/589            |
| 85  | Se    | 0.28         | 0/420           | 0.64        | 1/554 (0.2%)     |
| 86  | Sf    | 0.24         | 0/525           | 0.68        | 0/695            |
| 87  | Sg    | 0.30         | 0/2235          | 0.74        | 3/3068 (0.1%)    |
| All | All   | 0.28         | 3/234803 (0.0%) | 0.47        | 55/344962 (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 |
|-----|-------|---------------------|---------------------|
| 2   | NB    | 0                   | 1                   |
| 14  | LE    | 0                   | 1                   |
| 20  | LL    | 0                   | 1                   |
| 25  | LQ    | 0                   | 1                   |
| 56  | SB    | 0                   | 1                   |
| 61  | SG    | 0                   | 1                   |
| 73  | SS    | 0                   | 1                   |
| 82  | Sb    | 0                   | 1                   |
| All | All   | 0                   | 8                   |

All (3) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z      | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|-------|--------|-------------|----------|
| 5   | CR    | 373 | PRO  | CG-CD | -10.21 | 1.16        | 1.50     |
| 5   | CR    | 175 | ASP  | CA-CB | 6.92   | 1.65        | 1.53     |
| 5   | CR    | 373 | PRO  | N-CD  | 5.69   | 1.55        | 1.47     |

All (55) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms   | Z      | Observed(°) | Ideal(°) |
|-----|-------|-----|------|---------|--------|-------------|----------|
| 5   | CR    | 373 | PRO  | CA-N-CD | -12.64 | 94.30       | 112.00   |
| 5   | CR    | 373 | PRO  | N-CD-CG | -10.84 | 86.94       | 103.20   |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type | Atoms     | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-----------|-------|-------------|----------|
| 53  | Lt    | 7   | PRO  | CA-N-CD   | -9.51 | 98.68       | 112.00   |
| 52  | Ls    | 25  | PRO  | CA-N-CD   | -8.12 | 100.63      | 112.00   |
| 29  | LU    | 108 | GLU  | CA-CB-CG  | 7.92  | 129.94      | 114.10   |
| 20  | LL    | 134 | PRO  | CA-N-CD   | -7.83 | 101.04      | 112.00   |
| 72  | SR    | 122 | PRO  | CA-N-CD   | -7.54 | 101.44      | 112.00   |
| 58  | SD    | 189 | MET  | CA-C-N    | 7.40  | 131.93      | 120.68   |
| 58  | SD    | 189 | MET  | C-N-CA    | 7.40  | 131.93      | 120.68   |
| 87  | Sg    | 25  | PRO  | CA-N-CD   | -7.28 | 101.81      | 112.00   |
| 60  | SF    | 88  | MET  | CA-CB-CG  | 6.93  | 127.96      | 114.10   |
| 20  | LL    | 134 | PRO  | N-CD-CG   | -6.85 | 92.92       | 103.20   |
| 22  | LN    | 184 | ILE  | N-CA-C    | -6.73 | 105.97      | 112.29   |
| 23  | LO    | 202 | LEU  | CA-CB-CG  | 6.73  | 139.84      | 116.30   |
| 11  | LB    | 216 | MET  | CB-CG-SD  | 6.60  | 132.50      | 112.70   |
| 5   | CR    | 373 | PRO  | CA-CB-CG  | -6.48 | 92.20       | 104.50   |
| 53  | Lt    | 114 | ARG  | CA-C-N    | -6.44 | 111.48      | 122.56   |
| 53  | Lt    | 114 | ARG  | C-N-CA    | -6.44 | 111.48      | 122.56   |
| 75  | SU    | 89  | ILE  | CA-CB-CG1 | 6.29  | 121.10      | 110.40   |
| 87  | Sg    | 257 | LYS  | CB-CG-CD  | 6.29  | 125.77      | 111.30   |
| 62  | SH    | 75  | ILE  | CA-CB-CG1 | 6.22  | 120.98      | 110.40   |
| 67  | SM    | 119 | GLN  | CA-CB-CG  | 6.13  | 126.36      | 114.10   |
| 29  | LU    | 44  | GLN  | CA-CB-CG  | 6.05  | 126.20      | 114.10   |
| 62  | SH    | 16  | PRO  | CA-N-CD   | -5.96 | 103.66      | 112.00   |
| 61  | SG    | 169 | PRO  | CA-N-CD   | -5.90 | 103.74      | 112.00   |
| 56  | SB    | 224 | GLU  | CA-CB-CG  | 5.86  | 125.81      | 114.10   |
| 53  | Lt    | 115 | GLN  | CA-CB-CG  | 5.73  | 125.56      | 114.10   |
| 29  | LU    | 108 | GLU  | CB-CG-CD  | 5.73  | 122.33      | 112.60   |
| 13  | LD    | 235 | MET  | CB-CG-SD  | 5.68  | 129.73      | 112.70   |
| 60  | SF    | 88  | MET  | CG-SD-CE  | -5.66 | 88.45       | 100.90   |
| 27  | LS    | 164 | LYS  | CA-CB-CG  | 5.61  | 125.32      | 114.10   |
| 43  | Li    | 23  | LYS  | CA-CB-CG  | 5.51  | 125.12      | 114.10   |
| 11  | LB    | 289 | GLN  | CA-CB-CG  | 5.50  | 125.09      | 114.10   |
| 18  | LI    | 120 | GLY  | CA-C-N    | 5.48  | 129.01      | 120.68   |
| 18  | LI    | 120 | GLY  | C-N-CA    | 5.48  | 129.01      | 120.68   |
| 24  | LP    | 153 | LYS  | CB-CG-CD  | 5.46  | 123.86      | 111.30   |
| 31  | LW    | 73  | ARG  | CA-CB-CG  | 5.46  | 125.02      | 114.10   |
| 70  | SP    | 108 | LYS  | CB-CG-CD  | 5.41  | 123.74      | 111.30   |
| 87  | Sg    | 5   | MET  | CB-CG-SD  | 5.40  | 128.90      | 112.70   |
| 5   | CR    | 373 | PRO  | N-CA-CB   | -5.39 | 97.59       | 103.25   |
| 53  | Lt    | 123 | ARG  | CB-CG-CD  | 5.39  | 123.69      | 111.30   |
| 12  | LC    | 109 | ARG  | CA-C-N    | 5.34  | 131.74      | 121.54   |
| 12  | LC    | 109 | ARG  | C-N-CA    | 5.34  | 131.74      | 121.54   |
| 5   | CR    | 372 | MET  | CB-CG-SD  | 5.25  | 128.46      | 112.70   |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type | Atoms    | Z    | Observed(°) | Ideal(°) |
|-----|-------|-----|------|----------|------|-------------|----------|
| 72  | SR    | 106 | LEU  | CA-CB-CG | 5.20 | 134.49      | 116.30   |
| 52  | Ls    | 19  | GLN  | CA-CB-CG | 5.19 | 124.49      | 114.10   |
| 20  | LL    | 201 | GLU  | CA-CB-CG | 5.16 | 124.42      | 114.10   |
| 45  | Lk    | 64  | LEU  | CA-CB-CG | 5.08 | 134.09      | 116.30   |
| 5   | CR    | 175 | ASP  | CB-CA-C  | 5.07 | 119.75      | 111.23   |
| 18  | LI    | 187 | LYS  | CA-CB-CG | 5.06 | 124.23      | 114.10   |
| 62  | SH    | 58  | LYS  | CB-CG-CD | 5.03 | 122.86      | 111.30   |
| 33  | LY    | 40  | GLN  | CB-CG-CD | 5.02 | 121.14      | 112.60   |
| 85  | Se    | 53  | LYS  | CB-CG-CD | 5.02 | 122.85      | 111.30   |
| 5   | CR    | 373 | PRO  | N-CA-C   | 5.01 | 122.79      | 112.47   |
| 20  | LL    | 163 | LYS  | CB-CG-CD | 5.01 | 122.83      | 111.30   |

There are no chirality outliers.

All (8) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group   |
|-----|-------|-----|------|---------|
| 14  | LE    | 176 | THR  | Peptide |
| 20  | LL    | 47  | ALA  | Peptide |
| 25  | LQ    | 94  | GLU  | Peptide |
| 2   | NB    | 52  | GLY  | Peptide |
| 56  | SB    | 189 | ILE  | Peptide |
| 61  | SG    | 32  | MET  | Peptide |
| 73  | SS    | 11  | HIS  | Peptide |
| 82  | Sb    | 50  | ALA  | Peptide |

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

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

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | NA    | 522   | 0        | 560      | 6       | 0            |
| 2   | NB    | 813   | 0        | 856      | 10      | 0            |
| 3   | CM    | 247   | 0        | 128      | 1       | 0            |
| 4   | CP    | 1602  | 0        | 809      | 5       | 0            |
| 5   | CR    | 3269  | 0        | 3312     | 34      | 0            |
| 6   | CZ    | 261   | 0        | 248      | 2       | 0            |
| 7   | L5    | 78199 | 0        | 39523    | 455     | 0            |
| 8   | L7    | 2558  | 0        | 1296     | 13      | 0            |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 9   | L8    | 3314  | 0        | 1683     | 19      | 0            |
| 10  | LA    | 1898  | 0        | 1993     | 28      | 0            |
| 11  | LB    | 3183  | 0        | 3316     | 36      | 0            |
| 12  | LC    | 2884  | 0        | 3050     | 27      | 0            |
| 13  | LD    | 2361  | 0        | 2378     | 22      | 0            |
| 14  | LE    | 1754  | 0        | 1899     | 26      | 0            |
| 15  | LF    | 1870  | 0        | 1996     | 26      | 0            |
| 16  | LG    | 1818  | 0        | 1911     | 20      | 0            |
| 17  | LH    | 1510  | 0        | 1579     | 20      | 0            |
| 18  | LI    | 1666  | 0        | 1711     | 23      | 0            |
| 19  | LJ    | 1329  | 0        | 1348     | 19      | 0            |
| 20  | LL    | 1630  | 0        | 1715     | 18      | 0            |
| 21  | LM    | 1122  | 0        | 1174     | 11      | 0            |
| 22  | LN    | 1701  | 0        | 1749     | 16      | 0            |
| 23  | LO    | 1633  | 0        | 1771     | 15      | 0            |
| 24  | LP    | 1234  | 0        | 1254     | 10      | 0            |
| 25  | LQ    | 1502  | 0        | 1616     | 16      | 0            |
| 26  | LR    | 1452  | 0        | 1580     | 14      | 0            |
| 27  | LS    | 1452  | 0        | 1490     | 20      | 0            |
| 28  | LT    | 1282  | 0        | 1336     | 21      | 0            |
| 29  | LU    | 806   | 0        | 826      | 17      | 0            |
| 30  | LV    | 971   | 0        | 1024     | 16      | 0            |
| 31  | LW    | 808   | 0        | 726      | 7       | 0            |
| 32  | LX    | 981   | 0        | 1055     | 20      | 0            |
| 33  | LY    | 1111  | 0        | 1194     | 17      | 0            |
| 34  | LZ    | 1107  | 0        | 1182     | 12      | 0            |
| 35  | La    | 1154  | 0        | 1198     | 12      | 0            |
| 36  | Lb    | 590   | 0        | 613      | 6       | 0            |
| 37  | Lc    | 742   | 0        | 774      | 9       | 0            |
| 38  | Ld    | 874   | 0        | 918      | 8       | 0            |
| 39  | Le    | 1049  | 0        | 1136     | 9       | 0            |
| 40  | Lf    | 872   | 0        | 901      | 7       | 0            |
| 41  | Lg    | 889   | 0        | 968      | 9       | 0            |
| 42  | Lh    | 1006  | 0        | 1132     | 12      | 0            |
| 43  | Li    | 813   | 0        | 887      | 7       | 0            |
| 44  | Lj    | 705   | 0        | 737      | 11      | 0            |
| 45  | Lk    | 542   | 0        | 590      | 13      | 0            |
| 46  | Ll    | 444   | 0        | 483      | 13      | 0            |
| 47  | Lm    | 425   | 0        | 462      | 7       | 0            |
| 48  | Ln    | 230   | 0        | 276      | 3       | 0            |
| 49  | Lo    | 862   | 0        | 929      | 13      | 0            |
| 50  | Lp    | 696   | 0        | 744      | 8       | 0            |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 51  | Lr    | 997   | 0        | 1054     | 10      | 0            |
| 52  | Ls    | 1640  | 0        | 1687     | 36      | 0            |
| 53  | Lt    | 1208  | 0        | 1257     | 28      | 0            |
| 54  | S2    | 36562 | 0        | 18472    | 281     | 0            |
| 55  | SA    | 1671  | 0        | 1672     | 29      | 0            |
| 56  | SB    | 1718  | 0        | 1786     | 32      | 0            |
| 57  | SC    | 1661  | 0        | 1710     | 22      | 0            |
| 58  | SD    | 1594  | 0        | 1568     | 22      | 0            |
| 59  | SE    | 1972  | 0        | 2012     | 29      | 0            |
| 60  | SF    | 1403  | 0        | 1421     | 30      | 0            |
| 61  | SG    | 1634  | 0        | 1568     | 27      | 0            |
| 62  | SH    | 1274  | 0        | 1196     | 20      | 0            |
| 63  | SI    | 1574  | 0        | 1540     | 24      | 0            |
| 64  | SJ    | 1431  | 0        | 1497     | 27      | 0            |
| 65  | SK    | 726   | 0        | 674      | 16      | 0            |
| 66  | SL    | 1143  | 0        | 1177     | 7       | 0            |
| 67  | SM    | 950   | 0        | 987      | 23      | 0            |
| 68  | SN    | 1182  | 0        | 1249     | 11      | 0            |
| 69  | SO    | 969   | 0        | 982      | 14      | 0            |
| 70  | SP    | 990   | 0        | 974      | 29      | 0            |
| 71  | SQ    | 1075  | 0        | 1110     | 14      | 0            |
| 72  | SR    | 942   | 0        | 913      | 16      | 0            |
| 73  | SS    | 1130  | 0        | 1167     | 27      | 0            |
| 74  | ST    | 1081  | 0        | 1093     | 20      | 0            |
| 75  | SU    | 713   | 0        | 692      | 13      | 0            |
| 76  | SV    | 618   | 0        | 617      | 7       | 0            |
| 77  | SW    | 1026  | 0        | 1072     | 12      | 0            |
| 78  | SX    | 1078  | 0        | 1130     | 11      | 0            |
| 79  | SY    | 927   | 0        | 914      | 24      | 0            |
| 80  | SZ    | 559   | 0        | 594      | 15      | 0            |
| 81  | Sa    | 781   | 0        | 831      | 9       | 0            |
| 82  | Sb    | 618   | 0        | 604      | 6       | 0            |
| 83  | Sc    | 472   | 0        | 484      | 11      | 0            |
| 84  | Sd    | 433   | 0        | 415      | 11      | 0            |
| 85  | Se    | 416   | 0        | 439      | 6       | 0            |
| 86  | Sf    | 515   | 0        | 521      | 12      | 0            |
| 87  | Sg    | 2180  | 0        | 1968     | 38      | 0            |
| 88  | L5    | 127   | 0        | 0        | 0       | 0            |
| 88  | L7    | 3     | 0        | 0        | 0       | 0            |
| 88  | L8    | 3     | 0        | 0        | 0       | 0            |
| 88  | LA    | 1     | 0        | 0        | 0       | 0            |
| 88  | LC    | 1     | 0        | 0        | 0       | 0            |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Non-H  | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|--------|----------|----------|---------|--------------|
| 88  | LN    | 1      | 0        | 0        | 0       | 0            |
| 88  | LP    | 1      | 0        | 0        | 0       | 0            |
| 88  | LV    | 1      | 0        | 0        | 0       | 0            |
| 88  | S2    | 53     | 0        | 0        | 0       | 0            |
| 89  | Lg    | 1      | 0        | 0        | 0       | 0            |
| 89  | Lj    | 1      | 0        | 0        | 0       | 0            |
| 89  | Lm    | 1      | 0        | 0        | 0       | 0            |
| 89  | Lo    | 1      | 0        | 0        | 0       | 0            |
| 89  | Lp    | 1      | 0        | 0        | 0       | 0            |
| 89  | Sa    | 1      | 0        | 0        | 0       | 0            |
| 89  | Sd    | 1      | 0        | 0        | 0       | 0            |
| 89  | Sf    | 1      | 0        | 0        | 0       | 0            |
| 90  | L5    | 4      | 0        | 0        | 0       | 0            |
| 90  | L7    | 1      | 0        | 0        | 0       | 0            |
| 90  | LI    | 1      | 0        | 0        | 0       | 0            |
| 90  | LN    | 1      | 0        | 0        | 0       | 0            |
| 90  | La    | 1      | 0        | 0        | 0       | 0            |
| 90  | S2    | 3      | 0        | 0        | 0       | 0            |
| All | All   | 218816 | 0        | 161083   | 1827    | 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 5.

All (1827) 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) |
|------------------|-------------------|--------------------------|-------------------|
| 87:Sg:4:GLN:N    | 87:Sg:4:GLN:HE21  | 1.56                     | 1.02              |
| 54:S2:1748:G:H1  | 54:S2:1786:U:H3   | 1.07                     | 0.99              |
| 7:L5:1443:A:N6   | 7:L5:2104:G:C2    | 2.41                     | 0.89              |
| 87:Sg:4:GLN:N    | 87:Sg:4:GLN:NE2   | 2.26                     | 0.83              |
| 70:SP:93:MET:HE1 | 70:SP:106:GLU:HG2 | 1.61                     | 0.82              |
| 7:L5:1443:A:N6   | 7:L5:2103:G:C6    | 2.47                     | 0.81              |
| 7:L5:1443:A:H62  | 7:L5:2104:G:N2    | 1.80                     | 0.79              |
| 54:S2:925:G:H1   | 54:S2:1017:U:H3   | 1.31                     | 0.78              |
| 18:LI:48:LEU:O   | 18:LI:139:ARG:HA  | 1.83                     | 0.78              |
| 3:CM:443:U:H3    | 4:CP:33:A:H61     | 1.31                     | 0.77              |
| 75:SU:26:SER:HB3 | 75:SU:32:LEU:HD13 | 1.67                     | 0.77              |
| 70:SP:108:LYS:H  | 70:SP:111:MET:HE2 | 1.49                     | 0.77              |
| 29:LU:38:ASN:OD1 | 29:LU:90:TYR:OH   | 2.03                     | 0.76              |
| 7:L5:3751:G:H21  | 7:L5:3775:A:H8    | 1.32                     | 0.76              |
| 34:LZ:54:THR:H   | 34:LZ:57:MET:HE3  | 1.51                     | 0.75              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 87:Sg:87:LEU:HB2   | 87:Sg:101:PHE:HB2  | 1.68                     | 0.74              |
| 7:L5:2557:G:H1     | 7:L5:2570:U:H3     | 1.34                     | 0.73              |
| 68:SN:52:VAL:O     | 68:SN:56:ASP:HB2   | 1.89                     | 0.73              |
| 7:L5:468:U:H3      | 7:L5:688:U:H3      | 1.36                     | 0.73              |
| 7:L5:2838:G:H5'    | 11:LB:247:GLY:HA2  | 1.72                     | 0.72              |
| 54:S2:1396:A:O2'   | 54:S2:1398:G:N7    | 2.23                     | 0.72              |
| 7:L5:4745:G:H1     | 7:L5:4955:A:H61    | 1.37                     | 0.71              |
| 33:LY:30:MET:HB3   | 33:LY:101:PRO:HG2  | 1.70                     | 0.71              |
| 30:LV:43:LYS:HG3   | 30:LV:60:MET:HG2   | 1.71                     | 0.71              |
| 64:SJ:108:ARG:HH22 | 64:SJ:154:GLN:HE21 | 1.36                     | 0.70              |
| 7:L5:5:A:H4'       | 16:LG:192:ARG:HH22 | 1.56                     | 0.70              |
| 18:LI:87:MET:HG2   | 18:LI:138:ILE:HG12 | 1.73                     | 0.70              |
| 30:LV:96:LEU:HD23  | 31:LW:20:ARG:HG2   | 1.74                     | 0.69              |
| 5:CR:329:MET:O     | 5:CR:346:LEU:HB2   | 1.92                     | 0.69              |
| 20:LL:164:GLU:HG3  | 35:La:100:ILE:HG13 | 1.75                     | 0.69              |
| 78:SX:49:GLY:O     | 78:SX:99:GLU:HA    | 1.91                     | 0.69              |
| 54:S2:860:G:H21    | 77:SW:107:SER:HB2  | 1.58                     | 0.69              |
| 7:L5:3946:G:H21    | 7:L5:3947:A:H62    | 1.39                     | 0.69              |
| 54:S2:529:A:H61    | 54:S2:556:U:H3     | 1.42                     | 0.68              |
| 54:S2:1142:G:H21   | 54:S2:1145:A:H2    | 1.37                     | 0.68              |
| 1:NA:71:ARG:NH2    | 7:L5:394:G:N7      | 2.41                     | 0.68              |
| 7:L5:1443:A:N6     | 7:L5:2103:G:N1     | 2.41                     | 0.68              |
| 7:L5:5027:C:H42    | 63:SI:170:LYS:HE3  | 1.59                     | 0.68              |
| 87:Sg:38:LYS:HG3   | 87:Sg:65:PHE:H     | 1.58                     | 0.67              |
| 7:L5:2611:A:H5'    | 7:L5:2688:G:H4'    | 1.76                     | 0.67              |
| 19:LJ:55:TYR:HA    | 19:LJ:64:ARG:HG3   | 1.75                     | 0.67              |
| 10:LA:120:PRO:HA   | 10:LA:162:ASN:HB3  | 1.76                     | 0.67              |
| 79:SY:15:ASN:HD21  | 79:SY:18:LEU:HD12  | 1.61                     | 0.66              |
| 54:S2:927:C:O2     | 82:Sb:51:GLN:NE2   | 2.29                     | 0.66              |
| 54:S2:1098:C:H5    | 54:S2:1134:G:H1    | 1.43                     | 0.66              |
| 54:S2:928:G:H1     | 54:S2:1013:U:H3    | 1.43                     | 0.66              |
| 31:LW:102:LYS:H    | 31:LW:102:LYS:HE2  | 1.59                     | 0.66              |
| 55:SA:184:ARG:HD3  | 55:SA:191:ARG:HD3  | 1.78                     | 0.66              |
| 14:LE:119:GLU:HG3  | 39:Le:7:LEU:HD22   | 1.78                     | 0.65              |
| 10:LA:117:GLU:HB2  | 10:LA:162:ASN:HB2  | 1.77                     | 0.65              |
| 79:SY:83:LYS:HE3   | 79:SY:96:LEU:HD11  | 1.79                     | 0.65              |
| 7:L5:1801:A:H4'    | 28:LT:102:ARG:HH21 | 1.61                     | 0.65              |
| 11:LB:356:LYS:H    | 11:LB:356:LYS:HE2  | 1.62                     | 0.65              |
| 52:Ls:96:THR:OG1   | 52:Ls:99:ARG:NH2   | 2.30                     | 0.65              |
| 54:S2:1107:G:H1    | 54:S2:1125:C:H5    | 1.43                     | 0.65              |
| 50:Lp:5:THR:HG21   | 50:Lp:9:GLY:H      | 1.60                     | 0.65              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 7:L5:1972:G:N2     | 53:Lt:131:GLU:OE1  | 2.29                     | 0.65              |
| 26:LR:42:ARG:HA    | 26:LR:45:ILE:HD12  | 1.79                     | 0.64              |
| 11:LB:305:THR:HG23 | 11:LB:307:TYR:H    | 1.62                     | 0.64              |
| 7:L5:1267:C:OP2    | 7:L5:2121:C:N4     | 2.27                     | 0.64              |
| 12:LC:116:ASN:HB2  | 12:LC:119:GLN:HG3  | 1.79                     | 0.64              |
| 16:LG:38:ASN:ND2   | 16:LG:43:GLN:OE1   | 2.29                     | 0.64              |
| 54:S2:1679:A:H2'   | 60:SF:60:ARG:HD3   | 1.80                     | 0.64              |
| 56:SB:40:ASN:ND2   | 56:SB:76:ASN:OD1   | 2.29                     | 0.64              |
| 79:SY:79:LEU:HD13  | 79:SY:83:LYS:HD3   | 1.79                     | 0.64              |
| 58:SD:35:SER:OG    | 58:SD:51:LEU:O     | 2.16                     | 0.64              |
| 75:SU:26:SER:OG    | 75:SU:27:ARG:N     | 2.28                     | 0.64              |
| 7:L5:4139:G:H4'    | 7:L5:4146:G:H22    | 1.63                     | 0.64              |
| 54:S2:114:G:O2'    | 54:S2:382:C:O2'    | 2.16                     | 0.64              |
| 54:S2:1550:G:H3'   | 54:S2:1579:A:H61   | 1.63                     | 0.63              |
| 27:LS:101:THR:HG22 | 27:LS:104:GLY:H    | 1.63                     | 0.63              |
| 31:LW:102:LYS:HD3  | 31:LW:105:ARG:HH22 | 1.63                     | 0.63              |
| 46:LI:21:ARG:O     | 46:LI:38:ASN:ND2   | 2.30                     | 0.63              |
| 54:S2:190:G:O2'    | 54:S2:209:A:N6     | 2.32                     | 0.63              |
| 87:Sg:195:LEU:HA   | 87:Sg:211:GLY:HA3  | 1.80                     | 0.63              |
| 4:CP:32:U:OP2      | 71:SQ:146:ARG:NH2  | 2.32                     | 0.63              |
| 52:Ls:18:ILE:HD12  | 52:Ls:68:HIS:HD2   | 1.62                     | 0.63              |
| 54:S2:192:C:H41    | 54:S2:207:G:H21    | 1.45                     | 0.63              |
| 57:SC:86:LEU:HD11  | 57:SC:265:PRO:HG2  | 1.81                     | 0.63              |
| 82:Sb:21:LYS:NZ    | 82:Sb:26:GLN:OE1   | 2.31                     | 0.63              |
| 49:Lo:33:LEU:HA    | 49:Lo:38:LYS:HG2   | 1.81                     | 0.63              |
| 54:S2:1649:U:H3    | 54:S2:1675:A:H2    | 1.46                     | 0.63              |
| 7:L5:966:A:H5''    | 7:L5:2092:G:H22    | 1.63                     | 0.63              |
| 62:SH:63:PHE:HA    | 62:SH:95:ILE:O     | 1.98                     | 0.62              |
| 9:L8:82:A:H62      | 9:L8:84:A:H3'      | 1.64                     | 0.62              |
| 54:S2:1348:G:H1    | 54:S2:1381:G:H22   | 1.48                     | 0.62              |
| 56:SB:183:GLU:HA   | 56:SB:186:ASN:HB2  | 1.80                     | 0.62              |
| 26:LR:162:ARG:NH2  | 54:S2:873:G:N3     | 2.47                     | 0.62              |
| 54:S2:433:A:H5''   | 63:SI:22:HIS:HB3   | 1.80                     | 0.62              |
| 54:S2:1391:C:H4'   | 84:Sd:55:LEU:HD13  | 1.81                     | 0.62              |
| 25:LQ:67:ILE:HD13  | 25:LQ:96:PRO:HD2   | 1.81                     | 0.62              |
| 30:LV:69:LYS:NZ    | 30:LV:71:GLU:OE1   | 2.32                     | 0.62              |
| 54:S2:617:G:H4'    | 78:SX:88:ASP:HB3   | 1.82                     | 0.62              |
| 54:S2:1091:C:HO2'  | 77:SW:2:VAL:N      | 1.97                     | 0.62              |
| 10:LA:101:VAL:HG22 | 10:LA:165:VAL:HG22 | 1.81                     | 0.62              |
| 17:LH:106:GLN:NE2  | 17:LH:113:GLU:OE2  | 2.33                     | 0.62              |
| 26:LR:160:GLU:OE1  | 26:LR:163:ARG:NH1  | 2.32                     | 0.62              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 54:S2:1488:C:O2'   | 54:S2:1490:G:OP2   | 2.15                     | 0.62              |
| 65:SK:3:MET:HE3    | 65:SK:8:ARG:HH21   | 1.65                     | 0.62              |
| 5:CR:282:GLN:HA    | 5:CR:285:LYS:HE3   | 1.82                     | 0.61              |
| 17:LH:37:ASP:OD1   | 17:LH:39:ASN:ND2   | 2.33                     | 0.61              |
| 67:SM:84:LYS:O     | 67:SM:88:TRP:HB2   | 2.00                     | 0.61              |
| 30:LV:45:ILE:HG21  | 30:LV:53:PRO:HB3   | 1.81                     | 0.61              |
| 54:S2:1616:U:H3    | 54:S2:1620:A:H2    | 1.47                     | 0.61              |
| 7:L5:518:G:H1      | 7:L5:643:C:H2'     | 1.63                     | 0.61              |
| 27:LS:161:ARG:HE   | 27:LS:164:LYS:HD3  | 1.66                     | 0.61              |
| 70:SP:18:ARG:HD3   | 73:SS:90:VAL:HA    | 1.81                     | 0.61              |
| 54:S2:1544:C:N4    | 54:S2:1588:A:O2'   | 2.33                     | 0.61              |
| 70:SP:18:ARG:O     | 73:SS:93:GLY:N     | 2.34                     | 0.61              |
| 9:L8:55:U:H3       | 9:L8:62:A:H2       | 1.47                     | 0.61              |
| 56:SB:152:LYS:HB2  | 72:SR:131:PRO:HB3  | 1.83                     | 0.61              |
| 69:SO:34:PHE:HB3   | 69:SO:41:PHE:HB2   | 1.82                     | 0.61              |
| 73:SS:14:ARG:NH1   | 73:SS:19:ASN:OD1   | 2.34                     | 0.61              |
| 59:SE:171:ASP:OD1  | 59:SE:172:PHE:N    | 2.33                     | 0.61              |
| 7:L5:2049:G:HO2'   | 7:L5:3884:U:HO2'   | 1.47                     | 0.61              |
| 12:LC:328:LEU:HD13 | 15:LF:187:MET:HE3  | 1.82                     | 0.61              |
| 73:SS:44:VAL:HG11  | 73:SS:71:MET:HG3   | 1.82                     | 0.61              |
| 7:L5:2601:A:N6     | 7:L5:2744:A:OP2    | 2.34                     | 0.60              |
| 7:L5:3641:U:OP2    | 7:L5:3646:A:N6     | 2.34                     | 0.60              |
| 14:LE:99:ASP:OD1   | 14:LE:99:ASP:N     | 2.34                     | 0.60              |
| 54:S2:1228:A:H2'   | 54:S2:1229:G:C8    | 2.36                     | 0.60              |
| 7:L5:1362:G:OP1    | 20:LL:39:ARG:NH2   | 2.34                     | 0.60              |
| 19:LJ:95:ARG:O     | 19:LJ:98:ASN:HB2   | 2.01                     | 0.60              |
| 64:SJ:140:GLN:HE22 | 79:SY:64:PHE:HB3   | 1.66                     | 0.60              |
| 5:CR:330:ARG:HH12  | 5:CR:344:LEU:HD23  | 1.65                     | 0.60              |
| 5:CR:330:ARG:NH1   | 5:CR:344:LEU:O     | 2.33                     | 0.60              |
| 15:LF:203:GLU:N    | 15:LF:203:GLU:OE2  | 2.34                     | 0.60              |
| 29:LU:42:PHE:CE2   | 29:LU:46:ARG:HG3   | 2.36                     | 0.60              |
| 75:SU:26:SER:HB2   | 75:SU:110:VAL:HA   | 1.83                     | 0.60              |
| 7:L5:74:G:H5''     | 20:LL:59:VAL:HB    | 1.82                     | 0.60              |
| 7:L5:1824:G:OP1    | 28:LT:35:LYS:NZ    | 2.34                     | 0.60              |
| 54:S2:506:G:OP1    | 79:SY:108:LYS:NZ   | 2.32                     | 0.60              |
| 56:SB:36:PRO:HD3   | 56:SB:98:THR:HG22  | 1.83                     | 0.60              |
| 7:L5:1443:A:N6     | 7:L5:2104:G:N2     | 2.46                     | 0.60              |
| 15:LF:105:VAL:HG13 | 15:LF:136:VAL:HG12 | 1.83                     | 0.60              |
| 54:S2:377:G:H5'    | 63:SI:98:LYS:HB3   | 1.84                     | 0.60              |
| 54:S2:1497:G:H1    | 65:SK:25:LYS:HG3   | 1.67                     | 0.60              |
| 2:NB:35:ARG:H      | 2:NB:35:ARG:HD3    | 1.67                     | 0.60              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 7:L5:5011:A:H62   | 7:L5:5037:U:H3    | 1.50                     | 0.60              |
| 52:Ls:138:PHE:HB2 | 52:Ls:143:ILE:HB  | 1.83                     | 0.60              |
| 7:L5:5066:U:OP1   | 24:LP:43:LYS:NZ   | 2.32                     | 0.60              |
| 20:LL:47:ALA:O    | 20:LL:49:ARG:N    | 2.32                     | 0.60              |
| 54:S2:170:A:OP2   | 61:SG:140:ARG:NH1 | 2.35                     | 0.60              |
| 65:SK:3:MET:HE1   | 65:SK:48:ALA:HB2  | 1.84                     | 0.60              |
| 27:LS:99:ASP:OD1  | 27:LS:100:LEU:N   | 2.34                     | 0.59              |
| 61:SG:59:GLN:OE1  | 61:SG:72:ARG:NH2  | 2.34                     | 0.59              |
| 29:LU:24:ASP:HB3  | 29:LU:111:GLU:HA  | 1.84                     | 0.59              |
| 34:LZ:30:ASP:OD1  | 34:LZ:30:ASP:N    | 2.35                     | 0.59              |
| 7:L5:4927:G:H5'   | 7:L5:4928:C:H5    | 1.65                     | 0.59              |
| 22:LN:160:GLU:OE1 | 22:LN:160:GLU:N   | 2.33                     | 0.59              |
| 7:L5:137:G:H2'    | 7:L5:138:G:H8     | 1.66                     | 0.59              |
| 7:L5:1332:C:H2'   | 7:L5:1333:A:H8    | 1.67                     | 0.59              |
| 7:L5:2894:A:H62   | 7:L5:3607:U:H3    | 1.49                     | 0.59              |
| 8:L7:7:G:OP1      | 13:LD:33:ARG:NH1  | 2.33                     | 0.59              |
| 18:LI:28:ASP:OD2  | 18:LI:28:ASP:N    | 2.36                     | 0.59              |
| 45:Lk:19:ASP:OD2  | 45:Lk:19:ASP:N    | 2.34                     | 0.59              |
| 53:Lt:99:LYS:NZ   | 53:Lt:101:SER:OG  | 2.31                     | 0.59              |
| 54:S2:563:G:H1    | 54:S2:592:C:H5    | 1.50                     | 0.59              |
| 56:SB:222:LYS:NZ  | 56:SB:223:PHE:O   | 2.35                     | 0.59              |
| 22:LN:124:ASP:OD2 | 22:LN:125:SER:N   | 2.36                     | 0.59              |
| 53:Lt:153:ASP:OD2 | 53:Lt:153:ASP:N   | 2.33                     | 0.59              |
| 54:S2:696:G:N2    | 54:S2:737:G:O6    | 2.36                     | 0.59              |
| 62:SH:18:GLU:O    | 62:SH:21:SER:OG   | 2.20                     | 0.59              |
| 7:L5:679:C:H2'    | 7:L5:680:G:H8     | 1.67                     | 0.59              |
| 7:L5:2089:G:OP2   | 12:LC:294:LYS:NZ  | 2.36                     | 0.59              |
| 32:LX:93:ASN:HB3  | 32:LX:95:THR:HG23 | 1.85                     | 0.59              |
| 7:L5:4472:G:O2'   | 47:Lm:100:TYR:O   | 2.20                     | 0.59              |
| 65:SK:72:THR:O    | 65:SK:75:GLY:N    | 2.33                     | 0.59              |
| 5:CR:38:ILE:HG12  | 5:CR:94:VAL:HG13  | 1.85                     | 0.59              |
| 7:L5:703:G:H2'    | 7:L5:704:C:H4'    | 1.85                     | 0.59              |
| 2:NB:55:ASN:HB2   | 2:NB:80:GLN:HG2   | 1.84                     | 0.58              |
| 7:L5:2487:G:H22   | 7:L5:2492:C:H1'   | 1.66                     | 0.58              |
| 18:LI:44:ASP:OD2  | 18:LI:44:ASP:N    | 2.34                     | 0.58              |
| 7:L5:4626:A:H62   | 7:L5:4669:A:H2    | 1.51                     | 0.58              |
| 10:LA:29:LEU:O    | 10:LA:123:ARG:NH1 | 2.36                     | 0.58              |
| 64:SJ:127:ARG:HD2 | 85:Se:31:ARG:HD3  | 1.85                     | 0.58              |
| 37:Lc:47:ILE:HD12 | 37:Lc:94:LEU:HD11 | 1.86                     | 0.58              |
| 55:SA:128:ARG:NH2 | 55:SA:151:ASP:O   | 2.36                     | 0.58              |
| 7:L5:4305:G:H1    | 28:LT:80:VAL:HG21 | 1.68                     | 0.58              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 54:S2:1753:C:H4'   | 54:S2:1780:G:H1    | 1.68                     | 0.58              |
| 73:SS:15:VAL:HB    | 73:SS:68:ILE:HD11  | 1.85                     | 0.58              |
| 28:LT:43:LYS:O     | 28:LT:58:HIS:ND1   | 2.37                     | 0.58              |
| 61:SG:4:ASN:HB3    | 61:SG:110:ASN:HB3  | 1.86                     | 0.58              |
| 54:S2:66:G:H21     | 54:S2:82:G:H21     | 1.51                     | 0.58              |
| 7:L5:1961:G:OP2    | 52:Ls:59:THR:OG1   | 2.20                     | 0.58              |
| 15:LF:162:ILE:HD13 | 15:LF:167:ILE:HB   | 1.85                     | 0.58              |
| 54:S2:1616:U:OP2   | 70:SP:43:ARG:NH2   | 2.36                     | 0.58              |
| 55:SA:50:ASN:HA    | 72:SR:105:MET:HE2  | 1.86                     | 0.58              |
| 62:SH:72:PHE:O     | 62:SH:75:ILE:O     | 2.21                     | 0.58              |
| 7:L5:1351:G:OP1    | 12:LC:33:ARG:NH1   | 2.37                     | 0.58              |
| 7:L5:4618:G:H5''   | 30:LV:15:ARG:HB3   | 1.85                     | 0.58              |
| 8:L7:30:C:H5       | 8:L7:47:G:H1       | 1.52                     | 0.58              |
| 27:LS:9:GLU:HG2    | 27:LS:67:VAL:HB    | 1.85                     | 0.58              |
| 54:S2:959:G:OP1    | 69:SO:104:ARG:NH2  | 2.37                     | 0.58              |
| 54:S2:1745:A:H1'   | 61:SG:66:GLY:HA2   | 1.85                     | 0.58              |
| 59:SE:45:ILE:HA    | 59:SE:61:VAL:HG11  | 1.84                     | 0.58              |
| 60:SF:124:ASP:OD1  | 60:SF:125:SER:N    | 2.36                     | 0.58              |
| 40:Lf:36:ARG:O     | 40:Lf:39:THR:OG1   | 2.21                     | 0.58              |
| 52:Ls:125:ALA:HA   | 52:Ls:154:ILE:HG23 | 1.85                     | 0.58              |
| 9:L8:155:C:OP2     | 16:LG:89:ARG:NH1   | 2.37                     | 0.58              |
| 53:Lt:45:ASP:HA    | 53:Lt:48:LYS:HG3   | 1.86                     | 0.58              |
| 54:S2:1589:A:N3    | 54:S2:1653:U:O2'   | 2.36                     | 0.58              |
| 59:SE:100:ARG:HH12 | 59:SE:122:LYS:HB2  | 1.69                     | 0.58              |
| 67:SM:54:SER:HB3   | 67:SM:78:LYS:HD2   | 1.86                     | 0.58              |
| 27:LS:84:TYR:HB2   | 27:LS:124:ILE:HG22 | 1.86                     | 0.57              |
| 37:Lc:38:ILE:HD11  | 37:Lc:46:VAL:HG21  | 1.86                     | 0.57              |
| 56:SB:57:ILE:HG22  | 56:SB:59:SER:H     | 1.69                     | 0.57              |
| 57:SC:254:ASP:N    | 57:SC:254:ASP:OD1  | 2.35                     | 0.57              |
| 62:SH:58:LYS:HB2   | 62:SH:90:LYS:HG2   | 1.86                     | 0.57              |
| 87:Sg:124:SER:OG   | 87:Sg:126:ASP:OD1  | 2.17                     | 0.57              |
| 7:L5:2469:C:H5     | 7:L5:2471:G:H1     | 1.52                     | 0.57              |
| 54:S2:1276:A:H62   | 54:S2:1321:G:H8    | 1.53                     | 0.57              |
| 59:SE:80:ILE:HG23  | 59:SE:81:THR:HG23  | 1.87                     | 0.57              |
| 11:LB:224:LYS:HG2  | 11:LB:340:THR:HG22 | 1.85                     | 0.57              |
| 74:ST:42:HIS:ND1   | 74:ST:93:SER:OG    | 2.37                     | 0.57              |
| 83:Sc:29:GLN:NE2   | 83:Sc:66:ARG:O     | 2.37                     | 0.57              |
| 7:L5:3693:U:O3'    | 50:Lp:21:SER:OG    | 2.23                     | 0.57              |
| 19:LJ:101:ASP:OD1  | 19:LJ:101:ASP:N    | 2.31                     | 0.57              |
| 57:SC:92:GLU:N     | 57:SC:92:GLU:OE2   | 2.34                     | 0.57              |
| 60:SF:127:ARG:HH22 | 60:SF:136:ARG:HG2  | 1.70                     | 0.57              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 7:L5:4699:U:H1'   | 7:L5:4700:A:H5''  | 1.85                     | 0.57              |
| 18:LI:31:ILE:HG22 | 18:LI:62:SER:HB2  | 1.86                     | 0.57              |
| 54:S2:913:A:N6    | 62:SH:98:ARG:O    | 2.37                     | 0.57              |
| 62:SH:147:LYS:NZ  | 62:SH:151:SER:OG  | 2.36                     | 0.57              |
| 7:L5:2899:C:OP1   | 26:LR:108:ARG:NH2 | 2.34                     | 0.57              |
| 7:L5:3594:C:O2    | 7:L5:3597:G:N2    | 2.37                     | 0.57              |
| 53:Lt:44:ASP:OD2  | 53:Lt:44:ASP:N    | 2.27                     | 0.57              |
| 54:S2:581:U:OP1   | 64:SJ:133:ARG:NH2 | 2.36                     | 0.57              |
| 15:LF:226:HIS:HA  | 15:LF:233:ALA:HB3 | 1.87                     | 0.57              |
| 75:SU:79:ARG:NH1  | 84:Sd:56:ASP:O    | 2.38                     | 0.57              |
| 37:Lc:37:MET:HG3  | 37:Lc:97:ILE:HD11 | 1.85                     | 0.57              |
| 44:Lj:54:LYS:O    | 44:Lj:58:THR:HB   | 2.05                     | 0.57              |
| 71:SQ:70:VAL:HG11 | 71:SQ:84:ILE:HG23 | 1.85                     | 0.57              |
| 7:L5:759:G:OP1    | 17:LH:51:LYS:NZ   | 2.38                     | 0.56              |
| 7:L5:1890:G:OP2   | 7:L5:1890:G:N2    | 2.36                     | 0.56              |
| 7:L5:3689:G:O2'   | 7:L5:3818:U:OP2   | 2.20                     | 0.56              |
| 54:S2:360:A:N6    | 54:S2:400:C:O2'   | 2.37                     | 0.56              |
| 71:SQ:58:LEU:HB3  | 71:SQ:62:ARG:HD2  | 1.87                     | 0.56              |
| 53:Lt:18:THR:HA   | 53:Lt:57:ARG:HA   | 1.86                     | 0.56              |
| 55:SA:77:ILE:HD13 | 55:SA:99:ILE:HB   | 1.86                     | 0.56              |
| 74:ST:96:SER:HB3  | 74:ST:99:VAL:HB   | 1.87                     | 0.56              |
| 83:Sc:32:VAL:O    | 83:Sc:41:SER:HA   | 2.05                     | 0.56              |
| 2:NB:102:MET:HE3  | 2:NB:106:ILE:HG12 | 1.87                     | 0.56              |
| 5:CR:322:VAL:O    | 5:CR:391:ILE:HA   | 2.04                     | 0.56              |
| 7:L5:496:G:H2'    | 7:L5:498:C:H5''   | 1.87                     | 0.56              |
| 7:L5:2764:A:H2'   | 7:L5:2765:A:H8    | 1.71                     | 0.56              |
| 37:Lc:31:TYR:OH   | 37:Lc:59:GLU:OE2  | 2.22                     | 0.56              |
| 60:SF:41:VAL:HA   | 60:SF:45:TYR:HB2  | 1.87                     | 0.56              |
| 76:SV:32:ILE:O    | 76:SV:54:ALA:HA   | 2.06                     | 0.56              |
| 7:L5:2395:A:HO2'  | 7:L5:2806:A:HO2'  | 1.53                     | 0.56              |
| 87:Sg:152:SER:H   | 87:Sg:169:GLY:HA2 | 1.70                     | 0.56              |
| 7:L5:4717:A:OP2   | 11:LB:30:LYS:NZ   | 2.38                     | 0.56              |
| 28:LT:82:GLY:HA3  | 36:Lb:16:TRP:HB2  | 1.88                     | 0.56              |
| 7:L5:1468:C:OP1   | 35:La:132:ARG:NH2 | 2.37                     | 0.56              |
| 7:L5:5002:U:OP2   | 11:LB:385:LYS:NZ  | 2.37                     | 0.56              |
| 20:LL:139:SER:O   | 20:LL:143:GLU:HB2 | 2.06                     | 0.56              |
| 28:LT:88:ARG:NH2  | 36:Lb:30:GLU:OE1  | 2.37                     | 0.56              |
| 54:S2:895:G:H8    | 54:S2:896:U:H4'   | 1.69                     | 0.56              |
| 54:S2:1512:C:O2'  | 84:Sd:7:TYR:O     | 2.20                     | 0.56              |
| 54:S2:1536:G:H2'  | 54:S2:1537:A:C8   | 2.40                     | 0.56              |
| 55:SA:209:GLU:HB2 | 55:SA:212:LYS:HE3 | 1.87                     | 0.56              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 5:CR:145:LYS:HG2  | 5:CR:162:GLN:HG2   | 1.87                     | 0.56              |
| 7:L5:3664:G:H2'   | 7:L5:3665:G:H8     | 1.70                     | 0.56              |
| 10:LA:5:ILE:HG12  | 10:LA:8:GLN:HB2    | 1.88                     | 0.56              |
| 11:LB:378:ARG:HG2 | 31:LW:32:LEU:HD21  | 1.88                     | 0.56              |
| 17:LH:124:ARG:NH1 | 17:LH:164:ALA:O    | 2.33                     | 0.56              |
| 54:S2:1308:U:H1'  | 86:Sf:135:HIS:HE1  | 1.70                     | 0.56              |
| 9:L8:45:C:OP2     | 46:Ll:15:LYS:NZ    | 2.39                     | 0.56              |
| 80:SZ:68:ILE:HB   | 80:SZ:109:TYR:HB2  | 1.88                     | 0.56              |
| 7:L5:1697:G:N2    | 7:L5:2084:C:OP1    | 2.38                     | 0.56              |
| 54:S2:587:A:H5'   | 54:S2:592:C:H42    | 1.70                     | 0.56              |
| 60:SF:167:LYS:NZ  | 60:SF:175:ASP:OD1  | 2.37                     | 0.56              |
| 71:SQ:16:LYS:H    | 71:SQ:19:ALA:HB3   | 1.70                     | 0.56              |
| 80:SZ:79:ILE:HG13 | 80:SZ:83:LEU:HD23  | 1.87                     | 0.56              |
| 54:S2:72:C:H1'    | 54:S2:73:C:H2'     | 1.88                     | 0.55              |
| 59:SE:180:LEU:HA  | 59:SE:194:VAL:HA   | 1.88                     | 0.55              |
| 70:SP:110:GLU:OE1 | 70:SP:110:GLU:N    | 2.36                     | 0.55              |
| 86:Sf:121:CYS:HB2 | 86:Sf:146:LEU:HD11 | 1.88                     | 0.55              |
| 49:Lo:11:PHE:O    | 49:Lo:81:ARG:NH2   | 2.39                     | 0.55              |
| 53:Lt:105:THR:OG1 | 53:Lt:108:GLU:OE2  | 2.23                     | 0.55              |
| 60:SF:73:THR:HG22 | 60:SF:93:VAL:HG11  | 1.88                     | 0.55              |
| 54:S2:351:G:OP1   | 63:SI:7:ASN:ND2    | 2.40                     | 0.55              |
| 54:S2:804:U:H5    | 54:S2:859:G:H1     | 1.53                     | 0.55              |
| 64:SJ:128:VAL:O   | 64:SJ:132:GLN:HG2  | 2.07                     | 0.55              |
| 67:SM:87:GLU:HG2  | 67:SM:100:PRO:HG3  | 1.87                     | 0.55              |
| 68:SN:87:ASP:OD2  | 68:SN:87:ASP:N     | 2.37                     | 0.55              |
| 23:LO:47:PHE:HZ   | 23:LO:144:GLU:HG3  | 1.72                     | 0.55              |
| 27:LS:80:ILE:HG12 | 27:LS:129:VAL:HG13 | 1.87                     | 0.55              |
| 56:SB:60:ASP:HA   | 56:SB:63:LYS:HD2   | 1.88                     | 0.55              |
| 7:L5:2520:C:H2'   | 7:L5:2521:G:H8     | 1.72                     | 0.55              |
| 54:S2:1598:G:O2'  | 80:SZ:80:ARG:O     | 2.22                     | 0.55              |
| 25:LQ:157:GLY:O   | 25:LQ:188:ASN:ND2  | 2.40                     | 0.55              |
| 52:Ls:39:GLN:O    | 52:Ls:42:GLN:NE2   | 2.40                     | 0.55              |
| 59:SE:125:LYS:HG2 | 59:SE:142:HIS:HB3  | 1.89                     | 0.55              |
| 63:SI:89:GLU:OE2  | 63:SI:92:ARG:NH2   | 2.40                     | 0.55              |
| 69:SO:56:VAL:HG23 | 69:SO:60:MET:HE2   | 1.89                     | 0.55              |
| 87:Sg:12:LYS:HA   | 87:Sg:306:LEU:HD13 | 1.89                     | 0.55              |
| 2:NB:55:ASN:HA    | 2:NB:80:GLN:HA     | 1.87                     | 0.55              |
| 7:L5:4992:G:H2'   | 7:L5:4993:G:C8     | 2.42                     | 0.55              |
| 20:LL:108:GLU:OE2 | 20:LL:108:GLU:N    | 2.36                     | 0.55              |
| 55:SA:36:GLN:O    | 55:SA:53:ARG:NH1   | 2.40                     | 0.55              |
| 75:SU:80:PHE:HB3  | 84:Sd:52:PHE:HB3   | 1.89                     | 0.55              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 5:CR:317:VAL:HA    | 5:CR:413:LEU:HA    | 1.89                     | 0.55              |
| 13:LD:223:PHE:HB3  | 13:LD:226:TYR:HB2  | 1.88                     | 0.55              |
| 38:Ld:36:VAL:HG21  | 38:Ld:44:ARG:HG2   | 1.89                     | 0.55              |
| 54:S2:1776:G:N2    | 54:S2:1776:G:OP2   | 2.40                     | 0.55              |
| 67:SM:36:ARG:HH12  | 67:SM:40:LYS:HE3   | 1.71                     | 0.55              |
| 67:SM:93:LYS:NZ    | 67:SM:102:LYS:O    | 2.40                     | 0.55              |
| 73:SS:34:LYS:HG2   | 73:SS:103:LEU:HD23 | 1.89                     | 0.55              |
| 87:Sg:17:TRP:HB2   | 87:Sg:36:ARG:HD2   | 1.88                     | 0.55              |
| 2:NB:82:SER:HB3    | 2:NB:87:THR:HB     | 1.89                     | 0.54              |
| 7:L5:4546:A:N7     | 10:LA:215:ASN:ND2  | 2.55                     | 0.54              |
| 52:Ls:26:LYS:HG3   | 52:Ls:91:THR:HG23  | 1.89                     | 0.54              |
| 7:L5:3717:A:OP2    | 7:L5:3735:G:N2     | 2.37                     | 0.54              |
| 7:L5:4537:C:H2'    | 7:L5:4538:G:C8     | 2.43                     | 0.54              |
| 7:L5:4941:G:OP2    | 14:LE:188:ARG:NH2  | 2.40                     | 0.54              |
| 49:Lo:99:ARG:HH12  | 49:Lo:102:GLN:HE21 | 1.54                     | 0.54              |
| 52:Ls:48:ARG:O     | 52:Ls:50:LYS:NZ    | 2.39                     | 0.54              |
| 52:Ls:194:ASP:O    | 52:Ls:197:SER:OG   | 2.25                     | 0.54              |
| 56:SB:52:THR:HG23  | 56:SB:57:ILE:HA    | 1.87                     | 0.54              |
| 58:SD:127:MET:HE1  | 58:SD:133:GLY:HA2  | 1.88                     | 0.54              |
| 83:Sc:15:THR:HG22  | 83:Sc:16:LYS:H     | 1.71                     | 0.54              |
| 87:Sg:244:ASN:OD1  | 87:Sg:245:ARG:N    | 2.40                     | 0.54              |
| 7:L5:1994:C:H2'    | 7:L5:1995:G:H8     | 1.73                     | 0.54              |
| 23:LO:61:ARG:HA    | 23:LO:70:PRO:HD2   | 1.89                     | 0.54              |
| 37:Lc:38:ILE:HG21  | 37:Lc:63:TYR:HB3   | 1.89                     | 0.54              |
| 54:S2:1156:U:OP1   | 77:SW:71:LYS:NZ    | 2.40                     | 0.54              |
| 7:L5:958:G:H21     | 14:LE:125:LEU:H    | 1.55                     | 0.54              |
| 7:L5:4122:G:H4'    | 41:Lg:90:ARG:HD2   | 1.89                     | 0.54              |
| 21:LM:24:LEU:HB2   | 21:LM:43:THR:HG21  | 1.89                     | 0.54              |
| 33:LY:35:SER:O     | 33:LY:39:ARG:HB2   | 2.07                     | 0.54              |
| 53:Lt:45:ASP:OD2   | 53:Lt:45:ASP:N     | 2.35                     | 0.54              |
| 54:S2:28:U:H2'     | 54:S2:29:G:H8      | 1.73                     | 0.54              |
| 62:SH:171:GLU:OE2  | 62:SH:171:GLU:N    | 2.40                     | 0.54              |
| 7:L5:1175:A:H2     | 7:L5:1185:G:H22    | 1.56                     | 0.54              |
| 18:LI:103:LEU:HD12 | 18:LI:111:LEU:HD21 | 1.88                     | 0.54              |
| 29:LU:75:GLU:N     | 29:LU:75:GLU:OE1   | 2.40                     | 0.54              |
| 43:Li:23:LYS:HE2   | 43:Li:24:PRO:HD2   | 1.89                     | 0.54              |
| 54:S2:1482:C:OP1   | 84:Sd:54:LYS:NZ    | 2.41                     | 0.54              |
| 7:L5:158:A:N1      | 7:L5:276:C:O2'     | 2.40                     | 0.54              |
| 38:Ld:64:ILE:HG23  | 38:Ld:68:LEU:HD23  | 1.88                     | 0.54              |
| 54:S2:803:C:H41    | 54:S2:860:G:H1     | 1.55                     | 0.54              |
| 55:SA:81:ASN:OD1   | 55:SA:81:ASN:N     | 2.38                     | 0.54              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 56:SB:77:ASP:N     | 56:SB:77:ASP:OD1   | 2.36                     | 0.54              |
| 7:L5:1994:C:H2'    | 7:L5:1995:G:C8     | 2.43                     | 0.54              |
| 7:L5:3717:A:H2'    | 7:L5:3718:A:C8     | 2.42                     | 0.54              |
| 7:L5:4431:U:OP2    | 18:LI:3:ARG:NH2    | 2.40                     | 0.54              |
| 10:LA:173:GLY:O    | 10:LA:176:ASP:HB2  | 2.08                     | 0.54              |
| 37:Lc:20:LEU:O     | 37:Lc:24:SER:OG    | 2.20                     | 0.54              |
| 49:Lo:2:VAL:N      | 49:Lo:90:HIS:O     | 2.41                     | 0.54              |
| 52:Ls:191:GLN:HE22 | 52:Ls:199:TYR:H    | 1.55                     | 0.54              |
| 1:NA:101:ASN:HB3   | 1:NA:131:LEU:HB3   | 1.89                     | 0.54              |
| 7:L5:300:A:H2'     | 7:L5:301:G:H8      | 1.72                     | 0.54              |
| 52:Ls:101:MET:HA   | 52:Ls:104:ALA:HB3  | 1.90                     | 0.54              |
| 54:S2:155:G:N2     | 61:SG:56:ASN:OD1   | 2.41                     | 0.54              |
| 54:S2:1298:G:OP2   | 70:SP:77:LYS:NZ    | 2.41                     | 0.54              |
| 54:S2:1648:G:H5''  | 71:SQ:125:ARG:HB2  | 1.90                     | 0.54              |
| 79:SY:53:ASP:OD1   | 79:SY:53:ASP:N     | 2.32                     | 0.54              |
| 7:L5:1326:A:OP2    | 7:L5:4445:U:O2'    | 2.25                     | 0.54              |
| 7:L5:4537:C:H2'    | 7:L5:4538:G:H8     | 1.73                     | 0.54              |
| 20:LL:4:SER:OG     | 20:LL:5:ARG:N      | 2.41                     | 0.54              |
| 54:S2:562:U:H4'    | 64:SJ:132:GLN:HB3  | 1.88                     | 0.54              |
| 54:S2:874:G:H2'    | 54:S2:875:A:H8     | 1.73                     | 0.54              |
| 70:SP:41:GLN:N     | 70:SP:41:GLN:OE1   | 2.40                     | 0.54              |
| 72:SR:16:ILE:HD11  | 72:SR:54:VAL:HG21  | 1.90                     | 0.54              |
| 44:Lj:22:CYS:SG    | 44:Lj:24:SER:OG    | 2.66                     | 0.54              |
| 74:ST:13:GLU:HA    | 74:ST:16:ARG:HB2   | 1.89                     | 0.54              |
| 2:NB:62:VAL:HG11   | 2:NB:90:ILE:HD13   | 1.90                     | 0.53              |
| 7:L5:420:A:H61     | 9:L8:15:G:H1'      | 1.73                     | 0.53              |
| 30:LV:33:GLY:HA3   | 30:LV:69:LYS:HD3   | 1.90                     | 0.53              |
| 32:LX:40:ILE:HD13  | 32:LX:42:THR:HG23  | 1.90                     | 0.53              |
| 33:LY:47:MET:HE1   | 33:LY:118:ILE:HD11 | 1.90                     | 0.53              |
| 54:S2:1536:G:H2'   | 54:S2:1537:A:H8    | 1.71                     | 0.53              |
| 58:SD:8:LYS:HG2    | 75:SU:61:LEU:HD21  | 1.90                     | 0.53              |
| 7:L5:67:C:OP2      | 7:L5:312:G:N2      | 2.41                     | 0.53              |
| 7:L5:4363:A:H5''   | 49:Lo:36:GLN:HG2   | 1.91                     | 0.53              |
| 19:LJ:120:ASP:OD2  | 19:LJ:122:SER:OG   | 2.26                     | 0.53              |
| 52:Ls:58:ASN:HB3   | 52:Ls:62:ARG:HH12  | 1.73                     | 0.53              |
| 53:Lt:154:ASP:HB2  | 53:Lt:159:ALA:HB3  | 1.89                     | 0.53              |
| 54:S2:1422:G:O2'   | 54:S2:1424:G:OP2   | 2.25                     | 0.53              |
| 55:SA:5:LEU:O      | 55:SA:9:GLN:NE2    | 2.37                     | 0.53              |
| 7:L5:496:G:N2      | 7:L5:658:C:O2      | 2.36                     | 0.53              |
| 7:L5:4129:G:O2'    | 16:LG:34:LYS:NZ    | 2.39                     | 0.53              |
| 38:Ld:59:THR:OG1   | 38:Ld:104:THR:OG1  | 2.25                     | 0.53              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 65:SK:26:ASP:OD1   | 65:SK:29:MET:N     | 2.41                     | 0.53              |
| 37:Lc:34:THR:HG23  | 37:Lc:95:ALA:HB2   | 1.90                     | 0.53              |
| 54:S2:616:A:OP1    | 78:SX:68:LYS:NZ    | 2.41                     | 0.53              |
| 75:SU:22:ILE:HB    | 75:SU:89:ILE:HD12  | 1.90                     | 0.53              |
| 19:LJ:18:ARG:H     | 19:LJ:134:LEU:HA   | 1.72                     | 0.53              |
| 52:Ls:109:ALA:HB3  | 52:Ls:185:PHE:HE1  | 1.73                     | 0.53              |
| 63:SI:36:THR:OG1   | 63:SI:57:ALA:O     | 2.25                     | 0.53              |
| 7:L5:62:A:N3       | 7:L5:77:U:O2'      | 2.36                     | 0.53              |
| 7:L5:1503:A:H4'    | 7:L5:1504:G:H5'    | 1.91                     | 0.53              |
| 64:SJ:82:VAL:HG21  | 64:SJ:92:MET:HE1   | 1.89                     | 0.53              |
| 81:Sa:25:ASN:OD1   | 81:Sa:25:ASN:N     | 2.40                     | 0.53              |
| 7:L5:4499:G:C2     | 7:L5:4529:G:H1'    | 2.44                     | 0.53              |
| 13:LD:60:ILE:HD11  | 13:LD:93:THR:HA    | 1.90                     | 0.53              |
| 16:LG:210:GLU:OE1  | 16:LG:210:GLU:N    | 2.34                     | 0.53              |
| 54:S2:640:A:H2'    | 54:S2:641:A:C8     | 2.44                     | 0.53              |
| 54:S2:1748:G:O6    | 54:S2:1786:U:O4    | 2.27                     | 0.53              |
| 55:SA:69:GLU:OE1   | 55:SA:69:GLU:N     | 2.36                     | 0.53              |
| 57:SC:79:GLU:N     | 57:SC:79:GLU:OE1   | 2.41                     | 0.53              |
| 7:L5:3937:C:H1'    | 22:LN:125:SER:HB3  | 1.90                     | 0.53              |
| 33:LY:37:GLU:OE1   | 33:LY:37:GLU:N     | 2.33                     | 0.53              |
| 77:SW:14:ILE:HG13  | 77:SW:27:ILE:HD11  | 1.90                     | 0.53              |
| 7:L5:2123:C:H1'    | 14:LE:72:LYS:HD2   | 1.91                     | 0.53              |
| 7:L5:4740:G:O6     | 7:L5:4959:U:O2     | 2.27                     | 0.53              |
| 14:LE:132:PRO:HG2  | 14:LE:135:GLN:HG3  | 1.91                     | 0.53              |
| 26:LR:105:LEU:HD22 | 26:LR:135:LYS:HG2  | 1.91                     | 0.53              |
| 54:S2:687:C:OP2    | 77:SW:32:LYS:NZ    | 2.37                     | 0.53              |
| 54:S2:923:G:H1     | 54:S2:1019:C:H5    | 1.56                     | 0.53              |
| 75:SU:61:LEU:HB2   | 75:SU:82:MET:HB3   | 1.90                     | 0.53              |
| 5:CR:330:ARG:HH21  | 5:CR:332:VAL:HA    | 1.74                     | 0.53              |
| 7:L5:1857:C:H2'    | 7:L5:1858:A:H8     | 1.74                     | 0.53              |
| 11:LB:92:TYR:HB3   | 11:LB:99:LEU:HD22  | 1.91                     | 0.53              |
| 45:Lk:10:ASP:N     | 45:Lk:10:ASP:OD1   | 2.42                     | 0.53              |
| 47:Lm:98:LYS:HG3   | 47:Lm:118:THR:HG21 | 1.90                     | 0.53              |
| 56:SB:99:ASN:OD1   | 56:SB:100:PHE:N    | 2.41                     | 0.53              |
| 7:L5:452:A:H4'     | 7:L5:453:G:H5'     | 1.91                     | 0.52              |
| 27:LS:19:THR:HG23  | 27:LS:22:CYS:H     | 1.73                     | 0.52              |
| 7:L5:1692:C:H5''   | 25:LQ:53:MET:HE2   | 1.89                     | 0.52              |
| 7:L5:2695:A:OP1    | 45:Lk:35:LYS:NZ    | 2.39                     | 0.52              |
| 7:L5:4910:G:N2     | 23:LO:106:ASP:O    | 2.42                     | 0.52              |
| 19:LJ:141:ILE:HA   | 19:LJ:144:LYS:HD3  | 1.92                     | 0.52              |
| 28:LT:94:GLU:N     | 28:LT:94:GLU:OE2   | 2.36                     | 0.52              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 32:LX:82:THR:HG21  | 42:Lh:37:THR:HG22  | 1.92                     | 0.52              |
| 54:S2:643:A:OP1    | 64:SJ:38:ARG:NH1   | 2.42                     | 0.52              |
| 54:S2:921:G:H3'    | 77:SW:28:ARG:HH21  | 1.74                     | 0.52              |
| 54:S2:1348:G:H5'   | 57:SC:145:LYS:HE3  | 1.90                     | 0.52              |
| 63:SI:6:ASP:OD2    | 63:SI:9:HIS:ND1    | 2.30                     | 0.52              |
| 67:SM:19:GLN:OE1   | 67:SM:88:TRP:NE1   | 2.29                     | 0.52              |
| 1:NA:111:VAL:HG22  | 1:NA:122:VAL:HG22  | 1.90                     | 0.52              |
| 52:Ls:28:PHE:HE2   | 52:Ls:189:ILE:HG23 | 1.75                     | 0.52              |
| 54:S2:1255:G:OP1   | 54:S2:1256:G:O2'   | 2.23                     | 0.52              |
| 58:SD:74:GLN:NE2   | 58:SD:79:PHE:O     | 2.42                     | 0.52              |
| 58:SD:163:PRO:O    | 58:SD:167:TYR:HB2  | 2.10                     | 0.52              |
| 73:SS:25:LYS:HE2   | 73:SS:53:THR:HA    | 1.91                     | 0.52              |
| 79:SY:22:GLN:HG2   | 79:SY:74:MET:HE3   | 1.91                     | 0.52              |
| 82:Sb:35:VAL:HG13  | 82:Sb:44:THR:HG23  | 1.90                     | 0.52              |
| 87:Sg:286:CYS:HA   | 87:Sg:302:TYR:HD1  | 1.74                     | 0.52              |
| 7:L5:4627:U:H4'    | 11:LB:373:LYS:HE2  | 1.92                     | 0.52              |
| 7:L5:5026:U:H1'    | 7:L5:5027:C:H5     | 1.74                     | 0.52              |
| 56:SB:124:HIS:HA   | 56:SB:137:LEU:O    | 2.09                     | 0.52              |
| 74:ST:13:GLU:OE1   | 74:ST:13:GLU:N     | 2.42                     | 0.52              |
| 7:L5:2711:G:OP2    | 26:LR:39:GLN:NE2   | 2.41                     | 0.52              |
| 54:S2:924:G:OP1    | 68:SN:4:MET:N      | 2.43                     | 0.52              |
| 63:SI:11:ARG:O     | 66:SL:136:LYS:NZ   | 2.39                     | 0.52              |
| 5:CR:330:ARG:NH1   | 5:CR:344:LEU:H     | 2.07                     | 0.52              |
| 7:L5:2521:G:OP2    | 41:Lg:8:ARG:NH2    | 2.41                     | 0.52              |
| 16:LG:232:GLU:OE2  | 16:LG:232:GLU:N    | 2.37                     | 0.52              |
| 26:LR:39:GLN:OE1   | 26:LR:42:ARG:NH1   | 2.41                     | 0.52              |
| 41:Lg:83:CYS:SG    | 41:Lg:86:CYS:HB2   | 2.49                     | 0.52              |
| 55:SA:137:ALA:HB1  | 55:SA:142:LEU:HB3  | 1.91                     | 0.52              |
| 58:SD:56:GLN:O     | 58:SD:60:GLY:CA    | 2.58                     | 0.52              |
| 59:SE:236:ILE:HD12 | 59:SE:237:SER:H    | 1.75                     | 0.52              |
| 66:SL:124:ASP:OD2  | 66:SL:124:ASP:N    | 2.32                     | 0.52              |
| 81:Sa:19:GLN:OE1   | 81:Sa:19:GLN:N     | 2.34                     | 0.52              |
| 7:L5:2258:C:N4     | 7:L5:2259:G:O6     | 2.42                     | 0.52              |
| 7:L5:2745:A:H2'    | 7:L5:2746:A:H8     | 1.75                     | 0.52              |
| 20:LL:80:GLU:OE1   | 20:LL:102:ARG:NH2  | 2.41                     | 0.52              |
| 7:L5:1332:C:H2'    | 7:L5:1333:A:C8     | 2.45                     | 0.52              |
| 22:LN:96:ARG:NH1   | 22:LN:100:SER:OG   | 2.41                     | 0.52              |
| 54:S2:528:A:H2'    | 54:S2:529:A:C8     | 2.45                     | 0.52              |
| 66:SL:126:VAL:HG12 | 66:SL:145:VAL:HG22 | 1.91                     | 0.52              |
| 29:LU:42:PHE:CD1   | 29:LU:90:TYR:HD1   | 2.27                     | 0.52              |
| 54:S2:940:U:H3     | 54:S2:1002:U:H3    | 1.56                     | 0.52              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 64:SJ:113:GLN:OE1  | 64:SJ:154:GLN:NE2  | 2.43                     | 0.52              |
| 7:L5:2696:A:N1     | 45:Lk:24:LYS:NZ    | 2.55                     | 0.52              |
| 7:L5:3759:A:HO2'   | 54:S2:1826:G:HO2'  | 1.58                     | 0.52              |
| 23:LO:113:ASP:OD2  | 23:LO:113:ASP:N    | 2.37                     | 0.52              |
| 54:S2:1215:C:O2'   | 54:S2:1645:C:OP2   | 2.28                     | 0.52              |
| 7:L5:4547:C:O2'    | 7:L5:4549:G:OP1    | 2.27                     | 0.51              |
| 54:S2:570:C:O2'    | 79:SY:34:THR:O     | 2.22                     | 0.51              |
| 54:S2:943:U:OP1    | 56:SB:214:LYS:NZ   | 2.38                     | 0.51              |
| 54:S2:957:A:H2'    | 54:S2:958:G:H21    | 1.75                     | 0.51              |
| 67:SM:79:VAL:HG11  | 67:SM:85:LEU:HB2   | 1.92                     | 0.51              |
| 7:L5:151:G:N7      | 16:LG:141:ASN:ND2  | 2.57                     | 0.51              |
| 32:LX:78:LYS:NZ    | 32:LX:133:GLU:OE2  | 2.43                     | 0.51              |
| 47:Lm:127:VAL:HG23 | 47:Lm:128:LYS:HG2  | 1.93                     | 0.51              |
| 52:Ls:47:LEU:HD12  | 52:Ls:51:ALA:HB3   | 1.90                     | 0.51              |
| 54:S2:562:U:H2'    | 54:S2:563:G:C8     | 2.44                     | 0.51              |
| 54:S2:1217:A:H2'   | 54:S2:1218:C:H6    | 1.75                     | 0.51              |
| 54:S2:1354:G:N2    | 54:S2:1357:A:OP2   | 2.37                     | 0.51              |
| 55:SA:123:VAL:HA   | 55:SA:145:ILE:O    | 2.09                     | 0.51              |
| 56:SB:40:ASN:OD1   | 56:SB:40:ASN:N     | 2.43                     | 0.51              |
| 60:SF:41:VAL:HG11  | 60:SF:68:ILE:HG22  | 1.91                     | 0.51              |
| 7:L5:1176:C:H42    | 7:L5:1184:A:H61    | 1.58                     | 0.51              |
| 7:L5:1785:C:OP1    | 18:LI:133:GLN:NE2  | 2.39                     | 0.51              |
| 7:L5:4745:G:H1     | 7:L5:4955:A:N6     | 2.05                     | 0.51              |
| 7:L5:5006:U:H4'    | 7:L5:5007:A:H5'    | 1.93                     | 0.51              |
| 10:LA:181:LYS:HB2  | 10:LA:184:ARG:HG3  | 1.92                     | 0.51              |
| 54:S2:1281:G:H3'   | 54:S2:1282:A:H8    | 1.75                     | 0.51              |
| 54:S2:1740:C:OP1   | 63:SI:44:HIS:ND1   | 2.44                     | 0.51              |
| 67:SM:33:ARG:H     | 67:SM:37:GLU:HB2   | 1.75                     | 0.51              |
| 83:Sc:62:GLU:OE1   | 83:Sc:62:GLU:N     | 2.43                     | 0.51              |
| 7:L5:268:G:H2'     | 7:L5:269:G:H8      | 1.74                     | 0.51              |
| 7:L5:1548:G:O2'    | 7:L5:2812:A:N3     | 2.41                     | 0.51              |
| 7:L5:2554:U:O2     | 7:L5:2764:A:N7     | 2.44                     | 0.51              |
| 10:LA:247:ARG:HD3  | 54:S2:1069:U:H4'   | 1.91                     | 0.51              |
| 24:LP:10:ASN:OD1   | 24:LP:12:THR:OG1   | 2.24                     | 0.51              |
| 54:S2:1680:G:H4'   | 83:Sc:20:ARG:HG2   | 1.92                     | 0.51              |
| 62:SH:154:ILE:HB   | 62:SH:185:VAL:HG22 | 1.92                     | 0.51              |
| 7:L5:4274:A:H2'    | 7:L5:4275:G:C8     | 2.44                     | 0.51              |
| 7:L5:4541:G:N2     | 7:L5:4544:A:OP2    | 2.40                     | 0.51              |
| 54:S2:1860:A:H3'   | 81:Sa:8:ASN:HB3    | 1.92                     | 0.51              |
| 57:SC:176:LYS:O    | 57:SC:200:ARG:NH2  | 2.43                     | 0.51              |
| 58:SD:31:GLU:OE2   | 58:SD:31:GLU:N     | 2.34                     | 0.51              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 61:SG:176:ILE:HB   | 61:SG:179:LEU:HD23 | 1.91                     | 0.51              |
| 7:L5:4478:G:O2'    | 7:L5:4602:A:N1     | 2.43                     | 0.51              |
| 45:Lk:55:LYS:O     | 45:Lk:58:GLN:NE2   | 2.44                     | 0.51              |
| 54:S2:1454:A:H5''  | 72:SR:3:ARG:HD2    | 1.92                     | 0.51              |
| 54:S2:1593:C:OP2   | 80:SZ:104:ARG:NH2  | 2.43                     | 0.51              |
| 58:SD:138:VAL:HG22 | 58:SD:184:ILE:HD13 | 1.92                     | 0.51              |
| 73:SS:22:GLY:HA2   | 73:SS:56:ALA:HB3   | 1.92                     | 0.51              |
| 7:L5:1552:G:O2'    | 7:L5:1574:G:N2     | 2.31                     | 0.51              |
| 7:L5:2020:U:H2'    | 7:L5:2021:G:H8     | 1.75                     | 0.51              |
| 7:L5:4238:G:H2'    | 7:L5:4239:A:C8     | 2.46                     | 0.51              |
| 10:LA:14:SER:H     | 10:LA:17:ARG:HD3   | 1.75                     | 0.51              |
| 20:LL:164:GLU:OE1  | 20:LL:167:ARG:NH1  | 2.44                     | 0.51              |
| 32:LX:64:SER:HB2   | 42:Lh:69:LEU:HD13  | 1.92                     | 0.51              |
| 54:S2:641:A:OP1    | 64:SJ:40:LYS:NZ    | 2.30                     | 0.51              |
| 54:S2:1752:C:H42   | 54:S2:1781:A:H2    | 1.57                     | 0.51              |
| 55:SA:196:GLU:OE2  | 55:SA:196:GLU:N    | 2.42                     | 0.51              |
| 65:SK:60:GLU:HB2   | 65:SK:69:TRP:CD1   | 2.46                     | 0.51              |
| 7:L5:679:C:H2'     | 7:L5:680:G:C8      | 2.44                     | 0.51              |
| 13:LD:212:MET:HE1  | 13:LD:233:PRO:HG3  | 1.92                     | 0.51              |
| 27:LS:15:ARG:HD2   | 27:LS:25:PRO:HG2   | 1.93                     | 0.51              |
| 54:S2:30:C:O2'     | 54:S2:596:U:OP1    | 2.22                     | 0.51              |
| 54:S2:1240:A:C8    | 70:SP:100:LYS:HD2  | 2.45                     | 0.51              |
| 66:SL:59:LYS:HB3   | 66:SL:134:LEU:HD13 | 1.93                     | 0.51              |
| 7:L5:4093:G:H2'    | 7:L5:4094:G:C8     | 2.45                     | 0.51              |
| 46:Ll:27:ILE:O     | 46:Ll:33:ASN:ND2   | 2.43                     | 0.51              |
| 54:S2:1298:G:H4'   | 70:SP:78:THR:HA    | 1.93                     | 0.51              |
| 54:S2:1372:U:OP1   | 54:S2:1385:G:N2    | 2.31                     | 0.51              |
| 63:SI:133:GLU:HA   | 63:SI:136:ILE:HD12 | 1.93                     | 0.51              |
| 83:Sc:13:ARG:NH1   | 83:Sc:53:GLY:O     | 2.44                     | 0.51              |
| 28:LT:144:ASN:O    | 28:LT:146:LYS:NZ   | 2.44                     | 0.51              |
| 53:Lt:101:SER:HA   | 53:Lt:141:CYS:HA   | 1.92                     | 0.51              |
| 54:S2:1563:G:H5''  | 74:ST:121:ARG:HH21 | 1.76                     | 0.51              |
| 61:SG:7:PHE:HB3    | 61:SG:12:CYS:HB2   | 1.93                     | 0.51              |
| 7:L5:257:C:H2'     | 7:L5:258:G:C8      | 2.46                     | 0.50              |
| 7:L5:1306:C:H2'    | 7:L5:1307:A:H8     | 1.77                     | 0.50              |
| 53:Lt:152:ILE:O    | 53:Lt:156:ASN:ND2  | 2.44                     | 0.50              |
| 54:S2:1016:U:H5''  | 68:SN:14:SER:HB3   | 1.92                     | 0.50              |
| 54:S2:1298:G:O2'   | 54:S2:1299:A:O4'   | 2.29                     | 0.50              |
| 62:SH:178:LYS:NZ   | 62:SH:184:ASP:OD1  | 2.34                     | 0.50              |
| 72:SR:65:PRO:HB3   | 72:SR:73:LEU:HD11  | 1.93                     | 0.50              |
| 7:L5:27:C:OP1      | 22:LN:193:ARG:NH1  | 2.44                     | 0.50              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 7:L5:3908:A:H2     | 7:L5:4449:A:H61    | 1.60                     | 0.50              |
| 7:L5:4302:U:H4'    | 28:LT:5:LYS:HD3    | 1.93                     | 0.50              |
| 16:LG:207:VAL:HG21 | 16:LG:215:LEU:HD13 | 1.92                     | 0.50              |
| 20:LL:46:ILE:HD11  | 20:LL:51:ALA:HA    | 1.93                     | 0.50              |
| 44:Lj:2:THR:O      | 44:Lj:7:SER:OG     | 2.21                     | 0.50              |
| 54:S2:5:U:H2'      | 54:S2:6:G:H8       | 1.76                     | 0.50              |
| 54:S2:508:A:H3'    | 54:S2:509:G:H8     | 1.76                     | 0.50              |
| 56:SB:28:LYS:NZ    | 56:SB:50:THR:OG1   | 2.41                     | 0.50              |
| 61:SG:41:LEU:HB2   | 61:SG:45:TRP:HD1   | 1.77                     | 0.50              |
| 73:SS:45:LEU:HD22  | 73:SS:50:ILE:HD11  | 1.92                     | 0.50              |
| 77:SW:32:LYS:O     | 77:SW:36:ARG:HG2   | 2.12                     | 0.50              |
| 7:L5:958:G:O2'     | 14:LE:123:ARG:O    | 2.25                     | 0.50              |
| 7:L5:1177:U:HO2'   | 13:LD:286:SER:HG   | 1.59                     | 0.50              |
| 7:L5:1942:A:H2'    | 7:L5:1943:A:C8     | 2.47                     | 0.50              |
| 11:LB:36:ASP:OD2   | 11:LB:38:SER:OG    | 2.28                     | 0.50              |
| 21:LM:38:VAL:HG11  | 21:LM:55:MET:HE1   | 1.93                     | 0.50              |
| 54:S2:527:C:H2'    | 54:S2:528:A:C8     | 2.45                     | 0.50              |
| 54:S2:956:G:H4'    | 69:SO:60:MET:HG2   | 1.94                     | 0.50              |
| 67:SM:62:VAL:HA    | 67:SM:65:VAL:HG12  | 1.94                     | 0.50              |
| 81:Sa:12:LYS:HG3   | 81:Sa:15:ARG:HB2   | 1.93                     | 0.50              |
| 15:LF:182:TYR:HB3  | 15:LF:200:ARG:HG3  | 1.92                     | 0.50              |
| 53:Lt:130:LYS:HG2  | 53:Lt:152:ILE:HD13 | 1.92                     | 0.50              |
| 54:S2:848:U:H2'    | 54:S2:849:A:H8     | 1.77                     | 0.50              |
| 54:S2:1109:C:C5    | 72:SR:124:VAL:HG23 | 2.47                     | 0.50              |
| 73:SS:6:PRO:HD3    | 80:SZ:49:LEU:HB3   | 1.94                     | 0.50              |
| 7:L5:1508:A:H5''   | 12:LC:113:ARG:HD2  | 1.94                     | 0.50              |
| 14:LE:141:ARG:N    | 14:LE:191:GLN:OE1  | 2.42                     | 0.50              |
| 27:LS:127:MET:HG2  | 28:LT:153:PRO:HG2  | 1.93                     | 0.50              |
| 52:Ls:120:GLU:OE2  | 52:Ls:163:THR:OG1  | 2.29                     | 0.50              |
| 54:S2:681:U:H4'    | 78:SX:9:THR:HG22   | 1.93                     | 0.50              |
| 7:L5:2335:C:H2'    | 7:L5:2336:G:H8     | 1.75                     | 0.50              |
| 54:S2:530:U:H2'    | 54:S2:531:A:H8     | 1.76                     | 0.50              |
| 54:S2:1204:A:H62   | 54:S2:1694:U:H3    | 1.58                     | 0.50              |
| 77:SW:24:GLN:NE2   | 77:SW:64:ASN:OD1   | 2.43                     | 0.50              |
| 7:L5:150:U:OP2     | 16:LG:200:THR:OG1  | 2.25                     | 0.50              |
| 7:L5:1090:G:OP1    | 28:LT:142:ARG:NH1  | 2.40                     | 0.50              |
| 7:L5:4162:C:O2     | 16:LG:73:ARG:NH2   | 2.37                     | 0.50              |
| 7:L5:4260:U:H2'    | 7:L5:4261:C:C6     | 2.47                     | 0.50              |
| 30:LV:13:LYS:HB3   | 30:LV:128:LEU:HD21 | 1.94                     | 0.50              |
| 53:Lt:58:ILE:HD11  | 53:Lt:75:PRO:HA    | 1.94                     | 0.50              |
| 54:S2:94:G:HO2'    | 54:S2:508:A:HO2'   | 1.60                     | 0.50              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 54:S2:928:G:H2'    | 54:S2:929:G:C8     | 2.46                     | 0.50              |
| 56:SB:222:LYS:HG3  | 56:SB:223:PHE:H    | 1.76                     | 0.50              |
| 70:SP:85:ILE:HD13  | 70:SP:111:MET:HG3  | 1.93                     | 0.50              |
| 7:L5:184:U:H1'     | 7:L5:254:G:H22     | 1.76                     | 0.50              |
| 16:LG:33:GLU:OE1   | 16:LG:35:ARG:NH2   | 2.44                     | 0.50              |
| 42:Lh:57:VAL:O     | 42:Lh:61:ILE:HG13  | 2.12                     | 0.50              |
| 45:Lk:26:LYS:HB3   | 45:Lk:33:LYS:HB2   | 1.94                     | 0.50              |
| 71:SQ:89:SER:HB3   | 71:SQ:112:LEU:HD13 | 1.92                     | 0.50              |
| 7:L5:68:U:OP1      | 22:LN:178:HIS:ND1  | 2.38                     | 0.50              |
| 7:L5:85:G:O2'      | 7:L5:97:G:O6       | 2.28                     | 0.50              |
| 7:L5:1977:C:H4'    | 53:Lt:139:VAL:HG13 | 1.94                     | 0.50              |
| 7:L5:2758:G:O2'    | 7:L5:2765:A:N3     | 2.36                     | 0.50              |
| 7:L5:4128:A:H2     | 7:L5:4156:G:H21    | 1.59                     | 0.50              |
| 29:LU:45:GLU:OE1   | 29:LU:45:GLU:N     | 2.37                     | 0.50              |
| 34:LZ:57:MET:HB3   | 34:LZ:61:LYS:HD3   | 1.94                     | 0.50              |
| 49:Lo:77:CYS:SG    | 49:Lo:79:SER:OG    | 2.64                     | 0.50              |
| 54:S2:1454:A:OP1   | 72:SR:49:LYS:NZ    | 2.42                     | 0.50              |
| 59:SE:11:ARG:HE    | 59:SE:20:LEU:HB3   | 1.76                     | 0.50              |
| 74:ST:5:THR:OG1    | 74:ST:6:VAL:N      | 2.35                     | 0.50              |
| 4:CP:66:C:H2'      | 4:CP:67:G:H8       | 1.75                     | 0.49              |
| 7:L5:1328:G:O2'    | 7:L5:2349:A:OP1    | 2.30                     | 0.49              |
| 7:L5:4239:A:H2'    | 7:L5:4240:G:C8     | 2.47                     | 0.49              |
| 25:LQ:88:ASP:OD2   | 25:LQ:89:ASP:N     | 2.45                     | 0.49              |
| 27:LS:80:ILE:HG23  | 27:LS:129:VAL:HG22 | 1.93                     | 0.49              |
| 53:Lt:85:LEU:HD11  | 53:Lt:102:GLY:H    | 1.76                     | 0.49              |
| 58:SD:172:VAL:HG22 | 58:SD:185:LYS:HG3  | 1.93                     | 0.49              |
| 64:SJ:66:LYS:HA    | 64:SJ:71:LEU:HD11  | 1.93                     | 0.49              |
| 67:SM:42:LEU:HD23  | 67:SM:68:LEU:HD11  | 1.94                     | 0.49              |
| 85:Se:41:ARG:HB3   | 85:Se:42:PHE:CD1   | 2.46                     | 0.49              |
| 7:L5:3811:G:O2'    | 7:L5:3814:U:OP2    | 2.30                     | 0.49              |
| 15:LF:91:PHE:HB2   | 15:LF:145:PRO:HG3  | 1.94                     | 0.49              |
| 54:S2:851:C:H5''   | 54:S2:852:G:H5'    | 1.93                     | 0.49              |
| 54:S2:957:A:O2'    | 54:S2:958:G:N3     | 2.41                     | 0.49              |
| 7:L5:2008:U:H1'    | 7:L5:2011:C:H5     | 1.77                     | 0.49              |
| 11:LB:285:TYR:HB2  | 11:LB:332:MET:HG2  | 1.93                     | 0.49              |
| 13:LD:209:ARG:HH12 | 13:LD:234:ASP:HB3  | 1.77                     | 0.49              |
| 33:LY:64:GLY:HA3   | 33:LY:66:GLN:HE22  | 1.76                     | 0.49              |
| 21:LM:116:LYS:HB2  | 23:LO:196:LEU:HD21 | 1.94                     | 0.49              |
| 26:LR:23:TRP:HB3   | 26:LR:51:ILE:HD12  | 1.95                     | 0.49              |
| 51:Lr:6:GLN:HB2    | 51:Lr:44:ILE:HD12  | 1.94                     | 0.49              |
| 54:S2:107:A:H2'    | 54:S2:108:G:C8     | 2.48                     | 0.49              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 54:S2:803:C:H5     | 54:S2:860:G:H22    | 1.58                     | 0.49              |
| 60:SF:23:TRP:CH2   | 60:SF:108:PRO:HG2  | 2.47                     | 0.49              |
| 87:Sg:171:ASP:OD1  | 87:Sg:171:ASP:N    | 2.44                     | 0.49              |
| 7:L5:369:G:N2      | 7:L5:372:A:OP2     | 2.40                     | 0.49              |
| 7:L5:1779:U:OP2    | 13:LD:5:LYS:NZ     | 2.45                     | 0.49              |
| 13:LD:59:ASP:OD2   | 13:LD:81:HIS:NE2   | 2.46                     | 0.49              |
| 16:LG:187:LYS:HG3  | 16:LG:198:THR:HA   | 1.93                     | 0.49              |
| 19:LJ:13:ARG:NH1   | 19:LJ:154:LYS:O    | 2.41                     | 0.49              |
| 46:Ll:25:GLN:NE2   | 46:Ll:25:GLN:HA    | 2.26                     | 0.49              |
| 53:Lt:63:THR:OG1   | 53:Lt:70:GLN:OE1   | 2.30                     | 0.49              |
| 54:S2:846:G:OP2    | 59:SE:108:ARG:NH1  | 2.44                     | 0.49              |
| 54:S2:996:A:H2'    | 54:S2:997:A:C8     | 2.48                     | 0.49              |
| 55:SA:84:GLN:HB3   | 55:SA:100:ALA:HB1  | 1.94                     | 0.49              |
| 75:SU:19:ARG:HA    | 75:SU:92:HIS:HA    | 1.95                     | 0.49              |
| 82:Sb:50:ALA:O     | 82:Sb:52:THR:N     | 2.42                     | 0.49              |
| 7:L5:2411:C:H2'    | 7:L5:2412:A:H8     | 1.78                     | 0.49              |
| 7:L5:2520:C:H2'    | 7:L5:2521:G:C8     | 2.48                     | 0.49              |
| 54:S2:981:A:H2'    | 54:S2:982:G:C8     | 2.48                     | 0.49              |
| 59:SE:31:PRO:HA    | 59:SE:81:THR:HB    | 1.94                     | 0.49              |
| 7:L5:2745:A:H2'    | 7:L5:2746:A:C8     | 2.47                     | 0.49              |
| 7:L5:4238:G:H2'    | 7:L5:4239:A:H8     | 1.77                     | 0.49              |
| 7:L5:4280:A:N6     | 13:LD:28:THR:O     | 2.42                     | 0.49              |
| 59:SE:204:SER:OG   | 59:SE:205:PHE:N    | 2.43                     | 0.49              |
| 70:SP:59:ARG:HH21  | 70:SP:76:VAL:HG13  | 1.77                     | 0.49              |
| 7:L5:1914:C:H4'    | 23:LO:89:PRO:HD3   | 1.95                     | 0.49              |
| 7:L5:4093:G:OP2    | 7:L5:4093:G:N2     | 2.35                     | 0.49              |
| 7:L5:4765:G:OP1    | 17:LH:23:ARG:NE    | 2.45                     | 0.49              |
| 54:S2:1171:G:O2'   | 54:S2:1187:G:O6    | 2.29                     | 0.49              |
| 54:S2:1347:U:H2'   | 54:S2:1348:G:C8    | 2.48                     | 0.49              |
| 56:SB:89:GLU:N     | 56:SB:89:GLU:OE2   | 2.45                     | 0.49              |
| 60:SF:89:THR:HA    | 60:SF:92:ILE:HD12  | 1.93                     | 0.49              |
| 60:SF:102:LEU:HD11 | 80:SZ:100:VAL:HG21 | 1.95                     | 0.49              |
| 7:L5:1692:C:O2'    | 25:LQ:143:ARG:NH2  | 2.45                     | 0.49              |
| 14:LE:279:ASN:H    | 40:Lf:4:ARG:HH12   | 1.61                     | 0.49              |
| 15:LF:222:LYS:HB3  | 15:LF:231:GLY:HA2  | 1.95                     | 0.49              |
| 25:LQ:154:LYS:HE3  | 25:LQ:161:SER:HB3  | 1.95                     | 0.49              |
| 33:LY:22:PRO:O     | 33:LY:26:ARG:HB2   | 2.12                     | 0.49              |
| 45:Lk:60:LEU:HD21  | 45:Lk:64:LEU:HD23  | 1.95                     | 0.49              |
| 60:SF:195:GLU:OE1  | 60:SF:198:ARG:NH2  | 2.41                     | 0.49              |
| 7:L5:1755:C:H1'    | 13:LD:2:GLY:HA3    | 1.95                     | 0.49              |
| 7:L5:3868:G:H22    | 7:L5:3900:G:H1'    | 1.76                     | 0.49              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 7:L5:4507:A:HO2'   | 30:LV:41:SER:HG    | 1.61                     | 0.49              |
| 20:LL:18:TRP:CD1   | 20:LL:18:TRP:H     | 2.29                     | 0.49              |
| 35:La:37:GLY:H     | 35:La:41:HIS:HB2   | 1.78                     | 0.49              |
| 51:Lr:97:ILE:HD13  | 51:Lr:107:ARG:HA   | 1.95                     | 0.49              |
| 52:Ls:39:GLN:HA    | 52:Ls:42:GLN:HE21  | 1.77                     | 0.49              |
| 54:S2:94:G:O2'     | 54:S2:508:A:O2'    | 2.28                     | 0.49              |
| 54:S2:1845:A:H2'   | 54:S2:1846:G:C8    | 2.48                     | 0.49              |
| 55:SA:56:GLU:HG2   | 76:SV:79:VAL:HG23  | 1.95                     | 0.49              |
| 7:L5:1396:G:HO2'   | 7:L5:1468:C:HO2'   | 1.56                     | 0.48              |
| 7:L5:1971:C:H5     | 7:L5:2000:G:H2'    | 1.77                     | 0.48              |
| 13:LD:133:GLU:OE1  | 13:LD:133:GLU:N    | 2.46                     | 0.48              |
| 54:S2:639:C:H2'    | 54:S2:640:A:C8     | 2.48                     | 0.48              |
| 54:S2:1661:A:OP1   | 84:Sd:19:ARG:NH2   | 2.44                     | 0.48              |
| 62:SH:69:LEU:O     | 62:SH:73:GLN:HG2   | 2.13                     | 0.48              |
| 79:SY:32:LYS:H     | 79:SY:32:LYS:HD2   | 1.76                     | 0.48              |
| 11:LB:56:ILE:O     | 11:LB:73:VAL:HA    | 2.13                     | 0.48              |
| 11:LB:185:VAL:HG12 | 11:LB:193:LYS:HG2  | 1.95                     | 0.48              |
| 44:Lj:27:TYR:HA    | 44:Lj:34:CYS:HA    | 1.94                     | 0.48              |
| 54:S2:1568:C:OP1   | 74:ST:96:SER:OG    | 2.30                     | 0.48              |
| 54:S2:1743:G:H21   | 54:S2:1791:A:H62   | 1.60                     | 0.48              |
| 58:SD:67:ARG:O     | 58:SD:70:THR:OG1   | 2.28                     | 0.48              |
| 7:L5:1906:U:H2'    | 7:L5:1907:A:H8     | 1.78                     | 0.48              |
| 13:LD:62:CYS:HB3   | 13:LD:105:LEU:HD22 | 1.94                     | 0.48              |
| 79:SY:19:GLN:HE21  | 79:SY:85:ASN:HD21  | 1.60                     | 0.48              |
| 81:Sa:26:CYS:HB3   | 81:Sa:77:CYS:SG    | 2.52                     | 0.48              |
| 87:Sg:65:PHE:O     | 87:Sg:82:SER:OG    | 2.23                     | 0.48              |
| 7:L5:137:G:H2'     | 7:L5:138:G:C8      | 2.49                     | 0.48              |
| 7:L5:4940:C:OP2    | 14:LE:219:LYS:NZ   | 2.34                     | 0.48              |
| 10:LA:162:ASN:OD1  | 10:LA:162:ASN:N    | 2.41                     | 0.48              |
| 19:LJ:56:THR:HG23  | 19:LJ:63:ARG:HA    | 1.95                     | 0.48              |
| 49:Lo:99:ARG:CZ    | 49:Lo:102:GLN:HG3  | 2.44                     | 0.48              |
| 50:Lp:38:THR:HA    | 50:Lp:45:THR:HA    | 1.95                     | 0.48              |
| 54:S2:962:A:H5''   | 69:SO:66:ARG:HB3   | 1.95                     | 0.48              |
| 54:S2:1506:A:O2'   | 54:S2:1508:A:OP2   | 2.32                     | 0.48              |
| 58:SD:23:GLU:HG2   | 65:SK:64:TRP:HE1   | 1.78                     | 0.48              |
| 69:SO:117:ARG:HH12 | 83:Sc:64:GLU:HG2   | 1.77                     | 0.48              |
| 76:SV:58:ALA:O     | 76:SV:62:MET:HG3   | 2.14                     | 0.48              |
| 5:CR:84:LEU:HD13   | 70:SP:131:PRO:HA   | 1.95                     | 0.48              |
| 5:CR:312:LEU:HD11  | 5:CR:320:LEU:HD11  | 1.96                     | 0.48              |
| 7:L5:1174:G:H1     | 7:L5:1186:U:H3     | 1.60                     | 0.48              |
| 12:LC:138:MET:HE3  | 12:LC:138:MET:HB3  | 1.72                     | 0.48              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 70:SP:35:GLN:OE1   | 70:SP:35:GLN:N     | 2.39                     | 0.48              |
| 7:L5:2755:A:OP2    | 34:LZ:51:ARG:NH1   | 2.47                     | 0.48              |
| 7:L5:4274:A:H2'    | 7:L5:4275:G:H8     | 1.79                     | 0.48              |
| 29:LU:35:ASP:OD1   | 29:LU:38:ASN:ND2   | 2.46                     | 0.48              |
| 55:SA:123:VAL:HG12 | 55:SA:145:ILE:HB   | 1.95                     | 0.48              |
| 66:SL:99:TYR:O     | 66:SL:101:ARG:N    | 2.46                     | 0.48              |
| 69:SO:27:VAL:N     | 69:SO:91:THR:OG1   | 2.46                     | 0.48              |
| 87:Sg:30:MET:HE2   | 87:Sg:30:MET:HB2   | 1.70                     | 0.48              |
| 7:L5:968:C:P       | 14:LE:110:ARG:HH22 | 2.37                     | 0.48              |
| 9:L8:47:C:H1'      | 9:L8:61:A:H2'      | 1.95                     | 0.48              |
| 19:LJ:160:GLU:N    | 19:LJ:160:GLU:OE1  | 2.46                     | 0.48              |
| 33:LY:26:ARG:O     | 33:LY:30:MET:HG3   | 2.14                     | 0.48              |
| 54:S2:379:C:O2     | 63:SI:5:ARG:NE     | 2.47                     | 0.48              |
| 54:S2:1033:G:N1    | 54:S2:1080:A:O2'   | 2.39                     | 0.48              |
| 67:SM:55:ASN:OD1   | 67:SM:55:ASN:N     | 2.47                     | 0.48              |
| 72:SR:126:MET:HE2  | 72:SR:128:PHE:HE2  | 1.77                     | 0.48              |
| 7:L5:153:G:H2'     | 7:L5:154:G:H8      | 1.78                     | 0.48              |
| 7:L5:501:C:H42     | 7:L5:506:C:H41     | 1.61                     | 0.48              |
| 50:Lp:70:THR:OG1   | 50:Lp:72:ASN:O     | 2.26                     | 0.48              |
| 52:Ls:18:ILE:HD12  | 52:Ls:68:HIS:CD2   | 2.46                     | 0.48              |
| 54:S2:1010:G:H2'   | 54:S2:1011:A:C8    | 2.49                     | 0.48              |
| 56:SB:34:LYS:O     | 56:SB:98:THR:HB    | 2.12                     | 0.48              |
| 59:SE:11:ARG:NH1   | 59:SE:24:THR:O     | 2.47                     | 0.48              |
| 62:SH:60:ILE:HD12  | 62:SH:92:VAL:HG12  | 1.96                     | 0.48              |
| 7:L5:652:G:O3'     | 25:LQ:115:ARG:NH2  | 2.46                     | 0.48              |
| 7:L5:3917:A:H2'    | 7:L5:3918:G:H8     | 1.78                     | 0.48              |
| 29:LU:91:LEU:HB2   | 29:LU:97:ARG:HD2   | 1.95                     | 0.48              |
| 52:Ls:13:TYR:O     | 52:Ls:17:ILE:HG13  | 2.14                     | 0.48              |
| 54:S2:1606:G:H4'   | 74:ST:87:VAL:HG23  | 1.96                     | 0.48              |
| 57:SC:79:GLU:HA    | 57:SC:82:TYR:HB2   | 1.95                     | 0.48              |
| 74:ST:117:GLN:CD   | 74:ST:117:GLN:H    | 2.21                     | 0.48              |
| 79:SY:80:ASP:HA    | 79:SY:83:LYS:HG2   | 1.96                     | 0.48              |
| 5:CR:182:ARG:NH1   | 7:L5:4548:A:OP2    | 2.46                     | 0.48              |
| 7:L5:500:G:H1'     | 7:L5:504:G:H3'     | 1.96                     | 0.48              |
| 7:L5:3717:A:H2'    | 7:L5:3718:A:H8     | 1.78                     | 0.48              |
| 7:L5:4935:C:H2'    | 7:L5:4936:G:C8     | 2.49                     | 0.48              |
| 33:LY:2:LYS:HE3    | 33:LY:2:LYS:HB3    | 1.67                     | 0.48              |
| 55:SA:183:LEU:HB3  | 55:SA:189:ILE:HG12 | 1.96                     | 0.48              |
| 57:SC:204:ILE:HB   | 57:SC:211:LYS:HD3  | 1.96                     | 0.48              |
| 73:SS:5:ILE:HG22   | 80:SZ:50:PHE:H     | 1.78                     | 0.48              |
| 80:SZ:110:THR:OG1  | 80:SZ:111:ARG:N    | 2.46                     | 0.48              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 7:L5:968:C:H5''   | 14:LE:110:ARG:HH12 | 1.79                     | 0.47              |
| 7:L5:1538:U:H2'   | 7:L5:1539:G:H8     | 1.78                     | 0.47              |
| 7:L5:1558:A:H2'   | 7:L5:1559:G:C8     | 2.49                     | 0.47              |
| 7:L5:4996:C:OP1   | 38:Ld:32:ARG:NH1   | 2.39                     | 0.47              |
| 31:LW:83:THR:HA   | 61:SG:131:ARG:HB3  | 1.96                     | 0.47              |
| 41:Lg:49:CYS:SG   | 41:Lg:85:LYS:NZ    | 2.87                     | 0.47              |
| 82:Sb:18:LYS:HB2  | 82:Sb:23:ARG:HG3   | 1.96                     | 0.47              |
| 7:L5:4077:A:N1    | 7:L5:4171:C:N4     | 2.61                     | 0.47              |
| 54:S2:77:A:N7     | 61:SG:154:ARG:NE   | 2.61                     | 0.47              |
| 54:S2:527:C:H2'   | 54:S2:528:A:H8     | 1.77                     | 0.47              |
| 54:S2:1679:A:C8   | 60:SF:60:ARG:HB2   | 2.48                     | 0.47              |
| 56:SB:123:ALA:HB2 | 56:SB:165:ARG:HG3  | 1.96                     | 0.47              |
| 7:L5:662:C:H2'    | 7:L5:663:G:C8      | 2.50                     | 0.47              |
| 7:L5:2318:G:N2    | 7:L5:2321:G:OP2    | 2.38                     | 0.47              |
| 13:LD:65:ALA:HB2  | 13:LD:74:ILE:HD13  | 1.95                     | 0.47              |
| 19:LJ:110:GLN:OE1 | 19:LJ:110:GLN:N    | 2.47                     | 0.47              |
| 54:S2:147:A:H61   | 54:S2:173:A:H61    | 1.62                     | 0.47              |
| 54:S2:212:C:H2'   | 54:S2:213:G:C8     | 2.49                     | 0.47              |
| 54:S2:319:C:H2'   | 54:S2:320:G:H8     | 1.79                     | 0.47              |
| 54:S2:561:A:H5'   | 64:SJ:171:GLY:HA3  | 1.96                     | 0.47              |
| 54:S2:574:A:O2'   | 54:S2:575:A:O4'    | 2.32                     | 0.47              |
| 54:S2:1513:C:H2'  | 54:S2:1514:G:H8    | 1.80                     | 0.47              |
| 74:ST:42:HIS:HB2  | 74:ST:83:GLN:HA    | 1.96                     | 0.47              |
| 75:SU:67:LYS:HA   | 84:Sd:44:ARG:HD2   | 1.94                     | 0.47              |
| 7:L5:1558:A:H2'   | 7:L5:1559:G:H8     | 1.78                     | 0.47              |
| 7:L5:1812:C:H5''  | 36:Lb:56:LYS:HD2   | 1.95                     | 0.47              |
| 7:L5:2572:C:O2'   | 34:LZ:112:ARG:NH2  | 2.47                     | 0.47              |
| 37:Lc:47:ILE:HB   | 37:Lc:94:LEU:HG    | 1.96                     | 0.47              |
| 43:Li:63:VAL:HG23 | 43:Li:65:LYS:HG3   | 1.96                     | 0.47              |
| 53:Lt:111:ASN:HA  | 53:Lt:114:ARG:HB2  | 1.96                     | 0.47              |
| 54:S2:96:C:O2     | 54:S2:473:A:O2'    | 2.33                     | 0.47              |
| 7:L5:10:A:H2'     | 7:L5:11:G:C8       | 2.50                     | 0.47              |
| 7:L5:4460:U:H2'   | 7:L5:4461:C:H6     | 1.78                     | 0.47              |
| 12:LC:107:THR:O   | 12:LC:111:TRP:NE1  | 2.37                     | 0.47              |
| 16:LG:251:ALA:HA  | 16:LG:254:GLU:HG3  | 1.96                     | 0.47              |
| 28:LT:48:VAL:HG21 | 28:LT:94:GLU:HG2   | 1.96                     | 0.47              |
| 54:S2:106:C:H2'   | 54:S2:107:A:H8     | 1.79                     | 0.47              |
| 54:S2:1512:C:H5'' | 84:Sd:8:TRP:HZ3    | 1.80                     | 0.47              |
| 87:Sg:91:ASP:O    | 87:Sg:95:GLY:N     | 2.41                     | 0.47              |
| 7:L5:1194:G:H2'   | 7:L5:1195:G:H8     | 1.80                     | 0.47              |
| 7:L5:1281:G:OP1   | 12:LC:316:LYS:NZ   | 2.46                     | 0.47              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 7:L5:2835:A:O2'    | 11:LB:228:TYR:O    | 2.28                     | 0.47              |
| 7:L5:4343:U:O2'    | 49:Lo:31:ASP:OD2   | 2.31                     | 0.47              |
| 11:LB:286:LYS:HG2  | 11:LB:332:MET:HE3  | 1.97                     | 0.47              |
| 15:LF:88:LYS:H     | 15:LF:88:LYS:HG2   | 1.56                     | 0.47              |
| 17:LH:53:LYS:HD3   | 17:LH:53:LYS:HA    | 1.72                     | 0.47              |
| 26:LR:136:ARG:O    | 26:LR:140:GLU:HG3  | 2.14                     | 0.47              |
| 38:Ld:54:MET:HG2   | 38:Ld:60:PRO:HA    | 1.97                     | 0.47              |
| 54:S2:28:U:H2'     | 54:S2:29:G:C8      | 2.50                     | 0.47              |
| 54:S2:318:A:H61    | 61:SG:186:GLN:HE22 | 1.63                     | 0.47              |
| 59:SE:182:MET:HE3  | 59:SE:190:GLY:HA2  | 1.97                     | 0.47              |
| 59:SE:229:GLY:HA2  | 59:SE:235:TRP:CD1  | 2.49                     | 0.47              |
| 60:SF:140:ASP:OD1  | 83:Sc:44:ARG:NH2   | 2.47                     | 0.47              |
| 64:SJ:137:VAL:HG12 | 64:SJ:138:ARG:H    | 1.80                     | 0.47              |
| 67:SM:121:LYS:HE2  | 67:SM:121:LYS:HB2  | 1.73                     | 0.47              |
| 78:SX:114:ASP:OD2  | 78:SX:114:ASP:N    | 2.40                     | 0.47              |
| 7:L5:302:C:OP1     | 22:LN:68:ARG:NE    | 2.45                     | 0.47              |
| 7:L5:2319:C:OP2    | 39:Le:62:SER:OG    | 2.25                     | 0.47              |
| 7:L5:3788:C:N4     | 7:L5:3812:C:OP2    | 2.47                     | 0.47              |
| 7:L5:4629:U:H3     | 7:L5:4669:A:H62    | 1.63                     | 0.47              |
| 7:L5:4670:C:O2'    | 7:L5:4672:A:OP2    | 2.27                     | 0.47              |
| 9:L8:58:G:O6       | 44:Lj:63:ARG:NH1   | 2.48                     | 0.47              |
| 11:LB:254:ILE:HG23 | 11:LB:266:VAL:HG11 | 1.96                     | 0.47              |
| 12:LC:152:LEU:HD23 | 12:LC:251:ILE:HG12 | 1.97                     | 0.47              |
| 18:LI:91:LEU:HD21  | 18:LI:129:VAL:HB   | 1.97                     | 0.47              |
| 18:LI:184:MET:HA   | 18:LI:187:LYS:HG3  | 1.97                     | 0.47              |
| 26:LR:105:LEU:HD23 | 26:LR:138:LEU:HD23 | 1.97                     | 0.47              |
| 27:LS:13:VAL:HG22  | 27:LS:29:ARG:HB2   | 1.97                     | 0.47              |
| 32:LX:64:SER:OG    | 42:Lh:82:ASP:OD1   | 2.27                     | 0.47              |
| 52:Ls:69:LEU:HD21  | 52:Ls:76:GLU:HB3   | 1.97                     | 0.47              |
| 54:S2:468:A:OP1    | 61:SG:96:SER:OG    | 2.28                     | 0.47              |
| 54:S2:519:A:H5''   | 64:SJ:11:LYS:HD3   | 1.96                     | 0.47              |
| 54:S2:1498:A:OP2   | 58:SD:27:ARG:NH1   | 2.48                     | 0.47              |
| 54:S2:1618:C:H4'   | 70:SP:50:ARG:HH12  | 1.80                     | 0.47              |
| 54:S2:1705:C:H2'   | 54:S2:1706:G:C8    | 2.49                     | 0.47              |
| 59:SE:137:PRO:HB2  | 59:SE:150:PRO:HD2  | 1.96                     | 0.47              |
| 60:SF:86:LYS:O     | 60:SF:90:VAL:HG13  | 2.15                     | 0.47              |
| 63:SI:133:GLU:OE1  | 63:SI:133:GLU:N    | 2.41                     | 0.47              |
| 67:SM:25:ALA:HB1   | 67:SM:31:LEU:HD21  | 1.96                     | 0.47              |
| 70:SP:34:MET:HB3   | 70:SP:42:ARG:HG3   | 1.97                     | 0.47              |
| 7:L5:469:C:N3      | 14:LE:105:ARG:NH2  | 2.63                     | 0.47              |
| 7:L5:1725:U:H2'    | 7:L5:1726:U:H6     | 1.80                     | 0.47              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 7:L5:2764:A:H2'    | 7:L5:2765:A:C8     | 2.50                     | 0.47              |
| 15:LF:236:ARG:HB3  | 15:LF:239:GLN:HB2  | 1.96                     | 0.47              |
| 49:Lo:4:VAL:HG13   | 49:Lo:93:LEU:HD23  | 1.97                     | 0.47              |
| 54:S2:150:A:H2'    | 54:S2:151:C:C6     | 2.50                     | 0.47              |
| 54:S2:1677:U:OP1   | 60:SF:71:ARG:NH2   | 2.48                     | 0.47              |
| 55:SA:122:LEU:O    | 55:SA:144:THR:HA   | 2.14                     | 0.47              |
| 60:SF:156:THR:HA   | 60:SF:159:ARG:HG2  | 1.96                     | 0.47              |
| 75:SU:93:SER:HB3   | 75:SU:97:ILE:HD11  | 1.97                     | 0.47              |
| 5:CR:319:ILE:HB    | 5:CR:412:ILE:HB    | 1.97                     | 0.47              |
| 7:L5:258:G:H2'     | 7:L5:259:C:C6      | 2.50                     | 0.47              |
| 7:L5:1940:G:H22    | 7:L5:4434:C:H5''   | 1.80                     | 0.47              |
| 7:L5:2705:G:H22    | 7:L5:2710:C:H5     | 1.62                     | 0.47              |
| 7:L5:4927:G:H5'    | 7:L5:4928:C:C5     | 2.49                     | 0.47              |
| 12:LC:303:ARG:O    | 25:LQ:38:ARG:NH2   | 2.36                     | 0.47              |
| 14:LE:165:LEU:HD11 | 14:LE:176:THR:HG22 | 1.95                     | 0.47              |
| 24:LP:25:HIS:O     | 24:LP:29:THR:OG1   | 2.25                     | 0.47              |
| 57:SC:69:LEU:HD11  | 57:SC:273:LEU:HD11 | 1.96                     | 0.47              |
| 57:SC:85:SER:OG    | 76:SV:15:ARG:NH2   | 2.48                     | 0.47              |
| 59:SE:107:GLY:HA3  | 59:SE:189:LEU:HD23 | 1.96                     | 0.47              |
| 7:L5:462:G:H2'     | 7:L5:463:A:C8      | 2.50                     | 0.47              |
| 7:L5:2744:A:H2'    | 7:L5:2745:A:C8     | 2.50                     | 0.47              |
| 7:L5:5047:C:O2'    | 7:L5:5050:C:OP2    | 2.30                     | 0.47              |
| 11:LB:168:MET:HA   | 11:LB:171:LEU:HD12 | 1.97                     | 0.47              |
| 21:LM:119:ARG:HG3  | 23:LO:189:ILE:HD12 | 1.97                     | 0.47              |
| 32:LX:122:ALA:HB3  | 32:LX:139:ARG:HG2  | 1.97                     | 0.47              |
| 53:Lt:68:GLN:N     | 53:Lt:68:GLN:OE1   | 2.48                     | 0.47              |
| 54:S2:838:G:N2     | 54:S2:840:C:O2'    | 2.48                     | 0.47              |
| 54:S2:846:G:H2'    | 59:SE:19:MET:HG2   | 1.96                     | 0.47              |
| 60:SF:152:TRP:O    | 60:SF:156:THR:HG23 | 2.15                     | 0.47              |
| 71:SQ:134:GLY:HA3  | 71:SQ:140:ARG:HA   | 1.97                     | 0.47              |
| 72:SR:84:TYR:HD2   | 72:SR:86:PRO:HD2   | 1.80                     | 0.47              |
| 14:LE:190:HIS:HB3  | 14:LE:193:PHE:HD2  | 1.81                     | 0.46              |
| 24:LP:14:SER:O     | 24:LP:105:LYS:NZ   | 2.37                     | 0.46              |
| 29:LU:67:LYS:HB2   | 29:LU:67:LYS:HE2   | 1.70                     | 0.46              |
| 35:La:131:ARG:O    | 35:La:135:GLU:HG3  | 2.14                     | 0.46              |
| 54:S2:1124:C:H5''  | 56:SB:150:ILE:HG12 | 1.97                     | 0.46              |
| 59:SE:121:TYR:HA   | 59:SE:163:ASP:HA   | 1.97                     | 0.46              |
| 62:SH:88:SER:O     | 62:SH:90:LYS:NZ    | 2.48                     | 0.46              |
| 7:L5:1238:A:O2'    | 15:LF:52:GLU:OE2   | 2.34                     | 0.46              |
| 20:LL:47:ALA:HB1   | 42:Lh:118:LYS:HE3  | 1.97                     | 0.46              |
| 27:LS:21:LYS:HE2   | 27:LS:21:LYS:H     | 1.80                     | 0.46              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 44:Lj:67:LEU:HD23 | 44:Lj:67:LEU:HA    | 1.78                     | 0.46              |
| 52:Ls:28:PHE:HB3  | 52:Ls:89:VAL:HB    | 1.98                     | 0.46              |
| 54:S2:830:A:OP2   | 54:S2:846:G:N2     | 2.48                     | 0.46              |
| 72:SR:23:ARG:HE   | 72:SR:23:ARG:HB2   | 1.53                     | 0.46              |
| 79:SY:37:LYS:HA   | 79:SY:40:ILE:HG12  | 1.96                     | 0.46              |
| 1:NA:96:ILE:HB    | 1:NA:104:PHE:HB2   | 1.97                     | 0.46              |
| 7:L5:2411:C:H2'   | 7:L5:2412:A:C8     | 2.50                     | 0.46              |
| 7:L5:3599:A:H2'   | 7:L5:3600:G:C8     | 2.51                     | 0.46              |
| 7:L5:3722:G:H2'   | 7:L5:3723:A:H8     | 1.80                     | 0.46              |
| 8:L7:117:G:OP2    | 13:LD:255:LYS:NZ   | 2.41                     | 0.46              |
| 22:LN:138:PHE:HA  | 22:LN:143:ARG:HD2  | 1.98                     | 0.46              |
| 25:LQ:10:ASP:N    | 25:LQ:10:ASP:OD1   | 2.49                     | 0.46              |
| 54:S2:65:C:N4     | 61:SG:134:GLY:O    | 2.48                     | 0.46              |
| 54:S2:414:A:OP1   | 54:S2:814:U:O2'    | 2.30                     | 0.46              |
| 59:SE:36:HIS:CG   | 59:SE:85:GLY:HA3   | 2.50                     | 0.46              |
| 62:SH:72:PHE:O    | 62:SH:76:GLN:HB2   | 2.15                     | 0.46              |
| 87:Sg:114:SER:HB2 | 87:Sg:119:GLN:HB2  | 1.97                     | 0.46              |
| 6:CZ:94:PRO:HD2   | 7:L5:4531:U:H4'    | 1.97                     | 0.46              |
| 7:L5:1339:U:H2'   | 7:L5:1340:C:C6     | 2.51                     | 0.46              |
| 7:L5:1652:U:H5''  | 35:La:32:ARG:HH22  | 1.80                     | 0.46              |
| 7:L5:2845:A:H61   | 7:L5:3843:C:H42    | 1.63                     | 0.46              |
| 7:L5:3809:G:OP2   | 7:L5:3809:G:N2     | 2.37                     | 0.46              |
| 9:L8:67:U:H2'     | 9:L8:68:G:H8       | 1.79                     | 0.46              |
| 25:LQ:49:LYS:HB3  | 25:LQ:49:LYS:HE2   | 1.74                     | 0.46              |
| 53:Lt:53:TRP:CZ3  | 53:Lt:83:LYS:HD2   | 2.50                     | 0.46              |
| 56:SB:129:THR:HB  | 56:SB:180:ASP:HA   | 1.96                     | 0.46              |
| 60:SF:68:ILE:HD11 | 60:SF:151:ILE:HD11 | 1.98                     | 0.46              |
| 1:NA:97:ARG:HD3   | 2:NB:61:GLU:HG2    | 1.98                     | 0.46              |
| 7:L5:2568:C:H2'   | 7:L5:2569:G:H8     | 1.79                     | 0.46              |
| 23:LO:194:GLU:O   | 23:LO:198:THR:HG23 | 2.15                     | 0.46              |
| 54:S2:165:G:OP2   | 54:S2:165:G:N2     | 2.35                     | 0.46              |
| 54:S2:1113:A:H62  | 54:S2:1120:U:H3    | 1.63                     | 0.46              |
| 54:S2:1228:A:H2'  | 54:S2:1229:G:H8    | 1.78                     | 0.46              |
| 64:SJ:104:ASP:OD2 | 64:SJ:104:ASP:N    | 2.47                     | 0.46              |
| 73:SS:24:ARG:HB2  | 73:SS:29:ALA:HB2   | 1.96                     | 0.46              |
| 73:SS:115:LYS:C   | 73:SS:117:ILE:H    | 2.24                     | 0.46              |
| 76:SV:42:VAL:HG13 | 76:SV:43:THR:HG23  | 1.98                     | 0.46              |
| 5:CR:34:MET:HB3   | 5:CR:98:GLY:HA3    | 1.98                     | 0.46              |
| 5:CR:395:LYS:HD2  | 5:CR:396:SER:N     | 2.31                     | 0.46              |
| 7:L5:1194:G:H2'   | 7:L5:1195:G:C8     | 2.50                     | 0.46              |
| 7:L5:1346:C:H2'   | 7:L5:1347:G:H8     | 1.79                     | 0.46              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 7:L5:2361:G:O2'    | 7:L5:3859:G:O6     | 2.34                     | 0.46              |
| 7:L5:4459:U:H2'    | 7:L5:4460:U:C6     | 2.51                     | 0.46              |
| 9:L8:19:C:H2'      | 9:L8:20:A:C8       | 2.50                     | 0.46              |
| 10:LA:137:ILE:HD11 | 10:LA:149:LYS:HB2  | 1.98                     | 0.46              |
| 15:LF:187:MET:HE2  | 15:LF:187:MET:HB2  | 1.72                     | 0.46              |
| 29:LU:80:LYS:HE2   | 29:LU:110:TYR:CZ   | 2.51                     | 0.46              |
| 31:LW:102:LYS:HE2  | 31:LW:102:LYS:N    | 2.29                     | 0.46              |
| 54:S2:639:C:H2'    | 54:S2:640:A:H8     | 1.81                     | 0.46              |
| 60:SF:34:SER:HA    | 83:Sc:55:VAL:HB    | 1.98                     | 0.46              |
| 64:SJ:111:GLN:HE22 | 64:SJ:127:ARG:HB2  | 1.81                     | 0.46              |
| 5:CR:329:MET:HE1   | 5:CR:373:PRO:HB3   | 1.97                     | 0.46              |
| 7:L5:2000:G:N2     | 7:L5:2000:G:OP2    | 2.48                     | 0.46              |
| 7:L5:4620:U:OP2    | 7:L5:4670:C:N4     | 2.44                     | 0.46              |
| 7:L5:4742:G:H2'    | 7:L5:4743:G:H8     | 1.81                     | 0.46              |
| 7:L5:4954:G:H2'    | 7:L5:4955:A:C8     | 2.51                     | 0.46              |
| 27:LS:173:ASN:OD1  | 27:LS:175:PHE:N    | 2.39                     | 0.46              |
| 54:S2:629:A:O2'    | 54:S2:631:U:OP1    | 2.33                     | 0.46              |
| 55:SA:192:GLU:OE1  | 55:SA:192:GLU:N    | 2.48                     | 0.46              |
| 74:ST:56:ARG:O     | 74:ST:60:THR:HG23  | 2.16                     | 0.46              |
| 7:L5:162:A:H2'     | 7:L5:163:A:C8      | 2.51                     | 0.46              |
| 7:L5:382:G:N1      | 7:L5:385:A:OP2     | 2.41                     | 0.46              |
| 7:L5:960:A:C8      | 14:LE:126:LEU:HD12 | 2.51                     | 0.46              |
| 7:L5:1872:G:O2'    | 7:L5:4219:A:N3     | 2.45                     | 0.46              |
| 51:Lr:105:ASP:OD2  | 51:Lr:105:ASP:N    | 2.41                     | 0.46              |
| 52:Ls:35:VAL:HG23  | 52:Ls:39:GLN:HB3   | 1.97                     | 0.46              |
| 54:S2:455:A:H2'    | 54:S2:456:C:C6     | 2.51                     | 0.46              |
| 54:S2:1648:G:O2'   | 54:S2:1674:G:O6    | 2.33                     | 0.46              |
| 55:SA:57:LYS:NZ    | 55:SA:160:ALA:O    | 2.44                     | 0.46              |
| 63:SI:194:GLU:HG3  | 66:SL:10:TYR:CD2   | 2.51                     | 0.46              |
| 65:SK:23:ALA:HB3   | 65:SK:69:TRP:HZ3   | 1.80                     | 0.46              |
| 5:CR:362:THR:HG23  | 5:CR:364:GLN:H     | 1.81                     | 0.46              |
| 7:L5:4258:C:H2'    | 7:L5:4259:C:H6     | 1.80                     | 0.46              |
| 20:LL:178:ALA:N    | 35:La:134:GLU:OE2  | 2.45                     | 0.46              |
| 21:LM:29:ASP:OD2   | 21:LM:30:VAL:N     | 2.49                     | 0.46              |
| 22:LN:178:HIS:HA   | 22:LN:181:HIS:CE1  | 2.50                     | 0.46              |
| 26:LR:170:ARG:HA   | 26:LR:170:ARG:CZ   | 2.46                     | 0.46              |
| 54:S2:4:C:O2'      | 64:SJ:18:ARG:NH2   | 2.43                     | 0.46              |
| 58:SD:72:VAL:HB    | 65:SK:68:TYR:HD2   | 1.81                     | 0.46              |
| 59:SE:102:ILE:HG23 | 59:SE:182:MET:HE1  | 1.98                     | 0.46              |
| 75:SU:56:MET:HG3   | 75:SU:86:LYS:HD3   | 1.98                     | 0.46              |
| 5:CR:284:LYS:NZ    | 5:CR:397:GLN:OE1   | 2.49                     | 0.46              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 5:CR:346:LEU:HD23  | 5:CR:350:GLN:HE22  | 1.81                     | 0.46              |
| 11:LB:136:LYS:HB3  | 11:LB:136:LYS:HE2  | 1.81                     | 0.46              |
| 14:LE:208:ILE:HG22 | 14:LE:210:LYS:H    | 1.81                     | 0.46              |
| 15:LF:148:LYS:O    | 15:LF:152:GLU:HG2  | 2.16                     | 0.46              |
| 16:LG:81:ASN:O     | 16:LG:84:THR:OG1   | 2.33                     | 0.46              |
| 19:LJ:60:PHE:HB2   | 19:LJ:62:ILE:HG12  | 1.98                     | 0.46              |
| 24:LP:27:LYS:HG2   | 24:LP:63:TYR:CG    | 2.51                     | 0.46              |
| 35:La:17:HIS:O     | 35:La:19:HIS:N     | 2.47                     | 0.46              |
| 52:Ls:45:MET:HE1   | 52:Ls:48:ARG:HH21  | 1.81                     | 0.46              |
| 53:Lt:58:ILE:HD12  | 53:Lt:59:THR:H     | 1.81                     | 0.46              |
| 54:S2:319:C:N4     | 61:SG:186:GLN:OE1  | 2.50                     | 0.46              |
| 56:SB:94:LYS:HD2   | 56:SB:94:LYS:HA    | 1.70                     | 0.46              |
| 60:SF:103:LEU:HD21 | 80:SZ:67:LEU:HD22  | 1.97                     | 0.46              |
| 61:SG:3:LEU:HA     | 61:SG:109:LEU:O    | 2.16                     | 0.46              |
| 77:SW:49:GLU:O     | 77:SW:64:ASN:ND2   | 2.49                     | 0.46              |
| 79:SY:102:THR:HG23 | 79:SY:107:ARG:HH11 | 1.80                     | 0.46              |
| 7:L5:318:A:H2'     | 7:L5:319:A:C8      | 2.51                     | 0.45              |
| 7:L5:2481:G:H1     | 7:L5:2497:C:H42    | 1.64                     | 0.45              |
| 7:L5:2717:G:P      | 29:LU:107:LYS:HZ1  | 2.38                     | 0.45              |
| 7:L5:2848:G:O2'    | 7:L5:3838:U:O4     | 2.28                     | 0.45              |
| 12:LC:14:LYS:HB2   | 12:LC:14:LYS:HE2   | 1.72                     | 0.45              |
| 24:LP:153:LYS:HE2  | 24:LP:153:LYS:HA   | 1.97                     | 0.45              |
| 43:Li:16:LYS:HD3   | 43:Li:16:LYS:HA    | 1.61                     | 0.45              |
| 54:S2:51:U:H2'     | 54:S2:52:G:C8      | 2.51                     | 0.45              |
| 56:SB:144:LYS:HD3  | 56:SB:208:HIS:HB3  | 1.97                     | 0.45              |
| 61:SG:38:ALA:HB2   | 61:SG:50:VAL:HG22  | 1.97                     | 0.45              |
| 73:SS:98:VAL:HG11  | 73:SS:106:LYS:HG3  | 1.98                     | 0.45              |
| 80:SZ:96:LEU:N     | 80:SZ:112:ASN:OD1  | 2.50                     | 0.45              |
| 87:Sg:18:VAL:HA    | 87:Sg:35:SER:HA    | 1.98                     | 0.45              |
| 87:Sg:201:SER:HB3  | 87:Sg:204:GLY:HA3  | 1.98                     | 0.45              |
| 13:LD:152:ARG:HG3  | 13:LD:154:THR:HG23 | 1.99                     | 0.45              |
| 17:LH:12:ILE:HB    | 17:LH:53:LYS:HB3   | 1.98                     | 0.45              |
| 46:Ll:9:ILE:HD13   | 46:Ll:9:ILE:HA     | 1.83                     | 0.45              |
| 53:Lt:32:ILE:HG23  | 53:Lt:37:LEU:HB2   | 1.98                     | 0.45              |
| 65:SK:53:LYS:HD3   | 65:SK:60:GLU:HB3   | 1.99                     | 0.45              |
| 70:SP:34:MET:HE1   | 70:SP:46:ASN:HB2   | 1.97                     | 0.45              |
| 71:SQ:110:ASP:OD1  | 71:SQ:111:ILE:N    | 2.49                     | 0.45              |
| 73:SS:26:ILE:HG12  | 73:SS:59:LEU:HD21  | 1.96                     | 0.45              |
| 5:CR:87:LYS:HE3    | 5:CR:87:LYS:HB3    | 1.59                     | 0.45              |
| 7:L5:1308:C:H2'    | 7:L5:1309:C:C6     | 2.51                     | 0.45              |
| 7:L5:2296:G:O2'    | 12:LC:242:PRO:O    | 2.31                     | 0.45              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 7:L5:3726:A:H2'   | 7:L5:3727:A:C8     | 2.51                     | 0.45              |
| 7:L5:4260:U:H2'   | 7:L5:4261:C:H6     | 1.81                     | 0.45              |
| 11:LB:77:THR:HG21 | 11:LB:337:VAL:HG22 | 1.97                     | 0.45              |
| 27:LS:20:PRO:HG2  | 27:LS:21:LYS:NZ    | 2.32                     | 0.45              |
| 36:Lb:53:GLY:O    | 36:Lb:57:MET:HB2   | 2.16                     | 0.45              |
| 54:S2:1531:A:H4'  | 54:S2:1605:G:H4'   | 1.98                     | 0.45              |
| 54:S2:1617:G:N1   | 54:S2:1620:A:OP2   | 2.49                     | 0.45              |
| 54:S2:1808:U:H2'  | 54:S2:1809:A:C8    | 2.52                     | 0.45              |
| 60:SF:90:VAL:HA   | 60:SF:93:VAL:HG12  | 1.97                     | 0.45              |
| 64:SJ:75:ASN:OD1  | 64:SJ:75:ASN:N     | 2.49                     | 0.45              |
| 7:L5:3855:C:H2'   | 7:L5:3856:A:H8     | 1.81                     | 0.45              |
| 11:LB:220:ILE:HB  | 11:LB:346:THR:HB   | 1.97                     | 0.45              |
| 15:LF:128:ALA:O   | 15:LF:132:MET:HG2  | 2.15                     | 0.45              |
| 54:S2:1217:A:H2'  | 54:S2:1218:C:C6    | 2.52                     | 0.45              |
| 67:SM:60:MET:H    | 67:SM:60:MET:HE3   | 1.80                     | 0.45              |
| 5:CR:193:LEU:HA   | 5:CR:196:GLU:HG3   | 1.99                     | 0.45              |
| 7:L5:1317:U:H2'   | 7:L5:1318:C:C6     | 2.52                     | 0.45              |
| 7:L5:3861:A:H2'   | 7:L5:3862:A:H8     | 1.81                     | 0.45              |
| 7:L5:4088:C:H2'   | 7:L5:4089:G:H8     | 1.81                     | 0.45              |
| 7:L5:4623:G:OP1   | 11:LB:19:ARG:NH2   | 2.50                     | 0.45              |
| 10:LA:103:PRO:HA  | 10:LA:163:ARG:HA   | 1.99                     | 0.45              |
| 11:LB:261:ARG:HB2 | 23:LO:64:THR:HG21  | 1.97                     | 0.45              |
| 20:LL:172:GLU:OE1 | 43:Li:2:ALA:N      | 2.49                     | 0.45              |
| 22:LN:146:PRO:HB2 | 42:Lh:104:THR:HG22 | 1.98                     | 0.45              |
| 42:Lh:6:ALA:O     | 42:Lh:10:ARG:HG2   | 2.17                     | 0.45              |
| 43:Li:66:ASP:OD2  | 43:Li:66:ASP:N     | 2.48                     | 0.45              |
| 54:S2:1010:G:H2'  | 54:S2:1011:A:H8    | 1.81                     | 0.45              |
| 67:SM:55:ASN:HB2  | 67:SM:82:ASN:HB2   | 1.99                     | 0.45              |
| 71:SQ:15:ARG:H    | 71:SQ:86:GLN:NE2   | 2.14                     | 0.45              |
| 7:L5:1097:C:H2'   | 7:L5:1098:G:H8     | 1.81                     | 0.45              |
| 7:L5:1933:G:H2'   | 7:L5:1934:A:C8     | 2.52                     | 0.45              |
| 7:L5:2591:A:N6    | 7:L5:2754:G:O2'    | 2.50                     | 0.45              |
| 7:L5:3870:C:H2'   | 7:L5:3871:A:H8     | 1.82                     | 0.45              |
| 9:L8:94:G:N3      | 44:Lj:82:THR:OG1   | 2.48                     | 0.45              |
| 18:LI:73:ASN:HB2  | 18:LI:87:MET:HE1   | 1.98                     | 0.45              |
| 39:Le:89:LEU:HD13 | 39:Le:118:LEU:HD22 | 1.99                     | 0.45              |
| 54:S2:1413:G:H2'  | 54:S2:1414:A:H8    | 1.80                     | 0.45              |
| 81:Sa:51:ARG:HH12 | 83:Sc:39:SER:HB2   | 1.80                     | 0.45              |
| 86:Sf:95:ARG:HH22 | 86:Sf:97:LYS:HG2   | 1.80                     | 0.45              |
| 87:Sg:72:SER:OG   | 87:Sg:74:ASP:O     | 2.31                     | 0.45              |
| 7:L5:1199:G:H2'   | 7:L5:1200:G:C8     | 2.52                     | 0.45              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 7:L5:1646:A:O2'    | 44:Lj:49:TRP:O     | 2.28                     | 0.45              |
| 45:Lk:36:VAL:HG13  | 45:Lk:43:TYR:HB2   | 1.97                     | 0.45              |
| 54:S2:921:G:C2     | 82:Sb:22:LYS:HG3   | 2.52                     | 0.45              |
| 70:SP:108:LYS:HA   | 70:SP:108:LYS:HE3  | 1.98                     | 0.45              |
| 84:Sd:54:LYS:HB3   | 84:Sd:54:LYS:HE2   | 1.72                     | 0.45              |
| 87:Sg:24:THR:HB    | 87:Sg:71:ILE:HG21  | 1.99                     | 0.45              |
| 87:Sg:168:CYS:HB2  | 87:Sg:195:LEU:HG   | 1.98                     | 0.45              |
| 7:L5:226:G:OP2     | 33:LY:1:MET:N      | 2.41                     | 0.45              |
| 7:L5:262:G:H2'     | 7:L5:263:G:H8      | 1.82                     | 0.45              |
| 7:L5:1604:G:H2'    | 7:L5:1605:G:C8     | 2.52                     | 0.45              |
| 9:L8:141:C:H2'     | 9:L8:142:U:C6      | 2.52                     | 0.45              |
| 10:LA:147:ARG:HG3  | 10:LA:157:VAL:HG22 | 1.98                     | 0.45              |
| 17:LH:91:LYS:HB2   | 17:LH:183:GLU:OE2  | 2.17                     | 0.45              |
| 22:LN:47:LYS:HA    | 22:LN:47:LYS:HD2   | 1.86                     | 0.45              |
| 38:Ld:33:ILE:HG22  | 38:Ld:44:ARG:HG3   | 1.99                     | 0.45              |
| 39:Le:88:LEU:HB2   | 39:Le:120:ILE:HD13 | 1.99                     | 0.45              |
| 52:Ls:37:SER:O     | 52:Ls:41:GLN:NE2   | 2.50                     | 0.45              |
| 60:SF:168:THR:OG1  | 60:SF:171:GLU:OE1  | 2.24                     | 0.45              |
| 63:SI:56:ARG:HA    | 63:SI:180:GLY:HA2  | 1.98                     | 0.45              |
| 70:SP:18:ARG:H     | 70:SP:18:ARG:HG2   | 1.49                     | 0.45              |
| 78:SX:11:ARG:O     | 78:SX:15:SER:OG    | 2.25                     | 0.45              |
| 87:Sg:258:ILE:HG23 | 87:Sg:268:ASP:H    | 1.81                     | 0.45              |
| 2:NB:48:LEU:HA     | 2:NB:51:LEU:HB2    | 1.99                     | 0.45              |
| 7:L5:1739:G:N3     | 7:L5:1742:A:N6     | 2.65                     | 0.45              |
| 9:L8:90:C:H1'      | 33:LY:24:HIS:HB3   | 1.97                     | 0.45              |
| 18:LI:38:ARG:HG2   | 18:LI:41:ALA:HB2   | 1.99                     | 0.45              |
| 35:La:133:ALA:O    | 35:La:137:ILE:HG13 | 2.17                     | 0.45              |
| 53:Lt:40:LYS:O     | 53:Lt:40:LYS:NZ    | 2.32                     | 0.45              |
| 54:S2:448:A:H5''   | 63:SI:25:ARG:HA    | 1.98                     | 0.45              |
| 54:S2:867:G:H2'    | 54:S2:868:G:C8     | 2.52                     | 0.45              |
| 54:S2:1356:G:H2'   | 54:S2:1357:A:C8    | 2.52                     | 0.45              |
| 55:SA:77:ILE:HB    | 55:SA:124:VAL:HG12 | 1.98                     | 0.45              |
| 65:SK:20:VAL:HA    | 65:SK:69:TRP:O     | 2.17                     | 0.45              |
| 87:Sg:257:LYS:HA   | 87:Sg:257:LYS:HE3  | 1.97                     | 0.45              |
| 7:L5:1346:C:H2'    | 7:L5:1347:G:C8     | 2.52                     | 0.45              |
| 7:L5:1478:C:H2'    | 7:L5:1479:G:H8     | 1.82                     | 0.45              |
| 7:L5:1706:A:N6     | 7:L5:2118:G:O4'    | 2.50                     | 0.45              |
| 7:L5:4188:U:H2'    | 7:L5:4189:U:C6     | 2.52                     | 0.45              |
| 22:LN:166:SER:OG   | 22:LN:170:LYS:NZ   | 2.50                     | 0.45              |
| 39:Le:106:LYS:HB3  | 39:Le:106:LYS:HE2  | 1.58                     | 0.45              |
| 52:Ls:24:TYR:HA    | 52:Ls:92:LYS:HE2   | 1.99                     | 0.45              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 54:S2:17:C:H2'     | 54:S2:18:C:C6      | 2.52                     | 0.45              |
| 54:S2:382:C:H2'    | 54:S2:383:G:H8     | 1.82                     | 0.45              |
| 54:S2:1521:C:OP2   | 73:SS:136:THR:OG1  | 2.20                     | 0.45              |
| 70:SP:116:LEU:HD23 | 70:SP:116:LEU:HA   | 1.86                     | 0.45              |
| 87:Sg:125:ARG:HD3  | 87:Sg:150:TRP:CE2  | 2.51                     | 0.45              |
| 5:CR:318:GLU:OE2   | 5:CR:318:GLU:N     | 2.48                     | 0.44              |
| 7:L5:2079:G:H2'    | 7:L5:2080:U:C6     | 2.53                     | 0.44              |
| 7:L5:2765:A:H2'    | 7:L5:2766:A:C8     | 2.52                     | 0.44              |
| 7:L5:4174:U:H2'    | 7:L5:4175:G:H8     | 1.82                     | 0.44              |
| 10:LA:136:VAL:HA   | 10:LA:148:VAL:HG12 | 1.98                     | 0.44              |
| 32:LX:81:LEU:HG    | 32:LX:83:THR:HG23  | 1.99                     | 0.44              |
| 32:LX:149:VAL:O    | 32:LX:153:ILE:HD12 | 2.18                     | 0.44              |
| 46:Ll:12:PHE:O     | 46:Ll:16:LYS:HG2   | 2.18                     | 0.44              |
| 54:S2:106:C:H2'    | 54:S2:107:A:C8     | 2.52                     | 0.44              |
| 54:S2:955:A:N6     | 54:S2:971:G:H1'    | 2.32                     | 0.44              |
| 56:SB:167:LYS:HD3  | 56:SB:167:LYS:HA   | 1.78                     | 0.44              |
| 61:SG:136:LYS:NZ   | 61:SG:175:LYS:O    | 2.35                     | 0.44              |
| 62:SH:62:ILE:HD11  | 62:SH:94:PHE:CZ    | 2.52                     | 0.44              |
| 73:SS:46:ARG:HA    | 73:SS:46:ARG:HD3   | 1.69                     | 0.44              |
| 7:L5:323:C:H2'     | 7:L5:324:A:H8      | 1.81                     | 0.44              |
| 8:L7:23:A:N3       | 8:L7:118:C:O2'     | 2.47                     | 0.44              |
| 18:LI:61:SER:HA    | 18:LI:126:VAL:HG12 | 1.97                     | 0.44              |
| 21:LM:71:LYS:HE3   | 21:LM:71:LYS:HB2   | 1.85                     | 0.44              |
| 27:LS:29:ARG:NE    | 28:LT:147:GLU:OE1  | 2.50                     | 0.44              |
| 32:LX:73:HIS:ND1   | 32:LX:115:LYS:HD3  | 2.32                     | 0.44              |
| 41:Lg:33:LEU:HD23  | 41:Lg:33:LEU:HA    | 1.88                     | 0.44              |
| 54:S2:57:U:OP1     | 54:S2:504:G:O2'    | 2.33                     | 0.44              |
| 54:S2:948:C:H2'    | 54:S2:949:G:H8     | 1.83                     | 0.44              |
| 67:SM:75:ASN:OD1   | 67:SM:75:ASN:N     | 2.49                     | 0.44              |
| 74:ST:76:THR:HG21  | 74:ST:97:LYS:HG3   | 1.99                     | 0.44              |
| 5:CR:17:ILE:O      | 5:CR:21:ILE:HG12   | 2.18                     | 0.44              |
| 7:L5:422:C:H2'     | 7:L5:423:G:H8      | 1.82                     | 0.44              |
| 7:L5:935:A:O2'     | 21:LM:46:ARG:NH1   | 2.50                     | 0.44              |
| 7:L5:1590:C:H4'    | 7:L5:2857:A:H5'    | 1.98                     | 0.44              |
| 7:L5:2388:A:O2'    | 38:Ld:70:LYS:NZ    | 2.46                     | 0.44              |
| 7:L5:2532:C:O2'    | 32:LX:93:ASN:OD1   | 2.33                     | 0.44              |
| 7:L5:3878:C:O2     | 11:LB:258:HIS:NE2  | 2.38                     | 0.44              |
| 15:LF:127:LYS:HB2  | 28:LT:133:ALA:HB3  | 1.99                     | 0.44              |
| 19:LJ:19:LYS:HG2   | 19:LJ:133:VAL:HB   | 1.99                     | 0.44              |
| 54:S2:429:C:O2'    | 54:S2:811:A:N1     | 2.45                     | 0.44              |
| 54:S2:1004:U:H2'   | 54:S2:1005:G:H8    | 1.83                     | 0.44              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 57:SC:130:ILE:HG23 | 57:SC:162:ILE:HD11 | 1.99                     | 0.44              |
| 57:SC:212:LYS:HE3  | 57:SC:212:LYS:HB2  | 1.84                     | 0.44              |
| 69:SO:94:HIS:HA    | 69:SO:127:GLY:O    | 2.17                     | 0.44              |
| 73:SS:12:ILE:HD13  | 73:SS:19:ASN:HB3   | 1.97                     | 0.44              |
| 86:Sf:146:LEU:HD23 | 86:Sf:146:LEU:H    | 1.82                     | 0.44              |
| 7:L5:1077:C:H4'    | 7:L5:1215:C:C4     | 2.53                     | 0.44              |
| 7:L5:1857:C:H2'    | 7:L5:1858:A:C8     | 2.52                     | 0.44              |
| 16:LG:228:ASP:OD1  | 16:LG:228:ASP:N    | 2.50                     | 0.44              |
| 18:LI:74:LYS:HB2   | 18:LI:74:LYS:HE3   | 1.72                     | 0.44              |
| 20:LL:7:GLY:O      | 35:La:49:HIS:NE2   | 2.42                     | 0.44              |
| 29:LU:80:LYS:HD2   | 29:LU:108:GLU:HA   | 1.98                     | 0.44              |
| 52:Ls:29:ILE:HD11  | 52:Ls:78:LEU:HD23  | 1.99                     | 0.44              |
| 53:Lt:42:VAL:HG12  | 53:Lt:46:ILE:HD13  | 1.99                     | 0.44              |
| 55:SA:22:GLY:O     | 55:SA:24:HIS:ND1   | 2.51                     | 0.44              |
| 56:SB:97:LEU:HD12  | 56:SB:232:HIS:CG   | 2.52                     | 0.44              |
| 56:SB:225:LEU:HD12 | 56:SB:225:LEU:HA   | 1.83                     | 0.44              |
| 59:SE:162:ILE:HG22 | 59:SE:169:ILE:HA   | 1.99                     | 0.44              |
| 7:L5:88:A:N7       | 25:LQ:173:LYS:NZ   | 2.65                     | 0.44              |
| 7:L5:1333:A:H2'    | 7:L5:1334:A:C8     | 2.52                     | 0.44              |
| 7:L5:1802:A:H5''   | 7:L5:1803:G:H5'    | 1.99                     | 0.44              |
| 7:L5:2705:G:H1     | 7:L5:2710:C:H5     | 1.64                     | 0.44              |
| 7:L5:3736:A:H2'    | 7:L5:3737:A:C8     | 2.53                     | 0.44              |
| 46:Ll:33:ASN:OD1   | 46:Ll:34:LYS:N     | 2.51                     | 0.44              |
| 50:Lp:59:SER:OG    | 50:Lp:60:CYS:N     | 2.49                     | 0.44              |
| 54:S2:1736:G:H2'   | 54:S2:1737:G:C8    | 2.52                     | 0.44              |
| 65:SK:60:GLU:HB2   | 65:SK:69:TRP:NE1   | 2.32                     | 0.44              |
| 67:SM:59:PRO:HA    | 67:SM:62:VAL:HG22  | 1.99                     | 0.44              |
| 67:SM:74:ILE:HD12  | 67:SM:75:ASN:H     | 1.83                     | 0.44              |
| 75:SU:31:SER:O     | 75:SU:35:VAL:HG23  | 2.17                     | 0.44              |
| 78:SX:70:VAL:HG13  | 78:SX:72:VAL:HG23  | 2.00                     | 0.44              |
| 79:SY:15:ASN:HD22  | 79:SY:22:GLN:NE2   | 2.16                     | 0.44              |
| 5:CR:281:ILE:HA    | 5:CR:284:LYS:HB2   | 1.99                     | 0.44              |
| 7:L5:1702:C:H4'    | 12:LC:308:LYS:HE3  | 1.99                     | 0.44              |
| 7:L5:2297:G:H4'    | 12:LC:242:PRO:HB2  | 1.98                     | 0.44              |
| 32:LX:127:LEU:HD11 | 32:LX:135:LYS:HE3  | 2.00                     | 0.44              |
| 38:Ld:24:GLU:OE1   | 38:Ld:87:ARG:NH2   | 2.44                     | 0.44              |
| 46:Ll:43:HIS:HB3   | 46:Ll:46:ARG:HG2   | 1.99                     | 0.44              |
| 53:Lt:7:PRO:HB2    | 53:Lt:66:ASN:HA    | 1.98                     | 0.44              |
| 54:S2:4:C:H4'      | 57:SC:207:ALA:HB2  | 1.97                     | 0.44              |
| 54:S2:520:A:O2'    | 54:S2:825:A:N3     | 2.48                     | 0.44              |
| 56:SB:76:ASN:OD1   | 56:SB:76:ASN:N     | 2.49                     | 0.44              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 61:SG:181:THR:HG22 | 61:SG:183:ARG:H    | 1.82                     | 0.44              |
| 79:SY:29:HIS:HB2   | 79:SY:32:LYS:HD3   | 1.99                     | 0.44              |
| 86:Sf:107:LYS:HB2  | 86:Sf:107:LYS:HE2  | 1.72                     | 0.44              |
| 7:L5:512:U:H2'     | 7:L5:513:U:H4'     | 1.99                     | 0.44              |
| 19:LJ:81:GLU:HA    | 19:LJ:84:GLU:HB3   | 2.00                     | 0.44              |
| 52:Ls:162:LYS:HA   | 52:Ls:162:LYS:HD2  | 1.83                     | 0.44              |
| 54:S2:303:C:O4'    | 63:SI:64:ASN:ND2   | 2.50                     | 0.44              |
| 54:S2:916:A:C5     | 68:SN:73:ARG:HD3   | 2.52                     | 0.44              |
| 54:S2:1797:U:H2'   | 54:S2:1798:C:C6    | 2.53                     | 0.44              |
| 54:S2:1801:A:H2'   | 54:S2:1802:C:C6    | 2.53                     | 0.44              |
| 79:SY:11:LYS:HB2   | 79:SY:24:VAL:HG12  | 1.98                     | 0.44              |
| 86:Sf:139:HIS:CE1  | 86:Sf:148:TYR:H    | 2.35                     | 0.44              |
| 87:Sg:304:ASP:O    | 87:Sg:306:LEU:HD23 | 2.17                     | 0.44              |
| 7:L5:99:A:H5''     | 22:LN:184:ILE:HD13 | 1.99                     | 0.44              |
| 7:L5:2407:G:OP2    | 7:L5:2407:G:N2     | 2.48                     | 0.44              |
| 21:LM:86:TRP:CE2   | 21:LM:92:ALA:HB2   | 2.53                     | 0.44              |
| 32:LX:76:ILE:HG22  | 32:LX:77:ILE:HD13  | 1.99                     | 0.44              |
| 33:LY:32:SER:OG    | 33:LY:101:PRO:O    | 2.34                     | 0.44              |
| 54:S2:54:A:OP1     | 79:SY:111:LYS:NZ   | 2.36                     | 0.44              |
| 54:S2:570:C:H4'    | 79:SY:36:PRO:HG3   | 2.00                     | 0.44              |
| 54:S2:748:C:H4'    | 54:S2:796:G:C6     | 2.53                     | 0.44              |
| 54:S2:1493:C:O2'   | 54:S2:1499:U:O4    | 2.26                     | 0.44              |
| 54:S2:1628:C:H2'   | 54:S2:1629:C:C6    | 2.53                     | 0.44              |
| 58:SD:104:SER:O    | 58:SD:108:LYS:HG2  | 2.18                     | 0.44              |
| 65:SK:1:MET:HG2    | 65:SK:3:MET:HE2    | 2.00                     | 0.44              |
| 70:SP:92:SER:H     | 70:SP:107:ILE:HB   | 1.82                     | 0.44              |
| 5:CR:290:TYR:HD1   | 5:CR:412:ILE:HG12  | 1.83                     | 0.44              |
| 5:CR:325:ASN:OD1   | 5:CR:325:ASN:N     | 2.45                     | 0.44              |
| 7:L5:717:U:H2'     | 7:L5:718:C:C6      | 2.53                     | 0.44              |
| 7:L5:1097:C:H2'    | 7:L5:1098:G:C8     | 2.53                     | 0.44              |
| 7:L5:1459:A:OP1    | 25:LQ:65:ARG:NH1   | 2.51                     | 0.44              |
| 7:L5:1553:A:N6     | 7:L5:1574:G:H1'    | 2.33                     | 0.44              |
| 7:L5:2630:U:OP1    | 29:LU:48:LYS:NZ    | 2.51                     | 0.44              |
| 7:L5:4492:U:O2'    | 7:L5:4512:U:O2     | 2.27                     | 0.44              |
| 7:L5:4680:G:H2'    | 7:L5:4681:A:C8     | 2.53                     | 0.44              |
| 18:LI:190:LEU:HB3  | 18:LI:197:VAL:HG22 | 1.99                     | 0.44              |
| 62:SH:76:GLN:HG2   | 62:SH:135:PHE:CD2  | 2.52                     | 0.44              |
| 64:SJ:33:GLY:HA3   | 85:Se:38:TYR:CG    | 2.53                     | 0.44              |
| 68:SN:33:VAL:HG21  | 68:SN:66:VAL:HG11  | 1.98                     | 0.44              |
| 70:SP:107:ILE:HD13 | 70:SP:107:ILE:HA   | 1.90                     | 0.44              |
| 76:SV:27:LYS:HA    | 76:SV:27:LYS:HD3   | 1.67                     | 0.44              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 79:SY:35:VAL:HA   | 79:SY:36:PRO:HD3   | 1.88                     | 0.44              |
| 7:L5:325:U:H2'    | 7:L5:326:C:C6      | 2.53                     | 0.43              |
| 7:L5:3861:A:H2'   | 7:L5:3862:A:C8     | 2.52                     | 0.43              |
| 8:L7:92:C:H2'     | 8:L7:93:G:H8       | 1.82                     | 0.43              |
| 14:LE:211:HIS:NE2 | 14:LE:249:ASP:OD2  | 2.49                     | 0.43              |
| 15:LF:131:ASN:OD1 | 15:LF:134:ARG:NH1  | 2.51                     | 0.43              |
| 18:LI:35:ASP:HB3  | 18:LI:86:HIS:HE2   | 1.83                     | 0.43              |
| 19:LJ:93:GLU:N    | 19:LJ:93:GLU:OE2   | 2.51                     | 0.43              |
| 25:LQ:109:ALA:O   | 25:LQ:113:ILE:HG13 | 2.17                     | 0.43              |
| 35:La:7:LYS:HB3   | 35:La:7:LYS:HE2    | 1.83                     | 0.43              |
| 46:Ll:28:ARG:HA   | 46:Ll:33:ASN:ND2   | 2.32                     | 0.43              |
| 54:S2:51:U:H2'    | 54:S2:52:G:H8      | 1.83                     | 0.43              |
| 54:S2:186:C:H2'   | 54:S2:187:G:C8     | 2.53                     | 0.43              |
| 61:SG:32:MET:HB2  | 61:SG:100:CYS:HB2  | 2.00                     | 0.43              |
| 64:SJ:24:ARG:O    | 64:SJ:28:GLU:HG2   | 2.18                     | 0.43              |
| 70:SP:20:VAL:HG23 | 70:SP:24:GLN:HG3   | 2.00                     | 0.43              |
| 70:SP:137:HIS:O   | 70:SP:137:HIS:ND1  | 2.51                     | 0.43              |
| 1:NA:80:MET:HE1   | 2:NB:47:SER:HB3    | 2.00                     | 0.43              |
| 7:L5:3707:U:H2'   | 7:L5:3708:C:C6     | 2.53                     | 0.43              |
| 7:L5:3746:A:H5''  | 10:LA:244:GLY:HA3  | 2.00                     | 0.43              |
| 8:L7:6:C:O3'      | 13:LD:50:ARG:NH2   | 2.50                     | 0.43              |
| 32:LX:38:LYS:HD2  | 32:LX:38:LYS:HA    | 1.77                     | 0.43              |
| 45:Lk:35:LYS:HA   | 45:Lk:43:TYR:O     | 2.18                     | 0.43              |
| 54:S2:677:G:OP1   | 68:SN:120:SER:OG   | 2.36                     | 0.43              |
| 54:S2:1606:G:H1'  | 54:S2:1633:A:N6    | 2.34                     | 0.43              |
| 55:SA:143:PRO:HB3 | 76:SV:34:MET:HE3   | 1.99                     | 0.43              |
| 7:L5:10:A:H2'     | 7:L5:11:G:H8       | 1.83                     | 0.43              |
| 7:L5:1086:C:H2'   | 7:L5:1087:A:H8     | 1.83                     | 0.43              |
| 7:L5:1577:G:O2'   | 7:L5:1612:G:H4'    | 2.18                     | 0.43              |
| 7:L5:3932:U:H2'   | 7:L5:3933:G:C8     | 2.53                     | 0.43              |
| 7:L5:4088:C:H2'   | 7:L5:4089:G:C8     | 2.53                     | 0.43              |
| 7:L5:4967:A:H2'   | 7:L5:4968:A:C8     | 2.53                     | 0.43              |
| 10:LA:247:ARG:HE  | 10:LA:247:ARG:HA   | 1.82                     | 0.43              |
| 26:LR:173:ARG:O   | 26:LR:173:ARG:NE   | 2.40                     | 0.43              |
| 32:LX:120:ASP:OD2 | 32:LX:120:ASP:N    | 2.48                     | 0.43              |
| 40:Lf:14:TYR:OH   | 40:Lf:92:LEU:O     | 2.28                     | 0.43              |
| 41:Lg:9:ARG:HD2   | 41:Lg:34:TYR:CZ    | 2.53                     | 0.43              |
| 54:S2:12:U:H2'    | 54:S2:13:C:C6      | 2.53                     | 0.43              |
| 54:S2:1845:A:H2'  | 54:S2:1846:G:H8    | 1.83                     | 0.43              |
| 58:SD:39:VAL:HG22 | 58:SD:48:ILE:HG12  | 1.99                     | 0.43              |
| 59:SE:161:GLN:OE1 | 59:SE:170:THR:OG1  | 2.35                     | 0.43              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 60:SF:69:VAL:O     | 60:SF:73:THR:HG23  | 2.17                     | 0.43              |
| 70:SP:83:MET:HE2   | 70:SP:83:MET:HA    | 2.00                     | 0.43              |
| 72:SR:41:ILE:HD13  | 72:SR:50:ILE:HD12  | 2.00                     | 0.43              |
| 73:SS:26:ILE:HG13  | 73:SS:45:LEU:HD11  | 2.01                     | 0.43              |
| 73:SS:84:LEU:HD12  | 73:SS:95:TYR:HB3   | 2.01                     | 0.43              |
| 87:Sg:217:MET:HE2  | 87:Sg:217:MET:HB3  | 1.78                     | 0.43              |
| 7:L5:937:U:OP1     | 21:LM:46:ARG:NH1   | 2.52                     | 0.43              |
| 7:L5:4736:C:H2'    | 7:L5:4737:G:H8     | 1.83                     | 0.43              |
| 40:Lf:6:TRP:CE2    | 40:Lf:102:ARG:HD3  | 2.54                     | 0.43              |
| 48:Ln:10:MET:HE2   | 48:Ln:10:MET:HB2   | 1.75                     | 0.43              |
| 50:Lp:3:LYS:HB2    | 50:Lp:3:LYS:HE3    | 1.75                     | 0.43              |
| 52:Ls:42:GLN:HA    | 52:Ls:45:MET:HB2   | 2.01                     | 0.43              |
| 54:S2:329:G:H2'    | 54:S2:330:G:C8     | 2.53                     | 0.43              |
| 7:L5:2640:G:H2'    | 7:L5:2641:A:C8     | 2.54                     | 0.43              |
| 7:L5:2708:U:H4'    | 7:L5:2709:C:H5''   | 2.00                     | 0.43              |
| 11:LB:201:LEU:HD23 | 11:LB:201:LEU:HA   | 1.88                     | 0.43              |
| 25:LQ:81:VAL:HG22  | 25:LQ:101:CYS:HB3  | 2.00                     | 0.43              |
| 30:LV:30:ASP:OD1   | 30:LV:32:THR:OG1   | 2.33                     | 0.43              |
| 45:Lk:10:ASP:HA    | 45:Lk:13:LEU:HD23  | 2.00                     | 0.43              |
| 51:Lr:2:SER:O      | 51:Lr:6:GLN:HG3    | 2.18                     | 0.43              |
| 54:S2:5:U:H2'      | 54:S2:6:G:C8       | 2.54                     | 0.43              |
| 54:S2:692:G:H2'    | 54:S2:693:A:C4     | 2.54                     | 0.43              |
| 55:SA:119:PRO:HG2  | 55:SA:142:LEU:HD21 | 1.99                     | 0.43              |
| 58:SD:4:GLN:OE1    | 58:SD:4:GLN:N      | 2.51                     | 0.43              |
| 7:L5:424:U:H2'     | 7:L5:425:U:C6      | 2.54                     | 0.43              |
| 7:L5:2029:A:H2'    | 7:L5:2030:A:C8     | 2.54                     | 0.43              |
| 7:L5:3690:U:H2'    | 7:L5:3691:G:O4'    | 2.19                     | 0.43              |
| 7:L5:4220:A:H2'    | 7:L5:4222:G:H5''   | 2.01                     | 0.43              |
| 9:L8:8:U:H2'       | 9:L8:9:A:C8        | 2.53                     | 0.43              |
| 11:LB:168:MET:HG3  | 11:LB:178:ALA:HA   | 1.99                     | 0.43              |
| 18:LI:63:GLU:OE1   | 18:LI:63:GLU:N     | 2.36                     | 0.43              |
| 18:LI:79:SER:HG    | 18:LI:80:CYS:HG    | 1.66                     | 0.43              |
| 31:LW:19:ARG:HH21  | 31:LW:37:GLU:CD    | 2.26                     | 0.43              |
| 54:S2:223:C:H2'    | 54:S2:224:A:C8     | 2.54                     | 0.43              |
| 54:S2:522:A:H5''   | 64:SJ:145:PRO:HD2  | 2.01                     | 0.43              |
| 54:S2:525:A:H2'    | 54:S2:526:A:H8     | 1.84                     | 0.43              |
| 61:SG:93:LYS:HE2   | 61:SG:93:LYS:HB3   | 1.81                     | 0.43              |
| 72:SR:76:GLU:O     | 72:SR:80:ARG:HD2   | 2.19                     | 0.43              |
| 87:Sg:32:LEU:HD23  | 87:Sg:32:LEU:HA    | 1.91                     | 0.43              |
| 5:CR:27:ALA:HB1    | 5:CR:100:ILE:HG21  | 2.01                     | 0.43              |
| 7:L5:108:A:N1      | 7:L5:333:U:O2'     | 2.51                     | 0.43              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 7:L5:197:A:N1      | 7:L5:225:G:O2'     | 2.43                     | 0.43              |
| 7:L5:2539:C:H2'    | 7:L5:2540:C:C6     | 2.54                     | 0.43              |
| 7:L5:3906:A:H2'    | 12:LC:69:THR:HG23  | 1.99                     | 0.43              |
| 7:L5:4324:A:H2'    | 7:L5:4325:A:C8     | 2.54                     | 0.43              |
| 7:L5:4507:A:H2'    | 7:L5:4508:C:C6     | 2.54                     | 0.43              |
| 7:L5:4761:G:H2'    | 7:L5:4762:A:H8     | 1.83                     | 0.43              |
| 9:L8:148:A:H2'     | 9:L8:149:G:C8      | 2.54                     | 0.43              |
| 15:LF:92:VAL:O     | 15:LF:120:GLY:HA2  | 2.18                     | 0.43              |
| 39:Le:105:SER:HA   | 39:Le:108:ARG:HG2  | 2.00                     | 0.43              |
| 52:Ls:45:MET:HA    | 52:Ls:45:MET:HE2   | 2.01                     | 0.43              |
| 54:S2:1405:A:H2'   | 54:S2:1406:G:O4'   | 2.18                     | 0.43              |
| 55:SA:201:LEU:HD13 | 72:SR:84:TYR:HB3   | 2.00                     | 0.43              |
| 55:SA:209:GLU:HA   | 55:SA:212:LYS:HB3  | 2.00                     | 0.43              |
| 62:SH:169:LYS:HZ3  | 62:SH:169:LYS:HG2  | 1.67                     | 0.43              |
| 69:SO:61:LYS:HA    | 69:SO:61:LYS:HD2   | 1.68                     | 0.43              |
| 79:SY:19:GLN:NE2   | 79:SY:85:ASN:HD21  | 2.17                     | 0.43              |
| 7:L5:1992:U:H1'    | 7:L5:2002:A:H5''   | 2.00                     | 0.43              |
| 7:L5:4473:A:OP1    | 47:Lm:124:LYS:NZ   | 2.49                     | 0.43              |
| 10:LA:208:GLU:H    | 10:LA:208:GLU:HG2  | 1.64                     | 0.43              |
| 15:LF:164:LYS:HD3  | 15:LF:164:LYS:HA   | 1.86                     | 0.43              |
| 46:Ll:28:ARG:HA    | 46:Ll:33:ASN:HD22  | 1.83                     | 0.43              |
| 48:Ln:24:SER:O     | 48:Ln:24:SER:OG    | 2.35                     | 0.43              |
| 50:Lp:46:LYS:HE3   | 50:Lp:46:LYS:HB3   | 1.69                     | 0.43              |
| 54:S2:455:A:H2'    | 54:S2:456:C:H6     | 1.83                     | 0.43              |
| 58:SD:142:LEU:HD13 | 58:SD:150:MET:HE3  | 2.01                     | 0.43              |
| 59:SE:188:ASN:HA   | 59:SE:245:ARG:HH12 | 1.84                     | 0.43              |
| 7:L5:181:C:N4      | 7:L5:255:C:N3      | 2.66                     | 0.43              |
| 7:L5:1846:G:H2'    | 7:L5:1847:C:C6     | 2.53                     | 0.43              |
| 7:L5:1998:A:N7     | 52:Ls:55:MET:HB2   | 2.33                     | 0.43              |
| 7:L5:2579:G:N2     | 7:L5:2582:A:OP2    | 2.40                     | 0.43              |
| 7:L5:4474:A:OP2    | 7:L5:4476:C:N4     | 2.52                     | 0.43              |
| 14:LE:183:ARG:HA   | 14:LE:183:ARG:HD2  | 1.76                     | 0.43              |
| 27:LS:113:MET:HE3  | 27:LS:113:MET:HB3  | 1.85                     | 0.43              |
| 30:LV:71:GLU:N     | 30:LV:71:GLU:OE2   | 2.51                     | 0.43              |
| 49:Lo:71:GLU:HG2   | 49:Lo:80:LYS:HG2   | 2.01                     | 0.43              |
| 51:Lr:63:VAL:HG22  | 51:Lr:79:ARG:HG2   | 2.00                     | 0.43              |
| 54:S2:115:U:H2'    | 54:S2:116:U:C6     | 2.54                     | 0.43              |
| 54:S2:943:U:O2'    | 69:SO:135:ILE:O    | 2.37                     | 0.43              |
| 54:S2:1521:C:H5'   | 70:SP:126:VAL:HB   | 2.01                     | 0.43              |
| 54:S2:1798:C:H2'   | 54:S2:1799:G:O4'   | 2.19                     | 0.43              |
| 56:SB:182:LYS:HE3  | 56:SB:182:LYS:HB3  | 1.86                     | 0.43              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 57:SC:191:VAL:HG11 | 57:SC:236:PHE:HA   | 2.00                     | 0.43              |
| 58:SD:18:LYS:HB2   | 58:SD:18:LYS:HE2   | 1.78                     | 0.43              |
| 61:SG:159:ARG:NH1  | 61:SG:171:THR:OG1  | 2.52                     | 0.43              |
| 63:SI:62:VAL:HA    | 63:SI:77:ARG:HA    | 2.01                     | 0.43              |
| 71:SQ:51:LEU:HD12  | 71:SQ:51:LEU:HA    | 1.82                     | 0.43              |
| 71:SQ:113:ILE:HD13 | 71:SQ:113:ILE:HA   | 1.86                     | 0.43              |
| 74:ST:74:SER:O     | 74:ST:78:ILE:HG13  | 2.18                     | 0.43              |
| 87:Sg:280:LYS:HE2  | 87:Sg:280:LYS:N    | 2.34                     | 0.43              |
| 7:L5:1380:G:N2     | 7:L5:1381:U:O4     | 2.46                     | 0.43              |
| 7:L5:1974:U:O4'    | 7:L5:1976:G:H5'    | 2.19                     | 0.43              |
| 7:L5:4743:G:H2'    | 7:L5:4744:A:C8     | 2.54                     | 0.43              |
| 29:LU:27:HIS:HB3   | 29:LU:114:TYR:HE2  | 1.84                     | 0.43              |
| 41:Lg:8:ARG:HB2    | 41:Lg:34:TYR:HE1   | 1.84                     | 0.43              |
| 54:S2:1736:G:H2'   | 54:S2:1737:G:H8    | 1.83                     | 0.43              |
| 54:S2:1864:U:H3'   | 81:Sa:5:ARG:HH21   | 1.83                     | 0.43              |
| 58:SD:56:GLN:O     | 58:SD:60:GLY:HA3   | 2.19                     | 0.43              |
| 60:SF:125:SER:OG   | 60:SF:136:ARG:NE   | 2.52                     | 0.43              |
| 68:SN:103:GLU:O    | 68:SN:106:ARG:NH2  | 2.51                     | 0.43              |
| 80:SZ:48:VAL:HG23  | 80:SZ:80:ARG:HD2   | 2.00                     | 0.43              |
| 81:Sa:13:LYS:HD3   | 81:Sa:13:LYS:HA    | 1.87                     | 0.43              |
| 7:L5:229:G:H5''    | 33:LY:11:ARG:HG3   | 2.01                     | 0.42              |
| 7:L5:1348:U:H2'    | 7:L5:1349:G:H8     | 1.84                     | 0.42              |
| 7:L5:2017:A:O2'    | 7:L5:2018:C:O5'    | 2.33                     | 0.42              |
| 7:L5:4621:C:OP1    | 30:LV:48:ARG:HD2   | 2.19                     | 0.42              |
| 7:L5:4635:A:H3'    | 7:L5:4636:U:H4'    | 2.01                     | 0.42              |
| 8:L7:58:A:H2'      | 8:L7:59:G:C8       | 2.54                     | 0.42              |
| 12:LC:294:LYS:HZ2  | 12:LC:294:LYS:HG2  | 1.75                     | 0.42              |
| 14:LE:92:VAL:HG23  | 14:LE:107:VAL:HG13 | 2.01                     | 0.42              |
| 21:LM:50:MET:HE3   | 21:LM:50:MET:HB2   | 1.81                     | 0.42              |
| 21:LM:81:ASP:OD2   | 21:LM:84:THR:OG1   | 2.32                     | 0.42              |
| 34:LZ:22:LYS:NZ    | 34:LZ:132:GLN:O    | 2.36                     | 0.42              |
| 52:Ls:57:LYS:O     | 52:Ls:60:MET:HB2   | 2.19                     | 0.42              |
| 59:SE:9:LEU:HG     | 59:SE:28:ALA:HB3   | 2.01                     | 0.42              |
| 62:SH:75:ILE:O     | 62:SH:75:ILE:HD12  | 2.19                     | 0.42              |
| 73:SS:35:GLY:O     | 73:SS:97:GLN:NE2   | 2.52                     | 0.42              |
| 77:SW:12:LYS:HA    | 77:SW:12:LYS:HD3   | 1.81                     | 0.42              |
| 77:SW:87:GLU:CD    | 77:SW:87:GLU:H     | 2.27                     | 0.42              |
| 7:L5:2045:G:O6     | 7:L5:3870:C:O2'    | 2.35                     | 0.42              |
| 7:L5:3932:U:H2'    | 7:L5:3933:G:H8     | 1.84                     | 0.42              |
| 7:L5:3947:A:H61    | 7:L5:4068:U:H1'    | 1.85                     | 0.42              |
| 7:L5:4967:A:H2'    | 7:L5:4968:A:H8     | 1.83                     | 0.42              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 10:LA:80:GLU:HB2   | 10:LA:170:ALA:HA   | 2.01                     | 0.42              |
| 17:LH:103:VAL:HG11 | 17:LH:144:LEU:HD11 | 2.01                     | 0.42              |
| 51:Lr:97:ILE:HG21  | 51:Lr:107:ARG:HB2  | 2.01                     | 0.42              |
| 54:S2:1007:C:H2'   | 54:S2:1008:A:C8    | 2.54                     | 0.42              |
| 54:S2:1126:G:OP1   | 55:SA:41:ARG:NH1   | 2.48                     | 0.42              |
| 54:S2:1822:A:H2'   | 54:S2:1823:A:C8    | 2.54                     | 0.42              |
| 57:SC:73:MET:HE2   | 57:SC:73:MET:HB3   | 1.78                     | 0.42              |
| 74:ST:39:LEU:O     | 74:ST:96:SER:HB2   | 2.19                     | 0.42              |
| 81:Sa:64:LEU:HD13  | 81:Sa:65:PRO:HD2   | 2.02                     | 0.42              |
| 7:L5:453:G:H4'     | 7:L5:454:U:H5'     | 2.01                     | 0.42              |
| 7:L5:1662:C:H2'    | 7:L5:1663:C:C6     | 2.54                     | 0.42              |
| 7:L5:2568:C:H2'    | 7:L5:2569:G:C8     | 2.54                     | 0.42              |
| 7:L5:4080:C:H2'    | 7:L5:4081:G:H8     | 1.84                     | 0.42              |
| 30:LV:21:PRO:HA    | 30:LV:54:ALA:HA    | 2.00                     | 0.42              |
| 32:LX:129:ARG:NH2  | 32:LX:131:ASP:OD2  | 2.40                     | 0.42              |
| 33:LY:24:HIS:CD2   | 33:LY:25:ILE:HG23  | 2.53                     | 0.42              |
| 34:LZ:35:ASP:OD2   | 34:LZ:35:ASP:N     | 2.53                     | 0.42              |
| 34:LZ:117:LYS:HD3  | 34:LZ:117:LYS:HA   | 1.83                     | 0.42              |
| 52:Ls:25:PRO:HD2   | 52:Ls:26:LYS:N     | 2.33                     | 0.42              |
| 54:S2:615:C:O2     | 85:Se:11:LYS:NZ    | 2.51                     | 0.42              |
| 54:S2:1665:G:H5''  | 74:ST:89:PRO:HD2   | 1.99                     | 0.42              |
| 54:S2:1839:U:H2'   | 54:S2:1840:U:C6    | 2.54                     | 0.42              |
| 68:SN:84:LEU:HD12  | 68:SN:84:LEU:HA    | 1.89                     | 0.42              |
| 87:Sg:10:THR:HG22  | 87:Sg:308:ARG:HG2  | 2.00                     | 0.42              |
| 7:L5:318:A:H2'     | 7:L5:319:A:H8      | 1.85                     | 0.42              |
| 7:L5:1307:A:H2'    | 7:L5:1308:C:C6     | 2.54                     | 0.42              |
| 7:L5:1445:U:H2'    | 7:L5:1446:C:C6     | 2.54                     | 0.42              |
| 7:L5:2884:G:H2'    | 7:L5:2885:A:H8     | 1.84                     | 0.42              |
| 7:L5:3732:A:H2'    | 7:L5:3733:A:C8     | 2.54                     | 0.42              |
| 7:L5:5024:C:N4     | 7:L5:5028:G:H21    | 2.18                     | 0.42              |
| 9:L8:67:U:H2'      | 9:L8:68:G:C8       | 2.54                     | 0.42              |
| 13:LD:211:LEU:HB3  | 13:LD:219:TYR:HB2  | 2.01                     | 0.42              |
| 15:LF:86:GLU:OE1   | 28:LT:136:ARG:HB2  | 2.20                     | 0.42              |
| 15:LF:90:ALA:HB2   | 15:LF:125:LEU:HD11 | 2.01                     | 0.42              |
| 19:LJ:63:ARG:NH1   | 49:Lo:105:GLN:OE1  | 2.53                     | 0.42              |
| 33:LY:119:LEU:HD23 | 33:LY:119:LEU:HA   | 1.88                     | 0.42              |
| 42:Lh:52:LYS:HD3   | 42:Lh:52:LYS:HA    | 1.78                     | 0.42              |
| 54:S2:619:A:N6     | 78:SX:114:ASP:OD2  | 2.48                     | 0.42              |
| 56:SB:146:ARG:HA   | 56:SB:146:ARG:HD2  | 1.82                     | 0.42              |
| 60:SF:95:HIS:HD2   | 80:SZ:106:GLN:HB3  | 1.83                     | 0.42              |
| 64:SJ:138:ARG:NH2  | 64:SJ:152:ASP:OD2  | 2.53                     | 0.42              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1               | Atom-2               | Interatomic distance (Å) | Clash overlap (Å) |
|----------------------|----------------------|--------------------------|-------------------|
| 78: SX:41: PHE:HZ    | 78: SX:102: VAL:HG12 | 1.85                     | 0.42              |
| 79: SY:18: LEU:O     | 79: SY:85: ASN:ND2   | 2.52                     | 0.42              |
| 7: L5:504: G:H1      | 7: L5:656: C:H1'     | 1.84                     | 0.42              |
| 7: L5:1443: A:H3'    | 7: L5:1444: G:H8     | 1.84                     | 0.42              |
| 7: L5:1725: U:H2'    | 7: L5:1726: U:C6     | 2.55                     | 0.42              |
| 7: L5:2770: C:H2'    | 7: L5:2771: G:H8     | 1.83                     | 0.42              |
| 7: L5:4504: C:H2'    | 7: L5:4505: C:C6     | 2.53                     | 0.42              |
| 12: LC:301: ALA:HB1  | 25: LQ:132: LYS:HD3  | 2.00                     | 0.42              |
| 16: LG:244: PRO:HA   | 16: LG:247: VAL:HG22 | 2.00                     | 0.42              |
| 19: LJ:59: SER:OG    | 19: LJ:60: PHE:N     | 2.52                     | 0.42              |
| 49: Lo:71: GLU:OE1   | 49: Lo:78: ARG:NH2   | 2.52                     | 0.42              |
| 54: S2:1365: G:H2'   | 54: S2:1366: G:C8    | 2.54                     | 0.42              |
| 55: SA:34: MET:HE3   | 55: SA:34: MET:HB3   | 1.77                     | 0.42              |
| 57: SC:84: PHE:CD2   | 57: SC:265: PRO:HD3  | 2.54                     | 0.42              |
| 7: L5:119: G:OP1     | 16: LG:132: ARG:NH2  | 2.51                     | 0.42              |
| 7: L5:1327: C:H2'    | 7: L5:1328: G:C8     | 2.55                     | 0.42              |
| 7: L5:4768: G:OP1    | 23: LO:168: TYR:OH   | 2.33                     | 0.42              |
| 8: L7:15: C:H2'      | 8: L7:16: A:H8       | 1.84                     | 0.42              |
| 12: LC:150: LEU:HD12 | 12: LC:150: LEU:HA   | 1.80                     | 0.42              |
| 14: LE:101: ASN:HD21 | 14: LE:105: ARG:HH22 | 1.67                     | 0.42              |
| 15: LF:144: TYR:CE2  | 15: LF:237: GLU:HB3  | 2.54                     | 0.42              |
| 17: LH:12: ILE:HD11  | 17: LH:55: LEU:HB2   | 2.01                     | 0.42              |
| 53: Lt:78: SER:O     | 53: Lt:82: ILE:HG13  | 2.20                     | 0.42              |
| 54: S2:66: G:N2      | 54: S2:82: G:H21     | 2.16                     | 0.42              |
| 54: S2:309: G:OP2    | 63: SI:55: TYR:OH    | 2.28                     | 0.42              |
| 54: S2:467: G:O5'    | 61: SG:72: ARG:NH1   | 2.52                     | 0.42              |
| 54: S2:1232: U:H2'   | 54: S2:1233: G:C8    | 2.55                     | 0.42              |
| 54: S2:1461: G:H3'   | 54: S2:1463: U:H3    | 1.84                     | 0.42              |
| 54: S2:1620: A:OP1   | 70: SP:115: TYR:OH   | 2.30                     | 0.42              |
| 57: SC:169: TYR:OH   | 57: SC:175: GLY:O    | 2.32                     | 0.42              |
| 59: SE:125: LYS:O    | 59: SE:142: HIS:N    | 2.52                     | 0.42              |
| 67: SM:15: ASN:HA    | 67: SM:18: LEU:HG    | 2.02                     | 0.42              |
| 69: SO:93: LEU:HG    | 69: SO:124: MET:HE2  | 2.01                     | 0.42              |
| 80: SZ:77: LEU:C     | 80: SZ:78: LYS:HE2   | 2.44                     | 0.42              |
| 87: Sg:5: MET:HA     | 87: Sg:5: MET:HE3    | 2.01                     | 0.42              |
| 5: CR:305: VAL:HG11  | 5: CR:345: TYR:HB3   | 2.01                     | 0.42              |
| 7: L5:261: G:H2'     | 7: L5:262: G:H8      | 1.85                     | 0.42              |
| 7: L5:1946: G:O2'    | 7: L5:1948: G:OP2    | 2.36                     | 0.42              |
| 7: L5:2406: G:N7     | 46: Ll:2: SER:N      | 2.67                     | 0.42              |
| 7: L5:4322: G:N2     | 7: L5:4325: A:OP2    | 2.46                     | 0.42              |
| 7: L5:4723: A:H2'    | 7: L5:4724: A:C8     | 2.55                     | 0.42              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 40:Lf:45:LYS:HD2   | 40:Lf:105:LEU:HA   | 2.02                     | 0.42              |
| 45:Lk:70:LYS:HD3   | 45:Lk:70:LYS:HA    | 1.78                     | 0.42              |
| 54:S2:582:U:H1'    | 79:SY:33:ALA:HB2   | 2.01                     | 0.42              |
| 87:Sg:130:LYS:HZ2  | 87:Sg:130:LYS:HG3  | 1.67                     | 0.42              |
| 7:L5:1:C:O2'       | 32:LX:38:LYS:NZ    | 2.52                     | 0.42              |
| 7:L5:2780:C:H2'    | 7:L5:2781:G:H8     | 1.85                     | 0.42              |
| 7:L5:3923:A:H2'    | 7:L5:3924:C:C6     | 2.55                     | 0.42              |
| 7:L5:4387:C:OP2    | 7:L5:4532:U:O2'    | 2.38                     | 0.42              |
| 13:LD:41:LYS:HD3   | 13:LD:41:LYS:HA    | 1.77                     | 0.42              |
| 13:LD:125:VAL:HG23 | 13:LD:126:THR:H    | 1.84                     | 0.42              |
| 14:LE:221:LYS:HD2  | 14:LE:221:LYS:HA   | 1.92                     | 0.42              |
| 54:S2:162:C:O3'    | 61:SG:95:LYS:NZ    | 2.51                     | 0.42              |
| 54:S2:493:A:H1'    | 54:S2:574:A:H5'    | 2.02                     | 0.42              |
| 54:S2:1623:A:O5'   | 73:SS:133:GLY:HA3  | 2.20                     | 0.42              |
| 63:SI:38:ILE:HG12  | 63:SI:96:LEU:HD11  | 2.01                     | 0.42              |
| 70:SP:53:GLN:CD    | 70:SP:53:GLN:H     | 2.28                     | 0.42              |
| 74:ST:49:ASP:OD2   | 74:ST:51:ASN:N     | 2.53                     | 0.42              |
| 5:CR:226:LEU:O     | 5:CR:253:LEU:HA    | 2.19                     | 0.42              |
| 7:L5:480:C:H2'     | 7:L5:481:G:H8      | 1.85                     | 0.42              |
| 7:L5:1445:U:H2'    | 7:L5:1446:C:H6     | 1.84                     | 0.42              |
| 7:L5:3857:G:H5''   | 24:LP:86:LYS:HB2   | 2.02                     | 0.42              |
| 7:L5:3928:A:OP1    | 22:LN:90:ASN:ND2   | 2.50                     | 0.42              |
| 7:L5:4507:A:O2'    | 30:LV:41:SER:OG    | 2.28                     | 0.42              |
| 7:L5:4980:C:N3     | 24:LP:69:ARG:NH2   | 2.64                     | 0.42              |
| 12:LC:230:LEU:HD23 | 12:LC:230:LEU:HA   | 1.87                     | 0.42              |
| 30:LV:124:GLU:OE2  | 30:LV:124:GLU:N    | 2.42                     | 0.42              |
| 34:LZ:33:THR:OG1   | 34:LZ:35:ASP:OD2   | 2.33                     | 0.42              |
| 37:Lc:51:ASN:CG    | 37:Lc:77:ASN:HB2   | 2.45                     | 0.42              |
| 54:S2:656:G:H5'    | 54:S2:662:G:N2     | 2.35                     | 0.42              |
| 54:S2:824:C:H1'    | 64:SJ:144:ILE:HG21 | 2.02                     | 0.42              |
| 54:S2:1265:A:H2    | 54:S2:1517:G:H22   | 1.68                     | 0.42              |
| 54:S2:1745:A:N6    | 54:S2:1789:G:O2'   | 2.53                     | 0.42              |
| 54:S2:1808:U:H2'   | 54:S2:1809:A:H8    | 1.85                     | 0.42              |
| 74:ST:94:ARG:H     | 74:ST:94:ARG:HG2   | 1.65                     | 0.42              |
| 79:SY:51:THR:HA    | 79:SY:52:PRO:HD3   | 1.92                     | 0.42              |
| 2:NB:71:VAL:HG11   | 2:NB:102:MET:HE1   | 2.01                     | 0.42              |
| 5:CR:290:TYR:OH    | 5:CR:302:CYS:O     | 2.37                     | 0.42              |
| 7:L5:475:G:H2'     | 7:L5:476:G:H8      | 1.85                     | 0.42              |
| 7:L5:1883:G:O2'    | 39:Le:48:ARG:O     | 2.34                     | 0.42              |
| 7:L5:2275:G:H2'    | 7:L5:2276:A:C8     | 2.55                     | 0.42              |
| 7:L5:2573:A:O2'    | 34:LZ:112:ARG:NH1  | 2.53                     | 0.42              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 7:L5:2626:U:C6     | 29:LU:92:LYS:HG2  | 2.55                     | 0.42              |
| 7:L5:4578:G:H2'    | 7:L5:4579:U:C6    | 2.55                     | 0.42              |
| 7:L5:5057:C:H2'    | 7:L5:5058:A:C8    | 2.54                     | 0.42              |
| 10:LA:92:LYS:HA    | 10:LA:103:PRO:HD2 | 2.01                     | 0.42              |
| 10:LA:242:ARG:NH2  | 10:LA:243:THR:O   | 2.52                     | 0.42              |
| 20:LL:19:GLN:HA    | 20:LL:22:VAL:HG23 | 2.02                     | 0.42              |
| 34:LZ:33:THR:HG21  | 34:LZ:40:HIS:NE2  | 2.35                     | 0.42              |
| 36:Lb:13:SER:HA    | 36:Lb:16:TRP:NE1  | 2.35                     | 0.42              |
| 39:Le:91:CYS:HB2   | 39:Le:95:TYR:HD1  | 1.85                     | 0.42              |
| 54:S2:1142:G:N2    | 54:S2:1145:A:OP2  | 2.38                     | 0.42              |
| 63:SI:88:ASN:OD1   | 63:SI:88:ASN:N    | 2.53                     | 0.42              |
| 69:SO:28:PHE:HA    | 69:SO:92:ALA:O    | 2.20                     | 0.42              |
| 73:SS:114:LEU:HD23 | 73:SS:114:LEU:HA  | 1.85                     | 0.42              |
| 7:L5:3727:A:H2'    | 7:L5:3728:A:C8    | 2.55                     | 0.41              |
| 7:L5:4704:C:H2'    | 7:L5:4705:A:C8    | 2.55                     | 0.41              |
| 7:L5:4734:A:H1'    | 7:L5:4735:G:C8    | 2.55                     | 0.41              |
| 8:L7:27:G:H2'      | 8:L7:28:C:C6      | 2.55                     | 0.41              |
| 11:LB:29:VAL:HG12  | 11:LB:31:SER:H    | 1.84                     | 0.41              |
| 11:LB:39:LYS:HE3   | 11:LB:39:LYS:HB3  | 1.93                     | 0.41              |
| 11:LB:291:TYR:OH   | 11:LB:315:ASN:ND2 | 2.53                     | 0.41              |
| 33:LY:66:GLN:H     | 33:LY:66:GLN:CD   | 2.28                     | 0.41              |
| 39:Le:64:LYS:HB2   | 39:Le:64:LYS:HE2  | 1.79                     | 0.41              |
| 42:Lh:88:THR:OG1   | 42:Lh:91:MET:HG3  | 2.19                     | 0.41              |
| 53:Lt:154:ASP:OD2  | 53:Lt:154:ASP:N   | 2.52                     | 0.41              |
| 54:S2:1004:U:H2'   | 54:S2:1005:G:C8   | 2.55                     | 0.41              |
| 70:SP:108:LYS:N    | 70:SP:111:MET:HE2 | 2.27                     | 0.41              |
| 87:Sg:127:LYS:HE2  | 87:Sg:149:GLU:HA  | 2.02                     | 0.41              |
| 7:L5:425:U:H2'     | 7:L5:426:A:H8     | 1.84                     | 0.41              |
| 7:L5:1763:C:H3'    | 7:L5:1764:G:H8    | 1.85                     | 0.41              |
| 7:L5:4291:G:H5'    | 7:L5:4293:U:C6    | 2.54                     | 0.41              |
| 8:L7:4:U:H2'       | 8:L7:5:A:H8       | 1.85                     | 0.41              |
| 17:LH:41:ILE:HG22  | 17:LH:43:VAL:HG13 | 2.02                     | 0.41              |
| 17:LH:113:GLU:HA   | 17:LH:124:ARG:O   | 2.20                     | 0.41              |
| 17:LH:180:TYR:HB3  | 47:Lm:89:TYR:CE2  | 2.56                     | 0.41              |
| 20:LL:180:ALA:O    | 20:LL:184:MET:HG3 | 2.20                     | 0.41              |
| 23:LO:149:TYR:O    | 23:LO:153:THR:OG1 | 2.28                     | 0.41              |
| 30:LV:87:SER:HA    | 30:LV:97:TYR:HB3  | 2.02                     | 0.41              |
| 54:S2:118:C:H1'    | 54:S2:445:A:C5    | 2.55                     | 0.41              |
| 54:S2:604:A:N3     | 54:S2:639:C:O2'   | 2.44                     | 0.41              |
| 54:S2:1201:U:H2'   | 54:S2:1202:U:C6   | 2.55                     | 0.41              |
| 54:S2:1373:C:OP1   | 72:SR:6:THR:OG1   | 2.30                     | 0.41              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 54:S2:1407:U:H2'   | 54:S2:1408:U:C6    | 2.56                     | 0.41              |
| 54:S2:1713:C:H2'   | 54:S2:1714:U:C6    | 2.55                     | 0.41              |
| 63:SI:76:THR:HG22  | 63:SI:108:PRO:HG2  | 2.01                     | 0.41              |
| 67:SM:36:ARG:HH22  | 67:SM:40:LYS:HE3   | 1.84                     | 0.41              |
| 73:SS:60:THR:HG1   | 73:SS:63:GLU:CD    | 2.26                     | 0.41              |
| 7:L5:1645:C:H2'    | 7:L5:1646:A:C8     | 2.55                     | 0.41              |
| 7:L5:1719:A:H2'    | 7:L5:1720:C:C6     | 2.55                     | 0.41              |
| 7:L5:2338:C:OP1    | 51:Lr:19:LYS:NZ    | 2.49                     | 0.41              |
| 7:L5:3653:A:N6     | 7:L5:3691:G:O2'    | 2.45                     | 0.41              |
| 7:L5:4174:U:H2'    | 7:L5:4175:G:C8     | 2.55                     | 0.41              |
| 13:LD:179:ARG:HD3  | 13:LD:179:ARG:HA   | 1.80                     | 0.41              |
| 14:LE:205:ASN:OD1  | 14:LE:205:ASN:N    | 2.40                     | 0.41              |
| 19:LJ:125:ILE:HD13 | 19:LJ:125:ILE:HA   | 1.85                     | 0.41              |
| 20:LL:42:LYS:O     | 20:LL:46:ILE:HG12  | 2.20                     | 0.41              |
| 47:Lm:113:LYS:HE2  | 47:Lm:113:LYS:HB3  | 1.87                     | 0.41              |
| 51:Lr:92:SER:O     | 51:Lr:96:MET:HG3   | 2.19                     | 0.41              |
| 56:SB:82:ARG:HD3   | 56:SB:103:MET:HE2  | 2.01                     | 0.41              |
| 58:SD:218:LEU:HA   | 58:SD:219:PRO:HD3  | 1.92                     | 0.41              |
| 59:SE:17:HIS:HB2   | 59:SE:108:ARG:HA   | 2.01                     | 0.41              |
| 60:SF:23:TRP:HH2   | 60:SF:108:PRO:HG2  | 1.85                     | 0.41              |
| 60:SF:99:ILE:HG23  | 80:SZ:67:LEU:HD13  | 2.01                     | 0.41              |
| 64:SJ:58:ARG:O     | 64:SJ:62:THR:HG23  | 2.20                     | 0.41              |
| 65:SK:72:THR:O     | 65:SK:76:ILE:HD12  | 2.21                     | 0.41              |
| 73:SS:142:ARG:HD2  | 73:SS:142:ARG:HA   | 1.88                     | 0.41              |
| 4:CP:66:C:H2'      | 4:CP:67:G:C8       | 2.53                     | 0.41              |
| 7:L5:287:U:H2'     | 7:L5:288:G:C8      | 2.55                     | 0.41              |
| 7:L5:1751:A:H2'    | 7:L5:1752:G:C8     | 2.55                     | 0.41              |
| 7:L5:2809:G:O2'    | 7:L5:4644:G:OP1    | 2.37                     | 0.41              |
| 7:L5:3870:C:H2'    | 7:L5:3871:A:C8     | 2.55                     | 0.41              |
| 7:L5:4911:A:OP2    | 11:LB:100:ARG:NE   | 2.53                     | 0.41              |
| 10:LA:54:ARG:HG2   | 10:LA:56:ALA:H     | 1.86                     | 0.41              |
| 11:LB:356:LYS:HE2  | 11:LB:356:LYS:N    | 2.32                     | 0.41              |
| 32:LX:84:GLU:O     | 32:LX:88:LYS:HG2   | 2.20                     | 0.41              |
| 54:S2:96:C:H1'     | 54:S2:474:G:H5'    | 2.01                     | 0.41              |
| 54:S2:670:A:HO2'   | 54:S2:1163:C:HO2'  | 1.68                     | 0.41              |
| 54:S2:798:G:H1'    | 62:SH:108:SER:H    | 1.85                     | 0.41              |
| 54:S2:906:U:H2'    | 54:S2:907:G:H8     | 1.85                     | 0.41              |
| 54:S2:1562:C:H2'   | 54:S2:1563:G:H8    | 1.86                     | 0.41              |
| 57:SC:195:LEU:HD21 | 57:SC:214:LEU:HD21 | 2.02                     | 0.41              |
| 62:SH:98:ARG:HB3   | 62:SH:125:VAL:HG22 | 2.02                     | 0.41              |
| 63:SI:36:THR:HG22  | 63:SI:96:LEU:HD12  | 2.02                     | 0.41              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 69:SO:91:THR:HB    | 69:SO:92:ALA:H     | 1.68                     | 0.41              |
| 74:ST:88:MET:HE3   | 74:ST:88:MET:HB3   | 1.76                     | 0.41              |
| 87:Sg:149:GLU:HG2  | 87:Sg:171:ASP:HB3  | 2.01                     | 0.41              |
| 7:L5:300:A:H2'     | 7:L5:301:G:C8      | 2.54                     | 0.41              |
| 7:L5:1397:A:C8     | 35:La:114:LYS:HD2  | 2.55                     | 0.41              |
| 7:L5:4458:C:H2'    | 7:L5:4459:U:C6     | 2.56                     | 0.41              |
| 15:LF:216:PRO:HB3  | 15:LF:247:MET:HG2  | 2.01                     | 0.41              |
| 18:LI:39:LYS:HE2   | 18:LI:39:LYS:HB2   | 1.98                     | 0.41              |
| 18:LI:115:MET:HE3  | 18:LI:115:MET:HB3  | 1.82                     | 0.41              |
| 30:LV:70:PRO:HA    | 30:LV:73:ARG:HG3   | 2.01                     | 0.41              |
| 43:Li:76:ARG:HD3   | 43:Li:76:ARG:HA    | 1.78                     | 0.41              |
| 45:Lk:23:VAL:HG23  | 45:Lk:64:LEU:HG    | 2.02                     | 0.41              |
| 52:Ls:108:PRO:HA   | 52:Ls:184:SER:HA   | 2.02                     | 0.41              |
| 54:S2:15:U:H2'     | 54:S2:16:G:O4'     | 2.20                     | 0.41              |
| 54:S2:441:C:H2'    | 54:S2:442:C:C6     | 2.55                     | 0.41              |
| 54:S2:866:U:H2'    | 54:S2:867:G:C8     | 2.56                     | 0.41              |
| 56:SB:103:MET:HB3  | 56:SB:215:VAL:HB   | 2.03                     | 0.41              |
| 57:SC:199:PRO:HG2  | 64:SJ:58:ARG:HD3   | 2.03                     | 0.41              |
| 65:SK:76:ILE:HD12  | 65:SK:76:ILE:H     | 1.84                     | 0.41              |
| 69:SO:58:GLY:O     | 69:SO:62:VAL:HG12  | 2.20                     | 0.41              |
| 87:Sg:112:ALA:HB3  | 87:Sg:121:VAL:HG12 | 2.01                     | 0.41              |
| 7:L5:1870:C:H2'    | 7:L5:1871:A:H8     | 1.86                     | 0.41              |
| 7:L5:2106:G:O2'    | 7:L5:2108:G:O4'    | 2.33                     | 0.41              |
| 7:L5:2121:C:H2'    | 7:L5:2122:G:C8     | 2.55                     | 0.41              |
| 7:L5:3607:U:H2'    | 7:L5:3608:A:C8     | 2.55                     | 0.41              |
| 7:L5:3661:G:N2     | 7:L5:3681:G:O2'    | 2.54                     | 0.41              |
| 7:L5:3946:G:H22    | 7:L5:4067:U:H3     | 1.68                     | 0.41              |
| 9:L8:110:U:P       | 46:Ll:8:ARG:HH22   | 2.43                     | 0.41              |
| 11:LB:80:GLU:OE1   | 11:LB:323:TYR:OH   | 2.31                     | 0.41              |
| 13:LD:55:VAL:HG13  | 13:LD:60:ILE:HG12  | 2.02                     | 0.41              |
| 17:LH:43:VAL:HG12  | 17:LH:59:LYS:HD3   | 2.01                     | 0.41              |
| 17:LH:187:VAL:HG12 | 17:LH:188:GLN:H    | 1.84                     | 0.41              |
| 54:S2:551:U:O3'    | 85:Se:39:ASN:ND2   | 2.53                     | 0.41              |
| 54:S2:1451:G:H21   | 54:S2:1474:A:H62   | 1.68                     | 0.41              |
| 61:SG:50:VAL:HG21  | 61:SG:111:LEU:HD13 | 2.02                     | 0.41              |
| 72:SR:10:LYS:O     | 72:SR:14:ARG:HG3   | 2.21                     | 0.41              |
| 86:Sf:126:CYS:HB3  | 86:Sf:144:CYS:SG   | 2.60                     | 0.41              |
| 87:Sg:249:CYS:HA   | 87:Sg:257:LYS:O    | 2.21                     | 0.41              |
| 5:CR:275:LEU:HD23  | 5:CR:275:LEU:HA    | 1.90                     | 0.41              |
| 7:L5:163:A:H2'     | 7:L5:164:G:H8      | 1.86                     | 0.41              |
| 7:L5:2570:U:H2'    | 7:L5:2571:C:C6     | 2.56                     | 0.41              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 7:L5:4070:U:H2'    | 7:L5:4071:U:C6     | 2.56                     | 0.41              |
| 7:L5:4934:A:H2'    | 7:L5:4935:C:C6     | 2.55                     | 0.41              |
| 9:L8:70:G:H22      | 9:L8:87:G:H1'      | 1.85                     | 0.41              |
| 12:LC:33:ARG:HE    | 12:LC:33:ARG:HB3   | 1.57                     | 0.41              |
| 12:LC:175:LYS:HE3  | 12:LC:175:LYS:HB3  | 1.77                     | 0.41              |
| 28:LT:52:MET:HE2   | 28:LT:52:MET:HB2   | 1.85                     | 0.41              |
| 28:LT:158:PHE:HE2  | 28:LT:160:ALA:HB3  | 1.85                     | 0.41              |
| 33:LY:48:PRO:O     | 33:LY:115:ARG:NH1  | 2.52                     | 0.41              |
| 54:S2:146:G:N2     | 54:S2:175:A:H1'    | 2.35                     | 0.41              |
| 54:S2:326:C:O2     | 54:S2:327:G:N2     | 2.53                     | 0.41              |
| 54:S2:367:U:H4'    | 54:S2:371:A:C8     | 2.56                     | 0.41              |
| 54:S2:804:U:H2'    | 54:S2:805:U:C6     | 2.55                     | 0.41              |
| 54:S2:1337:C:H2'   | 54:S2:1338:G:H8    | 1.85                     | 0.41              |
| 60:SF:168:THR:HG1  | 60:SF:171:GLU:CD   | 2.22                     | 0.41              |
| 78:SX:73:GLN:NE2   | 78:SX:78:GLY:O     | 2.53                     | 0.41              |
| 79:SY:41:ARG:HA    | 79:SY:55:ILE:HG21  | 2.02                     | 0.41              |
| 4:CP:37:U:O2'      | 54:S2:1058:A:OP1   | 2.36                     | 0.41              |
| 7:L5:513:U:H3'     | 7:L5:514:U:H4'     | 2.02                     | 0.41              |
| 7:L5:1759:G:H1     | 7:L5:1773:U:H3     | 1.67                     | 0.41              |
| 7:L5:2732:G:H2'    | 7:L5:2733:C:C6     | 2.56                     | 0.41              |
| 7:L5:2884:G:H2'    | 7:L5:2885:A:C8     | 2.56                     | 0.41              |
| 7:L5:3664:G:H2'    | 7:L5:3665:G:C8     | 2.51                     | 0.41              |
| 7:L5:4991:U:H2'    | 7:L5:4992:G:C8     | 2.56                     | 0.41              |
| 7:L5:5018:C:H2'    | 7:L5:5019:A:H8     | 1.86                     | 0.41              |
| 15:LF:184:ILE:HG23 | 15:LF:189:ASP:HB2  | 2.03                     | 0.41              |
| 18:LI:54:SER:HB2   | 18:LI:135:ILE:HD11 | 2.02                     | 0.41              |
| 22:LN:183:THR:HG22 | 22:LN:188:ARG:N    | 2.36                     | 0.41              |
| 23:LO:180:GLN:NE2  | 23:LO:184:ASN:OD1  | 2.54                     | 0.41              |
| 43:Li:42:ASP:OD1   | 43:Li:42:ASP:N     | 2.54                     | 0.41              |
| 45:Lk:8:ILE:O      | 45:Lk:12:LEU:HD22  | 2.21                     | 0.41              |
| 54:S2:1305:C:OP2   | 86:Sf:95:ARG:HD2   | 2.20                     | 0.41              |
| 57:SC:82:TYR:OH    | 57:SC:162:ILE:HG22 | 2.19                     | 0.41              |
| 59:SE:18:TRP:HH2   | 59:SE:31:PRO:HD3   | 1.86                     | 0.41              |
| 67:SM:31:LEU:HD22  | 67:SM:111:VAL:HA   | 2.02                     | 0.41              |
| 5:CR:261:GLU:H     | 5:CR:261:GLU:CD    | 2.29                     | 0.41              |
| 6:CZ:94:PRO:HA     | 6:CZ:95:PRO:HD3    | 1.78                     | 0.41              |
| 7:L5:123:C:H2'     | 7:L5:124:C:H6      | 1.86                     | 0.41              |
| 7:L5:418:A:N6      | 9:L8:16:G:H1'      | 2.36                     | 0.41              |
| 7:L5:475:G:H2'     | 7:L5:476:G:C8      | 2.56                     | 0.41              |
| 7:L5:963:G:P       | 15:LF:32:ARG:HH21  | 2.44                     | 0.41              |
| 7:L5:2099:G:P      | 15:LF:31:LYS:HZ1   | 2.44                     | 0.41              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 7:L5:2516:G:O2'    | 41:Lg:62:LYS:NZ    | 2.54                     | 0.41              |
| 7:L5:2647:A:H3'    | 7:L5:2648:G:H8     | 1.85                     | 0.41              |
| 7:L5:3680:U:OP1    | 10:LA:54:ARG:NH2   | 2.37                     | 0.41              |
| 7:L5:3893:C:H2'    | 7:L5:3894:A:C8     | 2.56                     | 0.41              |
| 7:L5:3910:C:H2'    | 7:L5:3911:C:C6     | 2.55                     | 0.41              |
| 7:L5:4119:C:H5     | 41:Lg:100:GLN:HG2  | 1.86                     | 0.41              |
| 7:L5:4125:C:H5'    | 16:LG:45:ILE:HD12  | 2.02                     | 0.41              |
| 10:LA:33:ASP:OD1   | 10:LA:33:ASP:N     | 2.54                     | 0.41              |
| 11:LB:300:LYS:O    | 11:LB:304:SER:OG   | 2.31                     | 0.41              |
| 12:LC:60:HIS:HA    | 12:LC:92:PHE:HE1   | 1.85                     | 0.41              |
| 12:LC:209:ILE:HB   | 12:LC:229:LEU:HD13 | 2.03                     | 0.41              |
| 17:LH:52:LYS:HA    | 17:LH:52:LYS:HD3   | 1.85                     | 0.41              |
| 17:LH:92:MET:HE3   | 17:LH:181:VAL:HG22 | 2.03                     | 0.41              |
| 17:LH:93:ARG:HD2   | 17:LH:143:GLU:HB3  | 2.03                     | 0.41              |
| 23:LO:181:ALA:O    | 23:LO:185:VAL:HG22 | 2.21                     | 0.41              |
| 26:LR:157:ASP:OD1  | 26:LR:157:ASP:N    | 2.54                     | 0.41              |
| 27:LS:16:CYS:HA    | 27:LS:59:GLY:HA2   | 2.03                     | 0.41              |
| 28:LT:33:ILE:HD13  | 28:LT:33:ILE:HA    | 1.87                     | 0.41              |
| 28:LT:81:LYS:HG3   | 36:Lb:16:TRP:CZ3   | 2.56                     | 0.41              |
| 28:LT:102:ARG:O    | 28:LT:106:LEU:HG   | 2.21                     | 0.41              |
| 44:Lj:64:MET:HE2   | 44:Lj:64:MET:HB3   | 1.78                     | 0.41              |
| 47:Lm:80:PRO:O     | 47:Lm:84:GLN:HG3   | 2.21                     | 0.41              |
| 48:Ln:14:LYS:HE2   | 48:Ln:14:LYS:HB3   | 1.78                     | 0.41              |
| 49:Lo:69:ARG:NH2   | 49:Lo:80:LYS:HD3   | 2.36                     | 0.41              |
| 51:Lr:65:LYS:O     | 51:Lr:102:TYR:OH   | 2.29                     | 0.41              |
| 54:S2:145:G:H1     | 54:S2:175:A:H2     | 1.69                     | 0.41              |
| 54:S2:1284:A:OP1   | 54:S2:1285:G:O2'   | 2.27                     | 0.41              |
| 56:SB:85:LYS:HD3   | 56:SB:85:LYS:HA    | 1.86                     | 0.41              |
| 56:SB:174:ARG:NE   | 56:SB:175:GLU:OE2  | 2.53                     | 0.41              |
| 57:SC:144:SER:OG   | 57:SC:145:LYS:N    | 2.54                     | 0.41              |
| 58:SD:16:ILE:HD11  | 84:Sd:36:LEU:HD23  | 2.03                     | 0.41              |
| 59:SE:123:LEU:HB3  | 59:SE:161:GLN:HA   | 2.03                     | 0.41              |
| 61:SG:176:ILE:H    | 61:SG:176:ILE:HD12 | 1.86                     | 0.41              |
| 61:SG:214:ALA:HA   | 61:SG:217:MET:SD   | 2.61                     | 0.41              |
| 62:SH:87:PHE:HB3   | 62:SH:90:LYS:HE2   | 2.03                     | 0.41              |
| 66:SL:59:LYS:HB2   | 66:SL:112:HIS:CE1  | 2.56                     | 0.41              |
| 72:SR:126:MET:HE2  | 72:SR:128:PHE:CE2  | 2.56                     | 0.41              |
| 74:ST:123:LEU:HD11 | 74:ST:131:LEU:HD22 | 2.02                     | 0.41              |
| 77:SW:42:MET:HE2   | 77:SW:42:MET:HB3   | 1.71                     | 0.41              |
| 7:L5:440:U:O2'     | 40:Lf:91:ASN:O     | 2.31                     | 0.41              |
| 7:L5:493:G:N2      | 7:L5:661:C:O2      | 2.54                     | 0.41              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 7:L5:687:U:C4      | 14:LE:95:PRO:HG2  | 2.56                     | 0.41              |
| 7:L5:1306:C:H2'    | 7:L5:1307:A:C8    | 2.53                     | 0.41              |
| 7:L5:1333:A:H2'    | 7:L5:1334:A:H8    | 1.86                     | 0.41              |
| 7:L5:1524:A:H61    | 7:L5:1651:G:H22   | 1.67                     | 0.41              |
| 7:L5:1786:A:H2'    | 7:L5:1789:C:C5    | 2.56                     | 0.41              |
| 7:L5:2590:G:H22    | 7:L5:2754:G:H2'   | 1.84                     | 0.41              |
| 7:L5:2743:A:H2'    | 7:L5:2744:A:C8    | 2.56                     | 0.41              |
| 7:L5:4742:G:H2'    | 7:L5:4743:G:C8    | 2.55                     | 0.41              |
| 8:L7:4:U:H2'       | 8:L7:5:A:C8       | 2.56                     | 0.41              |
| 8:L7:112:U:H2'     | 8:L7:113:G:H8     | 1.85                     | 0.41              |
| 9:L8:134:G:OP1     | 32:LX:67:ARG:HG2  | 2.21                     | 0.41              |
| 10:LA:48:ILE:HG22  | 50:Lp:54:ILE:HG12 | 2.03                     | 0.41              |
| 11:LB:144:LYS:O    | 11:LB:148:LYS:HG3 | 2.21                     | 0.41              |
| 13:LD:117:LYS:HD3  | 13:LD:117:LYS:HA  | 1.78                     | 0.41              |
| 17:LH:11:ASP:OD1   | 17:LH:11:ASP:N    | 2.54                     | 0.41              |
| 17:LH:14:GLU:OE1   | 17:LH:14:GLU:N    | 2.39                     | 0.41              |
| 23:LO:189:ILE:HD13 | 23:LO:189:ILE:HA  | 1.81                     | 0.41              |
| 54:S2:1113:A:N6    | 54:S2:1120:U:H3   | 2.18                     | 0.41              |
| 54:S2:1256:G:C8    | 84:Sd:40:ARG:HD3  | 2.56                     | 0.41              |
| 57:SC:206:SER:OG   | 57:SC:207:ALA:O   | 2.39                     | 0.41              |
| 61:SG:56:ASN:HD22  | 61:SG:62:PRO:HA   | 1.85                     | 0.41              |
| 64:SJ:119:LEU:HD21 | 64:SJ:158:ASP:HA  | 2.01                     | 0.41              |
| 67:SM:36:ARG:HH11  | 67:SM:36:ARG:HA   | 1.87                     | 0.41              |
| 68:SN:64:ARG:HD3   | 68:SN:70:LYS:HD3  | 2.03                     | 0.41              |
| 71:SQ:21:ALA:HB2   | 71:SQ:72:VAL:HG23 | 2.03                     | 0.41              |
| 80:SZ:58:LEU:HA    | 80:SZ:62:VAL:HG13 | 2.03                     | 0.41              |
| 7:L5:1662:C:H2'    | 7:L5:1663:C:H6    | 1.86                     | 0.40              |
| 7:L5:3911:C:H2'    | 7:L5:3912:U:H6    | 1.87                     | 0.40              |
| 16:LG:105:GLU:OE1  | 16:LG:109:GLU:N   | 2.54                     | 0.40              |
| 18:LI:32:ARG:HA    | 18:LI:32:ARG:NH1  | 2.36                     | 0.40              |
| 26:LR:80:LYS:HD2   | 26:LR:80:LYS:HA   | 1.87                     | 0.40              |
| 34:LZ:109:LYS:HE3  | 34:LZ:109:LYS:HB2 | 1.90                     | 0.40              |
| 42:Lh:82:ASP:OD2   | 42:Lh:82:ASP:N    | 2.54                     | 0.40              |
| 42:Lh:116:LEU:HD12 | 42:Lh:116:LEU:H   | 1.86                     | 0.40              |
| 52:Ls:39:GLN:HE22  | 52:Ls:107:VAL:H   | 1.67                     | 0.40              |
| 52:Ls:57:LYS:O     | 52:Ls:61:MET:HG2  | 2.22                     | 0.40              |
| 54:S2:321:C:H2'    | 54:S2:322:C:C6    | 2.57                     | 0.40              |
| 54:S2:606:G:H8     | 85:Se:58:ASN:HD21 | 1.69                     | 0.40              |
| 54:S2:609:U:H2'    | 54:S2:610:G:H8    | 1.86                     | 0.40              |
| 54:S2:1232:U:H2'   | 54:S2:1233:G:H8   | 1.85                     | 0.40              |
| 54:S2:1673:U:H2'   | 54:S2:1674:G:O4'  | 2.21                     | 0.40              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 58:SD:168:VAL:HA   | 58:SD:188:ILE:O    | 2.21                     | 0.40              |
| 59:SE:189:LEU:HD12 | 59:SE:189:LEU:HA   | 1.86                     | 0.40              |
| 63:SI:174:CYS:HB2  | 63:SI:190:LEU:HD21 | 2.02                     | 0.40              |
| 71:SQ:131:LYS:HB2  | 71:SQ:140:ARG:HH22 | 1.85                     | 0.40              |
| 78:SX:107:ARG:HE   | 78:SX:107:ARG:HB3  | 1.73                     | 0.40              |
| 86:Sf:126:CYS:SG   | 86:Sf:127:GLY:N    | 2.91                     | 0.40              |
| 5:CR:28:ARG:HD3    | 5:CR:28:ARG:HA     | 1.74                     | 0.40              |
| 7:L5:210:C:OP1     | 33:LY:59:ARG:NE    | 2.54                     | 0.40              |
| 7:L5:1351:G:O6     | 25:LQ:55:ARG:NH1   | 2.48                     | 0.40              |
| 7:L5:1921:C:C6     | 27:LS:161:ARG:HD3  | 2.56                     | 0.40              |
| 7:L5:3662:A:P      | 10:LA:156:LYS:HZ1  | 2.44                     | 0.40              |
| 7:L5:4389:C:H2'    | 7:L5:4390:A:C8     | 2.56                     | 0.40              |
| 7:L5:4622:A:H4'    | 11:LB:13:SER:HB2   | 2.04                     | 0.40              |
| 7:L5:4991:U:H2'    | 7:L5:4992:G:H8     | 1.86                     | 0.40              |
| 12:LC:110:ARG:O    | 12:LC:112:HIS:N    | 2.55                     | 0.40              |
| 16:LG:105:GLU:OE1  | 16:LG:110:LYS:N    | 2.34                     | 0.40              |
| 19:LJ:96:LYS:HE2   | 19:LJ:96:LYS:HB3   | 1.80                     | 0.40              |
| 28:LT:107:LYS:HE3  | 28:LT:107:LYS:HB3  | 1.96                     | 0.40              |
| 29:LU:26:THR:HG22  | 29:LU:68:SER:OG    | 2.20                     | 0.40              |
| 29:LU:34:MET:HE3   | 29:LU:34:MET:HB3   | 1.87                     | 0.40              |
| 35:La:72:THR:HG22  | 35:La:110:LYS:HB3  | 2.02                     | 0.40              |
| 42:Lh:113:LEU:HD23 | 42:Lh:113:LEU:HA   | 1.92                     | 0.40              |
| 51:Lr:85:ASN:O     | 51:Lr:89:THR:HG23  | 2.21                     | 0.40              |
| 53:Lt:92:ARG:HD2   | 53:Lt:92:ARG:HA    | 1.80                     | 0.40              |
| 54:S2:150:A:N6     | 54:S2:168:C:C2     | 2.89                     | 0.40              |
| 54:S2:319:C:H2'    | 54:S2:320:G:C8     | 2.56                     | 0.40              |
| 55:SA:77:ILE:HG13  | 55:SA:122:LEU:HD21 | 2.02                     | 0.40              |
| 55:SA:134:LEU:HD23 | 55:SA:134:LEU:HA   | 1.81                     | 0.40              |
| 60:SF:201:LYS:HA   | 60:SF:204:ARG:HG3  | 2.03                     | 0.40              |
| 64:SJ:113:GLN:HG3  | 64:SJ:149:VAL:HG21 | 2.04                     | 0.40              |
| 65:SK:25:LYS:HG2   | 65:SK:67:PHE:CE1   | 2.56                     | 0.40              |
| 71:SQ:100:VAL:HG12 | 71:SQ:101:ASP:H    | 1.86                     | 0.40              |
| 73:SS:13:LEU:HD11  | 73:SS:57:GLY:HA2   | 2.03                     | 0.40              |
| 87:Sg:54:ILE:HD12  | 87:Sg:54:ILE:HA    | 1.96                     | 0.40              |
| 87:Sg:130:LYS:HG2  | 87:Sg:141:THR:HA   | 2.02                     | 0.40              |
| 7:L5:313:U:H5''    | 22:LN:179:LYS:HE2  | 2.04                     | 0.40              |
| 7:L5:375:G:OP2     | 44:Lj:52:LYS:NZ    | 2.44                     | 0.40              |
| 7:L5:1617:G:H1'    | 7:L5:2513:A:N6     | 2.37                     | 0.40              |
| 7:L5:1687:U:H2'    | 7:L5:1688:G:C8     | 2.56                     | 0.40              |
| 7:L5:1961:G:N2     | 7:L5:2024:G:O2'    | 2.53                     | 0.40              |
| 7:L5:4291:G:H8     | 7:L5:4328:G:H2'    | 1.85                     | 0.40              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 12:LC:173:LYS:HA   | 12:LC:173:LYS:HD2  | 1.86                     | 0.40              |
| 14:LE:92:VAL:HG13  | 14:LE:109:LEU:HD11 | 2.02                     | 0.40              |
| 19:LJ:15:LEU:H     | 19:LJ:15:LEU:HD23  | 1.87                     | 0.40              |
| 24:LP:21:ASN:HB3   | 24:LP:122:ALA:HB1  | 2.03                     | 0.40              |
| 32:LX:81:LEU:HD12  | 32:LX:81:LEU:HA    | 1.97                     | 0.40              |
| 54:S2:1649:U:N3    | 54:S2:1675:A:H2    | 2.18                     | 0.40              |
| 60:SF:145:ARG:HB2  | 83:Sc:48:GLY:HA3   | 2.03                     | 0.40              |
| 73:SS:7:GLU:OE1    | 73:SS:10:GLN:NE2   | 2.54                     | 0.40              |
| 86:Sf:132:MET:HE3  | 86:Sf:132:MET:HB3  | 1.91                     | 0.40              |
| 7:L5:92:C:OP2      | 7:L5:4341:C:O2'    | 2.34                     | 0.40              |
| 7:L5:686:A:H5'     | 14:LE:97:GLY:HA3   | 2.03                     | 0.40              |
| 7:L5:1350:C:H2'    | 7:L5:1351:G:C8     | 2.57                     | 0.40              |
| 7:L5:1779:U:H2'    | 7:L5:1780:A:C8     | 2.56                     | 0.40              |
| 7:L5:2375:A:H2'    | 7:L5:2376:A:H8     | 1.87                     | 0.40              |
| 7:L5:2664:G:H4'    | 7:L5:2677:G:H4'    | 2.04                     | 0.40              |
| 7:L5:3893:C:O2'    | 7:L5:4979:A:N1     | 2.52                     | 0.40              |
| 7:L5:4186:A:H2'    | 7:L5:4187:G:C8     | 2.56                     | 0.40              |
| 8:L7:92:C:H2'      | 8:L7:93:G:C8       | 2.57                     | 0.40              |
| 10:LA:124:GLY:O    | 10:LA:128:ARG:NH1  | 2.54                     | 0.40              |
| 10:LA:204:MET:HB3  | 10:LA:208:GLU:HG3  | 2.02                     | 0.40              |
| 11:LB:286:LYS:HE3  | 11:LB:286:LYS:HB2  | 1.82                     | 0.40              |
| 15:LF:199:LYS:H    | 15:LF:199:LYS:HG2  | 1.67                     | 0.40              |
| 18:LI:206:LEU:HD12 | 18:LI:206:LEU:HA   | 1.91                     | 0.40              |
| 27:LS:173:ASN:OD1  | 27:LS:174:THR:N    | 2.55                     | 0.40              |
| 46:LI:41:ARG:HA    | 46:LI:41:ARG:HD2   | 1.91                     | 0.40              |
| 53:Lt:38:SER:O     | 53:Lt:42:VAL:HG23  | 2.22                     | 0.40              |
| 63:SI:160:SER:HA   | 63:SI:163:GLU:HG3  | 2.03                     | 0.40              |
| 68:SN:114:ARG:HA   | 68:SN:114:ARG:HD3  | 1.97                     | 0.40              |
| 86:Sf:114:ILE:HD12 | 86:Sf:114:ILE:HA   | 1.91                     | 0.40              |
| 7:L5:286:U:H2'     | 7:L5:287:U:C6      | 2.57                     | 0.40              |
| 7:L5:1086:C:H2'    | 7:L5:1087:A:C8     | 2.56                     | 0.40              |
| 7:L5:1207:C:H2'    | 7:L5:1208:G:H8     | 1.86                     | 0.40              |
| 7:L5:3722:G:H2'    | 7:L5:3723:A:C8     | 2.55                     | 0.40              |
| 7:L5:3893:C:H2'    | 7:L5:3894:A:H8     | 1.87                     | 0.40              |
| 7:L5:4453:C:H2'    | 7:L5:4454:G:O4'    | 2.22                     | 0.40              |
| 7:L5:4457:U:H1'    | 11:LB:252:ALA:HB3  | 2.03                     | 0.40              |
| 12:LC:16:GLU:OE1   | 12:LC:16:GLU:N     | 2.54                     | 0.40              |
| 12:LC:163:LYS:O    | 12:LC:166:GLU:HG2  | 2.22                     | 0.40              |
| 23:LO:34:VAL:HG22  | 23:LO:103:LYS:HB2  | 2.04                     | 0.40              |
| 24:LP:64:ASN:ND2   | 24:LP:80:GLN:OE1   | 2.38                     | 0.40              |
| 27:LS:4:SER:HB2    | 27:LS:111:ARG:HH12 | 1.86                     | 0.40              |

*Continued on next page...*

Continued from previous page...

| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 40:Lf:43:LEU:HD12 | 40:Lf:43:LEU:HA    | 1.92                     | 0.40              |
| 44:Lj:25:LYS:HE3  | 44:Lj:25:LYS:HB3   | 1.86                     | 0.40              |
| 52:Ls:77:LYS:HZ2  | 52:Ls:77:LYS:HG3   | 1.75                     | 0.40              |
| 54:S2:980:A:H2'   | 54:S2:981:A:C8     | 2.56                     | 0.40              |
| 67:SM:94:ILE:HD11 | 67:SM:98:GLY:HA2   | 2.03                     | 0.40              |
| 74:ST:11:GLN:HA   | 74:ST:14:PHE:HB3   | 2.03                     | 0.40              |
| 86:Sf:126:CYS:SG  | 86:Sf:130:VAL:HG21 | 2.61                     | 0.40              |
| 87:Sg:284:PRO:HB3 | 87:Sg:304:ASP:HB3  | 2.04                     | 0.40              |

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

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

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

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

| Mol | Chain | Analysed      | Favoured  | Allowed | Outliers | Percentiles |     |
|-----|-------|---------------|-----------|---------|----------|-------------|-----|
| 1   | NA    | 64/215 (30%)  | 62 (97%)  | 2 (3%)  | 0        | 100         | 100 |
| 2   | NB    | 103/162 (64%) | 95 (92%)  | 8 (8%)  | 0        | 100         | 100 |
| 5   | CR    | 411/437 (94%) | 402 (98%) | 9 (2%)  | 0        | 100         | 100 |
| 6   | CZ    | 37/95 (39%)   | 33 (89%)  | 4 (11%) | 0        | 100         | 100 |
| 10  | LA    | 246/257 (96%) | 229 (93%) | 17 (7%) | 0        | 100         | 100 |
| 11  | LB    | 393/403 (98%) | 370 (94%) | 23 (6%) | 0        | 100         | 100 |
| 12  | LC    | 362/427 (85%) | 342 (94%) | 19 (5%) | 1 (0%)   | 37          | 46  |
| 13  | LD    | 291/297 (98%) | 276 (95%) | 14 (5%) | 1 (0%)   | 37          | 46  |
| 14  | LE    | 213/288 (74%) | 193 (91%) | 20 (9%) | 0        | 100         | 100 |
| 15  | LF    | 223/248 (90%) | 212 (95%) | 11 (5%) | 0        | 100         | 100 |
| 16  | LG    | 225/266 (85%) | 213 (95%) | 12 (5%) | 0        | 100         | 100 |
| 17  | LH    | 188/192 (98%) | 178 (95%) | 10 (5%) | 0        | 100         | 100 |
| 18  | LI    | 203/214 (95%) | 190 (94%) | 13 (6%) | 0        | 100         | 100 |

Continued on next page...

*Continued from previous page...*

| Mol | Chain | Analysed      | Favoured  | Allowed  | Outliers | Percentiles |     |
|-----|-------|---------------|-----------|----------|----------|-------------|-----|
| 19  | LJ    | 167/178 (94%) | 163 (98%) | 4 (2%)   | 0        | 100         | 100 |
| 20  | LL    | 203/211 (96%) | 191 (94%) | 12 (6%)  | 0        | 100         | 100 |
| 21  | LM    | 137/215 (64%) | 129 (94%) | 8 (6%)   | 0        | 100         | 100 |
| 22  | LN    | 201/204 (98%) | 194 (96%) | 7 (4%)   | 0        | 100         | 100 |
| 23  | LO    | 198/203 (98%) | 195 (98%) | 3 (2%)   | 0        | 100         | 100 |
| 24  | LP    | 151/184 (82%) | 144 (95%) | 7 (5%)   | 0        | 100         | 100 |
| 25  | LQ    | 185/188 (98%) | 182 (98%) | 3 (2%)   | 0        | 100         | 100 |
| 26  | LR    | 174/196 (89%) | 172 (99%) | 2 (1%)   | 0        | 100         | 100 |
| 27  | LS    | 173/176 (98%) | 164 (95%) | 9 (5%)   | 0        | 100         | 100 |
| 28  | LT    | 157/160 (98%) | 147 (94%) | 10 (6%)  | 0        | 100         | 100 |
| 29  | LU    | 99/128 (77%)  | 93 (94%)  | 6 (6%)   | 0        | 100         | 100 |
| 30  | LV    | 129/140 (92%) | 120 (93%) | 9 (7%)   | 0        | 100         | 100 |
| 31  | LW    | 111/157 (71%) | 100 (90%) | 11 (10%) | 0        | 100         | 100 |
| 32  | LX    | 118/156 (76%) | 115 (98%) | 3 (2%)   | 0        | 100         | 100 |
| 33  | LY    | 132/145 (91%) | 126 (96%) | 6 (4%)   | 0        | 100         | 100 |
| 34  | LZ    | 133/136 (98%) | 122 (92%) | 11 (8%)  | 0        | 100         | 100 |
| 35  | La    | 145/148 (98%) | 138 (95%) | 7 (5%)   | 0        | 100         | 100 |
| 36  | Lb    | 73/159 (46%)  | 68 (93%)  | 5 (7%)   | 0        | 100         | 100 |
| 37  | Lc    | 95/115 (83%)  | 93 (98%)  | 2 (2%)   | 0        | 100         | 100 |
| 38  | Ld    | 105/125 (84%) | 104 (99%) | 1 (1%)   | 0        | 100         | 100 |
| 39  | Le    | 126/135 (93%) | 124 (98%) | 2 (2%)   | 0        | 100         | 100 |
| 40  | Lf    | 107/110 (97%) | 102 (95%) | 5 (5%)   | 0        | 100         | 100 |
| 41  | Lg    | 112/117 (96%) | 104 (93%) | 8 (7%)   | 0        | 100         | 100 |
| 42  | Lh    | 119/123 (97%) | 116 (98%) | 3 (2%)   | 0        | 100         | 100 |
| 43  | Li    | 100/105 (95%) | 98 (98%)  | 2 (2%)   | 0        | 100         | 100 |
| 44  | Lj    | 84/97 (87%)   | 80 (95%)  | 4 (5%)   | 0        | 100         | 100 |
| 45  | Lk    | 67/70 (96%)   | 62 (92%)  | 5 (8%)   | 0        | 100         | 100 |
| 46  | Ll    | 48/51 (94%)   | 47 (98%)  | 1 (2%)   | 0        | 100         | 100 |
| 47  | Lm    | 50/128 (39%)  | 50 (100%) | 0        | 0        | 100         | 100 |
| 48  | Ln    | 22/25 (88%)   | 22 (100%) | 0        | 0        | 100         | 100 |
| 49  | Lo    | 103/106 (97%) | 99 (96%)  | 4 (4%)   | 0        | 100         | 100 |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Analysed      | Favoured  | Allowed  | Outliers | Percentiles |     |
|-----|-------|---------------|-----------|----------|----------|-------------|-----|
| 50  | Lp    | 89/92 (97%)   | 82 (92%)  | 7 (8%)   | 0        | 100         | 100 |
| 51  | Lr    | 123/137 (90%) | 116 (94%) | 7 (6%)   | 0        | 100         | 100 |
| 52  | Ls    | 210/317 (66%) | 208 (99%) | 2 (1%)   | 0        | 100         | 100 |
| 53  | Lt    | 158/165 (96%) | 157 (99%) | 1 (1%)   | 0        | 100         | 100 |
| 55  | SA    | 214/295 (72%) | 203 (95%) | 11 (5%)  | 0        | 100         | 100 |
| 56  | SB    | 211/264 (80%) | 206 (98%) | 5 (2%)   | 0        | 100         | 100 |
| 57  | SC    | 217/293 (74%) | 207 (95%) | 10 (5%)  | 0        | 100         | 100 |
| 58  | SD    | 219/243 (90%) | 209 (95%) | 10 (5%)  | 0        | 100         | 100 |
| 59  | SE    | 260/263 (99%) | 252 (97%) | 8 (3%)   | 0        | 100         | 100 |
| 60  | SF    | 177/204 (87%) | 169 (96%) | 7 (4%)   | 1 (1%)   | 22          | 26  |
| 61  | SG    | 229/249 (92%) | 215 (94%) | 13 (6%)  | 1 (0%)   | 30          | 37  |
| 62  | SH    | 179/194 (92%) | 169 (94%) | 10 (6%)  | 0        | 100         | 100 |
| 63  | SI    | 204/208 (98%) | 198 (97%) | 6 (3%)   | 0        | 100         | 100 |
| 64  | SJ    | 177/194 (91%) | 172 (97%) | 5 (3%)   | 0        | 100         | 100 |
| 65  | SK    | 94/165 (57%)  | 88 (94%)  | 6 (6%)   | 0        | 100         | 100 |
| 66  | SL    | 140/158 (89%) | 131 (94%) | 9 (6%)   | 0        | 100         | 100 |
| 67  | SM    | 120/132 (91%) | 111 (92%) | 9 (8%)   | 0        | 100         | 100 |
| 68  | SN    | 148/151 (98%) | 144 (97%) | 4 (3%)   | 0        | 100         | 100 |
| 69  | SO    | 132/151 (87%) | 120 (91%) | 12 (9%)  | 0        | 100         | 100 |
| 70  | SP    | 127/145 (88%) | 121 (95%) | 6 (5%)   | 0        | 100         | 100 |
| 71  | SQ    | 140/146 (96%) | 131 (94%) | 9 (6%)   | 0        | 100         | 100 |
| 72  | SR    | 129/135 (96%) | 111 (86%) | 18 (14%) | 0        | 100         | 100 |
| 73  | SS    | 139/152 (91%) | 120 (86%) | 19 (14%) | 0        | 100         | 100 |
| 74  | ST    | 141/145 (97%) | 135 (96%) | 6 (4%)   | 0        | 100         | 100 |
| 75  | SU    | 99/119 (83%)  | 91 (92%)  | 8 (8%)   | 0        | 100         | 100 |
| 76  | SV    | 81/83 (98%)   | 79 (98%)  | 2 (2%)   | 0        | 100         | 100 |
| 77  | SW    | 127/130 (98%) | 120 (94%) | 7 (6%)   | 0        | 100         | 100 |
| 78  | SX    | 139/143 (97%) | 129 (93%) | 10 (7%)  | 0        | 100         | 100 |
| 79  | SY    | 121/133 (91%) | 115 (95%) | 6 (5%)   | 0        | 100         | 100 |
| 80  | SZ    | 73/125 (58%)  | 66 (90%)  | 7 (10%)  | 0        | 100         | 100 |
| 81  | Sa    | 97/115 (84%)  | 89 (92%)  | 8 (8%)   | 0        | 100         | 100 |

*Continued on next page...*

Continued from previous page...

| Mol | Chain | Analysed          | Favoured    | Allowed  | Outliers | Percentiles |     |
|-----|-------|-------------------|-------------|----------|----------|-------------|-----|
| 82  | Sb    | 81/84 (96%)       | 72 (89%)    | 9 (11%)  | 0        | 100         | 100 |
| 83  | Sc    | 61/69 (88%)       | 54 (88%)    | 7 (12%)  | 0        | 100         | 100 |
| 84  | Sd    | 51/56 (91%)       | 51 (100%)   | 0        | 0        | 100         | 100 |
| 85  | Se    | 53/133 (40%)      | 51 (96%)    | 2 (4%)   | 0        | 100         | 100 |
| 86  | Sf    | 61/156 (39%)      | 53 (87%)    | 7 (12%)  | 1 (2%)   | 8           | 7   |
| 87  | Sg    | 304/317 (96%)     | 268 (88%)   | 36 (12%) | 0        | 100         | 100 |
| All | All   | 12108/14153 (86%) | 11472 (95%) | 631 (5%) | 5 (0%)   | 100         | 100 |

All (5) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 60  | SF    | 80  | GLY  |
| 12  | LC    | 111 | TRP  |
| 86  | Sf    | 128 | ALA  |
| 13  | LD    | 59  | ASP  |
| 61  | SG    | 33  | ALA  |

### 5.3.2 Protein sidechains ⓘ

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

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

| Mol | Chain | Analysed      | Rotameric | Outliers | Percentiles |     |
|-----|-------|---------------|-----------|----------|-------------|-----|
| 1   | NA    | 59/183 (32%)  | 59 (100%) | 0        | 100         | 100 |
| 2   | NB    | 89/136 (65%)  | 86 (97%)  | 3 (3%)   | 32          | 46  |
| 5   | CR    | 356/375 (95%) | 351 (99%) | 5 (1%)   | 62          | 77  |
| 6   | CZ    | 25/83 (30%)   | 25 (100%) | 0        | 100         | 100 |
| 10  | LA    | 190/199 (96%) | 184 (97%) | 6 (3%)   | 34          | 48  |
| 11  | LB    | 343/349 (98%) | 338 (98%) | 5 (2%)   | 60          | 75  |
| 12  | LC    | 299/348 (86%) | 296 (99%) | 3 (1%)   | 73          | 84  |
| 13  | LD    | 241/250 (96%) | 238 (99%) | 3 (1%)   | 67          | 80  |
| 14  | LE    | 191/252 (76%) | 184 (96%) | 7 (4%)   | 29          | 42  |

Continued on next page...

*Continued from previous page...*

| Mol | Chain | Analysed      | Rotameric  | Outliers | Percentiles |     |
|-----|-------|---------------|------------|----------|-------------|-----|
| 15  | LF    | 194/215 (90%) | 193 (100%) | 1 (0%)   | 86          | 93  |
| 16  | LG    | 188/223 (84%) | 185 (98%)  | 3 (2%)   | 58          | 73  |
| 17  | LH    | 167/171 (98%) | 161 (96%)  | 6 (4%)   | 30          | 43  |
| 18  | LI    | 174/181 (96%) | 171 (98%)  | 3 (2%)   | 56          | 71  |
| 19  | LJ    | 136/149 (91%) | 134 (98%)  | 2 (2%)   | 60          | 75  |
| 20  | LL    | 164/177 (93%) | 161 (98%)  | 3 (2%)   | 54          | 70  |
| 21  | LM    | 114/161 (71%) | 112 (98%)  | 2 (2%)   | 54          | 70  |
| 22  | LN    | 171/172 (99%) | 167 (98%)  | 4 (2%)   | 45          | 62  |
| 23  | LO    | 170/174 (98%) | 163 (96%)  | 7 (4%)   | 26          | 38  |
| 24  | LP    | 132/163 (81%) | 131 (99%)  | 1 (1%)   | 79          | 88  |
| 25  | LQ    | 161/165 (98%) | 160 (99%)  | 1 (1%)   | 84          | 92  |
| 26  | LR    | 150/175 (86%) | 149 (99%)  | 1 (1%)   | 81          | 90  |
| 27  | LS    | 156/157 (99%) | 155 (99%)  | 1 (1%)   | 84          | 92  |
| 28  | LT    | 135/140 (96%) | 131 (97%)  | 4 (3%)   | 36          | 51  |
| 29  | LU    | 86/115 (75%)  | 81 (94%)   | 5 (6%)   | 17          | 23  |
| 30  | LV    | 99/107 (92%)  | 95 (96%)   | 4 (4%)   | 27          | 39  |
| 31  | LW    | 61/126 (48%)  | 59 (97%)   | 2 (3%)   | 33          | 47  |
| 32  | LX    | 107/133 (80%) | 106 (99%)  | 1 (1%)   | 75          | 86  |
| 33  | LY    | 123/135 (91%) | 123 (100%) | 0        | 100         | 100 |
| 34  | LZ    | 117/118 (99%) | 112 (96%)  | 5 (4%)   | 25          | 35  |
| 35  | La    | 118/121 (98%) | 116 (98%)  | 2 (2%)   | 56          | 71  |
| 36  | Lb    | 59/126 (47%)  | 59 (100%)  | 0        | 100         | 100 |
| 37  | Lc    | 79/97 (81%)   | 76 (96%)   | 3 (4%)   | 28          | 41  |
| 38  | Ld    | 94/110 (86%)  | 92 (98%)   | 2 (2%)   | 48          | 65  |
| 39  | Le    | 113/121 (93%) | 111 (98%)  | 2 (2%)   | 54          | 70  |
| 40  | Lf    | 87/89 (98%)   | 86 (99%)   | 1 (1%)   | 70          | 83  |
| 41  | Lg    | 93/100 (93%)  | 91 (98%)   | 2 (2%)   | 47          | 63  |
| 42  | Lh    | 108/110 (98%) | 108 (100%) | 0        | 100         | 100 |
| 43  | Li    | 81/89 (91%)   | 79 (98%)   | 2 (2%)   | 42          | 59  |
| 44  | Lj    | 73/80 (91%)   | 73 (100%)  | 0        | 100         | 100 |
| 45  | Lk    | 57/65 (88%)   | 53 (93%)   | 4 (7%)   | 12          | 16  |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Analysed      | Rotameric | Outliers | Percentiles |     |
|-----|-------|---------------|-----------|----------|-------------|-----|
| 46  | Ll    | 47/48 (98%)   | 46 (98%)  | 1 (2%)   | 48          | 65  |
| 47  | Lm    | 47/116 (40%)  | 46 (98%)  | 1 (2%)   | 48          | 65  |
| 48  | Ln    | 23/24 (96%)   | 23 (100%) | 0        | 100         | 100 |
| 49  | Lo    | 93/94 (99%)   | 91 (98%)  | 2 (2%)   | 47          | 63  |
| 50  | Lp    | 71/75 (95%)   | 71 (100%) | 0        | 100         | 100 |
| 51  | Lr    | 107/121 (88%) | 104 (97%) | 3 (3%)   | 38          | 54  |
| 52  | Ls    | 180/258 (70%) | 174 (97%) | 6 (3%)   | 33          | 47  |
| 53  | Lt    | 132/137 (96%) | 124 (94%) | 8 (6%)   | 15          | 21  |
| 55  | SA    | 170/243 (70%) | 165 (97%) | 5 (3%)   | 37          | 52  |
| 56  | SB    | 191/231 (83%) | 189 (99%) | 2 (1%)   | 73          | 84  |
| 57  | SC    | 175/225 (78%) | 174 (99%) | 1 (1%)   | 84          | 92  |
| 58  | SD    | 148/202 (73%) | 146 (99%) | 2 (1%)   | 62          | 77  |
| 59  | SE    | 196/225 (87%) | 191 (97%) | 5 (3%)   | 41          | 57  |
| 60  | SF    | 142/170 (84%) | 141 (99%) | 1 (1%)   | 81          | 90  |
| 61  | SG    | 138/218 (63%) | 134 (97%) | 4 (3%)   | 37          | 52  |
| 62  | SH    | 109/174 (63%) | 106 (97%) | 3 (3%)   | 38          | 54  |
| 63  | SI    | 149/180 (83%) | 144 (97%) | 5 (3%)   | 32          | 46  |
| 64  | SJ    | 143/168 (85%) | 141 (99%) | 2 (1%)   | 62          | 77  |
| 65  | SK    | 65/136 (48%)  | 60 (92%)  | 5 (8%)   | 10          | 13  |
| 66  | SL    | 121/142 (85%) | 118 (98%) | 3 (2%)   | 42          | 59  |
| 67  | SM    | 104/108 (96%) | 99 (95%)  | 5 (5%)   | 21          | 31  |
| 68  | SN    | 123/131 (94%) | 120 (98%) | 3 (2%)   | 44          | 60  |
| 69  | SO    | 95/119 (80%)  | 92 (97%)  | 3 (3%)   | 34          | 48  |
| 70  | SP    | 98/130 (75%)  | 92 (94%)  | 6 (6%)   | 15          | 21  |
| 71  | SQ    | 103/121 (85%) | 100 (97%) | 3 (3%)   | 37          | 52  |
| 72  | SR    | 84/122 (69%)  | 82 (98%)  | 2 (2%)   | 44          | 60  |
| 73  | SS    | 112/132 (85%) | 108 (96%) | 4 (4%)   | 30          | 43  |
| 74  | ST    | 105/115 (91%) | 98 (93%)  | 7 (7%)   | 13          | 18  |
| 75  | SU    | 68/107 (64%)  | 67 (98%)  | 1 (2%)   | 60          | 75  |
| 76  | SV    | 62/67 (92%)   | 62 (100%) | 0        | 100         | 100 |
| 77  | SW    | 110/113 (97%) | 108 (98%) | 2 (2%)   | 54          | 70  |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Analysed         | Rotameric  | Outliers | Percentiles |     |
|-----|-------|------------------|------------|----------|-------------|-----|
| 78  | SX    | 109/115 (95%)    | 105 (96%)  | 4 (4%)   | 29          | 42  |
| 79  | SY    | 86/115 (75%)     | 82 (95%)   | 4 (5%)   | 22          | 32  |
| 80  | SZ    | 56/103 (54%)     | 54 (96%)   | 2 (4%)   | 30          | 43  |
| 81  | Sa    | 83/98 (85%)      | 80 (96%)   | 3 (4%)   | 30          | 43  |
| 82  | Sb    | 65/76 (86%)      | 61 (94%)   | 4 (6%)   | 15          | 21  |
| 83  | Sc    | 51/62 (82%)      | 46 (90%)   | 5 (10%)  | 6           | 7   |
| 84  | Sd    | 44/49 (90%)      | 43 (98%)   | 1 (2%)   | 45          | 62  |
| 85  | Se    | 39/104 (38%)     | 39 (100%)  | 0        | 100         | 100 |
| 86  | Sf    | 56/140 (40%)     | 54 (96%)   | 2 (4%)   | 30          | 43  |
| 87  | Sg    | 201/275 (73%)    | 192 (96%)  | 9 (4%)   | 23          | 34  |
| All | All   | 9861/12029 (82%) | 9626 (98%) | 235 (2%) | 45          | 60  |

All (235) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2   | NB    | 10  | LYS  |
| 2   | NB    | 14  | LEU  |
| 2   | NB    | 53  | VAL  |
| 5   | CR    | 120 | ILE  |
| 5   | CR    | 210 | VAL  |
| 5   | CR    | 232 | PHE  |
| 5   | CR    | 328 | ILE  |
| 5   | CR    | 409 | ILE  |
| 10  | LA    | 28  | ARG  |
| 10  | LA    | 32  | VAL  |
| 10  | LA    | 102 | LEU  |
| 10  | LA    | 123 | ARG  |
| 10  | LA    | 207 | VAL  |
| 10  | LA    | 208 | GLU  |
| 11  | LB    | 38  | SER  |
| 11  | LB    | 73  | VAL  |
| 11  | LB    | 95  | THR  |
| 11  | LB    | 159 | VAL  |
| 11  | LB    | 392 | LEU  |
| 12  | LC    | 1   | MET  |
| 12  | LC    | 188 | ARG  |
| 12  | LC    | 319 | LEU  |
| 13  | LD    | 75  | VAL  |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 13  | LD    | 194 | VAL  |
| 13  | LD    | 291 | GLN  |
| 14  | LE    | 51  | VAL  |
| 14  | LE    | 91  | THR  |
| 14  | LE    | 106 | VAL  |
| 14  | LE    | 107 | VAL  |
| 14  | LE    | 128 | HIS  |
| 14  | LE    | 175 | VAL  |
| 14  | LE    | 184 | VAL  |
| 15  | LF    | 83  | VAL  |
| 16  | LG    | 55  | VAL  |
| 16  | LG    | 207 | VAL  |
| 16  | LG    | 241 | VAL  |
| 17  | LH    | 11  | ASP  |
| 17  | LH    | 16  | VAL  |
| 17  | LH    | 46  | SER  |
| 17  | LH    | 47  | LEU  |
| 17  | LH    | 111 | LEU  |
| 17  | LH    | 161 | ILE  |
| 18  | LI    | 31  | ILE  |
| 18  | LI    | 43  | VAL  |
| 18  | LI    | 125 | THR  |
| 19  | LJ    | 15  | LEU  |
| 19  | LJ    | 66  | GLU  |
| 20  | LL    | 70  | VAL  |
| 20  | LL    | 139 | SER  |
| 20  | LL    | 159 | ASN  |
| 21  | LM    | 25  | VAL  |
| 21  | LM    | 130 | LEU  |
| 22  | LN    | 18  | VAL  |
| 22  | LN    | 89  | VAL  |
| 22  | LN    | 151 | ILE  |
| 22  | LN    | 182 | HIS  |
| 23  | LO    | 36  | VAL  |
| 23  | LO    | 49  | ARG  |
| 23  | LO    | 119 | VAL  |
| 23  | LO    | 127 | VAL  |
| 23  | LO    | 129 | LEU  |
| 23  | LO    | 166 | ILE  |
| 23  | LO    | 189 | ILE  |
| 24  | LP    | 21  | ASN  |
| 25  | LQ    | 160 | HIS  |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 26  | LR    | 14  | VAL  |
| 27  | LS    | 124 | ILE  |
| 28  | LT    | 29  | THR  |
| 28  | LT    | 72  | VAL  |
| 28  | LT    | 76  | VAL  |
| 28  | LT    | 104 | SER  |
| 29  | LU    | 25  | CYS  |
| 29  | LU    | 35  | ASP  |
| 29  | LU    | 66  | SER  |
| 29  | LU    | 83  | LEU  |
| 29  | LU    | 96  | LEU  |
| 30  | LV    | 22  | VAL  |
| 30  | LV    | 72  | LEU  |
| 30  | LV    | 96  | LEU  |
| 30  | LV    | 134 | SER  |
| 31  | LW    | 48  | GLN  |
| 31  | LW    | 104 | GLN  |
| 32  | LX    | 91  | GLU  |
| 34  | LZ    | 5   | MET  |
| 34  | LZ    | 26  | VAL  |
| 34  | LZ    | 30  | ASP  |
| 34  | LZ    | 53  | VAL  |
| 34  | LZ    | 66  | SER  |
| 35  | La    | 125 | LYS  |
| 35  | La    | 140 | VAL  |
| 37  | Lc    | 28  | VAL  |
| 37  | Lc    | 45  | LEU  |
| 37  | Lc    | 93  | THR  |
| 38  | Ld    | 26  | THR  |
| 38  | Ld    | 46  | LEU  |
| 39  | Le    | 94  | SER  |
| 39  | Le    | 117 | GLN  |
| 40  | Lf    | 67  | THR  |
| 41  | Lg    | 38  | VAL  |
| 41  | Lg    | 53  | LEU  |
| 43  | Li    | 4   | ARG  |
| 43  | Li    | 86  | LYS  |
| 45  | Lk    | 10  | ASP  |
| 45  | Lk    | 12  | LEU  |
| 45  | Lk    | 36  | VAL  |
| 45  | Lk    | 58  | GLN  |
| 46  | Ll    | 25  | GLN  |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 47  | Lm    | 99  | CYS  |
| 49  | Lo    | 63  | THR  |
| 49  | Lo    | 92  | GLU  |
| 51  | Lr    | 21  | ASN  |
| 51  | Lr    | 78  | VAL  |
| 51  | Lr    | 80  | THR  |
| 52  | Ls    | 35  | VAL  |
| 52  | Ls    | 54  | LEU  |
| 52  | Ls    | 69  | LEU  |
| 52  | Ls    | 130 | LEU  |
| 52  | Ls    | 163 | THR  |
| 52  | Ls    | 192 | VAL  |
| 53  | Lt    | 6   | ASP  |
| 53  | Lt    | 26  | SER  |
| 53  | Lt    | 44  | ASP  |
| 53  | Lt    | 45  | ASP  |
| 53  | Lt    | 74  | VAL  |
| 53  | Lt    | 115 | GLN  |
| 53  | Lt    | 125 | LEU  |
| 53  | Lt    | 143 | VAL  |
| 55  | SA    | 81  | ASN  |
| 55  | SA    | 111 | GLN  |
| 55  | SA    | 154 | LEU  |
| 55  | SA    | 157 | VAL  |
| 55  | SA    | 197 | VAL  |
| 56  | SB    | 55  | THR  |
| 56  | SB    | 98  | THR  |
| 57  | SC    | 90  | GLU  |
| 58  | SD    | 94  | ARG  |
| 58  | SD    | 226 | GLN  |
| 59  | SE    | 26  | VAL  |
| 59  | SE    | 111 | VAL  |
| 59  | SE    | 112 | HIS  |
| 59  | SE    | 123 | LEU  |
| 59  | SE    | 208 | VAL  |
| 60  | SF    | 104 | THR  |
| 61  | SG    | 26  | THR  |
| 61  | SG    | 127 | THR  |
| 61  | SG    | 171 | THR  |
| 61  | SG    | 199 | THR  |
| 62  | SH    | 21  | SER  |
| 62  | SH    | 66  | VAL  |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 62  | SH    | 165 | ASN  |
| 63  | SI    | 73  | THR  |
| 63  | SI    | 88  | ASN  |
| 63  | SI    | 159 | SER  |
| 63  | SI    | 167 | GLN  |
| 63  | SI    | 191 | GLU  |
| 64  | SJ    | 128 | VAL  |
| 64  | SJ    | 160 | SER  |
| 65  | SK    | 3   | MET  |
| 65  | SK    | 24  | LYS  |
| 65  | SK    | 43  | LEU  |
| 65  | SK    | 58  | VAL  |
| 65  | SK    | 60  | GLU  |
| 66  | SL    | 67  | SER  |
| 66  | SL    | 83  | GLN  |
| 66  | SL    | 120 | VAL  |
| 67  | SM    | 21  | VAL  |
| 67  | SM    | 49  | LEU  |
| 67  | SM    | 64  | LEU  |
| 67  | SM    | 89  | VAL  |
| 67  | SM    | 127 | TYR  |
| 68  | SN    | 13  | GLN  |
| 68  | SN    | 31  | ASP  |
| 68  | SN    | 134 | VAL  |
| 69  | SO    | 67  | ASP  |
| 69  | SO    | 90  | ILE  |
| 69  | SO    | 105 | THR  |
| 70  | SP    | 23  | ASP  |
| 70  | SP    | 24  | GLN  |
| 70  | SP    | 37  | TYR  |
| 70  | SP    | 56  | LEU  |
| 70  | SP    | 77  | LYS  |
| 70  | SP    | 89  | MET  |
| 71  | SQ    | 32  | ILE  |
| 71  | SQ    | 34  | VAL  |
| 71  | SQ    | 46  | THR  |
| 72  | SR    | 43  | SER  |
| 72  | SR    | 108 | LEU  |
| 73  | SS    | 50  | ILE  |
| 73  | SS    | 83  | PHE  |
| 73  | SS    | 104 | ASP  |
| 73  | SS    | 145 | THR  |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 74  | ST    | 4   | VAL  |
| 74  | ST    | 51  | ASN  |
| 74  | ST    | 87  | VAL  |
| 74  | ST    | 90  | SER  |
| 74  | ST    | 110 | LEU  |
| 74  | ST    | 112 | MET  |
| 74  | ST    | 113 | VAL  |
| 75  | SU    | 91  | LEU  |
| 77  | SW    | 43  | LYS  |
| 77  | SW    | 74  | VAL  |
| 78  | SX    | 26  | GLN  |
| 78  | SX    | 123 | VAL  |
| 78  | SX    | 125 | VAL  |
| 78  | SX    | 131 | LEU  |
| 79  | SY    | 26  | ASP  |
| 79  | SY    | 78  | SER  |
| 79  | SY    | 106 | GLN  |
| 79  | SY    | 120 | THR  |
| 80  | SZ    | 67  | LEU  |
| 80  | SZ    | 113 | THR  |
| 81  | Sa    | 2   | THR  |
| 81  | Sa    | 50  | VAL  |
| 81  | Sa    | 96  | THR  |
| 82  | Sb    | 44  | THR  |
| 82  | Sb    | 45  | THR  |
| 82  | Sb    | 55  | LEU  |
| 82  | Sb    | 74  | THR  |
| 83  | Sc    | 14  | VAL  |
| 83  | Sc    | 21  | THR  |
| 83  | Sc    | 45  | ASN  |
| 83  | Sc    | 50  | VAL  |
| 83  | Sc    | 57  | THR  |
| 84  | Sd    | 6   | LEU  |
| 86  | Sf    | 98  | VAL  |
| 86  | Sf    | 141 | CYS  |
| 87  | Sg    | 4   | GLN  |
| 87  | Sg    | 131 | LEU  |
| 87  | Sg    | 137 | VAL  |
| 87  | Sg    | 141 | THR  |
| 87  | Sg    | 174 | VAL  |
| 87  | Sg    | 186 | THR  |
| 87  | Sg    | 220 | ASP  |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 87  | Sg    | 248 | LEU  |
| 87  | Sg    | 285 | GLN  |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (97) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2   | NB    | 7   | ASN  |
| 2   | NB    | 8   | GLN  |
| 2   | NB    | 34  | HIS  |
| 2   | NB    | 45  | GLN  |
| 2   | NB    | 76  | ASN  |
| 2   | NB    | 80  | GLN  |
| 5   | CR    | 79  | GLN  |
| 6   | CZ    | 65  | ASN  |
| 10  | LA    | 38  | HIS  |
| 10  | LA    | 205 | ASN  |
| 11  | LB    | 184 | GLN  |
| 12  | LC    | 38  | ASN  |
| 12  | LC    | 43  | ASN  |
| 12  | LC    | 61  | GLN  |
| 12  | LC    | 89  | GLN  |
| 12  | LC    | 215 | ASN  |
| 12  | LC    | 329 | ASN  |
| 12  | LC    | 347 | HIS  |
| 13  | LD    | 111 | ASN  |
| 13  | LD    | 131 | ASN  |
| 13  | LD    | 202 | GLN  |
| 13  | LD    | 229 | ASN  |
| 14  | LE    | 128 | HIS  |
| 15  | LF    | 151 | ASN  |
| 15  | LF    | 192 | HIS  |
| 16  | LG    | 38  | ASN  |
| 16  | LG    | 43  | GLN  |
| 17  | LH    | 39  | ASN  |
| 17  | LH    | 98  | HIS  |
| 17  | LH    | 169 | ASN  |
| 18  | LI    | 100 | ASN  |
| 19  | LJ    | 71  | HIS  |
| 21  | LM    | 20  | HIS  |
| 21  | LM    | 66  | HIS  |
| 21  | LM    | 131 | GLN  |
| 23  | LO    | 50  | ASN  |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 23  | LO    | 167 | HIS  |
| 23  | LO    | 180 | GLN  |
| 24  | LP    | 21  | ASN  |
| 24  | LP    | 133 | HIS  |
| 26  | LR    | 40  | GLN  |
| 26  | LR    | 121 | HIS  |
| 30  | LV    | 27  | ASN  |
| 33  | LY    | 14  | ASN  |
| 33  | LY    | 18  | HIS  |
| 33  | LY    | 66  | GLN  |
| 33  | LY    | 96  | HIS  |
| 34  | LZ    | 127 | ASN  |
| 36  | Lb    | 6   | ASN  |
| 36  | Lb    | 19  | ASN  |
| 37  | Lc    | 15  | ASN  |
| 37  | Lc    | 19  | GLN  |
| 37  | Lc    | 50  | ASN  |
| 40  | Lf    | 80  | ASN  |
| 42  | Lh    | 20  | GLN  |
| 42  | Lh    | 65  | GLN  |
| 42  | Lh    | 108 | GLN  |
| 44  | Lj    | 13  | ASN  |
| 44  | Lj    | 30  | GLN  |
| 46  | Ll    | 4   | HIS  |
| 49  | Lo    | 76  | ASN  |
| 50  | Lp    | 56  | HIS  |
| 51  | Lr    | 36  | ASN  |
| 52  | Ls    | 41  | GLN  |
| 52  | Ls    | 68  | HIS  |
| 52  | Ls    | 159 | GLN  |
| 53  | Lt    | 8   | ASN  |
| 53  | Lt    | 142 | ASN  |
| 56  | SB    | 95  | ASN  |
| 56  | SB    | 158 | HIS  |
| 57  | SC    | 115 | GLN  |
| 60  | SF    | 110 | GLN  |
| 60  | SF    | 149 | GLN  |
| 62  | SH    | 114 | GLN  |
| 62  | SH    | 168 | HIS  |
| 63  | SI    | 52  | ASN  |
| 64  | SJ    | 154 | GLN  |
| 66  | SL    | 11  | GLN  |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 66  | SL    | 18  | GLN  |
| 66  | SL    | 83  | GLN  |
| 66  | SL    | 94  | HIS  |
| 66  | SL    | 141 | ASN  |
| 68  | SN    | 69  | ASN  |
| 69  | SO    | 38  | ASN  |
| 71  | SQ    | 80  | GLN  |
| 71  | SQ    | 142 | GLN  |
| 73  | SS    | 42  | HIS  |
| 74  | ST    | 128 | GLN  |
| 78  | SX    | 127 | ASN  |
| 79  | SY    | 22  | GLN  |
| 79  | SY    | 85  | ASN  |
| 82  | Sb    | 51  | GLN  |
| 83  | Sc    | 7   | GLN  |
| 83  | Sc    | 29  | GLN  |
| 86  | Sf    | 139 | HIS  |
| 87  | Sg    | 62  | HIS  |
| 87  | Sg    | 237 | ASN  |

### 5.3.3 RNA ⓘ

| Mol | Chain | Analysed        | Backbone Outliers | Pucker Outliers |
|-----|-------|-----------------|-------------------|-----------------|
| 3   | CM    | 11/586 (1%)     | 2 (18%)           | 0               |
| 4   | CP    | 74/75 (98%)     | 23 (31%)          | 2 (2%)          |
| 54  | S2    | 1704/1869 (91%) | 465 (27%)         | 17 (0%)         |
| 7   | L5    | 3633/5070 (71%) | 737 (20%)         | 14 (0%)         |
| 8   | L7    | 119/121 (98%)   | 12 (10%)          | 0               |
| 9   | L8    | 155/157 (98%)   | 26 (16%)          | 1 (0%)          |
| All | All   | 5696/7878 (72%) | 1265 (22%)        | 34 (0%)         |

All (1265) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3   | CM    | 439 | C    |
| 3   | CM    | 444 | U    |
| 4   | CP    | 2   | G    |
| 4   | CP    | 4   | U    |
| 4   | CP    | 5   | C    |
| 4   | CP    | 6   | G    |
| 4   | CP    | 8   | U    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 4   | CP    | 9   | G    |
| 4   | CP    | 15  | G    |
| 4   | CP    | 16  | G    |
| 4   | CP    | 17  | G    |
| 4   | CP    | 19  | U    |
| 4   | CP    | 22  | G    |
| 4   | CP    | 46  | U    |
| 4   | CP    | 49  | C    |
| 4   | CP    | 50  | G    |
| 4   | CP    | 57  | A    |
| 4   | CP    | 58  | A    |
| 4   | CP    | 61  | C    |
| 4   | CP    | 68  | A    |
| 4   | CP    | 69  | G    |
| 4   | CP    | 70  | C    |
| 4   | CP    | 72  | C    |
| 4   | CP    | 73  | C    |
| 4   | CP    | 75  | A    |
| 7   | L5    | 17  | A    |
| 7   | L5    | 21  | G    |
| 7   | L5    | 30  | C    |
| 7   | L5    | 39  | A    |
| 7   | L5    | 42  | A    |
| 7   | L5    | 48  | G    |
| 7   | L5    | 56  | A    |
| 7   | L5    | 59  | A    |
| 7   | L5    | 64  | A    |
| 7   | L5    | 65  | A    |
| 7   | L5    | 69  | A    |
| 7   | L5    | 73  | A    |
| 7   | L5    | 91  | G    |
| 7   | L5    | 104 | G    |
| 7   | L5    | 108 | A    |
| 7   | L5    | 109 | G    |
| 7   | L5    | 110 | C    |
| 7   | L5    | 116 | G    |
| 7   | L5    | 117 | C    |
| 7   | L5    | 119 | G    |
| 7   | L5    | 120 | A    |
| 7   | L5    | 133 | C    |
| 7   | L5    | 134 | G    |
| 7   | L5    | 135 | G    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 7   | L5    | 136 | C    |
| 7   | L5    | 137 | G    |
| 7   | L5    | 143 | C    |
| 7   | L5    | 144 | G    |
| 7   | L5    | 152 | U    |
| 7   | L5    | 159 | C    |
| 7   | L5    | 165 | A    |
| 7   | L5    | 172 | C    |
| 7   | L5    | 180 | C    |
| 7   | L5    | 183 | C    |
| 7   | L5    | 184 | U    |
| 7   | L5    | 185 | C    |
| 7   | L5    | 188 | G    |
| 7   | L5    | 189 | G    |
| 7   | L5    | 200 | U    |
| 7   | L5    | 209 | U    |
| 7   | L5    | 210 | C    |
| 7   | L5    | 216 | C    |
| 7   | L5    | 217 | C    |
| 7   | L5    | 218 | A    |
| 7   | L5    | 233 | U    |
| 7   | L5    | 234 | G    |
| 7   | L5    | 254 | G    |
| 7   | L5    | 255 | C    |
| 7   | L5    | 261 | G    |
| 7   | L5    | 266 | C    |
| 7   | L5    | 267 | G    |
| 7   | L5    | 269 | G    |
| 7   | L5    | 280 | G    |
| 7   | L5    | 297 | U    |
| 7   | L5    | 306 | A    |
| 7   | L5    | 315 | G    |
| 7   | L5    | 316 | U    |
| 7   | L5    | 340 | C    |
| 7   | L5    | 350 | C    |
| 7   | L5    | 387 | G    |
| 7   | L5    | 388 | A    |
| 7   | L5    | 399 | G    |
| 7   | L5    | 401 | G    |
| 7   | L5    | 407 | A    |
| 7   | L5    | 409 | G    |
| 7   | L5    | 410 | A    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 7   | L5    | 411 | G    |
| 7   | L5    | 412 | G    |
| 7   | L5    | 440 | U    |
| 7   | L5    | 449 | C    |
| 7   | L5    | 450 | G    |
| 7   | L5    | 452 | A    |
| 7   | L5    | 453 | G    |
| 7   | L5    | 454 | U    |
| 7   | L5    | 456 | C    |
| 7   | L5    | 457 | G    |
| 7   | L5    | 461 | G    |
| 7   | L5    | 467 | U    |
| 7   | L5    | 474 | C    |
| 7   | L5    | 485 | C    |
| 7   | L5    | 486 | C    |
| 7   | L5    | 489 | C    |
| 7   | L5    | 493 | G    |
| 7   | L5    | 494 | U    |
| 7   | L5    | 497 | G    |
| 7   | L5    | 498 | C    |
| 7   | L5    | 500 | G    |
| 7   | L5    | 501 | C    |
| 7   | L5    | 502 | C    |
| 7   | L5    | 503 | C    |
| 7   | L5    | 504 | G    |
| 7   | L5    | 505 | G    |
| 7   | L5    | 509 | A    |
| 7   | L5    | 510 | U    |
| 7   | L5    | 512 | U    |
| 7   | L5    | 513 | U    |
| 7   | L5    | 514 | U    |
| 7   | L5    | 517 | C    |
| 7   | L5    | 518 | G    |
| 7   | L5    | 643 | C    |
| 7   | L5    | 644 | G    |
| 7   | L5    | 646 | G    |
| 7   | L5    | 654 | C    |
| 7   | L5    | 655 | C    |
| 7   | L5    | 656 | C    |
| 7   | L5    | 657 | C    |
| 7   | L5    | 658 | C    |
| 7   | L5    | 660 | A    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 7   | L5    | 666 | G    |
| 7   | L5    | 667 | A    |
| 7   | L5    | 668 | C    |
| 7   | L5    | 669 | C    |
| 7   | L5    | 673 | C    |
| 7   | L5    | 674 | G    |
| 7   | L5    | 675 | C    |
| 7   | L5    | 676 | C    |
| 7   | L5    | 686 | A    |
| 7   | L5    | 687 | U    |
| 7   | L5    | 688 | U    |
| 7   | L5    | 692 | A    |
| 7   | L5    | 696 | C    |
| 7   | L5    | 697 | G    |
| 7   | L5    | 703 | G    |
| 7   | L5    | 704 | C    |
| 7   | L5    | 706 | C    |
| 7   | L5    | 708 | G    |
| 7   | L5    | 730 | G    |
| 7   | L5    | 731 | G    |
| 7   | L5    | 738 | C    |
| 7   | L5    | 739 | G    |
| 7   | L5    | 740 | G    |
| 7   | L5    | 742 | G    |
| 7   | L5    | 746 | A    |
| 7   | L5    | 753 | C    |
| 7   | L5    | 758 | G    |
| 7   | L5    | 759 | G    |
| 7   | L5    | 905 | C    |
| 7   | L5    | 907 | C    |
| 7   | L5    | 912 | G    |
| 7   | L5    | 913 | U    |
| 7   | L5    | 914 | U    |
| 7   | L5    | 915 | A    |
| 7   | L5    | 916 | C    |
| 7   | L5    | 917 | A    |
| 7   | L5    | 918 | G    |
| 7   | L5    | 923 | C    |
| 7   | L5    | 924 | C    |
| 7   | L5    | 926 | G    |
| 7   | L5    | 929 | A    |
| 7   | L5    | 932 | A    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 7   | L5    | 933  | G    |
| 7   | L5    | 941  | C    |
| 7   | L5    | 943  | A    |
| 7   | L5    | 944  | A    |
| 7   | L5    | 945  | U    |
| 7   | L5    | 946  | C    |
| 7   | L5    | 956  | A    |
| 7   | L5    | 959  | G    |
| 7   | L5    | 960  | A    |
| 7   | L5    | 961  | G    |
| 7   | L5    | 962  | C    |
| 7   | L5    | 965  | G    |
| 7   | L5    | 966  | A    |
| 7   | L5    | 967  | C    |
| 7   | L5    | 968  | C    |
| 7   | L5    | 970  | G    |
| 7   | L5    | 972  | C    |
| 7   | L5    | 984  | C    |
| 7   | L5    | 988  | C    |
| 7   | L5    | 989  | U    |
| 7   | L5    | 990  | C    |
| 7   | L5    | 991  | C    |
| 7   | L5    | 992  | C    |
| 7   | L5    | 993  | G    |
| 7   | L5    | 1069 | G    |
| 7   | L5    | 1070 | G    |
| 7   | L5    | 1075 | G    |
| 7   | L5    | 1083 | U    |
| 7   | L5    | 1168 | G    |
| 7   | L5    | 1171 | G    |
| 7   | L5    | 1173 | G    |
| 7   | L5    | 1178 | G    |
| 7   | L5    | 1179 | U    |
| 7   | L5    | 1180 | C    |
| 7   | L5    | 1181 | C    |
| 7   | L5    | 1182 | C    |
| 7   | L5    | 1183 | C    |
| 7   | L5    | 1184 | A    |
| 7   | L5    | 1187 | G    |
| 7   | L5    | 1193 | C    |
| 7   | L5    | 1196 | G    |
| 7   | L5    | 1202 | C    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 7   | L5    | 1203 | G    |
| 7   | L5    | 1205 | G    |
| 7   | L5    | 1209 | U    |
| 7   | L5    | 1211 | G    |
| 7   | L5    | 1214 | C    |
| 7   | L5    | 1215 | C    |
| 7   | L5    | 1220 | G    |
| 7   | L5    | 1235 | G    |
| 7   | L5    | 1238 | A    |
| 7   | L5    | 1241 | C    |
| 7   | L5    | 1253 | G    |
| 7   | L5    | 1258 | G    |
| 7   | L5    | 1259 | G    |
| 7   | L5    | 1260 | G    |
| 7   | L5    | 1266 | G    |
| 7   | L5    | 1269 | G    |
| 7   | L5    | 1270 | A    |
| 7   | L5    | 1271 | G    |
| 7   | L5    | 1272 | C    |
| 7   | L5    | 1273 | G    |
| 7   | L5    | 1274 | A    |
| 7   | L5    | 1275 | G    |
| 7   | L5    | 1277 | G    |
| 7   | L5    | 1280 | C    |
| 7   | L5    | 1284 | G    |
| 7   | L5    | 1287 | G    |
| 7   | L5    | 1293 | G    |
| 7   | L5    | 1294 | A    |
| 7   | L5    | 1295 | C    |
| 7   | L5    | 1296 | G    |
| 7   | L5    | 1301 | C    |
| 7   | L5    | 1303 | A    |
| 7   | L5    | 1304 | C    |
| 7   | L5    | 1326 | A    |
| 7   | L5    | 1337 | A    |
| 7   | L5    | 1344 | C    |
| 7   | L5    | 1354 | A    |
| 7   | L5    | 1358 | G    |
| 7   | L5    | 1359 | G    |
| 7   | L5    | 1365 | C    |
| 7   | L5    | 1366 | G    |
| 7   | L5    | 1378 | C    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 7   | L5    | 1379 | C    |
| 7   | L5    | 1387 | A    |
| 7   | L5    | 1393 | G    |
| 7   | L5    | 1394 | G    |
| 7   | L5    | 1397 | A    |
| 7   | L5    | 1403 | G    |
| 7   | L5    | 1404 | G    |
| 7   | L5    | 1405 | C    |
| 7   | L5    | 1408 | G    |
| 7   | L5    | 1410 | U    |
| 7   | L5    | 1411 | C    |
| 7   | L5    | 1420 | A    |
| 7   | L5    | 1435 | G    |
| 7   | L5    | 1437 | C    |
| 7   | L5    | 1439 | C    |
| 7   | L5    | 1441 | C    |
| 7   | L5    | 1442 | C    |
| 7   | L5    | 1443 | A    |
| 7   | L5    | 1444 | G    |
| 7   | L5    | 1447 | C    |
| 7   | L5    | 1454 | G    |
| 7   | L5    | 1457 | G    |
| 7   | L5    | 1465 | G    |
| 7   | L5    | 1480 | C    |
| 7   | L5    | 1483 | C    |
| 7   | L5    | 1497 | A    |
| 7   | L5    | 1498 | G    |
| 7   | L5    | 1502 | G    |
| 7   | L5    | 1514 | U    |
| 7   | L5    | 1534 | A    |
| 7   | L5    | 1547 | A    |
| 7   | L5    | 1566 | C    |
| 7   | L5    | 1578 | U    |
| 7   | L5    | 1591 | U    |
| 7   | L5    | 1596 | U    |
| 7   | L5    | 1624 | G    |
| 7   | L5    | 1625 | G    |
| 7   | L5    | 1631 | A    |
| 7   | L5    | 1633 | G    |
| 7   | L5    | 1634 | A    |
| 7   | L5    | 1640 | C    |
| 7   | L5    | 1641 | G    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 7   | L5    | 1642 | A    |
| 7   | L5    | 1654 | G    |
| 7   | L5    | 1661 | C    |
| 7   | L5    | 1676 | C    |
| 7   | L5    | 1677 | U    |
| 7   | L5    | 1685 | G    |
| 7   | L5    | 1694 | C    |
| 7   | L5    | 1697 | G    |
| 7   | L5    | 1699 | A    |
| 7   | L5    | 1700 | G    |
| 7   | L5    | 1704 | C    |
| 7   | L5    | 1705 | G    |
| 7   | L5    | 1707 | C    |
| 7   | L5    | 1731 | C    |
| 7   | L5    | 1734 | G    |
| 7   | L5    | 1742 | A    |
| 7   | L5    | 1750 | G    |
| 7   | L5    | 1753 | G    |
| 7   | L5    | 1756 | U    |
| 7   | L5    | 1758 | G    |
| 7   | L5    | 1760 | G    |
| 7   | L5    | 1765 | A    |
| 7   | L5    | 1767 | A    |
| 7   | L5    | 1787 | A    |
| 7   | L5    | 1803 | G    |
| 7   | L5    | 1804 | A    |
| 7   | L5    | 1806 | G    |
| 7   | L5    | 1810 | G    |
| 7   | L5    | 1815 | G    |
| 7   | L5    | 1820 | C    |
| 7   | L5    | 1821 | G    |
| 7   | L5    | 1822 | U    |
| 7   | L5    | 1834 | U    |
| 7   | L5    | 1836 | G    |
| 7   | L5    | 1837 | A    |
| 7   | L5    | 1842 | G    |
| 7   | L5    | 1855 | G    |
| 7   | L5    | 1869 | G    |
| 7   | L5    | 1891 | A    |
| 7   | L5    | 1897 | A    |
| 7   | L5    | 1912 | G    |
| 7   | L5    | 1918 | U    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 7   | L5    | 1919 | G    |
| 7   | L5    | 1920 | C    |
| 7   | L5    | 1921 | C    |
| 7   | L5    | 1922 | G    |
| 7   | L5    | 1924 | C    |
| 7   | L5    | 1931 | C    |
| 7   | L5    | 1932 | A    |
| 7   | L5    | 1936 | C    |
| 7   | L5    | 1940 | G    |
| 7   | L5    | 1948 | G    |
| 7   | L5    | 1949 | U    |
| 7   | L5    | 1962 | A    |
| 7   | L5    | 1965 | G    |
| 7   | L5    | 1976 | G    |
| 7   | L5    | 1979 | A    |
| 7   | L5    | 1980 | U    |
| 7   | L5    | 1981 | G    |
| 7   | L5    | 1983 | A    |
| 7   | L5    | 1984 | A    |
| 7   | L5    | 1985 | G    |
| 7   | L5    | 1986 | U    |
| 7   | L5    | 1987 | C    |
| 7   | L5    | 1997 | U    |
| 7   | L5    | 1999 | A    |
| 7   | L5    | 2001 | G    |
| 7   | L5    | 2002 | A    |
| 7   | L5    | 2004 | U    |
| 7   | L5    | 2007 | G    |
| 7   | L5    | 2016 | C    |
| 7   | L5    | 2017 | A    |
| 7   | L5    | 2018 | C    |
| 7   | L5    | 2024 | G    |
| 7   | L5    | 2025 | A    |
| 7   | L5    | 2026 | A    |
| 7   | L5    | 2046 | G    |
| 7   | L5    | 2048 | U    |
| 7   | L5    | 2055 | G    |
| 7   | L5    | 2056 | G    |
| 7   | L5    | 2069 | A    |
| 7   | L5    | 2084 | C    |
| 7   | L5    | 2085 | G    |
| 7   | L5    | 2092 | G    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 7   | L5    | 2095 | A    |
| 7   | L5    | 2098 | G    |
| 7   | L5    | 2101 | C    |
| 7   | L5    | 2103 | G    |
| 7   | L5    | 2106 | G    |
| 7   | L5    | 2107 | C    |
| 7   | L5    | 2108 | G    |
| 7   | L5    | 2116 | C    |
| 7   | L5    | 2117 | G    |
| 7   | L5    | 2118 | G    |
| 7   | L5    | 2119 | C    |
| 7   | L5    | 2120 | G    |
| 7   | L5    | 2121 | C    |
| 7   | L5    | 2123 | C    |
| 7   | L5    | 2250 | C    |
| 7   | L5    | 2252 | G    |
| 7   | L5    | 2253 | A    |
| 7   | L5    | 2254 | G    |
| 7   | L5    | 2255 | C    |
| 7   | L5    | 2256 | C    |
| 7   | L5    | 2257 | C    |
| 7   | L5    | 2258 | C    |
| 7   | L5    | 2269 | C    |
| 7   | L5    | 2289 | C    |
| 7   | L5    | 2300 | A    |
| 7   | L5    | 2301 | G    |
| 7   | L5    | 2313 | A    |
| 7   | L5    | 2316 | G    |
| 7   | L5    | 2333 | G    |
| 7   | L5    | 2348 | G    |
| 7   | L5    | 2351 | C    |
| 7   | L5    | 2360 | A    |
| 7   | L5    | 2395 | A    |
| 7   | L5    | 2397 | G    |
| 7   | L5    | 2417 | A    |
| 7   | L5    | 2421 | G    |
| 7   | L5    | 2422 | C    |
| 7   | L5    | 2424 | G    |
| 7   | L5    | 2425 | U    |
| 7   | L5    | 2441 | C    |
| 7   | L5    | 2450 | G    |
| 7   | L5    | 2453 | A    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 7   | L5    | 2464 | C    |
| 7   | L5    | 2465 | C    |
| 7   | L5    | 2475 | G    |
| 7   | L5    | 2483 | G    |
| 7   | L5    | 2484 | A    |
| 7   | L5    | 2487 | G    |
| 7   | L5    | 2488 | C    |
| 7   | L5    | 2489 | C    |
| 7   | L5    | 2490 | U    |
| 7   | L5    | 2491 | C    |
| 7   | L5    | 2493 | G    |
| 7   | L5    | 2503 | G    |
| 7   | L5    | 2504 | C    |
| 7   | L5    | 2505 | C    |
| 7   | L5    | 2506 | G    |
| 7   | L5    | 2513 | A    |
| 7   | L5    | 2519 | U    |
| 7   | L5    | 2520 | C    |
| 7   | L5    | 2537 | A    |
| 7   | L5    | 2544 | G    |
| 7   | L5    | 2545 | U    |
| 7   | L5    | 2546 | G    |
| 7   | L5    | 2547 | G    |
| 7   | L5    | 2554 | U    |
| 7   | L5    | 2555 | G    |
| 7   | L5    | 2567 | G    |
| 7   | L5    | 2573 | A    |
| 7   | L5    | 2583 | C    |
| 7   | L5    | 2587 | A    |
| 7   | L5    | 2589 | C    |
| 7   | L5    | 2601 | A    |
| 7   | L5    | 2618 | G    |
| 7   | L5    | 2627 | C    |
| 7   | L5    | 2653 | C    |
| 7   | L5    | 2662 | G    |
| 7   | L5    | 2669 | C    |
| 7   | L5    | 2676 | A    |
| 7   | L5    | 2687 | U    |
| 7   | L5    | 2694 | G    |
| 7   | L5    | 2695 | A    |
| 7   | L5    | 2696 | A    |
| 7   | L5    | 2703 | G    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 7   | L5    | 2710 | C    |
| 7   | L5    | 2711 | G    |
| 7   | L5    | 2721 | G    |
| 7   | L5    | 2724 | G    |
| 7   | L5    | 2726 | G    |
| 7   | L5    | 2739 | C    |
| 7   | L5    | 2742 | G    |
| 7   | L5    | 2743 | A    |
| 7   | L5    | 2754 | G    |
| 7   | L5    | 2759 | G    |
| 7   | L5    | 2761 | U    |
| 7   | L5    | 2763 | U    |
| 7   | L5    | 2764 | A    |
| 7   | L5    | 2769 | U    |
| 7   | L5    | 2770 | C    |
| 7   | L5    | 2788 | U    |
| 7   | L5    | 2790 | U    |
| 7   | L5    | 2814 | C    |
| 7   | L5    | 2815 | A    |
| 7   | L5    | 2826 | U    |
| 7   | L5    | 2827 | G    |
| 7   | L5    | 2838 | G    |
| 7   | L5    | 2842 | G    |
| 7   | L5    | 2848 | G    |
| 7   | L5    | 2855 | G    |
| 7   | L5    | 2856 | C    |
| 7   | L5    | 2877 | G    |
| 7   | L5    | 2890 | C    |
| 7   | L5    | 2891 | U    |
| 7   | L5    | 2894 | A    |
| 7   | L5    | 2896 | G    |
| 7   | L5    | 2897 | G    |
| 7   | L5    | 2900 | U    |
| 7   | L5    | 2902 | G    |
| 7   | L5    | 2903 | G    |
| 7   | L5    | 2904 | U    |
| 7   | L5    | 2905 | C    |
| 7   | L5    | 2906 | G    |
| 7   | L5    | 2907 | G    |
| 7   | L5    | 2908 | U    |
| 7   | L5    | 3585 | G    |
| 7   | L5    | 3586 | G    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 7   | L5    | 3588 | C    |
| 7   | L5    | 3591 | C    |
| 7   | L5    | 3593 | C    |
| 7   | L5    | 3594 | C    |
| 7   | L5    | 3595 | U    |
| 7   | L5    | 3596 | A    |
| 7   | L5    | 3597 | G    |
| 7   | L5    | 3604 | A    |
| 7   | L5    | 3605 | C    |
| 7   | L5    | 3606 | U    |
| 7   | L5    | 3615 | G    |
| 7   | L5    | 3618 | C    |
| 7   | L5    | 3626 | G    |
| 7   | L5    | 3630 | A    |
| 7   | L5    | 3635 | A    |
| 7   | L5    | 3644 | U    |
| 7   | L5    | 3646 | A    |
| 7   | L5    | 3648 | A    |
| 7   | L5    | 3662 | A    |
| 7   | L5    | 3664 | G    |
| 7   | L5    | 3673 | C    |
| 7   | L5    | 3674 | G    |
| 7   | L5    | 3685 | C    |
| 7   | L5    | 3692 | A    |
| 7   | L5    | 3711 | A    |
| 7   | L5    | 3713 | U    |
| 7   | L5    | 3727 | A    |
| 7   | L5    | 3735 | G    |
| 7   | L5    | 3736 | A    |
| 7   | L5    | 3748 | A    |
| 7   | L5    | 3750 | G    |
| 7   | L5    | 3753 | G    |
| 7   | L5    | 3760 | A    |
| 7   | L5    | 3761 | C    |
| 7   | L5    | 3771 | C    |
| 7   | L5    | 3776 | G    |
| 7   | L5    | 3777 | G    |
| 7   | L5    | 3784 | A    |
| 7   | L5    | 3786 | U    |
| 7   | L5    | 3810 | C    |
| 7   | L5    | 3812 | C    |
| 7   | L5    | 3814 | U    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 7   | L5    | 3817 | A    |
| 7   | L5    | 3818 | U    |
| 7   | L5    | 3819 | G    |
| 7   | L5    | 3823 | G    |
| 7   | L5    | 3838 | U    |
| 7   | L5    | 3839 | G    |
| 7   | L5    | 3840 | U    |
| 7   | L5    | 3867 | A    |
| 7   | L5    | 3877 | A    |
| 7   | L5    | 3878 | C    |
| 7   | L5    | 3879 | G    |
| 7   | L5    | 3885 | G    |
| 7   | L5    | 3892 | U    |
| 7   | L5    | 3897 | G    |
| 7   | L5    | 3901 | A    |
| 7   | L5    | 3905 | A    |
| 7   | L5    | 3906 | A    |
| 7   | L5    | 3907 | G    |
| 7   | L5    | 3908 | A    |
| 7   | L5    | 3915 | U    |
| 7   | L5    | 3926 | C    |
| 7   | L5    | 3942 | A    |
| 7   | L5    | 3943 | A    |
| 7   | L5    | 3947 | A    |
| 7   | L5    | 3949 | A    |
| 7   | L5    | 4064 | C    |
| 7   | L5    | 4065 | G    |
| 7   | L5    | 4076 | G    |
| 7   | L5    | 4084 | G    |
| 7   | L5    | 4097 | G    |
| 7   | L5    | 4099 | G    |
| 7   | L5    | 4102 | C    |
| 7   | L5    | 4104 | G    |
| 7   | L5    | 4107 | G    |
| 7   | L5    | 4113 | U    |
| 7   | L5    | 4114 | C    |
| 7   | L5    | 4115 | G    |
| 7   | L5    | 4116 | C    |
| 7   | L5    | 4119 | C    |
| 7   | L5    | 4122 | G    |
| 7   | L5    | 4128 | A    |
| 7   | L5    | 4131 | G    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 7   | L5    | 4135 | G    |
| 7   | L5    | 4137 | C    |
| 7   | L5    | 4138 | C    |
| 7   | L5    | 4140 | C    |
| 7   | L5    | 4141 | G    |
| 7   | L5    | 4142 | C    |
| 7   | L5    | 4143 | G    |
| 7   | L5    | 4145 | C    |
| 7   | L5    | 4149 | C    |
| 7   | L5    | 4150 | G    |
| 7   | L5    | 4154 | G    |
| 7   | L5    | 4155 | C    |
| 7   | L5    | 4157 | A    |
| 7   | L5    | 4160 | C    |
| 7   | L5    | 4162 | C    |
| 7   | L5    | 4163 | U    |
| 7   | L5    | 4170 | A    |
| 7   | L5    | 4183 | G    |
| 7   | L5    | 4184 | G    |
| 7   | L5    | 4191 | G    |
| 7   | L5    | 4203 | A    |
| 7   | L5    | 4222 | G    |
| 7   | L5    | 4225 | G    |
| 7   | L5    | 4229 | U    |
| 7   | L5    | 4233 | A    |
| 7   | L5    | 4249 | G    |
| 7   | L5    | 4251 | A    |
| 7   | L5    | 4254 | G    |
| 7   | L5    | 4268 | A    |
| 7   | L5    | 4273 | A    |
| 7   | L5    | 4281 | A    |
| 7   | L5    | 4291 | G    |
| 7   | L5    | 4296 | U    |
| 7   | L5    | 4297 | G    |
| 7   | L5    | 4304 | A    |
| 7   | L5    | 4305 | G    |
| 7   | L5    | 4314 | C    |
| 7   | L5    | 4319 | C    |
| 7   | L5    | 4326 | G    |
| 7   | L5    | 4329 | G    |
| 7   | L5    | 4330 | G    |
| 7   | L5    | 4332 | C    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 7   | L5    | 4349 | C    |
| 7   | L5    | 4354 | U    |
| 7   | L5    | 4373 | G    |
| 7   | L5    | 4377 | G    |
| 7   | L5    | 4378 | A    |
| 7   | L5    | 4379 | A    |
| 7   | L5    | 4387 | C    |
| 7   | L5    | 4391 | G    |
| 7   | L5    | 4394 | A    |
| 7   | L5    | 4422 | A    |
| 7   | L5    | 4426 | C    |
| 7   | L5    | 4433 | G    |
| 7   | L5    | 4437 | U    |
| 7   | L5    | 4438 | U    |
| 7   | L5    | 4444 | C    |
| 7   | L5    | 4448 | G    |
| 7   | L5    | 4449 | A    |
| 7   | L5    | 4453 | C    |
| 7   | L5    | 4464 | A    |
| 7   | L5    | 4466 | C    |
| 7   | L5    | 4500 | U    |
| 7   | L5    | 4512 | U    |
| 7   | L5    | 4513 | A    |
| 7   | L5    | 4518 | A    |
| 7   | L5    | 4519 | C    |
| 7   | L5    | 4524 | G    |
| 7   | L5    | 4548 | A    |
| 7   | L5    | 4549 | G    |
| 7   | L5    | 4554 | G    |
| 7   | L5    | 4560 | C    |
| 7   | L5    | 4567 | G    |
| 7   | L5    | 4573 | G    |
| 7   | L5    | 4575 | G    |
| 7   | L5    | 4584 | A    |
| 7   | L5    | 4590 | A    |
| 7   | L5    | 4600 | G    |
| 7   | L5    | 4601 | U    |
| 7   | L5    | 4617 | G    |
| 7   | L5    | 4627 | U    |
| 7   | L5    | 4635 | A    |
| 7   | L5    | 4636 | U    |
| 7   | L5    | 4637 | G    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 7   | L5    | 4638 | U    |
| 7   | L5    | 4639 | G    |
| 7   | L5    | 4652 | G    |
| 7   | L5    | 4656 | A    |
| 7   | L5    | 4670 | C    |
| 7   | L5    | 4672 | A    |
| 7   | L5    | 4687 | A    |
| 7   | L5    | 4700 | A    |
| 7   | L5    | 4708 | A    |
| 7   | L5    | 4709 | U    |
| 7   | L5    | 4719 | G    |
| 7   | L5    | 4732 | G    |
| 7   | L5    | 4733 | C    |
| 7   | L5    | 4734 | A    |
| 7   | L5    | 4740 | G    |
| 7   | L5    | 4741 | C    |
| 7   | L5    | 4742 | G    |
| 7   | L5    | 4745 | G    |
| 7   | L5    | 4754 | G    |
| 7   | L5    | 4757 | C    |
| 7   | L5    | 4759 | C    |
| 7   | L5    | 4761 | G    |
| 7   | L5    | 4765 | G    |
| 7   | L5    | 4771 | C    |
| 7   | L5    | 4772 | C    |
| 7   | L5    | 4773 | C    |
| 7   | L5    | 4775 | C    |
| 7   | L5    | 4860 | G    |
| 7   | L5    | 4868 | G    |
| 7   | L5    | 4870 | G    |
| 7   | L5    | 4871 | C    |
| 7   | L5    | 4875 | G    |
| 7   | L5    | 4880 | C    |
| 7   | L5    | 4881 | U    |
| 7   | L5    | 4882 | U    |
| 7   | L5    | 4883 | C    |
| 7   | L5    | 4889 | G    |
| 7   | L5    | 4894 | A    |
| 7   | L5    | 4895 | C    |
| 7   | L5    | 4896 | G    |
| 7   | L5    | 4900 | C    |
| 7   | L5    | 4901 | G    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 7   | L5    | 4910 | G    |
| 7   | L5    | 4912 | G    |
| 7   | L5    | 4914 | C    |
| 7   | L5    | 4925 | U    |
| 7   | L5    | 4927 | G    |
| 7   | L5    | 4931 | G    |
| 7   | L5    | 4934 | A    |
| 7   | L5    | 4937 | C    |
| 7   | L5    | 4940 | C    |
| 7   | L5    | 4941 | G    |
| 7   | L5    | 4943 | A    |
| 7   | L5    | 4955 | A    |
| 7   | L5    | 4960 | G    |
| 7   | L5    | 4963 | G    |
| 7   | L5    | 4966 | A    |
| 7   | L5    | 4976 | U    |
| 7   | L5    | 4988 | U    |
| 7   | L5    | 4989 | U    |
| 7   | L5    | 4990 | C    |
| 7   | L5    | 4991 | U    |
| 7   | L5    | 4995 | U    |
| 7   | L5    | 5007 | A    |
| 7   | L5    | 5009 | G    |
| 7   | L5    | 5014 | A    |
| 7   | L5    | 5017 | G    |
| 7   | L5    | 5022 | U    |
| 7   | L5    | 5023 | C    |
| 7   | L5    | 5024 | C    |
| 7   | L5    | 5025 | C    |
| 7   | L5    | 5026 | U    |
| 7   | L5    | 5028 | G    |
| 7   | L5    | 5029 | C    |
| 7   | L5    | 5030 | U    |
| 7   | L5    | 5031 | G    |
| 7   | L5    | 5034 | A    |
| 7   | L5    | 5041 | G    |
| 7   | L5    | 5050 | C    |
| 7   | L5    | 5054 | C    |
| 7   | L5    | 5055 | G    |
| 7   | L5    | 5062 | G    |
| 7   | L5    | 5069 | U    |
| 8   | L7    | 23   | A    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 8   | L7    | 33  | U    |
| 8   | L7    | 53  | U    |
| 8   | L7    | 54  | A    |
| 8   | L7    | 63  | C    |
| 8   | L7    | 64  | G    |
| 8   | L7    | 97  | G    |
| 8   | L7    | 100 | A    |
| 8   | L7    | 102 | U    |
| 8   | L7    | 111 | C    |
| 8   | L7    | 117 | G    |
| 8   | L7    | 120 | U    |
| 9   | L8    | 16  | G    |
| 9   | L8    | 34  | U    |
| 9   | L8    | 35  | C    |
| 9   | L8    | 48  | A    |
| 9   | L8    | 59  | A    |
| 9   | L8    | 63  | U    |
| 9   | L8    | 80  | A    |
| 9   | L8    | 82  | A    |
| 9   | L8    | 83  | C    |
| 9   | L8    | 84  | A    |
| 9   | L8    | 86  | U    |
| 9   | L8    | 87  | G    |
| 9   | L8    | 88  | A    |
| 9   | L8    | 94  | G    |
| 9   | L8    | 103 | A    |
| 9   | L8    | 105 | C    |
| 9   | L8    | 110 | U    |
| 9   | L8    | 111 | U    |
| 9   | L8    | 114 | G    |
| 9   | L8    | 124 | U    |
| 9   | L8    | 125 | C    |
| 9   | L8    | 126 | C    |
| 9   | L8    | 127 | U    |
| 9   | L8    | 150 | C    |
| 9   | L8    | 151 | G    |
| 9   | L8    | 153 | C    |
| 54  | S2    | 7   | G    |
| 54  | S2    | 27  | A    |
| 54  | S2    | 33  | G    |
| 54  | S2    | 41  | G    |
| 54  | S2    | 44  | U    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 54  | S2    | 45  | A    |
| 54  | S2    | 46  | A    |
| 54  | S2    | 56  | G    |
| 54  | S2    | 58  | C    |
| 54  | S2    | 59  | U    |
| 54  | S2    | 62  | G    |
| 54  | S2    | 66  | G    |
| 54  | S2    | 67  | C    |
| 54  | S2    | 68  | A    |
| 54  | S2    | 70  | G    |
| 54  | S2    | 71  | G    |
| 54  | S2    | 72  | C    |
| 54  | S2    | 73  | C    |
| 54  | S2    | 75  | G    |
| 54  | S2    | 76  | U    |
| 54  | S2    | 80  | G    |
| 54  | S2    | 84  | A    |
| 54  | S2    | 85  | A    |
| 54  | S2    | 86  | C    |
| 54  | S2    | 101 | U    |
| 54  | S2    | 103 | A    |
| 54  | S2    | 113 | G    |
| 54  | S2    | 114 | G    |
| 54  | S2    | 121 | U    |
| 54  | S2    | 126 | G    |
| 54  | S2    | 127 | C    |
| 54  | S2    | 128 | U    |
| 54  | S2    | 130 | G    |
| 54  | S2    | 143 | U    |
| 54  | S2    | 144 | U    |
| 54  | S2    | 145 | G    |
| 54  | S2    | 149 | A    |
| 54  | S2    | 150 | A    |
| 54  | S2    | 151 | C    |
| 54  | S2    | 155 | G    |
| 54  | S2    | 160 | U    |
| 54  | S2    | 161 | U    |
| 54  | S2    | 162 | C    |
| 54  | S2    | 163 | U    |
| 54  | S2    | 167 | G    |
| 54  | S2    | 168 | C    |
| 54  | S2    | 170 | A    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 54  | S2    | 179 | C    |
| 54  | S2    | 182 | C    |
| 54  | S2    | 184 | G    |
| 54  | S2    | 198 | U    |
| 54  | S2    | 207 | G    |
| 54  | S2    | 210 | U    |
| 54  | S2    | 214 | U    |
| 54  | S2    | 219 | U    |
| 54  | S2    | 290 | U    |
| 54  | S2    | 291 | G    |
| 54  | S2    | 293 | C    |
| 54  | S2    | 295 | C    |
| 54  | S2    | 302 | A    |
| 54  | S2    | 306 | C    |
| 54  | S2    | 308 | G    |
| 54  | S2    | 309 | G    |
| 54  | S2    | 310 | C    |
| 54  | S2    | 311 | C    |
| 54  | S2    | 312 | G    |
| 54  | S2    | 313 | A    |
| 54  | S2    | 319 | C    |
| 54  | S2    | 322 | C    |
| 54  | S2    | 323 | C    |
| 54  | S2    | 324 | C    |
| 54  | S2    | 325 | C    |
| 54  | S2    | 326 | C    |
| 54  | S2    | 328 | U    |
| 54  | S2    | 329 | G    |
| 54  | S2    | 332 | G    |
| 54  | S2    | 335 | G    |
| 54  | S2    | 340 | C    |
| 54  | S2    | 347 | G    |
| 54  | S2    | 351 | G    |
| 54  | S2    | 360 | A    |
| 54  | S2    | 362 | C    |
| 54  | S2    | 364 | A    |
| 54  | S2    | 368 | U    |
| 54  | S2    | 370 | G    |
| 54  | S2    | 380 | G    |
| 54  | S2    | 381 | C    |
| 54  | S2    | 385 | G    |
| 54  | S2    | 386 | C    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 54  | S2    | 398 | A    |
| 54  | S2    | 400 | C    |
| 54  | S2    | 409 | C    |
| 54  | S2    | 413 | G    |
| 54  | S2    | 438 | G    |
| 54  | S2    | 448 | A    |
| 54  | S2    | 449 | A    |
| 54  | S2    | 450 | C    |
| 54  | S2    | 452 | G    |
| 54  | S2    | 462 | C    |
| 54  | S2    | 464 | A    |
| 54  | S2    | 465 | A    |
| 54  | S2    | 466 | G    |
| 54  | S2    | 471 | G    |
| 54  | S2    | 472 | C    |
| 54  | S2    | 473 | A    |
| 54  | S2    | 474 | G    |
| 54  | S2    | 482 | G    |
| 54  | S2    | 487 | U    |
| 54  | S2    | 488 | U    |
| 54  | S2    | 489 | A    |
| 54  | S2    | 492 | C    |
| 54  | S2    | 493 | A    |
| 54  | S2    | 496 | C    |
| 54  | S2    | 500 | A    |
| 54  | S2    | 502 | C    |
| 54  | S2    | 503 | C    |
| 54  | S2    | 516 | A    |
| 54  | S2    | 525 | A    |
| 54  | S2    | 530 | U    |
| 54  | S2    | 531 | A    |
| 54  | S2    | 532 | C    |
| 54  | S2    | 536 | A    |
| 54  | S2    | 537 | C    |
| 54  | S2    | 539 | C    |
| 54  | S2    | 540 | U    |
| 54  | S2    | 541 | U    |
| 54  | S2    | 542 | U    |
| 54  | S2    | 543 | C    |
| 54  | S2    | 544 | G    |
| 54  | S2    | 545 | A    |
| 54  | S2    | 547 | G    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 54  | S2    | 549 | C    |
| 54  | S2    | 551 | U    |
| 54  | S2    | 554 | A    |
| 54  | S2    | 555 | A    |
| 54  | S2    | 556 | U    |
| 54  | S2    | 559 | G    |
| 54  | S2    | 561 | A    |
| 54  | S2    | 563 | G    |
| 54  | S2    | 566 | U    |
| 54  | S2    | 567 | C    |
| 54  | S2    | 575 | A    |
| 54  | S2    | 576 | A    |
| 54  | S2    | 582 | U    |
| 54  | S2    | 583 | A    |
| 54  | S2    | 587 | A    |
| 54  | S2    | 590 | A    |
| 54  | S2    | 591 | U    |
| 54  | S2    | 593 | C    |
| 54  | S2    | 595 | U    |
| 54  | S2    | 596 | U    |
| 54  | S2    | 604 | A    |
| 54  | S2    | 605 | A    |
| 54  | S2    | 606 | G    |
| 54  | S2    | 607 | U    |
| 54  | S2    | 608 | C    |
| 54  | S2    | 612 | U    |
| 54  | S2    | 613 | G    |
| 54  | S2    | 614 | C    |
| 54  | S2    | 617 | G    |
| 54  | S2    | 628 | A    |
| 54  | S2    | 631 | U    |
| 54  | S2    | 643 | A    |
| 54  | S2    | 648 | A    |
| 54  | S2    | 650 | A    |
| 54  | S2    | 651 | U    |
| 54  | S2    | 652 | U    |
| 54  | S2    | 655 | A    |
| 54  | S2    | 660 | C    |
| 54  | S2    | 668 | A    |
| 54  | S2    | 669 | A    |
| 54  | S2    | 671 | A    |
| 54  | S2    | 672 | A    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 54  | S2    | 673 | G    |
| 54  | S2    | 688 | U    |
| 54  | S2    | 689 | U    |
| 54  | S2    | 690 | G    |
| 54  | S2    | 692 | G    |
| 54  | S2    | 693 | A    |
| 54  | S2    | 694 | G    |
| 54  | S2    | 696 | G    |
| 54  | S2    | 697 | G    |
| 54  | S2    | 732 | U    |
| 54  | S2    | 733 | C    |
| 54  | S2    | 734 | C    |
| 54  | S2    | 735 | C    |
| 54  | S2    | 736 | C    |
| 54  | S2    | 738 | C    |
| 54  | S2    | 739 | C    |
| 54  | S2    | 746 | C    |
| 54  | S2    | 747 | U    |
| 54  | S2    | 748 | C    |
| 54  | S2    | 749 | U    |
| 54  | S2    | 751 | G    |
| 54  | S2    | 752 | G    |
| 54  | S2    | 753 | C    |
| 54  | S2    | 790 | C    |
| 54  | S2    | 791 | C    |
| 54  | S2    | 795 | A    |
| 54  | S2    | 796 | G    |
| 54  | S2    | 797 | C    |
| 54  | S2    | 798 | G    |
| 54  | S2    | 799 | U    |
| 54  | S2    | 801 | U    |
| 54  | S2    | 807 | G    |
| 54  | S2    | 808 | A    |
| 54  | S2    | 809 | A    |
| 54  | S2    | 810 | A    |
| 54  | S2    | 811 | A    |
| 54  | S2    | 812 | A    |
| 54  | S2    | 813 | A    |
| 54  | S2    | 818 | A    |
| 54  | S2    | 821 | G    |
| 54  | S2    | 830 | A    |
| 54  | S2    | 834 | C    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 54  | S2    | 835 | C    |
| 54  | S2    | 836 | G    |
| 54  | S2    | 837 | A    |
| 54  | S2    | 838 | G    |
| 54  | S2    | 839 | C    |
| 54  | S2    | 840 | C    |
| 54  | S2    | 841 | G    |
| 54  | S2    | 842 | C    |
| 54  | S2    | 847 | A    |
| 54  | S2    | 856 | C    |
| 54  | S2    | 859 | G    |
| 54  | S2    | 860 | G    |
| 54  | S2    | 861 | A    |
| 54  | S2    | 868 | G    |
| 54  | S2    | 869 | A    |
| 54  | S2    | 870 | A    |
| 54  | S2    | 872 | A    |
| 54  | S2    | 873 | G    |
| 54  | S2    | 874 | G    |
| 54  | S2    | 878 | G    |
| 54  | S2    | 880 | G    |
| 54  | S2    | 883 | U    |
| 54  | S2    | 884 | C    |
| 54  | S2    | 888 | U    |
| 54  | S2    | 889 | U    |
| 54  | S2    | 890 | U    |
| 54  | S2    | 891 | G    |
| 54  | S2    | 892 | U    |
| 54  | S2    | 893 | U    |
| 54  | S2    | 894 | G    |
| 54  | S2    | 895 | G    |
| 54  | S2    | 896 | U    |
| 54  | S2    | 898 | U    |
| 54  | S2    | 900 | C    |
| 54  | S2    | 901 | G    |
| 54  | S2    | 903 | A    |
| 54  | S2    | 904 | A    |
| 54  | S2    | 905 | C    |
| 54  | S2    | 909 | G    |
| 54  | S2    | 913 | A    |
| 54  | S2    | 920 | A    |
| 54  | S2    | 922 | A    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 54  | S2    | 924  | G    |
| 54  | S2    | 926  | A    |
| 54  | S2    | 933  | G    |
| 54  | S2    | 934  | G    |
| 54  | S2    | 958  | G    |
| 54  | S2    | 963  | A    |
| 54  | S2    | 970  | G    |
| 54  | S2    | 971  | G    |
| 54  | S2    | 972  | A    |
| 54  | S2    | 990  | A    |
| 54  | S2    | 992  | A    |
| 54  | S2    | 1001 | A    |
| 54  | S2    | 1017 | U    |
| 54  | S2    | 1019 | C    |
| 54  | S2    | 1021 | U    |
| 54  | S2    | 1023 | A    |
| 54  | S2    | 1027 | A    |
| 54  | S2    | 1028 | A    |
| 54  | S2    | 1060 | A    |
| 54  | S2    | 1061 | U    |
| 54  | S2    | 1062 | A    |
| 54  | S2    | 1078 | C    |
| 54  | S2    | 1083 | A    |
| 54  | S2    | 1084 | A    |
| 54  | S2    | 1085 | C    |
| 54  | S2    | 1089 | G    |
| 54  | S2    | 1090 | C    |
| 54  | S2    | 1096 | G    |
| 54  | S2    | 1099 | G    |
| 54  | S2    | 1100 | A    |
| 54  | S2    | 1101 | U    |
| 54  | S2    | 1105 | G    |
| 54  | S2    | 1108 | G    |
| 54  | S2    | 1110 | G    |
| 54  | S2    | 1112 | U    |
| 54  | S2    | 1114 | U    |
| 54  | S2    | 1116 | C    |
| 54  | S2    | 1120 | U    |
| 54  | S2    | 1121 | G    |
| 54  | S2    | 1126 | G    |
| 54  | S2    | 1131 | G    |
| 54  | S2    | 1133 | A    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 54  | S2    | 1140 | G    |
| 54  | S2    | 1142 | G    |
| 54  | S2    | 1143 | A    |
| 54  | S2    | 1144 | A    |
| 54  | S2    | 1146 | C    |
| 54  | S2    | 1147 | C    |
| 54  | S2    | 1149 | A    |
| 54  | S2    | 1153 | C    |
| 54  | S2    | 1154 | U    |
| 54  | S2    | 1155 | U    |
| 54  | S2    | 1157 | G    |
| 54  | S2    | 1168 | G    |
| 54  | S2    | 1181 | A    |
| 54  | S2    | 1183 | A    |
| 54  | S2    | 1195 | A    |
| 54  | S2    | 1207 | G    |
| 54  | S2    | 1212 | G    |
| 54  | S2    | 1215 | C    |
| 54  | S2    | 1217 | A    |
| 54  | S2    | 1221 | G    |
| 54  | S2    | 1224 | G    |
| 54  | S2    | 1242 | U    |
| 54  | S2    | 1243 | U    |
| 54  | S2    | 1251 | A    |
| 54  | S2    | 1253 | A    |
| 54  | S2    | 1256 | G    |
| 54  | S2    | 1257 | G    |
| 54  | S2    | 1259 | A    |
| 54  | S2    | 1260 | A    |
| 54  | S2    | 1265 | A    |
| 54  | S2    | 1271 | C    |
| 54  | S2    | 1272 | C    |
| 54  | S2    | 1273 | C    |
| 54  | S2    | 1274 | G    |
| 54  | S2    | 1275 | G    |
| 54  | S2    | 1276 | A    |
| 54  | S2    | 1281 | G    |
| 54  | S2    | 1282 | A    |
| 54  | S2    | 1284 | A    |
| 54  | S2    | 1285 | G    |
| 54  | S2    | 1286 | G    |
| 54  | S2    | 1297 | U    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 54  | S2    | 1298 | G    |
| 54  | S2    | 1299 | A    |
| 54  | S2    | 1301 | A    |
| 54  | S2    | 1302 | G    |
| 54  | S2    | 1303 | C    |
| 54  | S2    | 1308 | U    |
| 54  | S2    | 1313 | A    |
| 54  | S2    | 1314 | U    |
| 54  | S2    | 1321 | G    |
| 54  | S2    | 1326 | U    |
| 54  | S2    | 1332 | A    |
| 54  | S2    | 1342 | U    |
| 54  | S2    | 1371 | U    |
| 54  | S2    | 1372 | U    |
| 54  | S2    | 1378 | A    |
| 54  | S2    | 1382 | A    |
| 54  | S2    | 1396 | A    |
| 54  | S2    | 1397 | U    |
| 54  | S2    | 1402 | A    |
| 54  | S2    | 1404 | U    |
| 54  | S2    | 1409 | A    |
| 54  | S2    | 1414 | A    |
| 54  | S2    | 1415 | C    |
| 54  | S2    | 1419 | C    |
| 54  | S2    | 1420 | G    |
| 54  | S2    | 1421 | A    |
| 54  | S2    | 1422 | G    |
| 54  | S2    | 1423 | C    |
| 54  | S2    | 1429 | G    |
| 54  | S2    | 1438 | A    |
| 54  | S2    | 1449 | G    |
| 54  | S2    | 1450 | G    |
| 54  | S2    | 1452 | A    |
| 54  | S2    | 1454 | A    |
| 54  | S2    | 1462 | U    |
| 54  | S2    | 1463 | U    |
| 54  | S2    | 1473 | G    |
| 54  | S2    | 1475 | G    |
| 54  | S2    | 1477 | U    |
| 54  | S2    | 1487 | A    |
| 54  | S2    | 1489 | A    |
| 54  | S2    | 1490 | G    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 54  | S2    | 1498 | A    |
| 54  | S2    | 1506 | A    |
| 54  | S2    | 1507 | G    |
| 54  | S2    | 1508 | A    |
| 54  | S2    | 1510 | G    |
| 54  | S2    | 1519 | U    |
| 54  | S2    | 1520 | G    |
| 54  | S2    | 1521 | C    |
| 54  | S2    | 1522 | A    |
| 54  | S2    | 1527 | C    |
| 54  | S2    | 1533 | A    |
| 54  | S2    | 1536 | G    |
| 54  | S2    | 1546 | G    |
| 54  | S2    | 1548 | G    |
| 54  | S2    | 1552 | G    |
| 54  | S2    | 1553 | C    |
| 54  | S2    | 1556 | A    |
| 54  | S2    | 1563 | G    |
| 54  | S2    | 1567 | G    |
| 54  | S2    | 1569 | A    |
| 54  | S2    | 1570 | G    |
| 54  | S2    | 1574 | C    |
| 54  | S2    | 1578 | U    |
| 54  | S2    | 1580 | A    |
| 54  | S2    | 1585 | U    |
| 54  | S2    | 1586 | U    |
| 54  | S2    | 1587 | G    |
| 54  | S2    | 1588 | A    |
| 54  | S2    | 1589 | A    |
| 54  | S2    | 1595 | U    |
| 54  | S2    | 1599 | U    |
| 54  | S2    | 1601 | A    |
| 54  | S2    | 1602 | U    |
| 54  | S2    | 1613 | G    |
| 54  | S2    | 1614 | A    |
| 54  | S2    | 1621 | U    |
| 54  | S2    | 1623 | A    |
| 54  | S2    | 1624 | U    |
| 54  | S2    | 1634 | A    |
| 54  | S2    | 1639 | G    |
| 54  | S2    | 1644 | C    |
| 54  | S2    | 1648 | G    |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 54  | S2    | 1654 | G    |
| 54  | S2    | 1663 | A    |
| 54  | S2    | 1664 | A    |
| 54  | S2    | 1665 | G    |
| 54  | S2    | 1671 | G    |
| 54  | S2    | 1678 | A    |
| 54  | S2    | 1695 | A    |
| 54  | S2    | 1719 | A    |
| 54  | S2    | 1721 | U    |
| 54  | S2    | 1722 | G    |
| 54  | S2    | 1742 | C    |
| 54  | S2    | 1743 | G    |
| 54  | S2    | 1744 | G    |
| 54  | S2    | 1745 | A    |
| 54  | S2    | 1748 | G    |
| 54  | S2    | 1753 | C    |
| 54  | S2    | 1754 | G    |
| 54  | S2    | 1755 | C    |
| 54  | S2    | 1773 | C    |
| 54  | S2    | 1781 | A    |
| 54  | S2    | 1782 | G    |
| 54  | S2    | 1783 | C    |
| 54  | S2    | 1784 | G    |
| 54  | S2    | 1786 | U    |
| 54  | S2    | 1813 | A    |
| 54  | S2    | 1824 | A    |
| 54  | S2    | 1825 | A    |
| 54  | S2    | 1829 | G    |
| 54  | S2    | 1831 | A    |
| 54  | S2    | 1835 | A    |
| 54  | S2    | 1838 | U    |
| 54  | S2    | 1849 | G    |
| 54  | S2    | 1850 | A    |
| 54  | S2    | 1851 | A    |
| 54  | S2    | 1852 | C    |
| 54  | S2    | 1861 | G    |
| 54  | S2    | 1862 | G    |
| 54  | S2    | 1863 | A    |
| 54  | S2    | 1865 | C    |
| 54  | S2    | 1868 | U    |

All (34) RNA pucker outliers are listed below:

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 4   | CP    | 3    | C    |
| 4   | CP    | 21   | U    |
| 7   | L5    | 406  | C    |
| 7   | L5    | 504  | G    |
| 7   | L5    | 914  | U    |
| 7   | L5    | 1082 | C    |
| 7   | L5    | 1633 | G    |
| 7   | L5    | 2117 | G    |
| 7   | L5    | 2416 | G    |
| 7   | L5    | 2675 | G    |
| 7   | L5    | 2760 | G    |
| 7   | L5    | 3614 | G    |
| 7   | L5    | 3673 | C    |
| 7   | L5    | 4600 | G    |
| 7   | L5    | 4699 | U    |
| 7   | L5    | 4913 | G    |
| 9   | L8    | 87   | G    |
| 54  | S2    | 85   | A    |
| 54  | S2    | 144  | U    |
| 54  | S2    | 150  | A    |
| 54  | S2    | 213  | G    |
| 54  | S2    | 465  | A    |
| 54  | S2    | 604  | A    |
| 54  | S2    | 688  | U    |
| 54  | S2    | 912  | C    |
| 54  | S2    | 971  | G    |
| 54  | S2    | 1120 | U    |
| 54  | S2    | 1273 | C    |
| 54  | S2    | 1395 | C    |
| 54  | S2    | 1519 | U    |
| 54  | S2    | 1585 | U    |
| 54  | S2    | 1601 | A    |
| 54  | S2    | 1664 | A    |
| 54  | S2    | 1860 | A    |

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

1 non-standard protein/DNA/RNA residue is modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the

expected value. A bond length (or angle) with  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mol | Type | Chain | Res | Link | Bond lengths |      |             | Bond angles |      |             |
|-----|------|-------|-----|------|--------------|------|-------------|-------------|------|-------------|
|     |      |       |     |      | Counts       | RMSZ | $\# Z  > 2$ | Counts      | RMSZ | $\# Z  > 2$ |
| 5   | LYO  | CR    | 63  | 5    | 7,9,10       | 0.78 | 0           | 6,10,12     | 1.13 | 1 (16%)     |

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|-----|------|-------|-----|------|---------|----------|-------|
| 5   | LYO  | CR    | 63  | 5    | -       | 4/8/9/11 | -     |

There are no bond length outliers.

All (1) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms    | Z     | Observed( $^{\circ}$ ) | Ideal( $^{\circ}$ ) |
|-----|-------|-----|------|----------|-------|------------------------|---------------------|
| 5   | CR    | 63  | LYO  | CE-CD-CG | -2.09 | 109.07                 | 113.47              |

There are no chirality outliers.

All (4) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms       |
|-----|-------|-----|------|-------------|
| 5   | CR    | 63  | LYO  | N-CA-CB-CG  |
| 5   | CR    | 63  | LYO  | C-CA-CB-CG  |
| 5   | CR    | 63  | LYO  | CA-CB-CG-OG |
| 5   | CR    | 63  | LYO  | CA-CB-CG-CD |

There are no ring outliers.

No monomer is involved in short contacts.

## 5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

Of 199 ligands modelled in this entry, 199 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

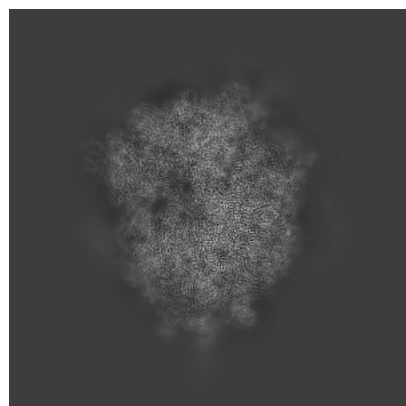
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-54530. These allow visual inspection of the internal detail of the map and identification of artifacts.

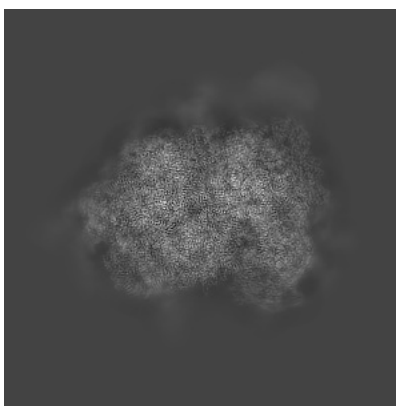
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

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

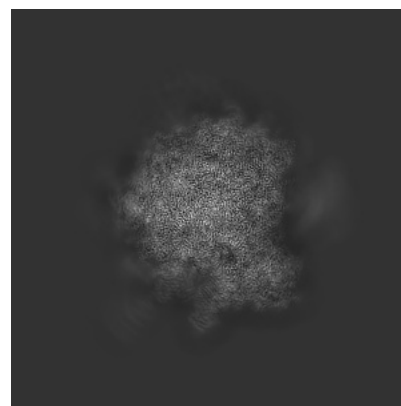
#### 6.1.1 Primary map



X

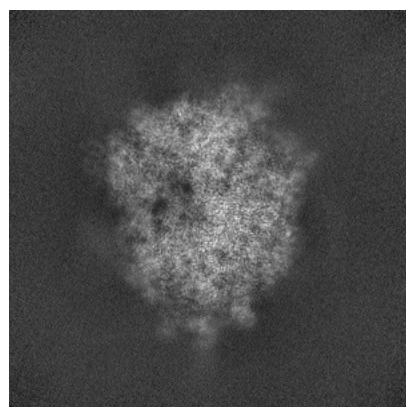


Y

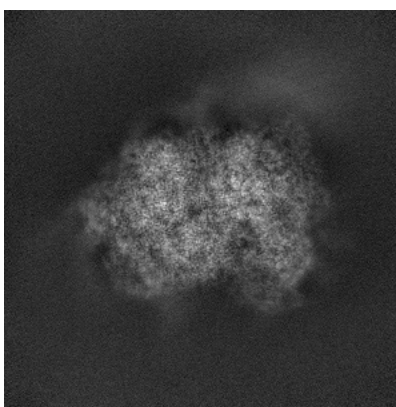


Z

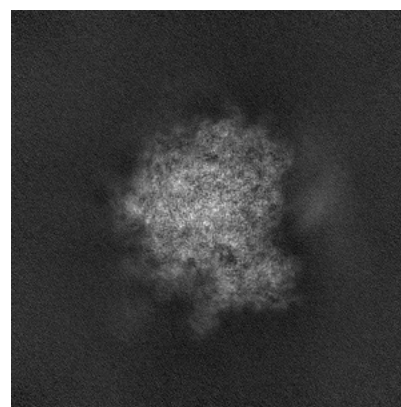
#### 6.1.2 Raw map



X



Y

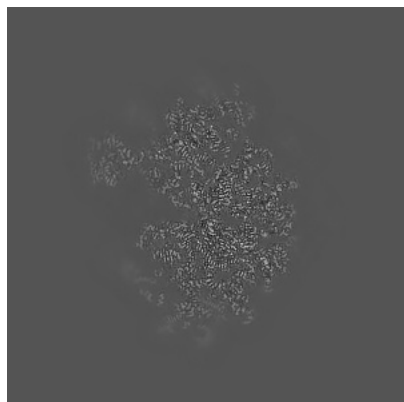


Z

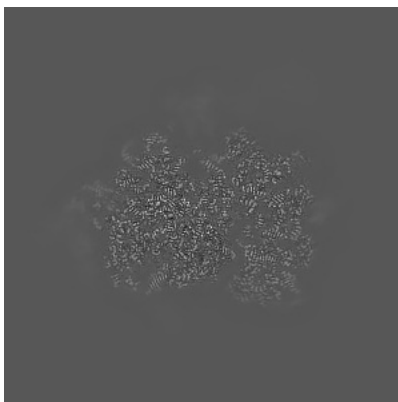
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

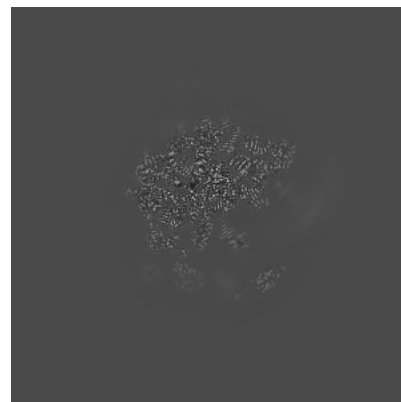
### 6.2.1 Primary map



X Index: 320

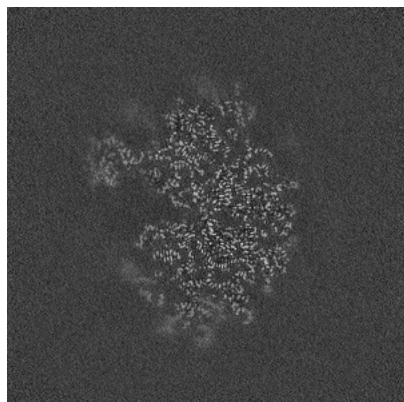


Y Index: 320

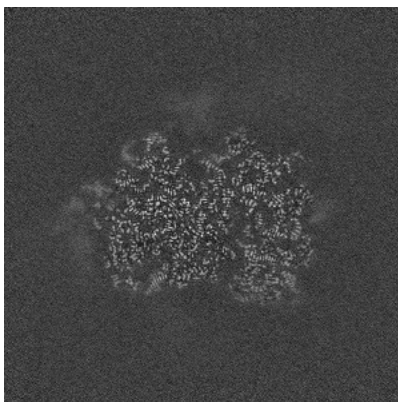


Z Index: 320

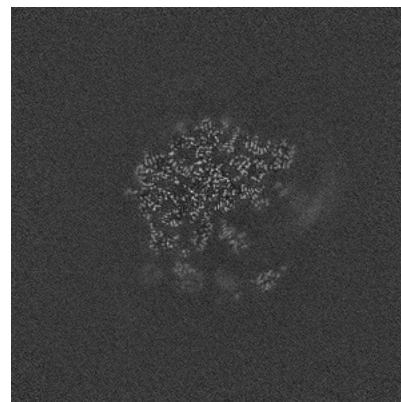
### 6.2.2 Raw map



X Index: 320



Y Index: 320

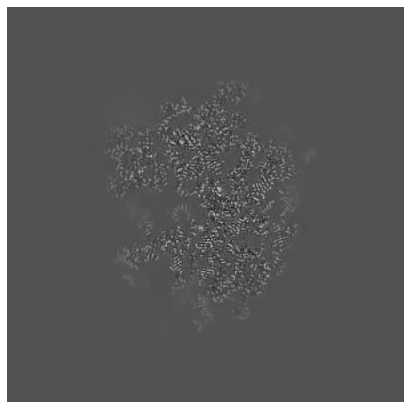


Z Index: 320

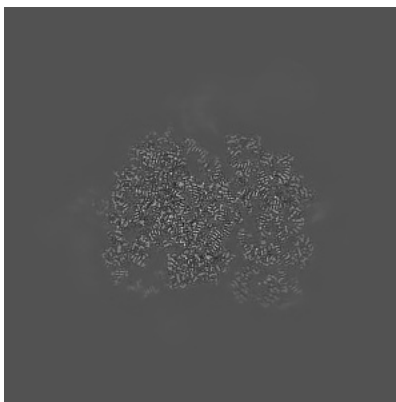
The images above show central slices of the map in three orthogonal directions.

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

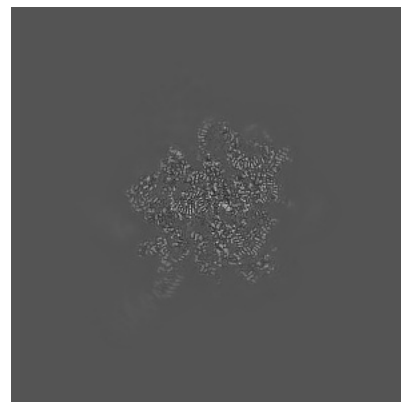
### 6.3.1 Primary map



X Index: 344

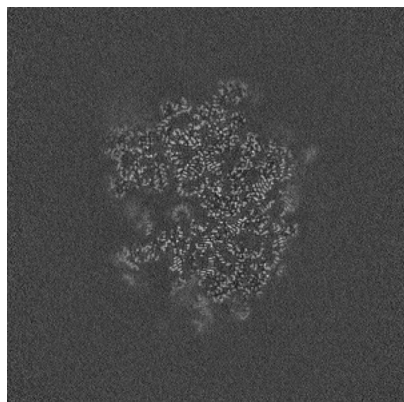


Y Index: 329

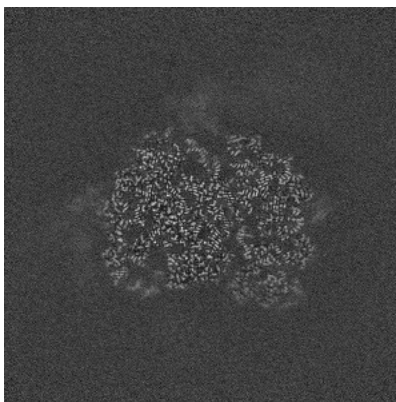


Z Index: 267

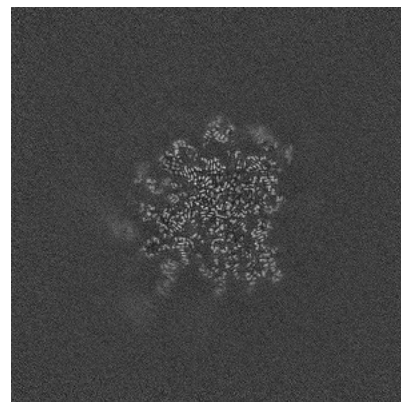
### 6.3.2 Raw map



X Index: 344



Y Index: 328

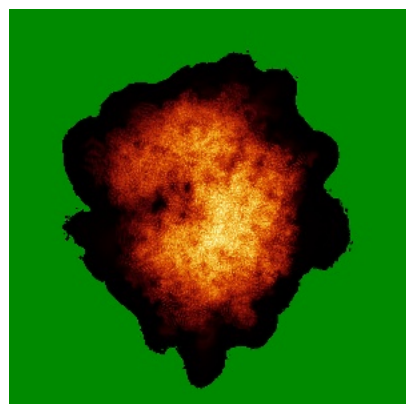


Z Index: 257

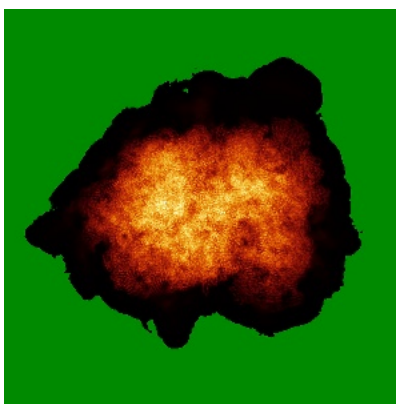
The images above show the largest variance slices of the map in three orthogonal directions.

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

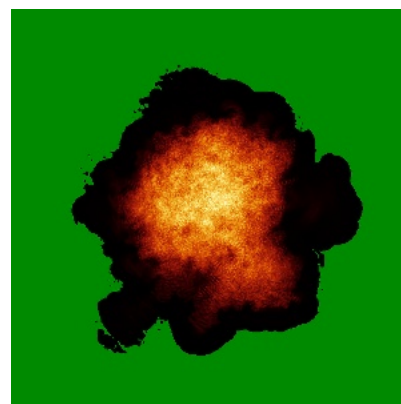
### 6.4.1 Primary map



X

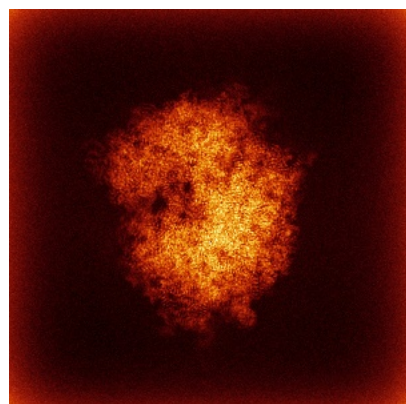


Y

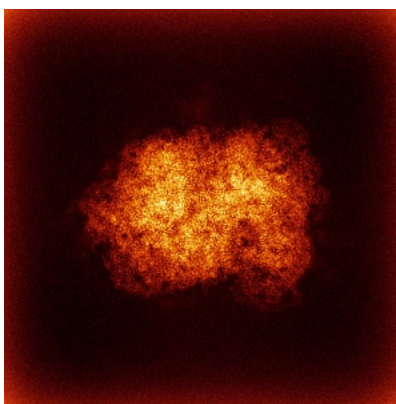


Z

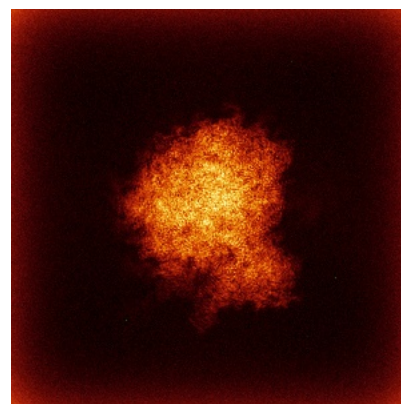
### 6.4.2 Raw map



X



Y

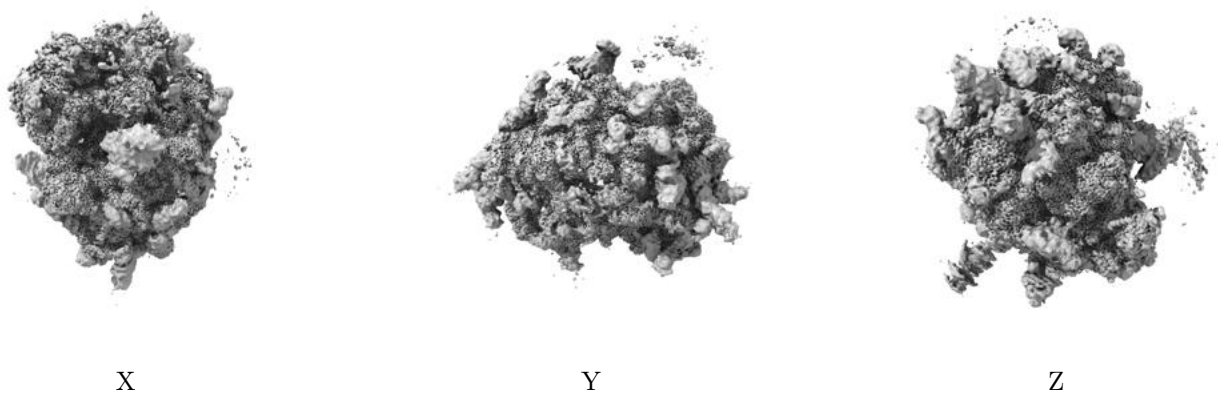


Z

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

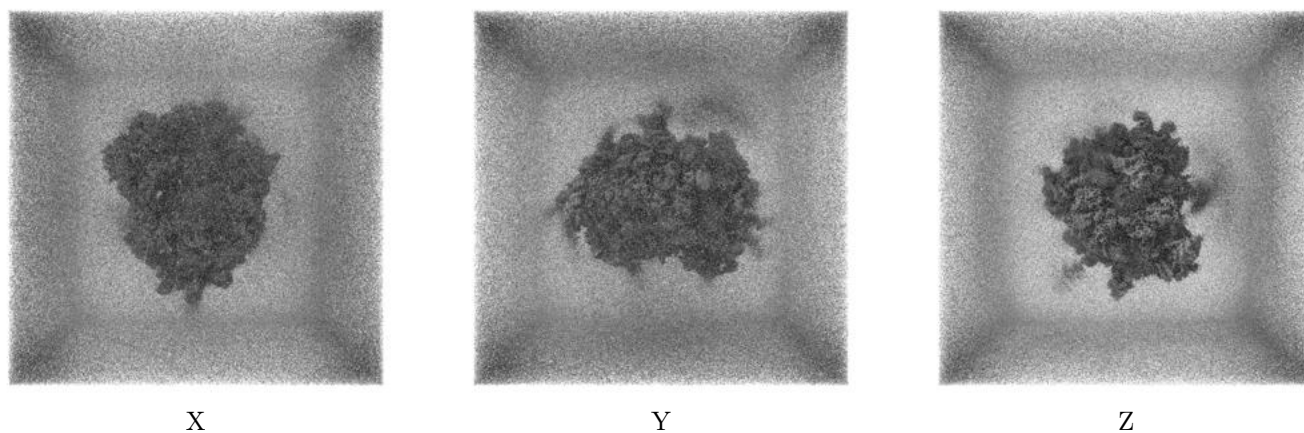
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.0635. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

### 6.5.2 Raw map



These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

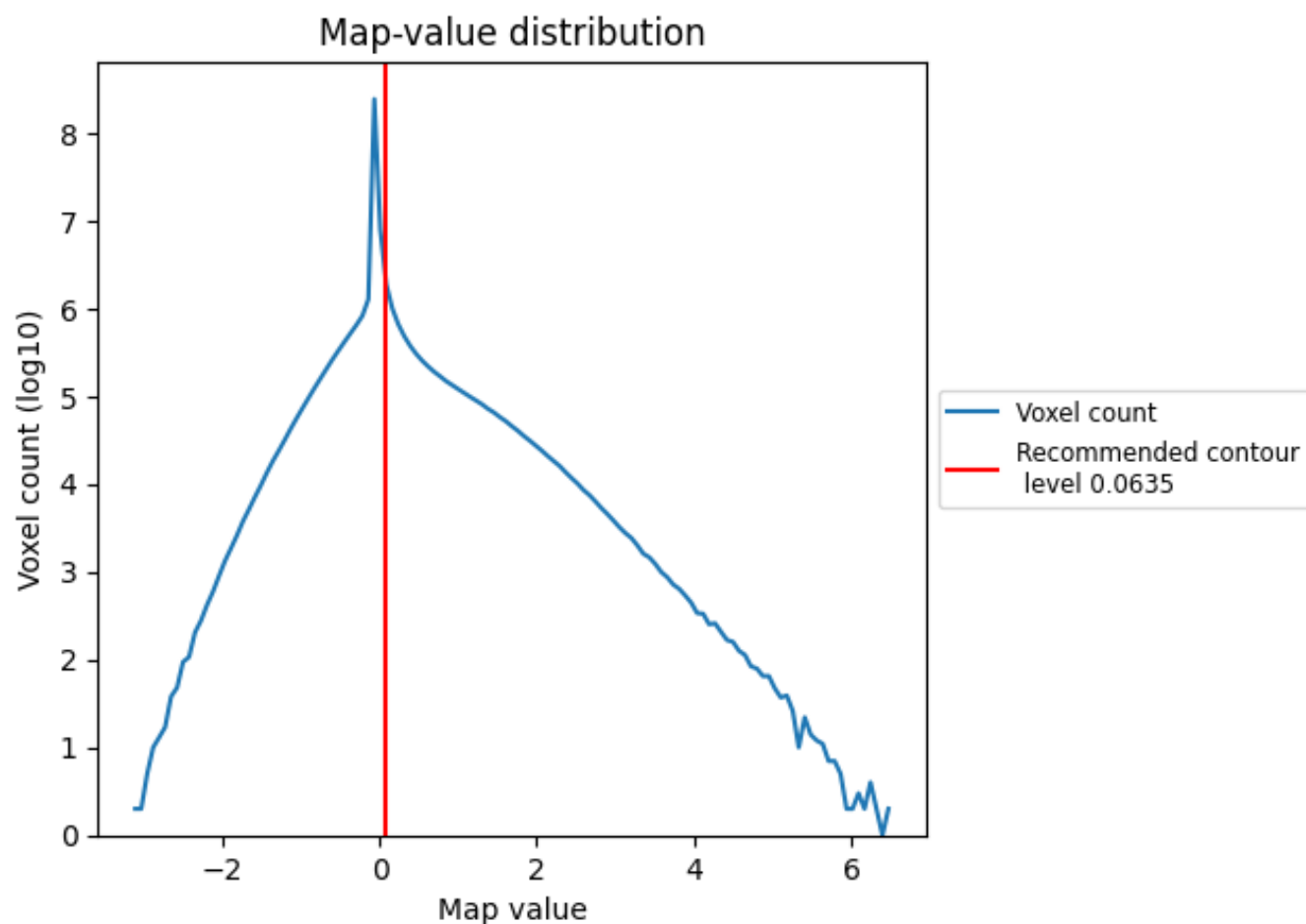
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

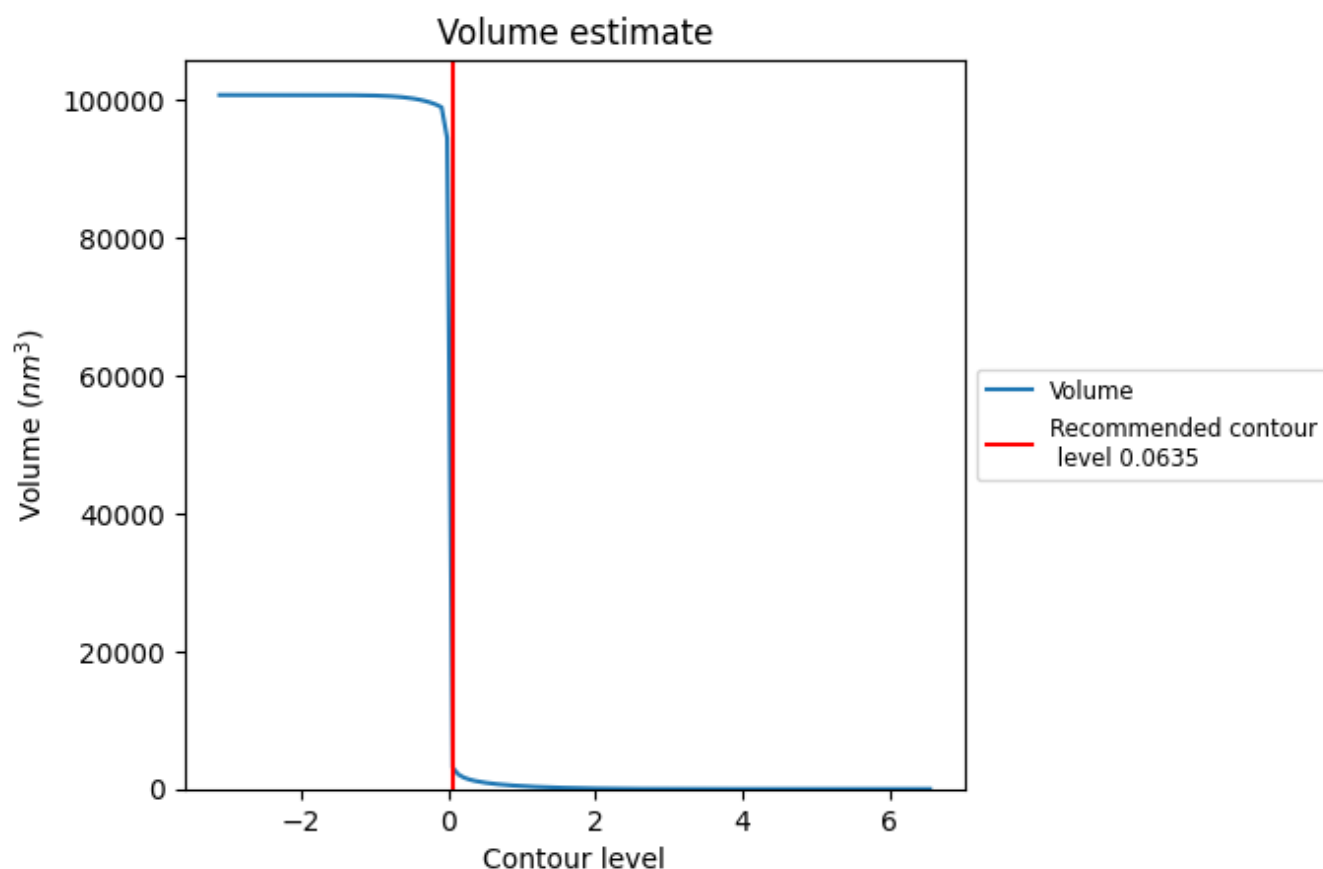
This section contains the results of statistical analysis of the map.

### 7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

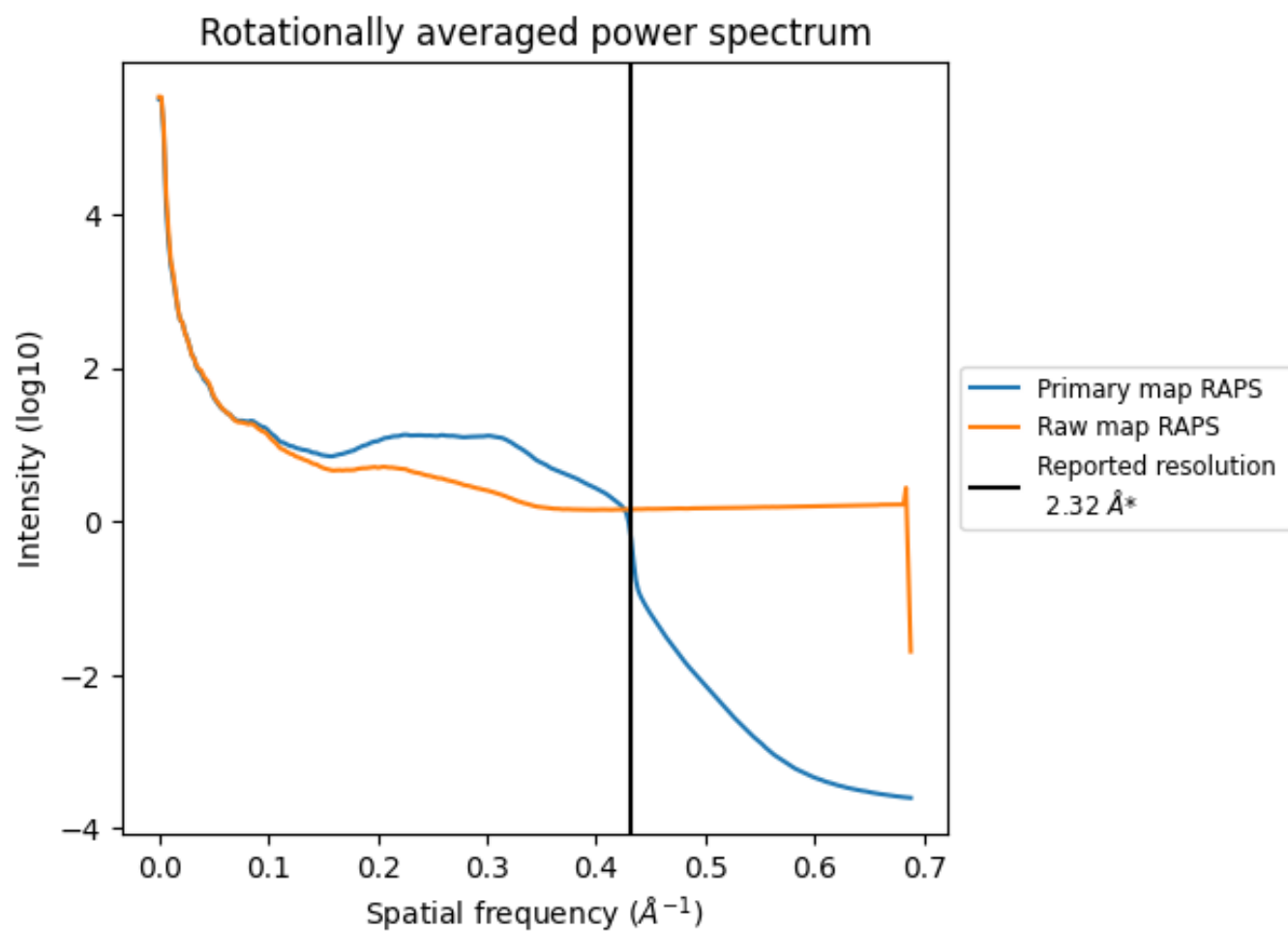
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 3063  $\text{nm}^3$ ; this corresponds to an approximate mass of 2767 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 ⓘ

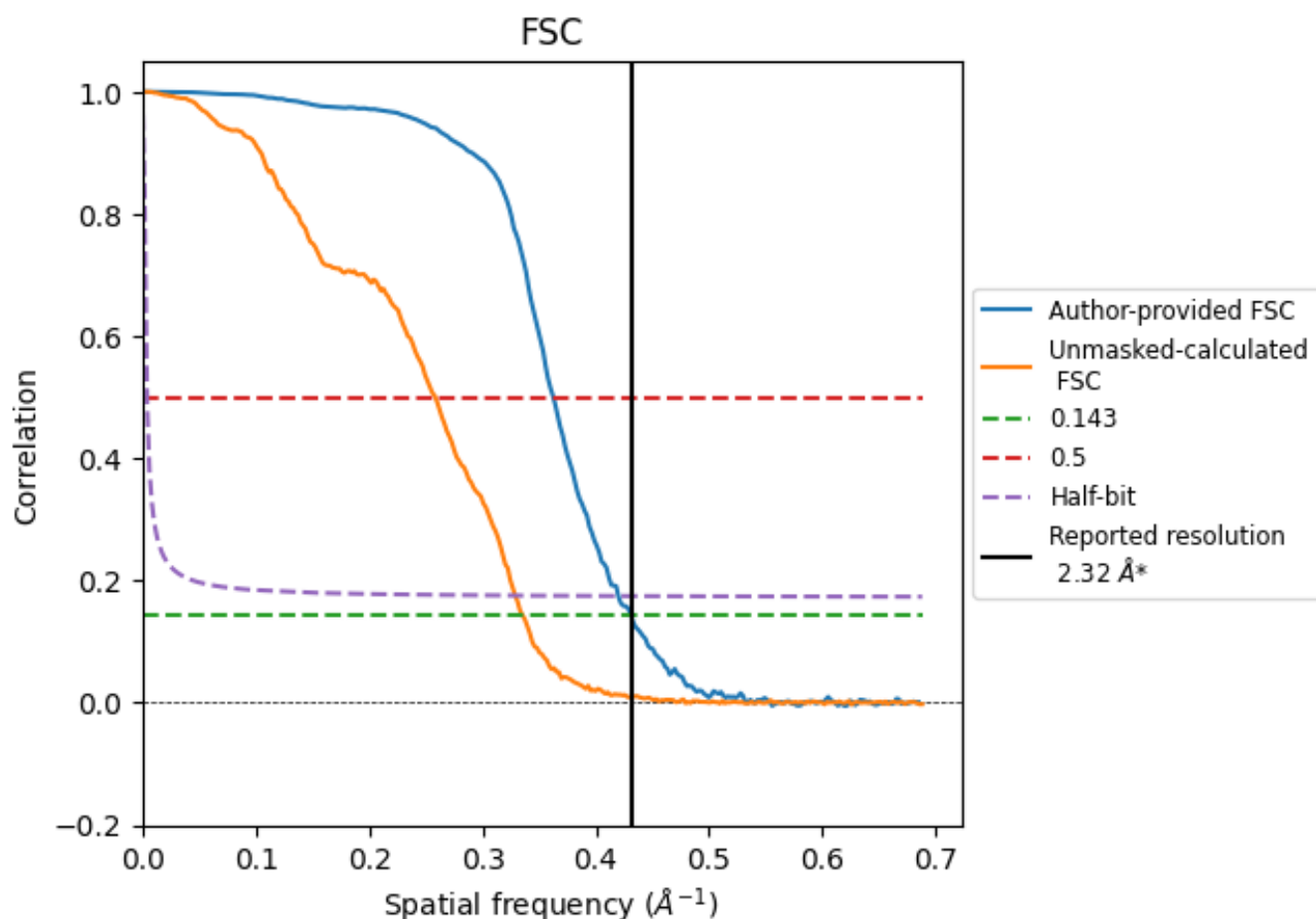


\*Reported resolution corresponds to spatial frequency of 0.431  $\text{\AA}^{-1}$

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

## 8.2 Resolution estimates [i](#)

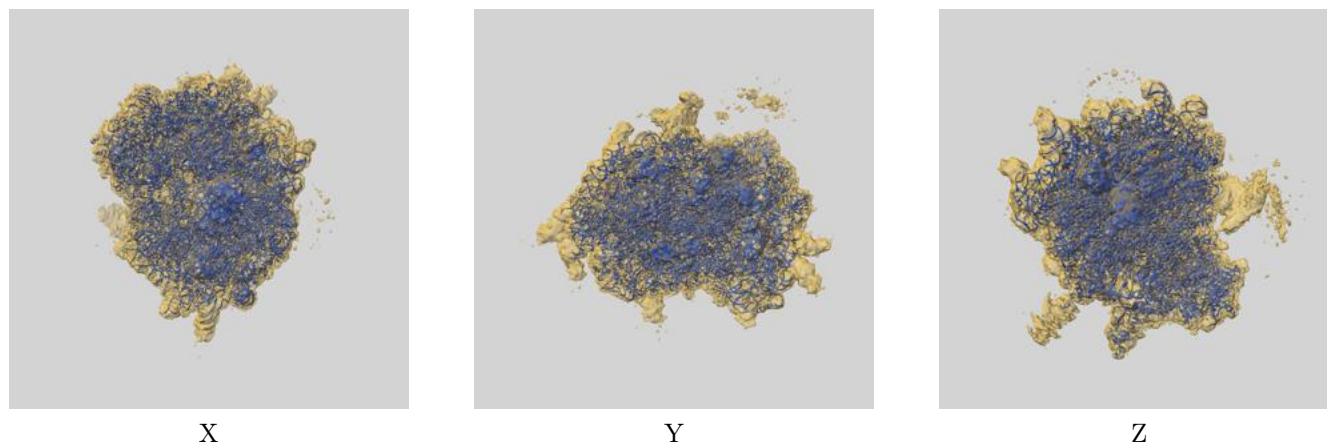
| Resolution estimate (Å)   | Estimation criterion (FSC cut-off) |      |          |
|---------------------------|------------------------------------|------|----------|
|                           | 0.143                              | 0.5  | Half-bit |
| Reported by author        | 2.32                               | -    | -        |
| Author-provided FSC curve | 2.32                               | 2.76 | 2.38     |
| Unmasked-calculated*      | 2.98                               | 3.87 | 3.04     |

\*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 2.98 differs from the reported value 2.32 by more than 10 %

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

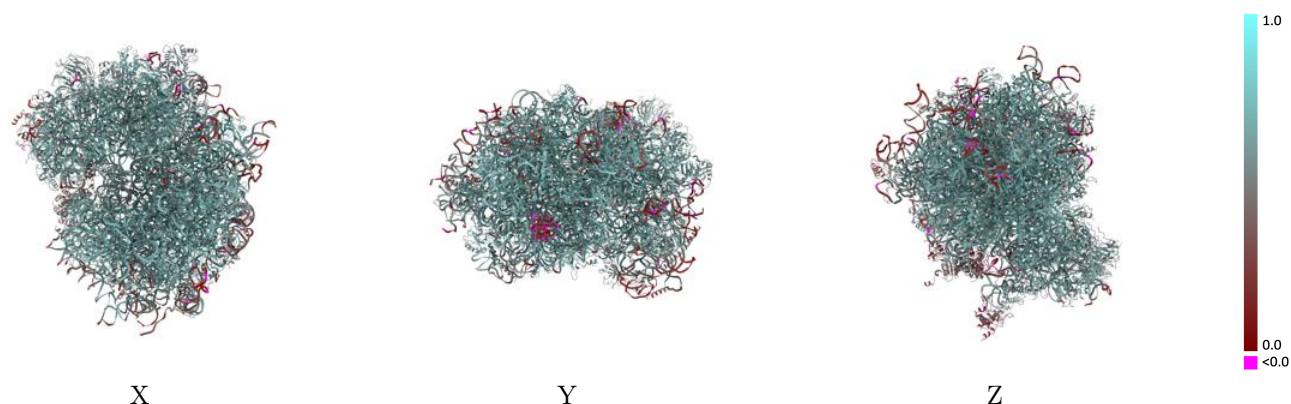
This section contains information regarding the fit between EMDB map EMD-54530 and PDB model 9S3D. Per-residue inclusion information can be found in section [3](#) on page [21](#).

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



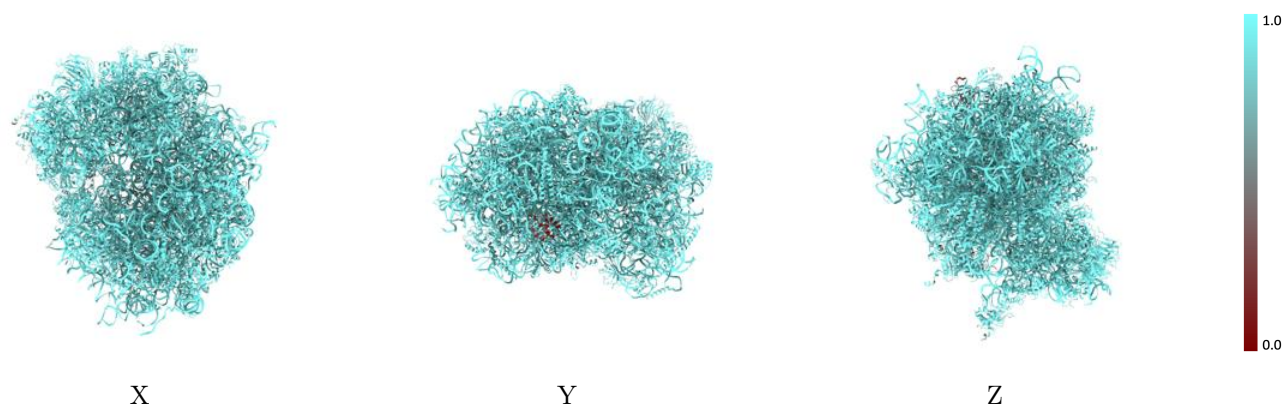
The images above show the 3D surface view of the map at the recommended contour level 0.0635 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



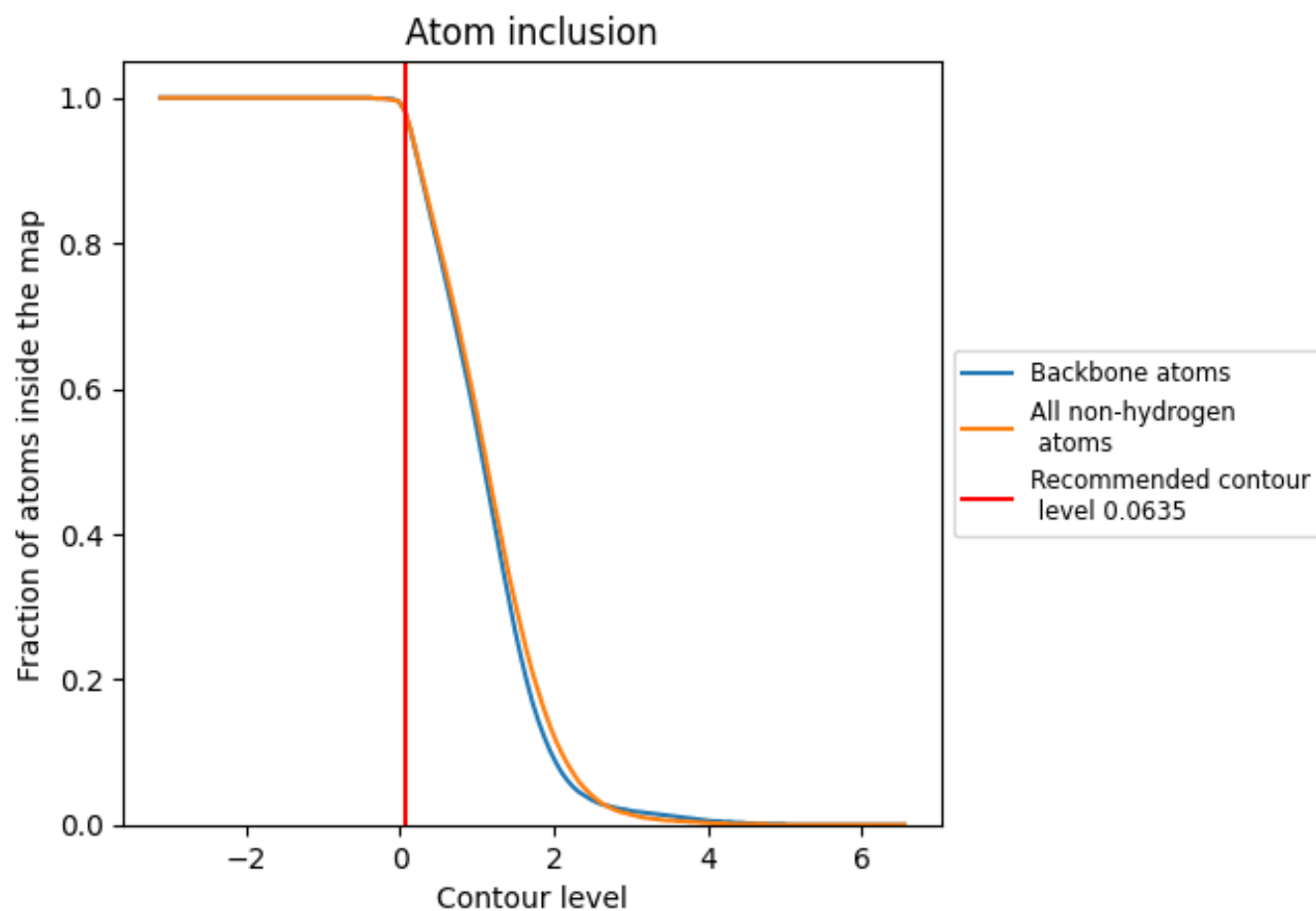
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.0635).

## 9.4 Atom inclusion [i](#)



At the recommended contour level, 98% of all backbone atoms, 98% 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 (0.0635) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion                                                                             | Q-score                                                                                    |
|-------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| All   |  0.9820   |  0.6110   |
| CM    |  0.9800   |  0.5850   |
| CP    |  0.9880   |  0.5880   |
| CR    |  0.9390   |  0.5240   |
| CZ    |  0.9420   |  0.5380   |
| L5    |  0.9910   |  0.6190   |
| L7    |  0.9970   |  0.6690   |
| L8    |  0.9910   |  0.6340   |
| LA    |  0.9920   |  0.6920   |
| LB    |  0.9870   |  0.6750   |
| LC    |  0.9870   |  0.6730   |
| LD    |  0.9830   |  0.6210   |
| LE    |  0.9820   |  0.6160   |
| LF    |  0.9860   |  0.6720   |
| LG    |  0.9810  |  0.6090  |
| LH    |  0.9850 |  0.6340 |
| LI    |  0.9770 |  0.6430 |
| LJ    |  0.9760 |  0.5960 |
| LL    |  0.9780 |  0.6340 |
| LM    |  0.9930 |  0.6490 |
| LN    |  0.9960 |  0.7020 |
| LO    |  0.9910 |  0.6840 |
| LP    |  0.9910 |  0.6830 |
| LQ    |  0.9940 |  0.6890 |
| LR    |  0.9830 |  0.6590 |
| LS    |  0.9890 |  0.6770 |
| LT    |  0.9730 |  0.6260 |
| LU    |  0.9750 |  0.5400 |
| LV    |  0.9920 |  0.6810 |
| LW    |  0.9620 |  0.5230 |
| LX    |  0.9830 |  0.6450 |
| LY    |  0.9890 |  0.6410 |
| LZ    |  0.9890 |  0.6470 |
| La    |  0.9900 |  0.6810 |
| Lb    |  0.9670 |  0.5860 |



*Continued on next page...*

*Continued from previous page...*

| Chain | Atom inclusion                                                                             | Q-score                                                                                    |
|-------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Lc    |  0.9850   |  0.6600   |
| Ld    |  0.9950   |  0.6610   |
| Le    |  0.9940   |  0.6900   |
| Lf    |  0.9860   |  0.6840   |
| Lg    |  0.9850   |  0.6570   |
| Lh    |  0.9810   |  0.6420   |
| Li    |  0.9880   |  0.6380   |
| Lj    |  0.9910   |  0.6860   |
| Lk    |  0.9600   |  0.5690   |
| Ll    |  0.9840   |  0.6530   |
| Lm    |  0.9810   |  0.6660   |
| Ln    |  0.9860   |  0.6680   |
| Lo    |  0.9850   |  0.6500   |
| Lp    |  0.9940   |  0.6880   |
| Lr    |  0.9920   |  0.6660   |
| Ls    |  0.9080   |  0.2970   |
| Lt    |  0.9560   |  0.3630   |
| NA    |  0.3410   |  0.0840   |
| NB    |  0.4740   |  0.1920   |
| S2    |  0.9870  |  0.5960  |
| SA    |  0.9920 |  0.6450 |
| SB    |  0.9830 |  0.6260 |
| SC    |  0.9880 |  0.6510 |
| SD    |  0.9860 |  0.5940 |
| SE    |  0.9880 |  0.6190 |
| SF    |  0.9680 |  0.5930 |
| SG    |  0.9850 |  0.5400 |
| SH    |  0.9850 |  0.5670 |
| SI    |  0.9900 |  0.6230 |
| SJ    |  0.9910 |  0.6240 |
| SK    |  0.9830 |  0.5790 |
| SL    |  0.9880 |  0.6570 |
| SM    |  0.9040 |  0.2960 |
| SN    |  0.9850 |  0.6610 |
| SO    |  0.9890 |  0.6460 |
| SP    |  0.9880 |  0.5870 |
| SQ    |  0.9720 |  0.6170 |
| SR    |  0.9550 |  0.5520 |
| SS    |  0.9730 |  0.5850 |
| ST    |  0.9790 |  0.6070 |
| SU    |  0.9810 |  0.5470 |
| SV    |  0.9870 |  0.6390 |

*Continued on next page...*

*Continued from previous page...*

| Chain | Atom inclusion                                                                           | Q-score                                                                                  |
|-------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| SW    |  0.9920 |  0.6820 |
| SX    |  0.9850 |  0.6390 |
| SY    |  0.9890 |  0.5770 |
| SZ    |  0.9780 |  0.5660 |
| Sa    |  0.9830 |  0.6340 |
| Sb    |  0.9800 |  0.5890 |
| Sc    |  0.9390 |  0.5310 |
| Sd    |  0.9900 |  0.6390 |
| Se    |  0.9800 |  0.5820 |
| Sf    |  0.8750 |  0.3110 |
| Sg    |  0.9770 |  0.5390 |