



## Full wwPDB EM Validation Report ⓘ

Sep 5, 2026 – 10:11 am BST

PDB ID : 9SUM / pdb\_00009sum  
EMDB ID : EMD-55225  
Title : CryoEM structure of Candida auris 80S ribosome in complex with Cycloheximide and Geneticin G418  
Authors : Atamas, A.; Stetsenko, A.; Incarnato, D.; Macia Valero, A.; Rogachev, A.; Billerbeck, S.; Guskov, A.  
Deposited on : 2025-09-29  
Resolution : 1.99 Å(reported)

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

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

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>  
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

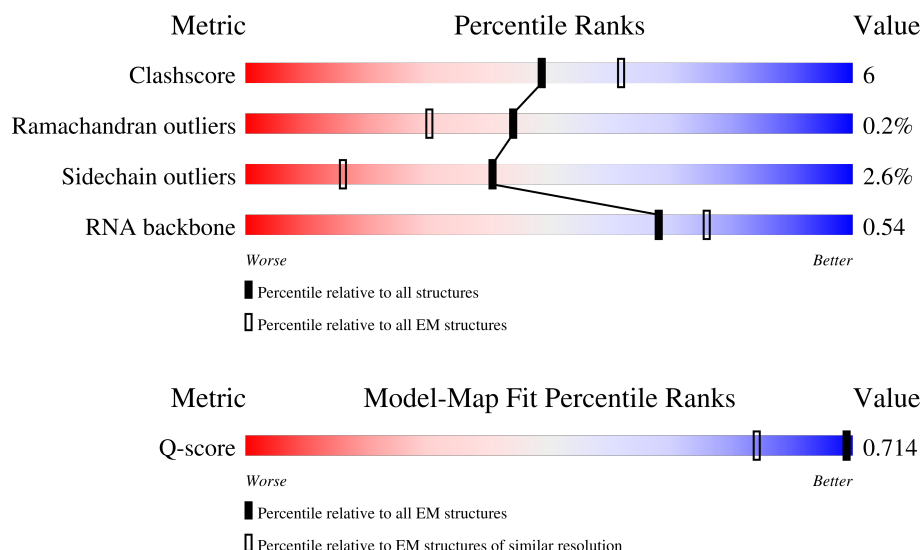
EMDB validation analysis : 0.0.1.dev133  
Mogul : 1.8.4, CSD as541be (2020)  
MolProbity : 4-5-2 with Phenix2.0  
Buster-report : wwPDB partial adaption of 1.1.7 (2018)  
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)  
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.50

# 1 Overall quality at a glance

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

The reported resolution of this entry is 1.99 Å.

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



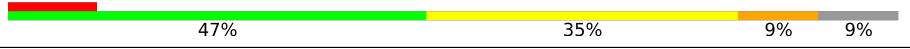
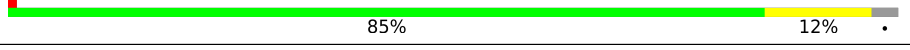
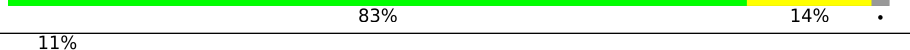
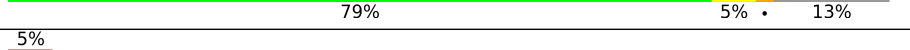
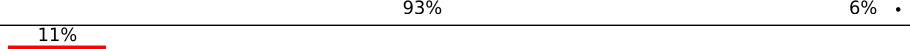
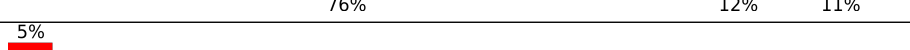
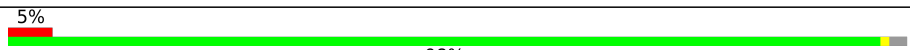
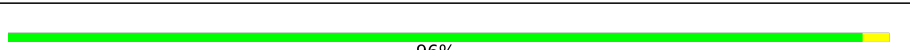
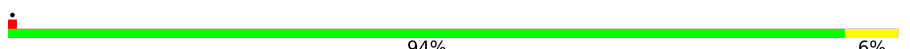
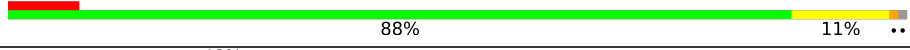
| Metric                | Whole archive<br>(#Entries) | EM structures<br>(#Entries) | Similar EM resolution<br>(#Entries, resolution range(Å)) |
|-----------------------|-----------------------------|-----------------------------|----------------------------------------------------------|
| Clashscore            | 229148                      | 23984                       | -                                                        |
| Ramachandran outliers | 224038                      | 23583                       | -                                                        |
| Sidechain outliers    | 223484                      | 23102                       | -                                                        |
| RNA backbone          | 8273                        | 3508                        | -                                                        |
| Q-score               | -                           | 25397                       | 1416 ( 1.50 - 2.49 )                                     |

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   | 1     | 76     |                  |
| 2   | 2     | 3      |                  |
| 3   | A     | 3283   |                  |

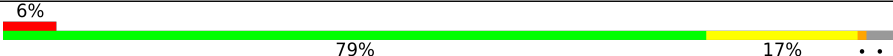
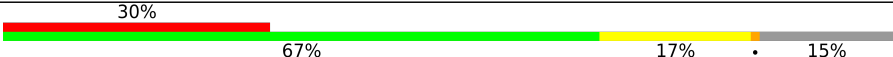
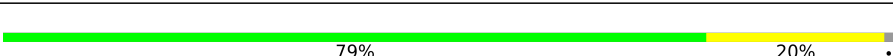
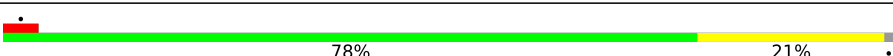
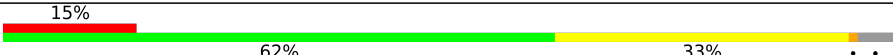
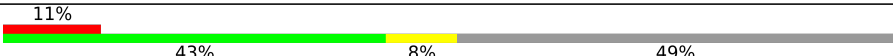
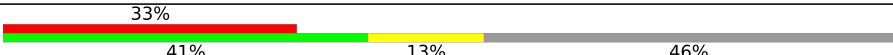
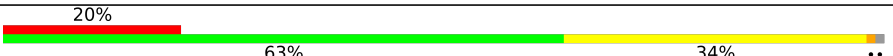
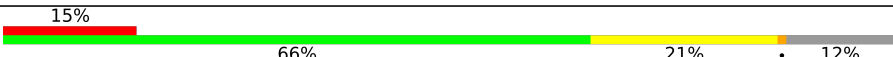
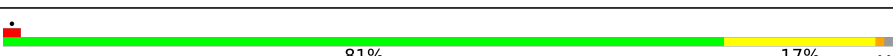
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| Mol | Chain | Length | Quality of chain                                                                     |
|-----|-------|--------|--------------------------------------------------------------------------------------|
| 4   | B     | 122    |    |
| 5   | C     | 158    |    |
| 6   | CA    | 1775   |    |
| 7   | D     | 254    |    |
| 8   | E     | 389    |    |
| 9   | F     | 363    |    |
| 10  | G     | 298    |    |
| 11  | H     | 165    |    |
| 12  | I     | 241    |    |
| 13  | J     | 263    |    |
| 14  | K     | 191    |    |
| 15  | L     | 220    |  |
| 16  | M     | 172    |  |
| 17  | N     | 198    |  |
| 18  | O     | 131    |  |
| 19  | P     | 204    |  |
| 20  | Q     | 200    |  |
| 21  | R     | 185    |  |
| 22  | S     | 186    |  |
| 23  | T     | 208    |  |
| 24  | U     | 186    |  |
| 25  | V     | 160    |  |
| 26  | W     | 119    |  |
| 27  | X     | 137    |  |
| 28  | Y     | 156    |  |

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| Mol | Chain | Length | Quality of chain                                                                     |
|-----|-------|--------|--------------------------------------------------------------------------------------|
| 29  | Z     | 140    |    |
| 30  | ZA    | 204    |    |
| 31  | ZB    | 189    |    |
| 32  | ZC    | 123    |    |
| 33  | ZD    | 155    |    |
| 34  | ZE    | 151    |    |
| 35  | ZF    | 132    |    |
| 36  | ZG    | 141    |    |
| 37  | ZH    | 142    |    |
| 38  | ZI    | 137    |    |
| 39  | ZJ    | 145    |    |
| 40  | ZK    | 145    |   |
| 41  | ZL    | 118    |  |
| 42  | ZM    | 87     |  |
| 43  | ZO    | 130    |  |
| 44  | ZP    | 145    |  |
| 45  | ZQ    | 135    |  |
| 46  | ZR    | 130    |  |
| 47  | ZS    | 182    |  |
| 48  | ZT    | 82     |  |
| 49  | ZU    | 67     |  |
| 50  | ZV    | 56     |  |
| 51  | ZW    | 63     |  |
| 52  | ZY    | 315    |  |
| 53  | a     | 127    |  |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 54  | b     | 136    |                  |
| 55  | c     | 149    |                  |
| 56  | d     | 76     |                  |
| 57  | e     | 105    |                  |
| 58  | f     | 113    |                  |
| 59  | g     | 149    |                  |
| 60  | h     | 107    |                  |
| 61  | i     | 115    |                  |
| 62  | j     | 120    |                  |
| 63  | k     | 99     |                  |
| 64  | l     | 85     |                  |
| 65  | m     | 78     |                  |
| 66  | n     | 51     |                  |
| 67  | o     | 52     |                  |
| 68  | p     | 25     |                  |
| 69  | q     | 106    |                  |
| 70  | r     | 99     |                  |
| 71  | s     | 264    |                  |
| 72  | t     | 256    |                  |
| 73  | u     | 249    |                  |
| 74  | v     | 250    |                  |
| 75  | w     | 264    |                  |
| 76  | x     | 223    |                  |
| 77  | y     | 236    |                  |
| 78  | z     | 188    |                  |

## 2 Entry composition [i](#)

There are 84 unique types of molecules in this entry. The entry contains 203205 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a RNA chain called P-site tRNA.

| Mol | Chain | Residues | Atoms |     |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 1   | 1     | 35       | Total | C   | N   | O   | P  | 0       | 0     |
|     |       |          | 748   | 334 | 137 | 242 | 35 |         |       |

- Molecule 2 is a RNA chain called RNA (5'-R(P\*CP\*GP\*A)-3').

| Mol | Chain | Residues | Atoms |    |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|----|----|----|---|---------|-------|
| 2   | 2     | 3        | Total | C  | N  | O  | P | 0       | 0     |
|     |       |          | 65    | 29 | 13 | 20 | 3 |         |       |

- Molecule 3 is a RNA chain called 25S rRNA.

| Mol | Chain | Residues | Atoms |       |       |       |      | AltConf | Trace |
|-----|-------|----------|-------|-------|-------|-------|------|---------|-------|
| 3   | A     | 2991     | Total | C     | N     | O     | P    | 0       | 0     |
|     |       |          | 64000 | 28576 | 11576 | 20857 | 2991 |         |       |

- Molecule 4 is a RNA chain called 5S rRNA.

| Mol | Chain | Residues | Atoms |      |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|-----|---------|-------|
| 4   | B     | 122      | Total | C    | N   | O   | P   | 0       | 0     |
|     |       |          | 2609  | 1164 | 470 | 853 | 122 |         |       |

- Molecule 5 is a RNA chain called 5.8S rRNA.

| Mol | Chain | Residues | Atoms |      |     |      |     | AltConf | Trace |
|-----|-------|----------|-------|------|-----|------|-----|---------|-------|
| 5   | C     | 154      | Total | C    | N   | O    | P   | 0       | 0     |
|     |       |          | 3274  | 1464 | 577 | 1079 | 154 |         |       |

- Molecule 6 is a RNA chain called 18S rRNA.

| Mol | Chain | Residues | Atoms |       |      |       |      | AltConf | Trace |
|-----|-------|----------|-------|-------|------|-------|------|---------|-------|
| 6   | CA    | 1621     | Total | C     | N    | O     | P    | 0       | 0     |
|     |       |          | 34619 | 15468 | 6203 | 11327 | 1621 |         |       |

- Molecule 7 is a protein called 60S ribosomal protein L2-A.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 7   | D     | 247      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1873  | 1170 | 377 | 324 | 2 |         |       |

- Molecule 8 is a protein called Large ribosomal subunit protein uL3.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 8   | E     | 387      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 3087  | 1957 | 579 | 544 | 7 |         |       |

- Molecule 9 is a protein called 60S ribosomal protein L4-A.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 9   | F     | 361      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 2786  | 1751 | 534 | 498 | 3 |         |       |

- Molecule 10 is a protein called 60S ribosomal protein L5.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 10  | G     | 291      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 2370  | 1506 | 411 | 449 | 4 |         |       |

- Molecule 11 is a protein called 60S ribosomal protein L6.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 11  | H     | 143      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1126  | 725 | 204 | 197 |         |       |

- Molecule 12 is a protein called 60S ribosomal protein L7.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 12  | I     | 237      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1913  | 1230 | 345 | 336 | 2 |         |       |

- Molecule 13 is a protein called 60S ribosomal protein L8.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 13  | J     | 233      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1847  | 1182 | 339 | 322 | 4 |         |       |

- Molecule 14 is a protein called 60S ribosomal protein L9-B.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 14  | K     | 190      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1519  | 965 | 272 | 278 | 4 |         |       |

- Molecule 15 is a protein called 60S ribosomal protein L10.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 15  | L     | 206      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1680  | 1062 | 320 | 291 | 7 |         |       |

- Molecule 16 is a protein called 60S ribosomal protein L11-A.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 16  | M     | 170      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1364  | 854 | 261 | 244 | 5 |         |       |

- Molecule 17 is a protein called 60S ribosomal protein L13.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 17  | N     | 194      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1538  | 962 | 306 | 269 | 1 |         |       |

- Molecule 18 is a protein called Large ribosomal subunit protein eL14 domain-containing protein.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 18  | O     | 129      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1030  | 657 | 194 | 178 | 1 |         |       |

- Molecule 19 is a protein called Ribosomal protein L15.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 19  | P     | 203      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1703  | 1066 | 356 | 279 | 2 |         |       |

- Molecule 20 is a protein called 60S ribosomal protein L16-B.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 20  | Q     | 199      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1587  | 1020 | 299 | 266 | 2 |         |       |

- Molecule 21 is a protein called 60S ribosomal protein L17-B.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 21  | R     | 172      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1384  | 861 | 281 | 242 |         |       |

- Molecule 22 is a protein called 60S ribosomal protein L18-A.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 22  | S     | 185      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1456  | 919 | 293 | 244 |         |       |

- Molecule 23 is a protein called Ribosomal protein L19.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 23  | T     | 182      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1469  | 908 | 316 | 241 | 4 |         |       |

- Molecule 24 is a protein called 60S ribosomal protein L20-A.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 24  | U     | 172      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1448  | 941 | 261 | 242 | 4 |         |       |

- Molecule 25 is a protein called 60S ribosomal protein L21-A.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 25  | V     | 159      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1282  | 816 | 242 | 221 | 3 |         |       |

- Molecule 26 is a protein called 60S ribosomal protein L22.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 26  | W     | 107      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 871   | 566 | 148 | 157 |         |       |

- Molecule 27 is a protein called 60S ribosomal protein L23-B.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 27  | X     | 136      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1005  | 631 | 188 | 178 | 8 |         |       |

- Molecule 28 is a protein called 60S ribosomal protein L24.

| Mol | Chain | Residues | Atoms |     |     |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 28  | Y     | 62       | Total | C   | N   | O  | S | 0       | 0     |
|     |       |          | 517   | 330 | 103 | 83 | 1 |         |       |

- Molecule 29 is a protein called Large ribosomal subunit protein uL23.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 29  | Z     | 117      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 934   | 594 | 171 | 169 |   |         |       |

- Molecule 30 is a protein called 40S ribosomal protein S8.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 30  | ZA    | 194      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1545  | 958 | 309 | 276 | 2 |         |       |

- Molecule 31 is a protein called 40S ribosomal protein S9-A.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 31  | ZB    | 178      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1459  | 921 | 287 | 249 | 2 |         |       |

- Molecule 32 is a protein called 40S ribosomal protein S10-A.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 32  | ZC    | 93       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 786   | 513 | 128 | 144 | 1 |         |       |

- Molecule 33 is a protein called 40S ribosomal protein S11-A.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 33  | ZD    | 143      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1150  | 735 | 219 | 193 | 3 |         |       |

- Molecule 34 is a protein called 40S ribosomal protein S13.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 34  | ZE    | 150      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1192  | 759 | 222 | 210 | 1 |         |       |

- Molecule 35 is a protein called Small ribosomal subunit protein uS11.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 35  | ZF    | 127      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 945   | 578 | 188 | 176 | 3 |         |       |

- Molecule 36 is a protein called 40S ribosomal protein S15.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 36  | ZG    | 116      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 904   | 582 | 161 | 156 | 5 |         |       |

- Molecule 37 is a protein called Small ribosomal subunit protein uS9.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 37  | ZH    | 141      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1100  | 705 | 201 | 193 | 1 |         |       |

- Molecule 38 is a protein called 40S ribosomal protein S17-B.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 38  | ZI    | 128      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1027  | 644 | 190 | 192 | 1 |         |       |

- Molecule 39 is a protein called 40S ribosomal protein S18.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 39  | ZJ    | 141      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1162  | 727 | 228 | 203 | 4 |         |       |

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

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 40  | ZK    | 141      | Total | C   | N   | O   | S | 1       | 0     |
|     |       |          | 1110  | 696 | 210 | 204 |   |         |       |

- Molecule 41 is a protein called Small ribosomal subunit protein uS10.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 41  | ZL    | 100      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 782   | 496 | 142 | 142 | 2 |         |       |

- Molecule 42 is a protein called 40S ribosomal protein S21.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 42  | ZM    | 87       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 678   | 415 | 127 | 134 | 2 |         |       |

- Molecule 43 is a protein called 40S ribosomal protein S22.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 43  | ZO    | 129      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1032  | 656 | 190 | 183 | 3 |         |       |

- Molecule 44 is a protein called 40S ribosomal protein S23.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 44  | ZP    | 143      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1109  | 698 | 219 | 190 | 2 |         |       |

- Molecule 45 is a protein called 40S ribosomal protein S24.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 45  | ZQ    | 130      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1060  | 670 | 205 | 185 |         |       |

- Molecule 46 is a protein called 40S ribosomal protein S25.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 46  | ZR    | 66       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 526   | 338 | 95 | 92 | 1 |         |       |

- Molecule 47 is a protein called 40S ribosomal protein S26.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 47  | ZS    | 98       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 785   | 484 | 166 | 129 | 6 |         |       |

- Molecule 48 is a protein called 40S ribosomal protein S27.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 48  | ZT    | 81       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 617   | 383 | 112 | 115 | 7 |         |       |

- Molecule 49 is a protein called 40S ribosomal protein S28-A.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 49  | ZU    | 59       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 458   | 281 | 89 | 86 | 2 |         |       |

- Molecule 50 is a protein called Small ribosomal subunit protein uS14.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 50  | ZV    | 54       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 449   | 278 | 93 | 74 | 4 |         |       |

- Molecule 51 is a protein called Small ribosomal subunit protein eS30.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 51  | ZW    | 54       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 432   | 270 | 87 | 73 | 2 |         |       |

- Molecule 52 is a protein called Small ribosomal subunit protein RACK1.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 52  | ZY    | 305      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 2359  | 1494 | 402 | 459 | 4 |         |       |

- Molecule 53 is a protein called Ribosomal protein L24.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 53  | a     | 126      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 994   | 624 | 188 | 181 | 1 |         |       |

- Molecule 54 is a protein called 60S ribosomal protein L27.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 54  | b     | 135      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1081  | 691 | 207 | 182 | 1 |         |       |

- Molecule 55 is a protein called 60S ribosomal protein L28.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 55  | c     | 148      | Total | C   | N   | O   | S | 1       | 0     |
|     |       |          | 1183  | 747 | 236 | 198 | 2 |         |       |

- Molecule 56 is a protein called 60S ribosomal protein L29.

| Mol | Chain | Residues | Atoms |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---------|-------|
| 56  | d     | 58       | Total | C   | N   | O  | 0       | 0     |
|     |       |          | 481   | 292 | 110 | 79 |         |       |

- Molecule 57 is a protein called 60S ribosomal protein L30.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 57  | e     | 99       | Total | C   | N   | O   | S       | 0     |
|     |       |          | 744   | 476 | 125 | 139 | 4       | 0     |

- Molecule 58 is a protein called 60S ribosomal protein L31-A.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 58  | f     | 107      | Total | C   | N   | O   | S       | 0     |
|     |       |          | 877   | 553 | 171 | 150 | 3       | 0     |

- Molecule 59 is a protein called 60S ribosomal protein L32.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 59  | g     | 123      | Total | C   | N   | O   | S       | 0     |
|     |       |          | 1002  | 629 | 201 | 170 | 2       | 0     |

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

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 60  | h     | 106      | Total | C   | N   | O   | S       | 0     |
|     |       |          | 859   | 544 | 168 | 146 | 1       | 0     |

- Molecule 61 is a protein called 60S ribosomal protein L34-B.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 61  | i     | 109      | Total | C   | N   | O   | S       | 0     |
|     |       |          | 865   | 538 | 172 | 151 | 4       | 0     |

- Molecule 62 is a protein called 60S ribosomal protein L35.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 62  | j     | 118      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 956   | 603 | 191 | 162 |         |       |

- Molecule 63 is a protein called 60S ribosomal protein L36.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 63  | k     | 98       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 774   | 479 | 163 | 131 | 1 |         |       |

- Molecule 64 is a protein called Ribosomal protein L37.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 64  | l     | 83       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 654   | 396 | 142 | 109 | 7 |         |       |

- Molecule 65 is a protein called Large ribosomal subunit protein eL38.

| Mol | Chain | Residues | Atoms |     |     |     |  | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|--|---------|-------|
| 65  | m     | 77       | Total | C   | N   | O   |  | 0       | 0     |
|     |       |          | 617   | 396 | 112 | 109 |  |         |       |

- Molecule 66 is a protein called Large ribosomal subunit protein eL39.

| Mol | Chain | Residues | Atoms |     |    |    |  | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|--|---------|-------|
| 66  | n     | 50       | Total | C   | N  | O  |  | 0       | 0     |
|     |       |          | 442   | 277 | 98 | 67 |  |         |       |

There is a discrepancy between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment  | Reference      |
|-------|---------|----------|--------|----------|----------------|
| n     | 50      | ASN      | GLY    | conflict | UNP A0A1D8PDT4 |

- Molecule 67 is a protein called Large ribosomal subunit protein eL40.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 67  | o     | 51       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 411   | 255 | 85 | 66 | 5 |         |       |

- Molecule 68 is a protein called Small ribosomal subunit protein eS32.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 68  | p     | 24       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 227   | 138 | 61 | 27 | 1 |         |       |

- Molecule 69 is a protein called 60S ribosomal protein L44.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 69  | q     | 103      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 822   | 517 | 164 | 136 | 5 |         |       |

- Molecule 70 is a protein called 60S ribosomal protein L43.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 70  | r     | 90       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 691   | 425 | 141 | 121 | 4 |         |       |

- Molecule 71 is a protein called Small ribosomal subunit protein uS2.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 71  | s     | 210      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1655  | 1059 | 288 | 305 | 3 |         |       |

- Molecule 72 is a protein called Small ribosomal subunit protein eS1.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 72  | t     | 210      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1685  | 1070 | 310 | 301 | 4 |         |       |

- Molecule 73 is a protein called Rps21 ribosomal protein.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 73  | u     | 216      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1636  | 1048 | 287 | 296 | 5 |         |       |

- Molecule 74 is a protein called Small ribosomal subunit protein uS3.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 74  | v     | 209      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1619  | 1033 | 297 | 284 | 5 |         |       |

- Molecule 75 is a protein called 40S ribosomal protein S4.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 75  | w     | 260      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 2056  | 1303 | 386 | 361 | 6 |         |       |

- Molecule 76 is a protein called 40S ribosomal protein uS7 (formerly S5).

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 76  | x     | 206      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1610  | 1008 | 300 | 298 | 4 |         |       |

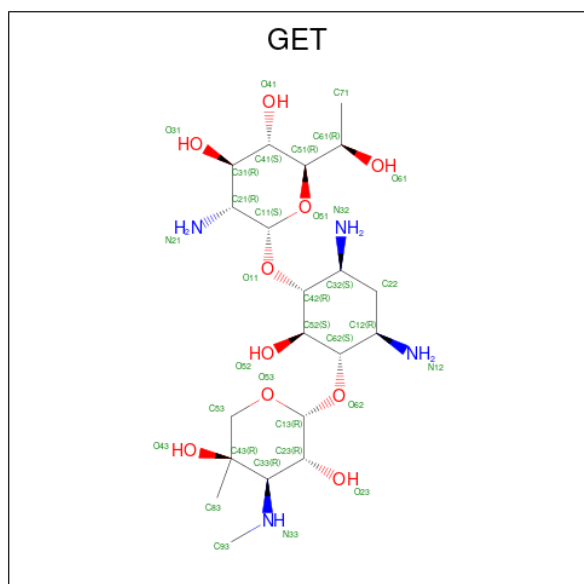
- Molecule 77 is a protein called 40S ribosomal protein S6.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 77  | y     | 226      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1819  | 1128 | 355 | 331 | 5 |         |       |

- Molecule 78 is a protein called 40S ribosomal protein eS7 (formerly S7).

| Mol | Chain | Residues | Atoms |     |     |     |  | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|--|---------|-------|
| 78  | z     | 182      | Total | C   | N   | O   |  | 0       | 0     |
|     |       |          | 1466  | 939 | 264 | 263 |  |         |       |

- Molecule 79 is GENETICIN (CCD ID: GET) (formula:  $C_{20}H_{40}N_4O_{10}$ ).



| Mol | Chain | Residues | Atoms |    |   |    |  | AltConf |
|-----|-------|----------|-------|----|---|----|--|---------|
| 79  | A     | 1        | Total | C  | N | O  |  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |  |         |
| 79  | A     | 1        | Total | C  | N | O  |  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |  |         |
| 79  | A     | 1        | Total | C  | N | O  |  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |  |         |
| 79  | A     | 1        | Total | C  | N | O  |  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |  |         |

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| Mol | Chain | Residues | Atoms |    |   |    | AltConf |
|-----|-------|----------|-------|----|---|----|---------|
| 79  | A     | 1        | Total | C  | N | O  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |         |
| 79  | A     | 1        | Total | C  | N | O  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |         |
| 79  | A     | 1        | Total | C  | N | O  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |         |
| 79  | A     | 1        | Total | C  | N | O  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |         |
| 79  | A     | 1        | Total | C  | N | O  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |         |
| 79  | A     | 1        | Total | C  | N | O  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |         |
| 79  | A     | 1        | Total | C  | N | O  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |         |
| 79  | A     | 1        | Total | C  | N | O  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |         |
| 79  | A     | 1        | Total | C  | N | O  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |         |
| 79  | A     | 1        | Total | C  | N | O  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |         |
| 79  | A     | 1        | Total | C  | N | O  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |         |
| 79  | A     | 1        | Total | C  | N | O  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |         |
| 79  | A     | 1        | Total | C  | N | O  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |         |
| 79  | A     | 1        | Total | C  | N | O  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |         |
| 79  | A     | 1        | Total | C  | N | O  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |         |
| 79  | A     | 1        | Total | C  | N | O  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |         |
| 79  | A     | 1        | Total | C  | N | O  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |         |
| 79  | A     | 1        | Total | C  | N | O  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |         |
| 79  | A     | 1        | Total | C  | N | O  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |         |

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| Mol | Chain | Residues | Atoms       |         |        |         | AltConf |
|-----|-------|----------|-------------|---------|--------|---------|---------|
| 79  | A     | 1        | Total<br>34 | C<br>20 | N<br>4 | O<br>10 | 0       |
| 79  | A     | 1        | Total<br>34 | C<br>20 | N<br>4 | O<br>10 | 0       |
| 79  | A     | 1        | Total<br>34 | C<br>20 | N<br>4 | O<br>10 | 0       |
| 79  | A     | 1        | Total<br>34 | C<br>20 | N<br>4 | O<br>10 | 0       |
| 79  | A     | 1        | Total<br>34 | C<br>20 | N<br>4 | O<br>10 | 0       |
| 79  | A     | 1        | Total<br>34 | C<br>20 | N<br>4 | O<br>10 | 0       |
| 79  | B     | 1        | Total<br>34 | C<br>20 | N<br>4 | O<br>10 | 0       |
| 79  | C     | 1        | Total<br>34 | C<br>20 | N<br>4 | O<br>10 | 0       |
| 79  | C     | 1        | Total<br>34 | C<br>20 | N<br>4 | O<br>10 | 0       |
| 79  | C     | 1        | Total<br>34 | C<br>20 | N<br>4 | O<br>10 | 0       |
| 79  | C     | 1        | Total<br>34 | C<br>20 | N<br>4 | O<br>10 | 0       |
| 79  | CA    | 1        | Total<br>34 | C<br>20 | N<br>4 | O<br>10 | 0       |
| 79  | CA    | 1        | Total<br>34 | C<br>20 | N<br>4 | O<br>10 | 0       |
| 79  | CA    | 1        | Total<br>34 | C<br>20 | N<br>4 | O<br>10 | 0       |
| 79  | CA    | 1        | Total<br>34 | C<br>20 | N<br>4 | O<br>10 | 0       |
| 79  | CA    | 1        | Total<br>34 | C<br>20 | N<br>4 | O<br>10 | 0       |
| 79  | CA    | 1        | Total<br>34 | C<br>20 | N<br>4 | O<br>10 | 0       |
| 79  | CA    | 1        | Total<br>34 | C<br>20 | N<br>4 | O<br>10 | 0       |
| 79  | CA    | 1        | Total<br>34 | C<br>20 | N<br>4 | O<br>10 | 0       |
| 79  | CA    | 1        | Total<br>34 | C<br>20 | N<br>4 | O<br>10 | 0       |
| 79  | CA    | 1        | Total<br>34 | C<br>20 | N<br>4 | O<br>10 | 0       |
| 79  | CA    | 1        | Total<br>34 | C<br>20 | N<br>4 | O<br>10 | 0       |

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| Mol | Chain | Residues | Atoms |    |   |    | AltConf |
|-----|-------|----------|-------|----|---|----|---------|
| 79  | CA    | 1        | Total | C  | N | O  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |         |
| 79  | CA    | 1        | Total | C  | N | O  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |         |
| 79  | CA    | 1        | Total | C  | N | O  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |         |
| 79  | CA    | 1        | Total | C  | N | O  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |         |
| 79  | CA    | 1        | Total | C  | N | O  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |         |
| 79  | CA    | 1        | Total | C  | N | O  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |         |
| 79  | CA    | 1        | Total | C  | N | O  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |         |
| 79  | E     | 1        | Total | C  | N | O  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |         |
| 79  | T     | 1        | Total | C  | N | O  | 0       |
|     |       |          | 34    | 20 | 4 | 10 |         |

- Molecule 80 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

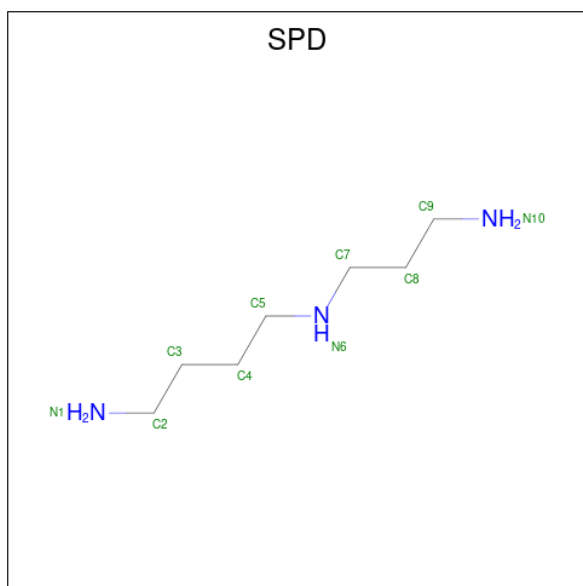
| Mol | Chain | Residues | Atoms |     | AltConf |
|-----|-------|----------|-------|-----|---------|
| 80  | A     | 166      | Total | Mg  | 0       |
|     |       |          | 166   | 166 |         |
| 80  | B     | 2        | Total | Mg  | 0       |
|     |       |          | 2     | 2   |         |
| 80  | C     | 2        | Total | Mg  | 0       |
|     |       |          | 2     | 2   |         |
| 80  | CA    | 73       | Total | Mg  | 0       |
|     |       |          | 73    | 73  |         |
| 80  | E     | 1        | Total | Mg  | 0       |
|     |       |          | 1     | 1   |         |
| 80  | P     | 2        | Total | Mg  | 0       |
|     |       |          | 2     | 2   |         |
| 80  | R     | 1        | Total | Mg  | 0       |
|     |       |          | 1     | 1   |         |
| 80  | X     | 1        | Total | Mg  | 0       |
|     |       |          | 1     | 1   |         |

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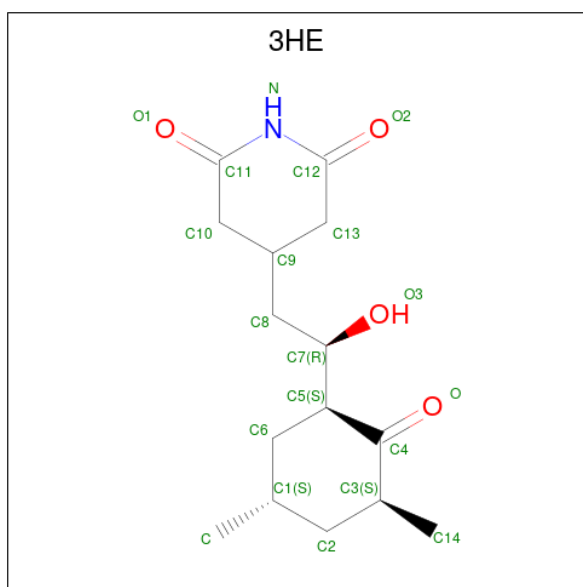
| Mol | Chain | Residues | Atoms |    | AltConf |
|-----|-------|----------|-------|----|---------|
| 80  | ZA    | 1        | Total | Mg | 0       |
|     |       |          | 1     | 1  |         |
| 80  | ZK    | 1        | Total | Mg | 0       |
|     |       |          | 1     | 1  |         |
| 80  | ZQ    | 1        | Total | Mg | 0       |
|     |       |          | 1     | 1  |         |
| 80  | k     | 1        | Total | Mg | 0       |
|     |       |          | 1     | 1  |         |
| 80  | x     | 1        | Total | Mg | 0       |
|     |       |          | 1     | 1  |         |

- Molecule 81 is SPERMIDINE (CCD ID: SPD) (formula:  $C_7H_{19}N_3$ ).



| Mol | Chain | Residues | Atoms |   |   | AltConf |
|-----|-------|----------|-------|---|---|---------|
| 81  | A     | 1        | Total | C | N | 0       |
|     |       |          | 10    | 7 | 3 |         |
| 81  | A     | 1        | Total | C | N | 0       |
|     |       |          | 10    | 7 | 3 |         |
| 81  | CA    | 1        | Total | C | N | 0       |
|     |       |          | 10    | 7 | 3 |         |

- Molecule 82 is 4-{(2R)-2-[(1S,3S,5S)-3,5-dimethyl-2-oxocyclohexyl]-2-hydroxyethyl}piperidine-2,6-dione (CCD ID: 3HE) (formula:  $C_{15}H_{23}NO_4$ ).



| Mol | Chain | Residues | Atoms |    |   |   | AltConf |
|-----|-------|----------|-------|----|---|---|---------|
| 82  | A     | 1        | Total | C  | N | O | 0       |
|     |       |          | 20    | 15 | 1 | 4 |         |

- Molecule 83 is ZINC ION (CCD ID: ZN) (formula: Zn).

| Mol | Chain | Residues | Atoms |    | AltConf |
|-----|-------|----------|-------|----|---------|
| 83  | ZS    | 1        | Total | Zn | 0       |
|     |       |          | 1     | 1  |         |
| 83  | ZT    | 1        | Total | Zn | 0       |
|     |       |          | 1     | 1  |         |
| 83  | ZV    | 1        | Total | Zn | 0       |
|     |       |          | 1     | 1  |         |
| 83  | i     | 1        | Total | Zn | 0       |
|     |       |          | 1     | 1  |         |
| 83  | l     | 1        | Total | Zn | 0       |
|     |       |          | 1     | 1  |         |
| 83  | o     | 1        | Total | Zn | 0       |
|     |       |          | 1     | 1  |         |
| 83  | q     | 1        | Total | Zn | 0       |
|     |       |          | 1     | 1  |         |
| 83  | r     | 1        | Total | Zn | 0       |
|     |       |          | 1     | 1  |         |

- Molecule 84 is water.

| Mol | Chain | Residues | Atoms         |           | AltConf |
|-----|-------|----------|---------------|-----------|---------|
| 84  | A     | 5741     | Total<br>5741 | O<br>5741 | 0       |
| 84  | B     | 58       | Total<br>58   | O<br>58   | 0       |
| 84  | C     | 243      | Total<br>243  | O<br>243  | 0       |
| 84  | CA    | 1595     | Total<br>1595 | O<br>1595 | 0       |
| 84  | D     | 131      | Total<br>131  | O<br>131  | 0       |
| 84  | E     | 153      | Total<br>153  | O<br>153  | 0       |
| 84  | F     | 136      | Total<br>136  | O<br>136  | 0       |
| 84  | G     | 36       | Total<br>36   | O<br>36   | 0       |
| 84  | H     | 9        | Total<br>9    | O<br>9    | 0       |
| 84  | I     | 70       | Total<br>70   | O<br>70   | 0       |
| 84  | J     | 27       | Total<br>27   | O<br>27   | 0       |
| 84  | K     | 17       | Total<br>17   | O<br>17   | 0       |
| 84  | L     | 25       | Total<br>25   | O<br>25   | 0       |
| 84  | M     | 1        | Total<br>1    | O<br>1    | 0       |
| 84  | N     | 81       | Total<br>81   | O<br>81   | 0       |
| 84  | O     | 21       | Total<br>21   | O<br>21   | 0       |
| 84  | P     | 132      | Total<br>132  | O<br>132  | 0       |
| 84  | Q     | 80       | Total<br>80   | O<br>80   | 0       |
| 84  | R     | 60       | Total<br>60   | O<br>60   | 0       |
| 84  | S     | 67       | Total<br>67   | O<br>67   | 0       |
| 84  | T     | 47       | Total<br>47   | O<br>47   | 0       |
| 84  | U     | 49       | Total<br>49   | O<br>49   | 0       |

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| Mol | Chain | Residues | Atoms       |         | AltConf |
|-----|-------|----------|-------------|---------|---------|
| 84  | V     | 49       | Total<br>49 | O<br>49 | 0       |
| 84  | X     | 43       | Total<br>43 | O<br>43 | 0       |
| 84  | Y     | 26       | Total<br>26 | O<br>26 | 0       |
| 84  | Z     | 30       | Total<br>30 | O<br>30 | 0       |
| 84  | ZA    | 55       | Total<br>55 | O<br>55 | 0       |
| 84  | ZB    | 24       | Total<br>24 | O<br>24 | 0       |
| 84  | ZD    | 70       | Total<br>70 | O<br>70 | 0       |
| 84  | ZE    | 33       | Total<br>33 | O<br>33 | 0       |
| 84  | ZF    | 1        | Total<br>1  | O<br>1  | 0       |
| 84  | ZM    | 28       | Total<br>28 | O<br>28 | 0       |
| 84  | ZO    | 69       | Total<br>69 | O<br>69 | 0       |
| 84  | ZP    | 43       | Total<br>43 | O<br>43 | 0       |
| 84  | ZQ    | 11       | Total<br>11 | O<br>11 | 0       |
| 84  | ZS    | 7        | Total<br>7  | O<br>7  | 0       |
| 84  | ZT    | 15       | Total<br>15 | O<br>15 | 0       |
| 84  | ZW    | 3        | Total<br>3  | O<br>3  | 0       |
| 84  | a     | 23       | Total<br>23 | O<br>23 | 0       |
| 84  | b     | 8        | Total<br>8  | O<br>8  | 0       |
| 84  | c     | 81       | Total<br>81 | O<br>81 | 0       |
| 84  | d     | 24       | Total<br>24 | O<br>24 | 0       |
| 84  | e     | 10       | Total<br>10 | O<br>10 | 0       |

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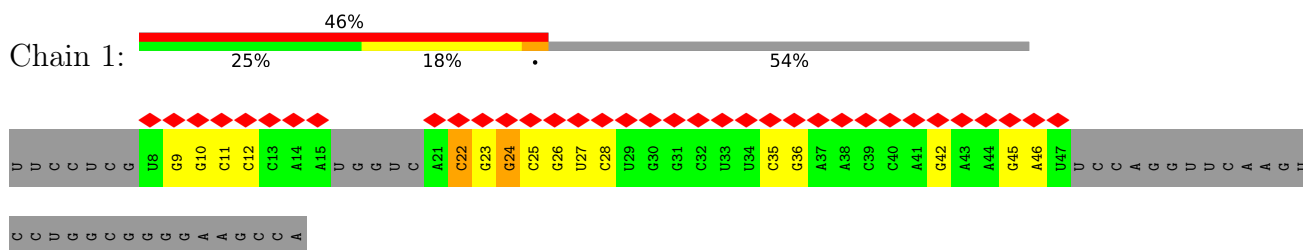
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| Mol | Chain | Residues | Atoms       |         | AltConf |
|-----|-------|----------|-------------|---------|---------|
| 84  | f     | 18       | Total<br>18 | O<br>18 | 0       |
| 84  | g     | 67       | Total<br>67 | O<br>67 | 0       |
| 84  | h     | 49       | Total<br>49 | O<br>49 | 0       |
| 84  | i     | 40       | Total<br>40 | O<br>40 | 0       |
| 84  | j     | 32       | Total<br>32 | O<br>32 | 0       |
| 84  | k     | 26       | Total<br>26 | O<br>26 | 0       |
| 84  | l     | 47       | Total<br>47 | O<br>47 | 0       |
| 84  | m     | 4        | Total<br>4  | O<br>4  | 0       |
| 84  | n     | 19       | Total<br>19 | O<br>19 | 0       |
| 84  | o     | 5        | Total<br>5  | O<br>5  | 0       |
| 84  | p     | 2        | Total<br>2  | O<br>2  | 0       |
| 84  | q     | 38       | Total<br>38 | O<br>38 | 0       |
| 84  | r     | 30       | Total<br>30 | O<br>30 | 0       |
| 84  | s     | 11       | Total<br>11 | O<br>11 | 0       |
| 84  | t     | 1        | Total<br>1  | O<br>1  | 0       |
| 84  | u     | 45       | Total<br>45 | O<br>45 | 0       |
| 84  | w     | 50       | Total<br>50 | O<br>50 | 0       |
| 84  | y     | 29       | Total<br>29 | O<br>29 | 0       |
| 84  | z     | 14       | Total<br>14 | O<br>14 | 0       |

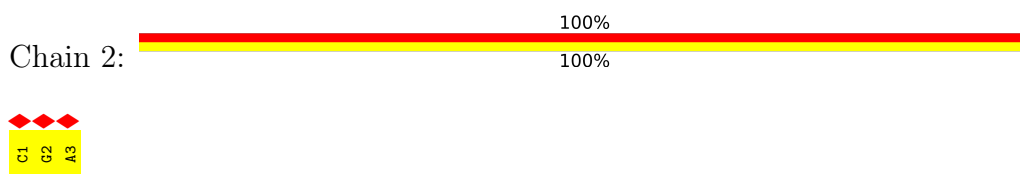
### 3 Residue-property plots

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

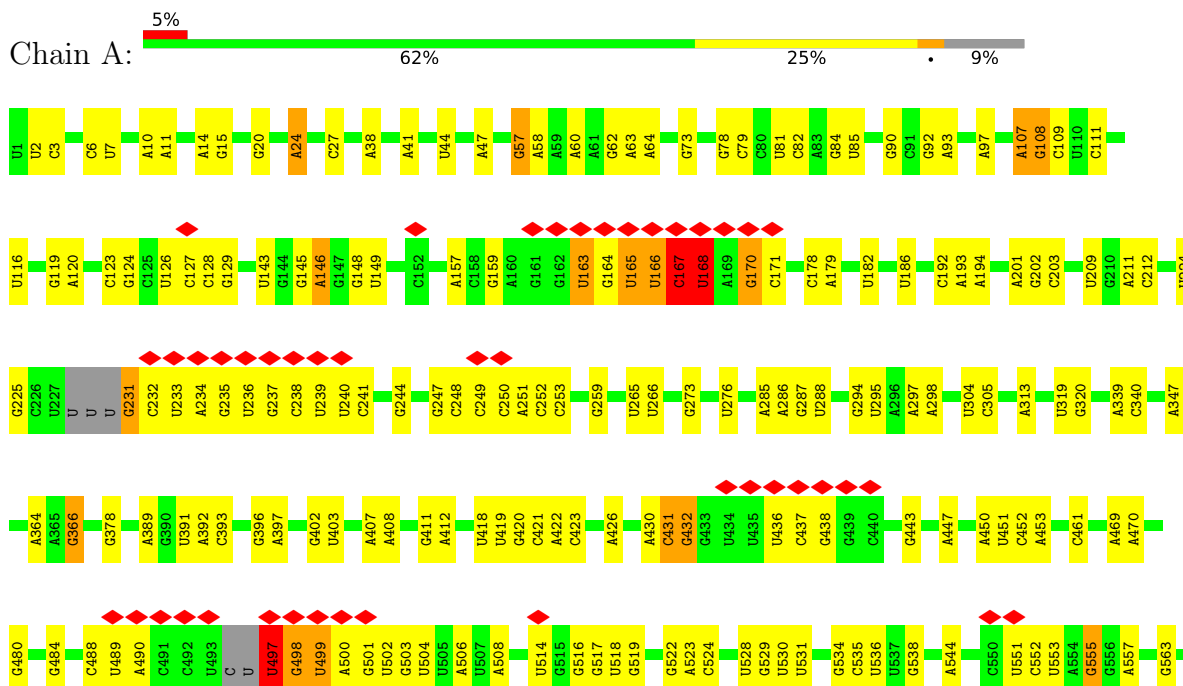
- Molecule 1: P-site tRNA

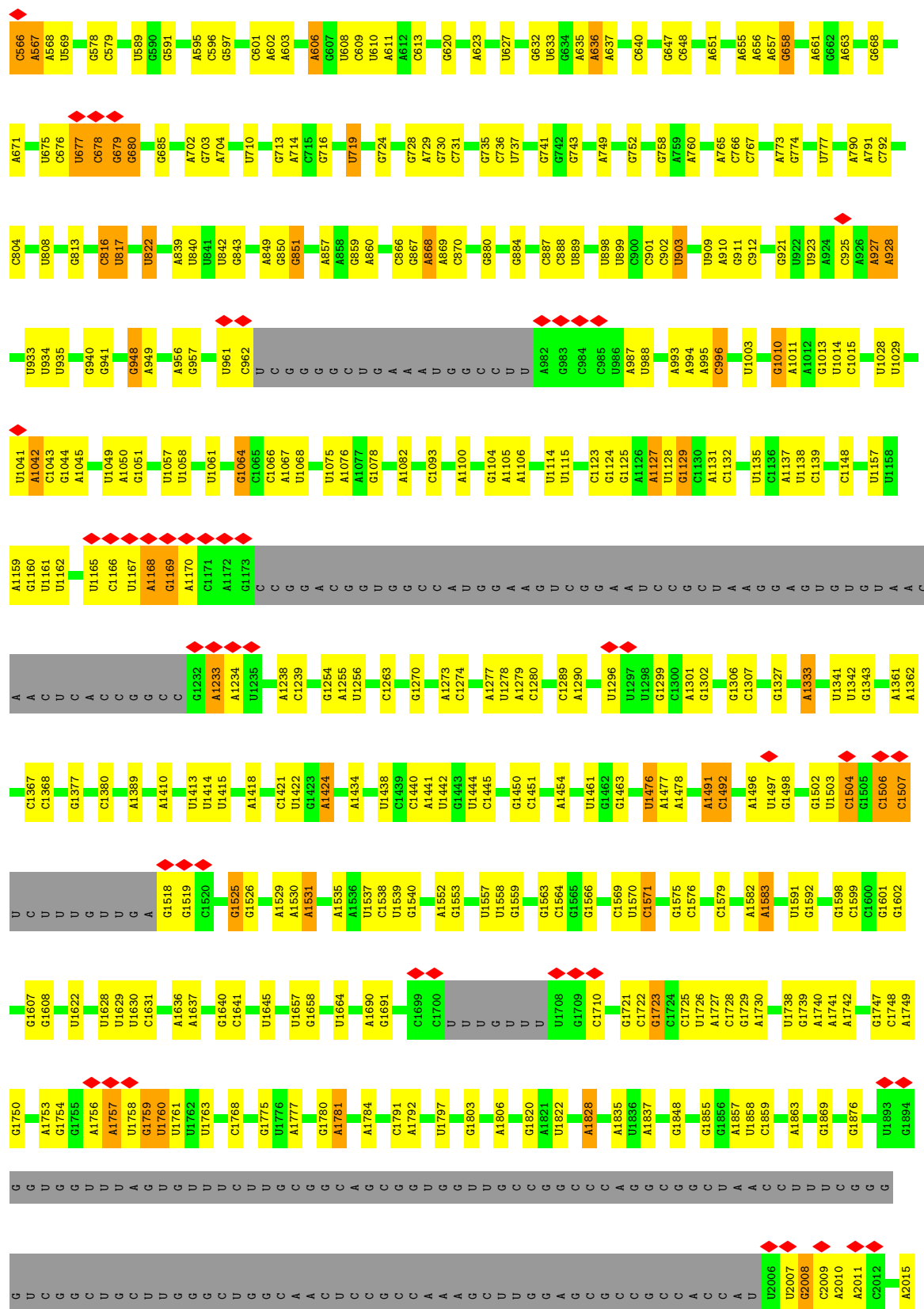


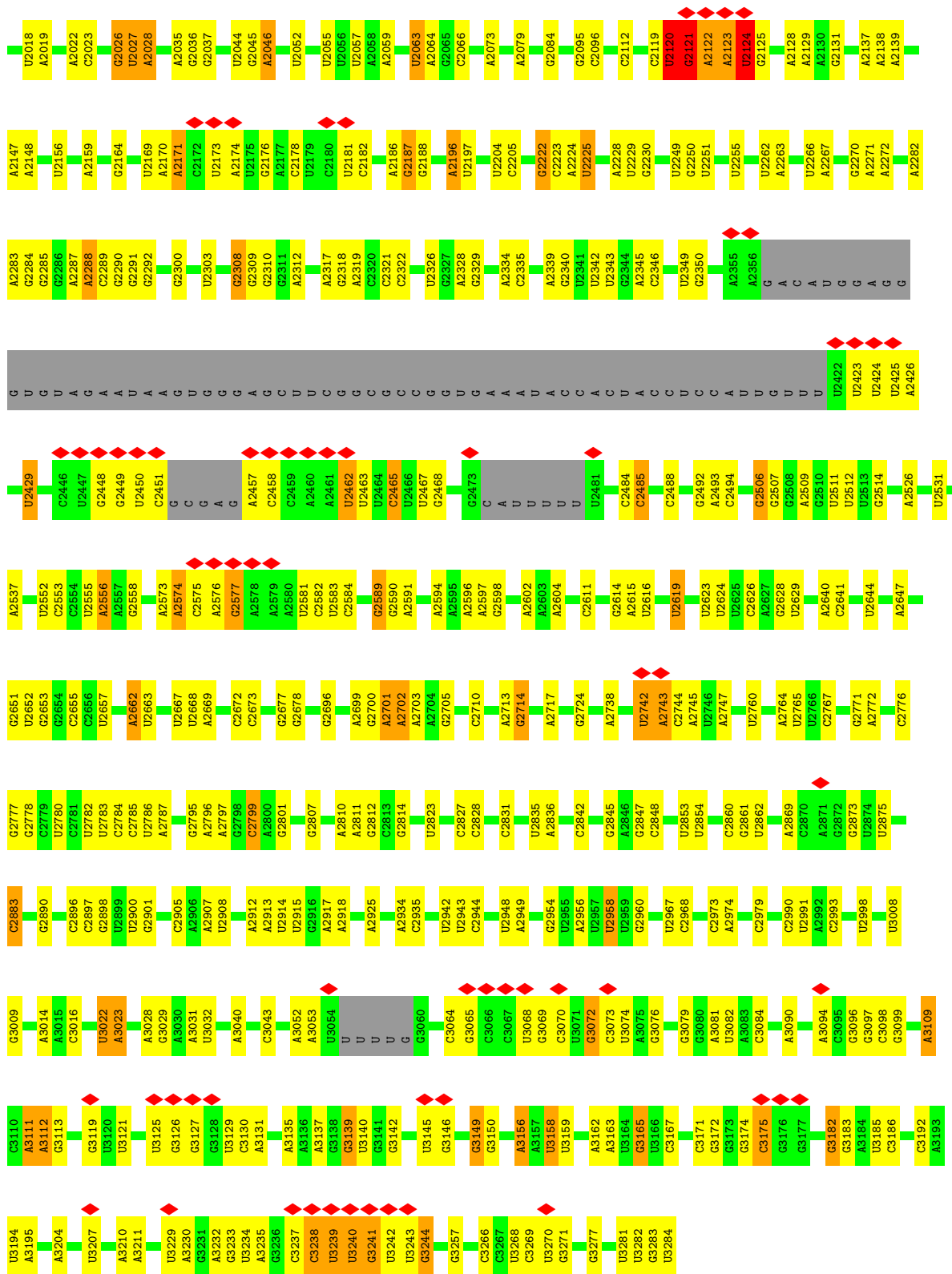
- Molecule 2: RNA (5'-R(P\*CP\*GP\*A)-3')



- Molecule 3: 25S rRNA





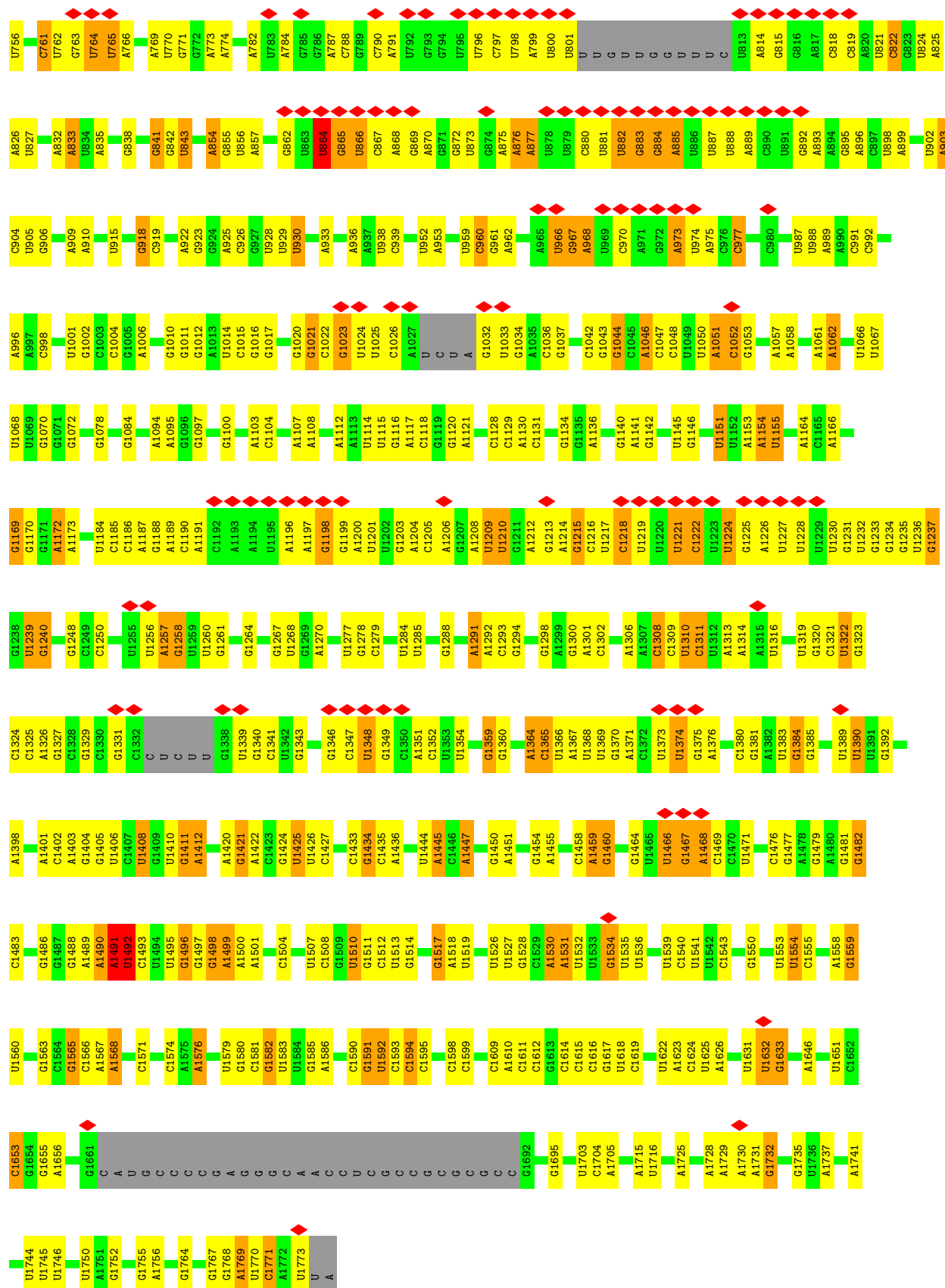


• Molecule 4: 5S rRNA

Chain B:

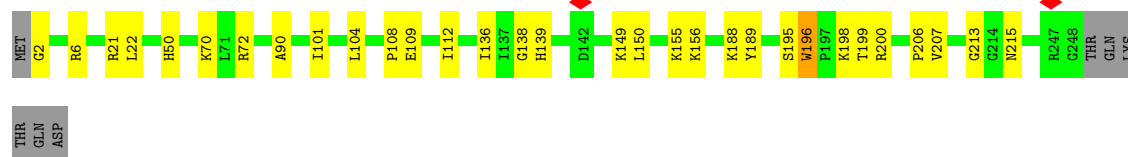






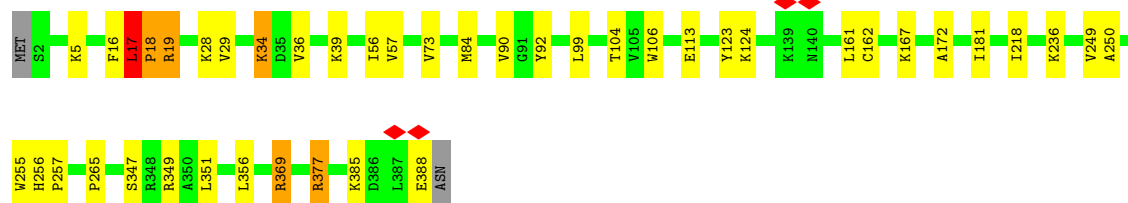
• Molecule 7: 60S ribosomal protein L2-A

Chain D:  85% 12%



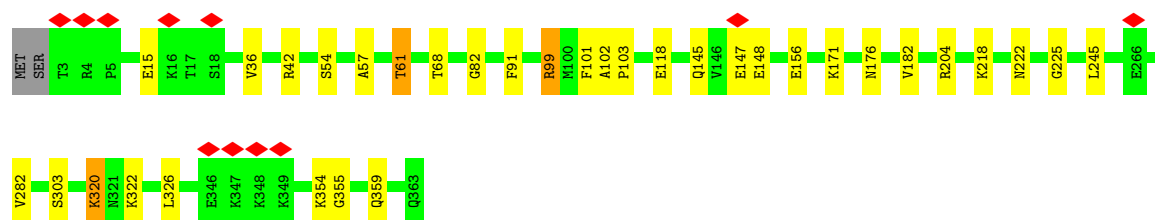
- Molecule 8: Large ribosomal subunit protein uL3

Chain E:  88% 10%



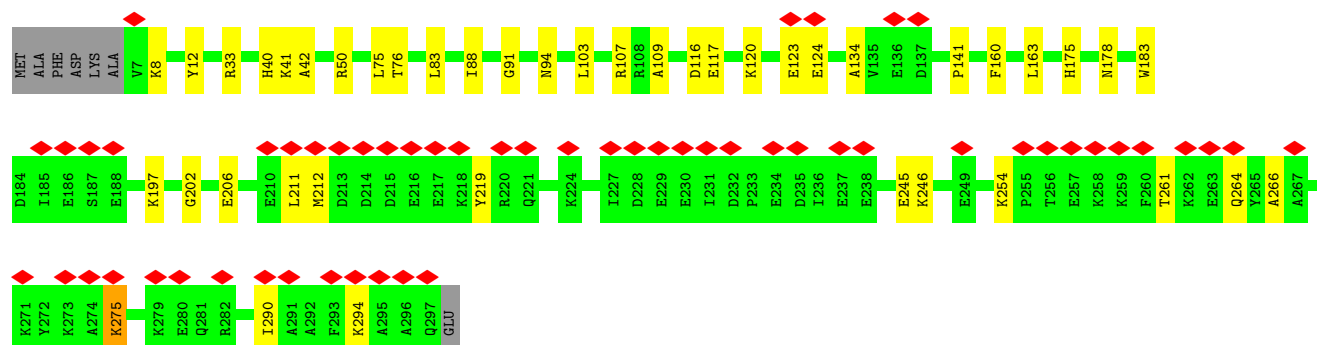
- Molecule 9: 60S ribosomal protein L4-A

Chain F:  90% 9%



- Molecule 10: 60S ribosomal protein L5

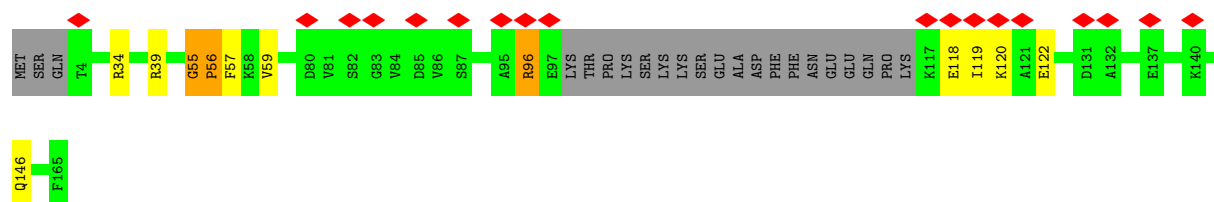
Chain G:  19% 83% 14%



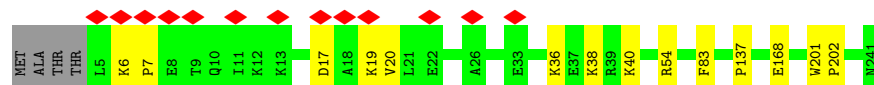
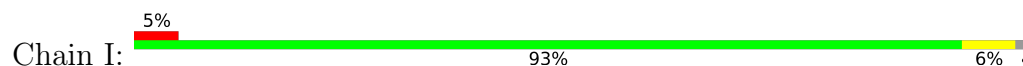
- Molecule 11: 60S ribosomal protein L6

Chain H:  11% 79% 5% 13%

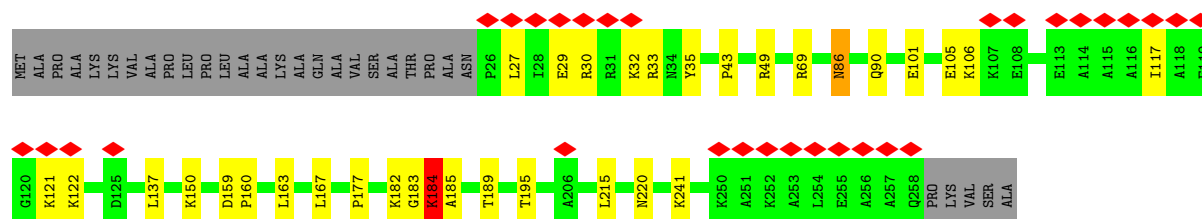
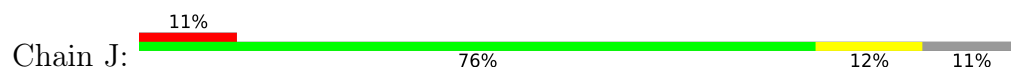




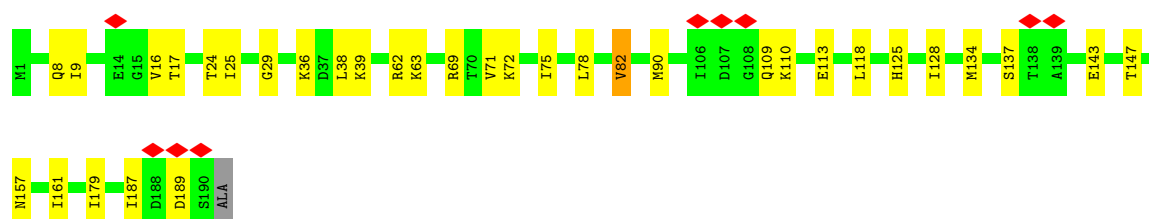
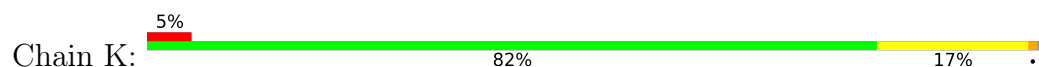
- Molecule 12: 60S ribosomal protein L7



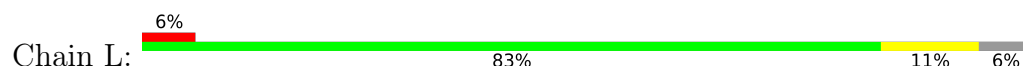
- Molecule 13: 60S ribosomal protein L8



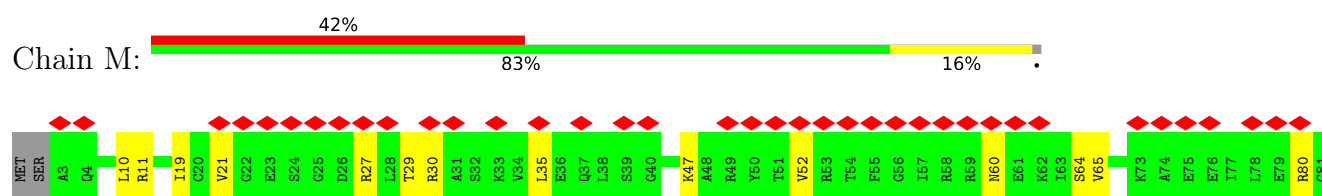
- Molecule 14: 60S ribosomal protein L9-B



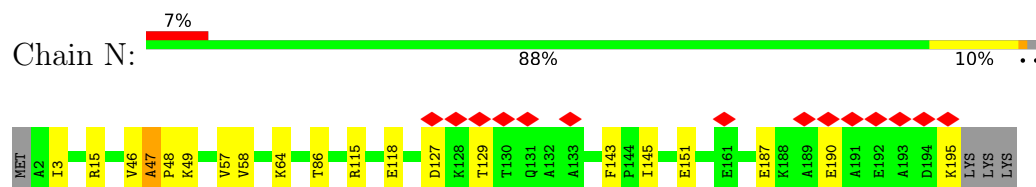
- Molecule 15: 60S ribosomal protein L10



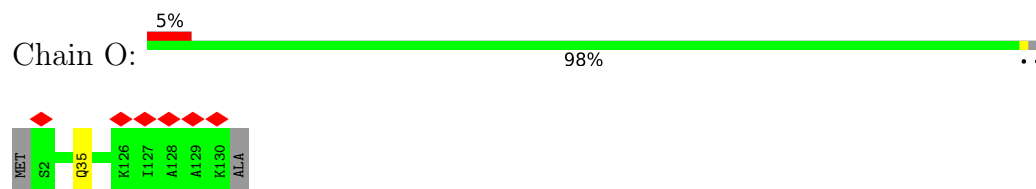
- Molecule 16: 60S ribosomal protein L11-A



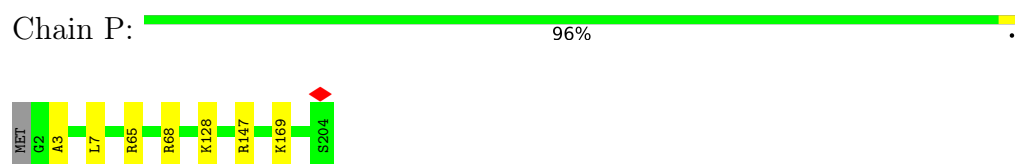
- Molecule 17: 60S ribosomal protein L13



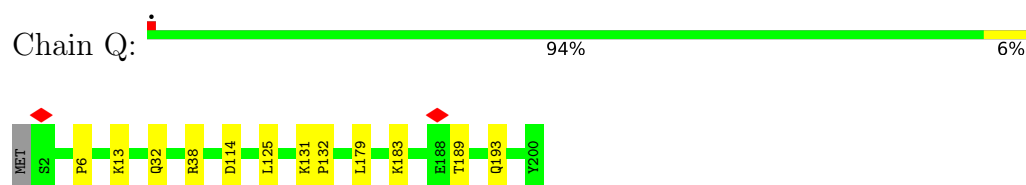
- Molecule 18: Large ribosomal subunit protein eL14 domain-containing protein



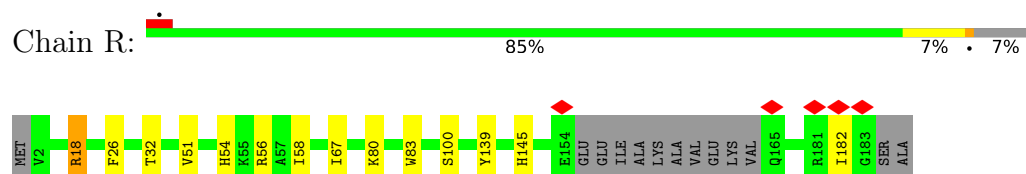
- Molecule 19: Ribosomal protein L15



- Molecule 20: 60S ribosomal protein L16-B

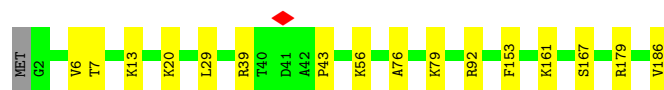


- Molecule 21: 60S ribosomal protein L17-B

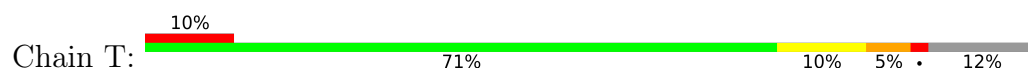


- Molecule 22: 60S ribosomal protein L18-A

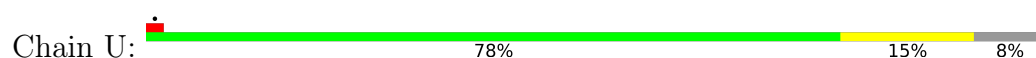




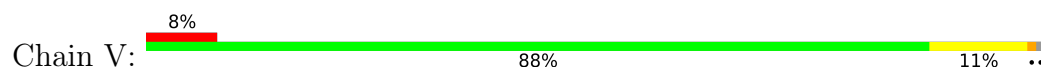
- Molecule 23: Ribosomal protein L19



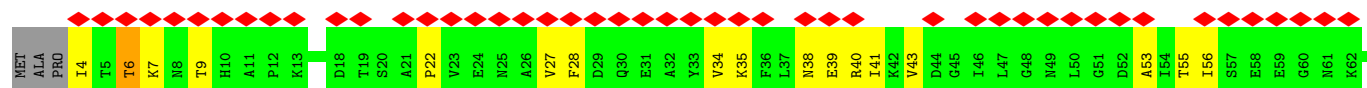
- Molecule 24: 60S ribosomal protein L20-A



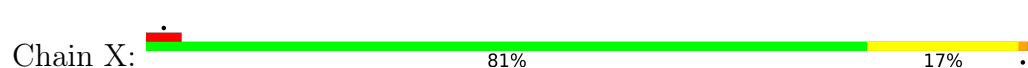
- Molecule 25: 60S ribosomal protein L21-A

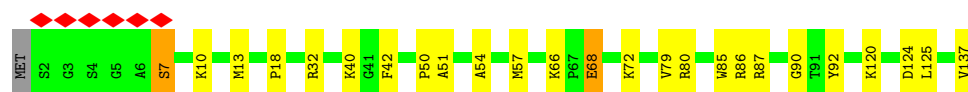


- Molecule 26: 60S ribosomal protein L22

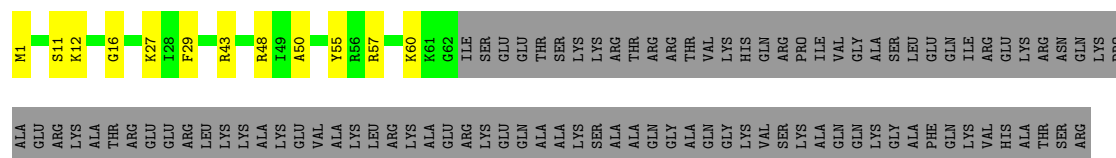


- Molecule 27: 60S ribosomal protein L23-B

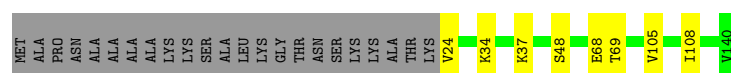
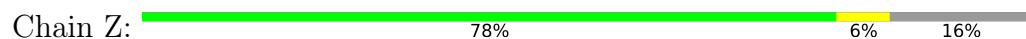




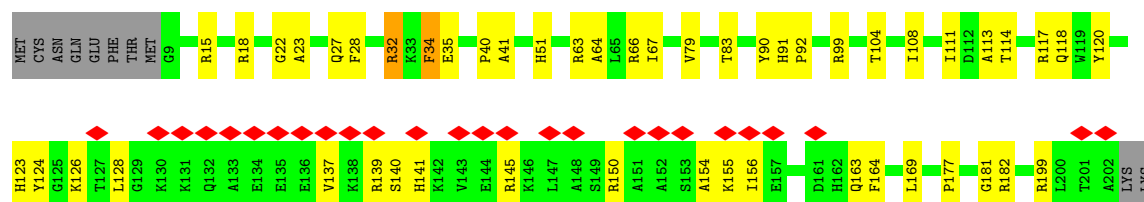
- Molecule 28: 60S ribosomal protein L24



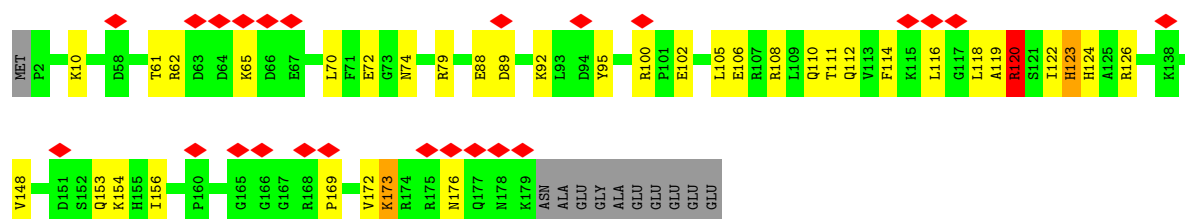
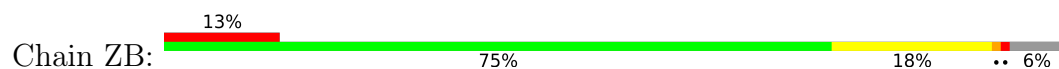
- Molecule 29: Large ribosomal subunit protein uL23



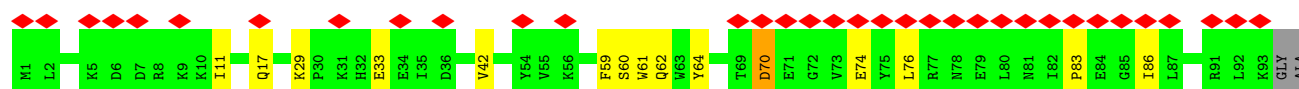
- Molecule 30: 40S ribosomal protein S8



- Molecule 31: 40S ribosomal protein S9-A



- Molecule 32: 40S ribosomal protein S10-A



PRO ALA ALA GLN ARG PRO PRO PRO ILE ARG GLY GLY PRO GLN ARG PHE ARG GLY GLY ASP SER TYR ARG ARG ALA ARG ASP

- Molecule 33: 40S ribosomal protein S11-A

Chain ZD: 

MET ALA THR GLU L5 T6 R11 A12 K24 T25 E26 G27 N28 K29 K30 K36 K43 T49 E50 M80 T83 P95 R103 P113 R116 C128 L131 S132 K133 K146 A147 LYS SER LYS GLN PHE THR LYS PHE

- Molecule 34: 40S ribosomal protein S13

Chain ZE: 

MET G2 S7 G8 K9 S14 A15 I16 F26 K27 L28 D31 G44 R55 D56 S61 Q62 A63 V66 T67 E83 D87 L88 Y89 K94 E103 R104 N105 R106 K107 D110 R114 P136 W139 A144 S147 A148 L149 V150 R151

- Molecule 35: Small ribosomal subunit protein uS11

Chain ZF: 

MET SER ALA ASP ARG S6 Q7 V8 F9 G10 V11 A12 R13 T14 Y15 A16 S17 F18 N19 D20 T21 F22 V23 H24 V25 T26 D27 L28 S29 G30 S31 E32 T33 I34 S35 R36 V37 T38 G39 G40 M41 K42 V43 K44 A45 D46 R47 D48 E49 S50 S51 P52 Y53 A54 A55 M56 L57 A58 A59 Q60

D61 V62 A63 A64 K65 C66 K67 E68 V69 G70 I71 T72 A73 V74 H75 V76 K77 I78 R79 A80 T81 G82 G83 T84 K85 T86 K87 T88 P89 G90 P91 G92 G93 Q94 S95 A96 L97 R98 A99 L100 A101 R102 S103 G104 L105 R106 I107 G108 R109 I110 E111 D112 V113 T114 P115 V116 P117 D119 S120

- Molecule 36: 40S ribosomal protein S15

Chain ZG: 

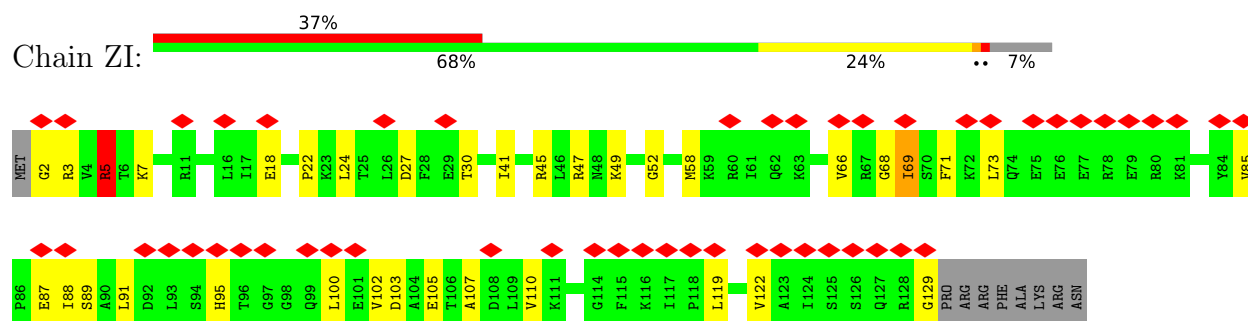
MET ALA THR ASN ARG LYS S14 F15 K18 D21 L22 E23 Q24 L25 L26 K27 L28 D29 T30 E31 E32 L36 V41 R42 R43 G50 P53 M54 R61 L65 A66 A67 P68 A69 N70 E71 K72 R81 R82 M83 E88 E106 I107

- Molecule 37: Small ribosomal subunit protein uS9

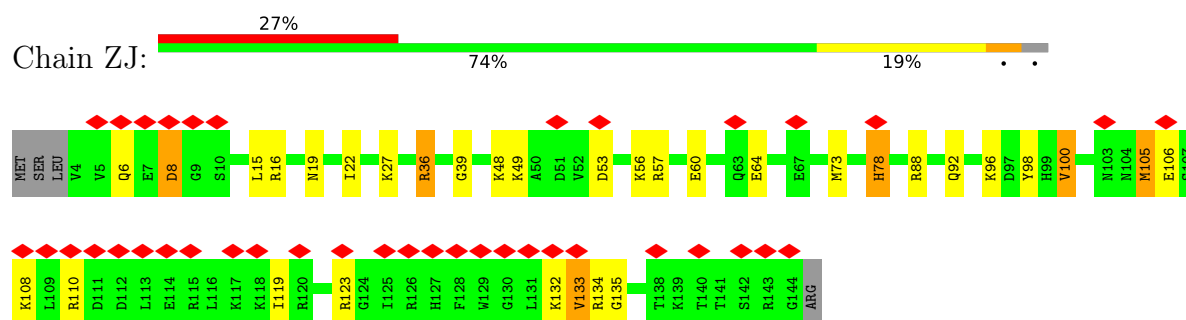
Chain ZH: 

MET S2 T3 T16 K22 K25 G26 L27 I28 K29 E39 P40 R44 P45 K46 V47 Y48 E49 D63 I64 Q82 L88 D97 E98 A99 E103 D112 K113 T114 V117 A118 R121 F128 R136 R142

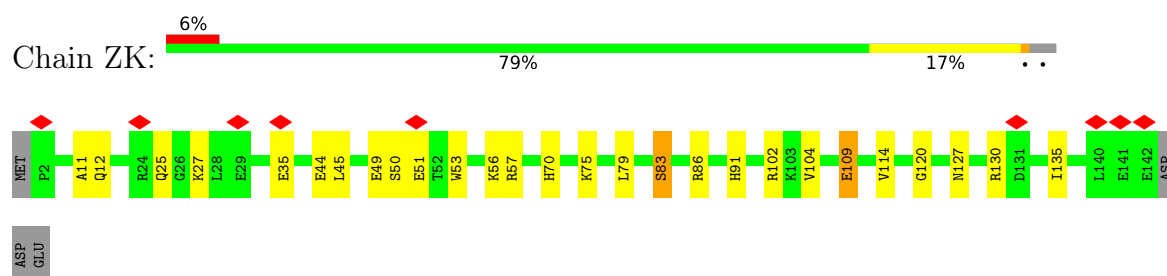
- Molecule 38: 40S ribosomal protein S17-B



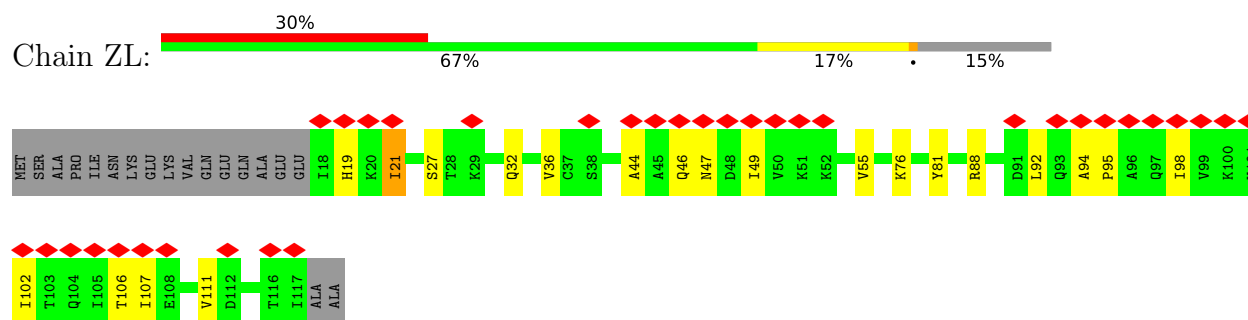
- Molecule 39: 40S ribosomal protein S18



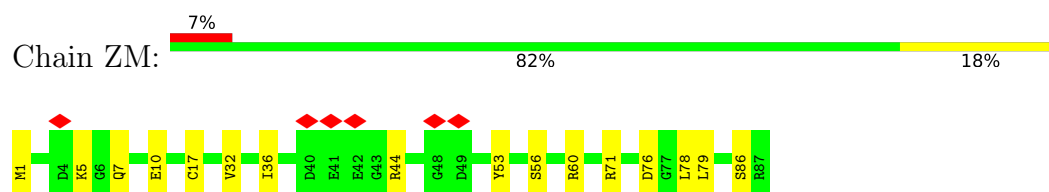
- Molecule 40: 40S ribosomal protein S19-A



- Molecule 41: Small ribosomal subunit protein uS10



- Molecule 42: 40S ribosomal protein S21



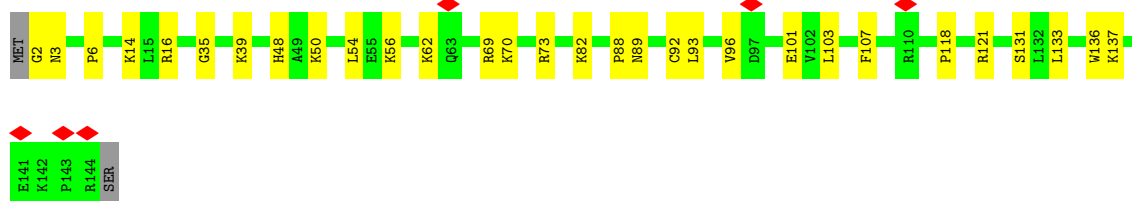
- Molecule 43: 40S ribosomal protein S22

Chain ZO:  79% 20%



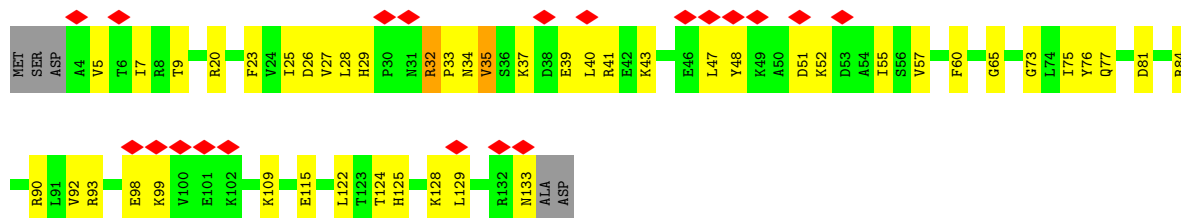
- Molecule 44: 40S ribosomal protein S23

Chain ZP:  78% 21%

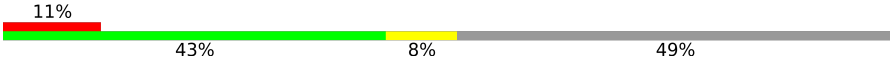


- Molecule 45: 40S ribosomal protein S24

Chain ZQ:  15% 62% 33%

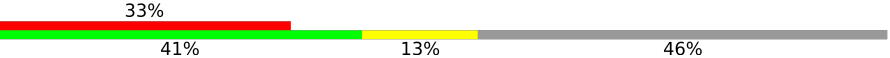


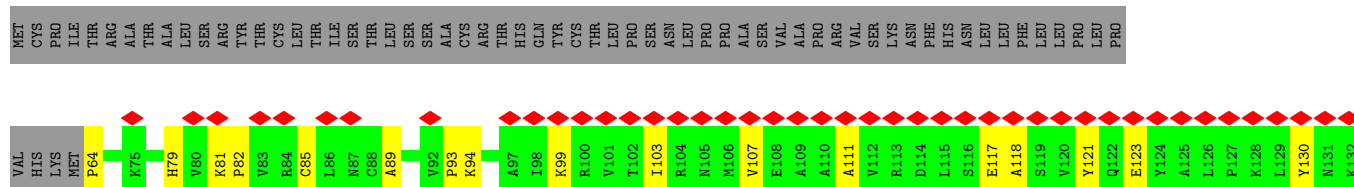
- Molecule 46: 40S ribosomal protein S25

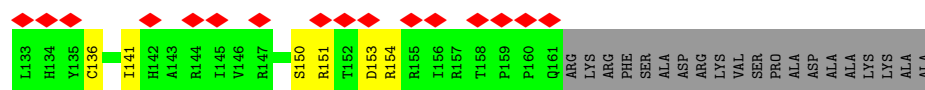
Chain ZR:  11% 43% 8% 49%



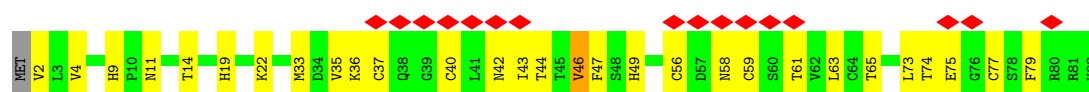
- Molecule 47: 40S ribosomal protein S26

Chain ZS:  33% 41% 13% 46%

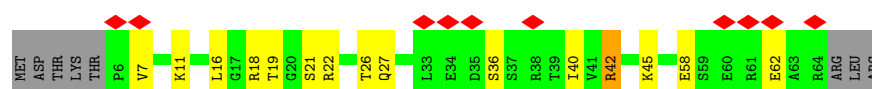




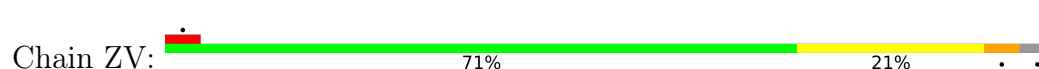
- Molecule 48: 40S ribosomal protein S27



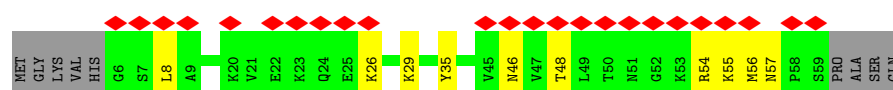
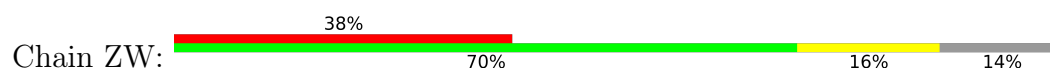
- Molecule 49: 40S ribosomal protein S28-A



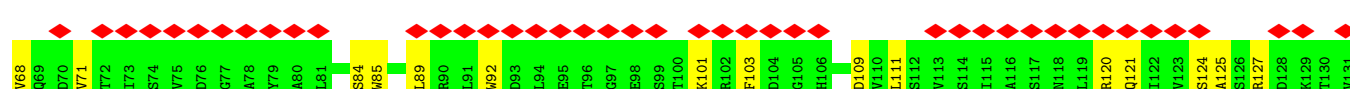
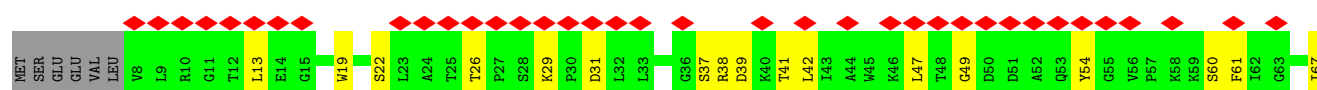
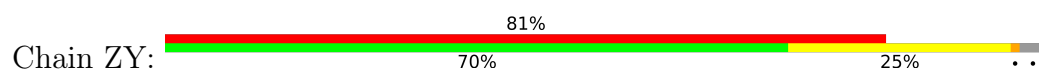
- Molecule 50: Small ribosomal subunit protein uS14

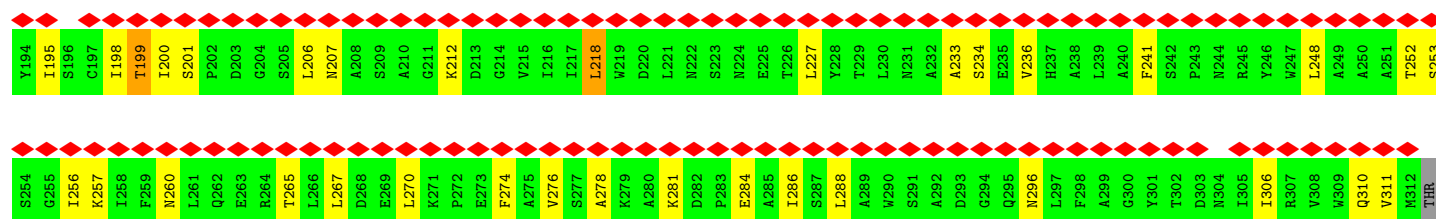


- Molecule 51: Small ribosomal subunit protein eS30



- Molecule 52: Small ribosomal subunit protein RACK1





SER  
SER  
ALA

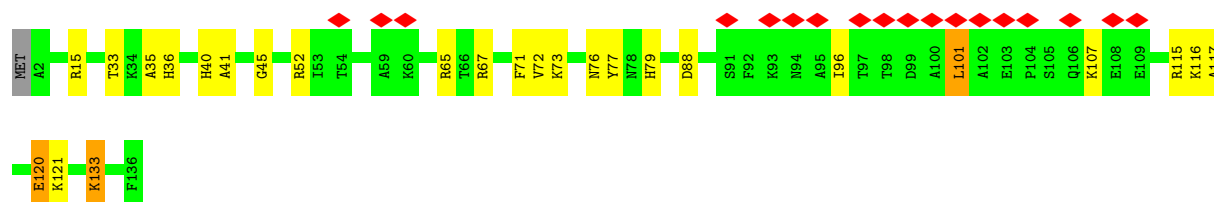
• Molecule 53: Ribosomal protein L24

Chain a: 81% 17% ..



• Molecule 54: 60S ribosomal protein L27

Chain b: 13% 80% 17% ..



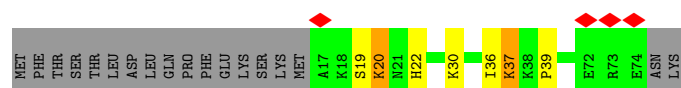
• Molecule 55: 60S ribosomal protein L28

Chain c: 87% 13% .



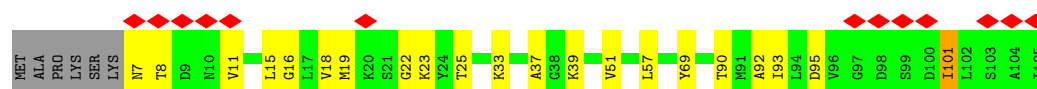
• Molecule 56: 60S ribosomal protein L29

Chain d: 5% 67% 7% 24%

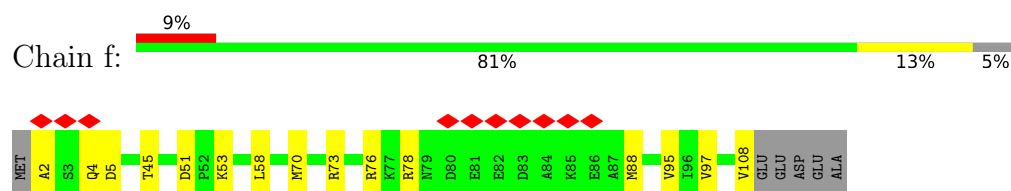


• Molecule 57: 60S ribosomal protein L30

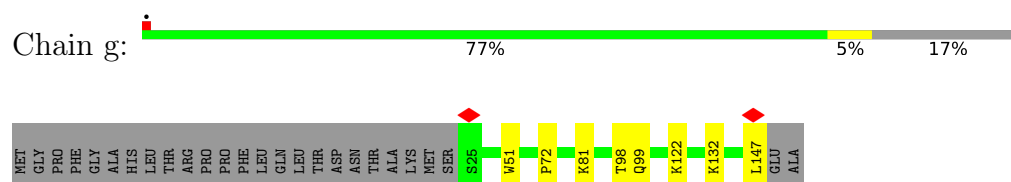
Chain e: 12% 74% 19% 6%



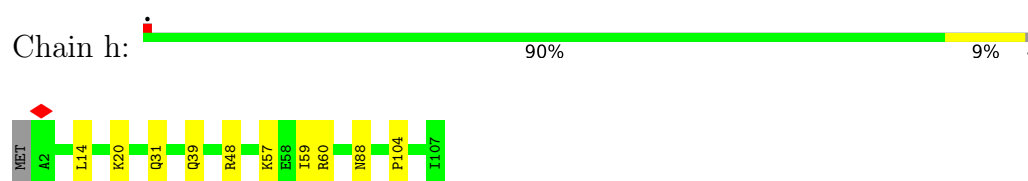
## • Molecule 58: 60S ribosomal protein L31-A



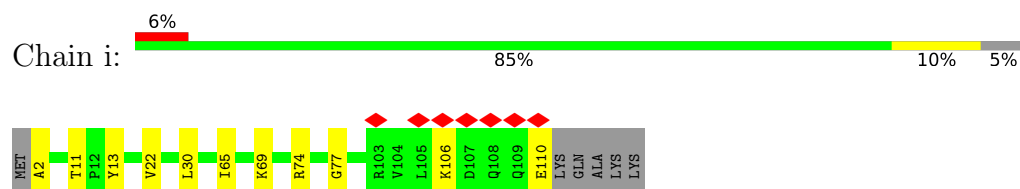
## • Molecule 59: 60S ribosomal protein L32



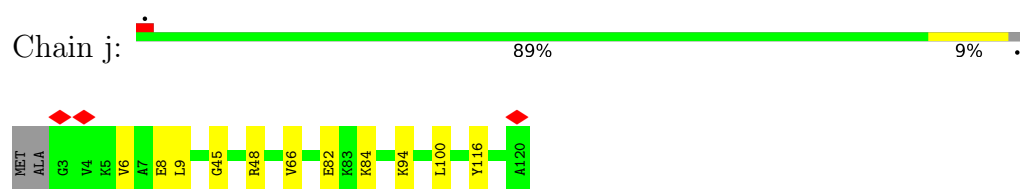
## • Molecule 60: 60S ribosomal protein L33-A



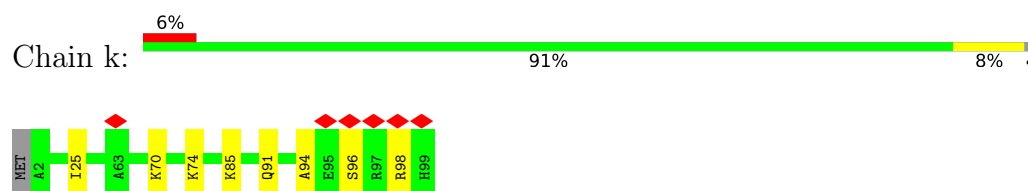
## • Molecule 61: 60S ribosomal protein L34-B



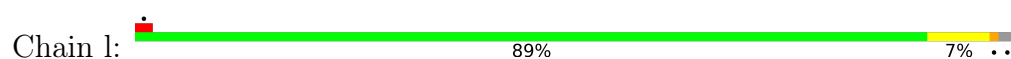
## • Molecule 62: 60S ribosomal protein L35

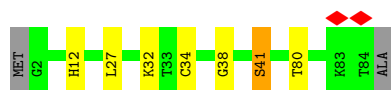


## • Molecule 63: 60S ribosomal protein L36



## • Molecule 64: Ribosomal protein L37

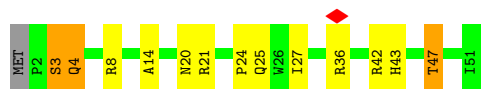




- Molecule 65: Large ribosomal subunit protein eL38



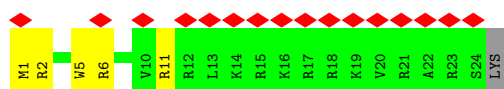
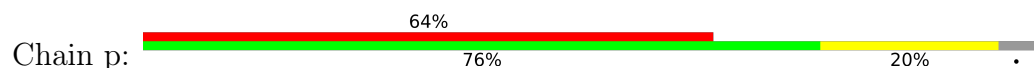
- Molecule 66: Large ribosomal subunit protein eL39



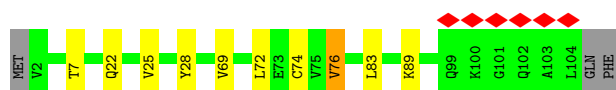
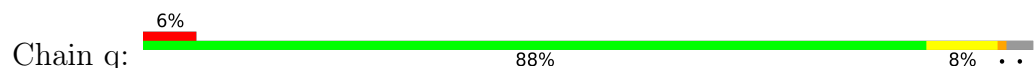
- Molecule 67: Large ribosomal subunit protein eL40



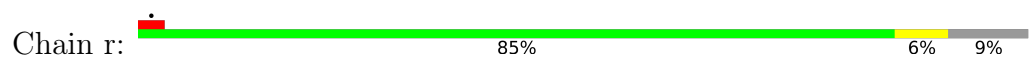
- Molecule 68: Small ribosomal subunit protein eS32



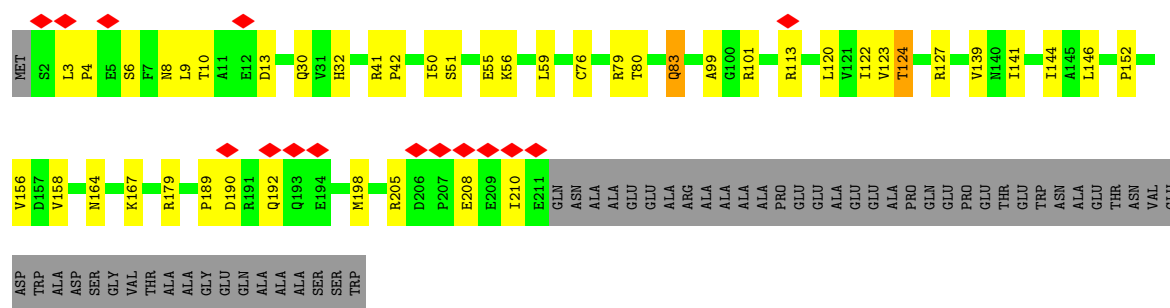
- Molecule 69: 60S ribosomal protein L44



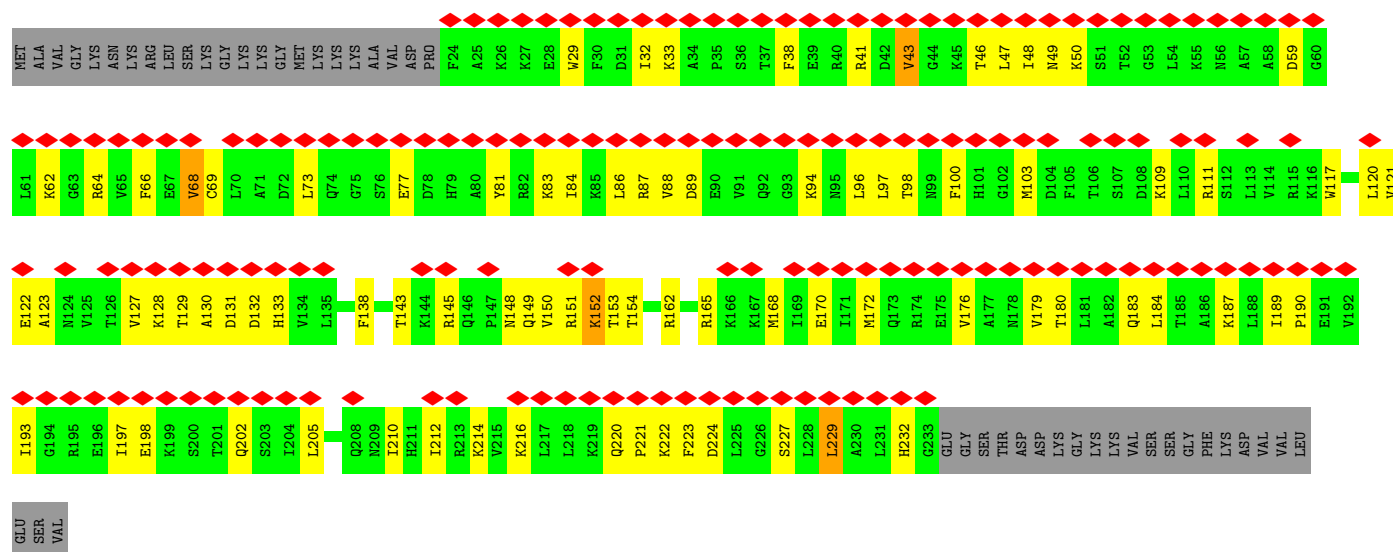
- Molecule 70: 60S ribosomal protein L43



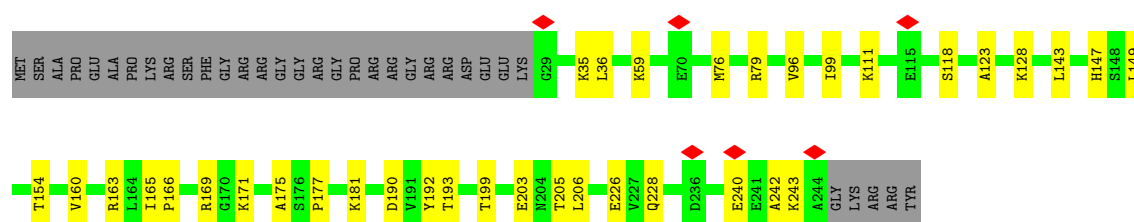
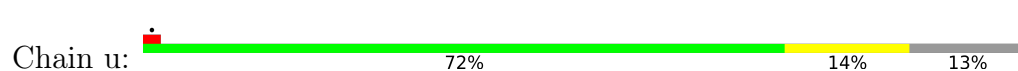
- Molecule 71: Small ribosomal subunit protein uS2



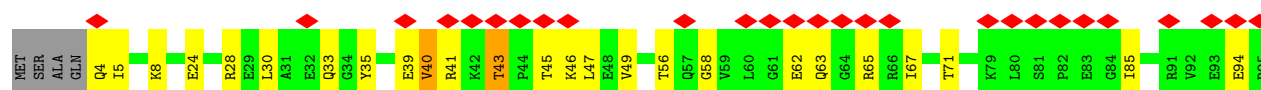
• Molecule 72: Small ribosomal subunit protein eS1

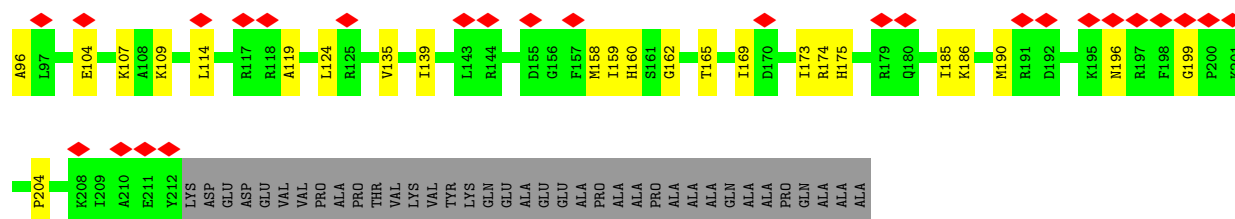


• Molecule 73: Rps21 ribosomal protein

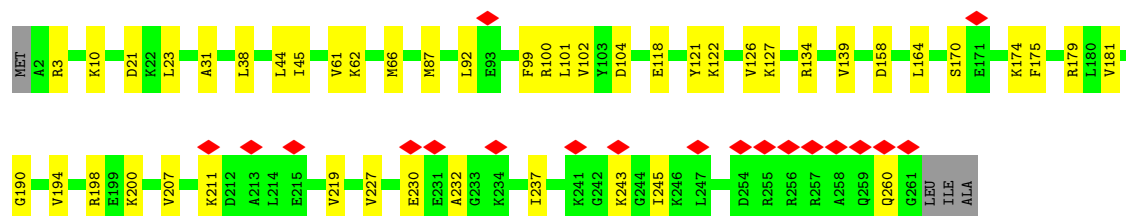
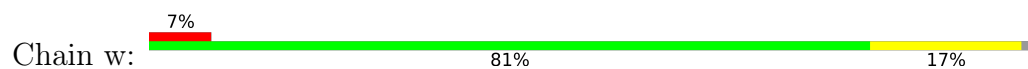


• Molecule 74: Small ribosomal subunit protein uS3

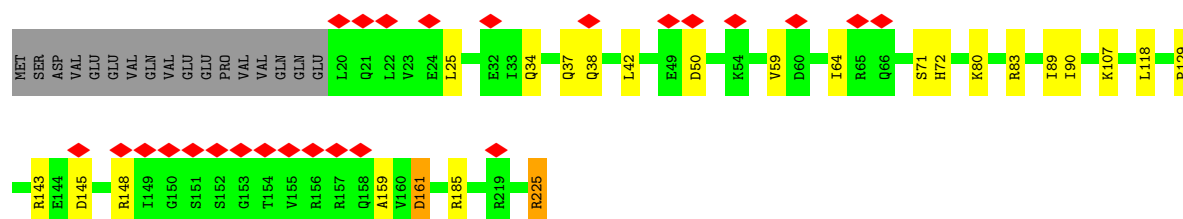
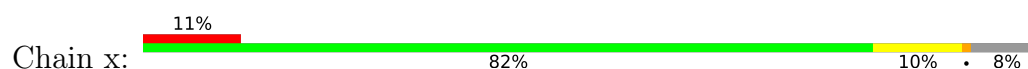




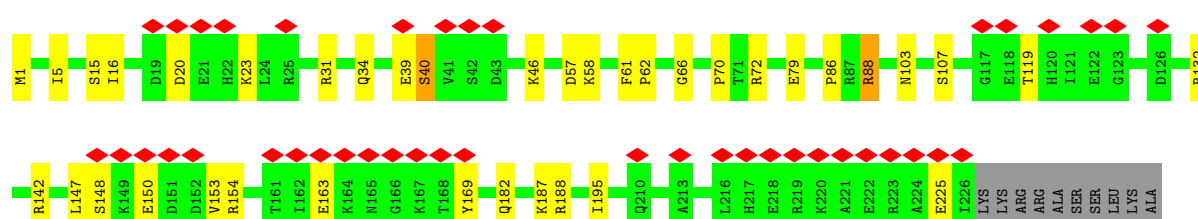
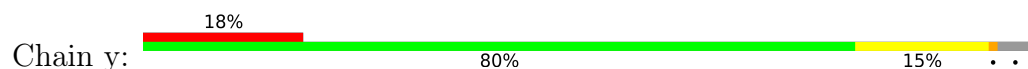
- Molecule 75: 40S ribosomal protein S4



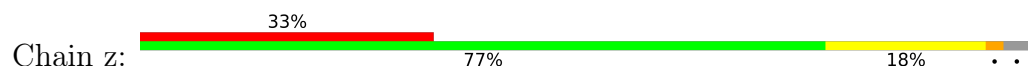
- Molecule 76: 40S ribosomal protein uS7 (formerly S5)



- Molecule 77: 40S ribosomal protein S6



- Molecule 78: 40S ribosomal protein eS7 (formerly S7)





## 4 Experimental information

| Property                             | Value                                   | Source    |
|--------------------------------------|-----------------------------------------|-----------|
| EM reconstruction method             | SINGLE PARTICLE                         | Depositor |
| Imposed symmetry                     | POINT, Not provided                     |           |
| Number of particles used             | 573853                                  | 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 ( $e^-/\text{\AA}^2$ ) | 50                                      | Depositor |
| Minimum defocus (nm)                 | 500                                     | Depositor |
| Maximum defocus (nm)                 | 2000                                    | Depositor |
| Magnification                        | Not provided                            |           |
| Image detector                       | GATAN K3 BIOQUANTUM (6k x 4k)           | Depositor |
| Maximum map value                    | 3.971                                   | Depositor |
| Minimum map value                    | -0.267                                  | Depositor |
| Average map value                    | 0.037                                   | Depositor |
| Map value standard deviation         | 0.111                                   | Depositor |
| Recommended contour level            | 0.39                                    | Depositor |
| Map size ( $\text{\AA}$ )            | 376.2, 376.2, 376.2                     | wwPDB     |
| Map dimensions                       | 450, 450, 450                           | wwPDB     |
| Map angles ( $^\circ$ )              | 90.0, 90.0, 90.0                        | wwPDB     |
| Pixel spacing ( $\text{\AA}$ )       | 0.836, 0.836, 0.836                     | Depositor |

## 5 Model quality ⓘ

### 5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: MG, 3HE, GET, SPD, ZN

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   | 1     | 0.11         | 0/835       | 0.24        | 0/1297           |
| 2   | 2     | 0.16         | 0/72        | 0.45        | 0/110            |
| 3   | A     | 0.30         | 0/71627     | 0.46        | 30/111663 (0.0%) |
| 4   | B     | 0.23         | 0/2918      | 0.35        | 0/4548           |
| 5   | C     | 0.30         | 0/3659      | 0.42        | 0/5698           |
| 6   | CA    | 0.31         | 0/38730     | 0.49        | 48/60351 (0.1%)  |
| 7   | D     | 0.39         | 0/1907      | 0.55        | 0/2560           |
| 8   | E     | 0.40         | 0/3155      | 0.59        | 4/4246 (0.1%)    |
| 9   | F     | 0.30         | 0/2835      | 0.46        | 2/3823 (0.1%)    |
| 10  | G     | 0.27         | 0/2419      | 0.43        | 0/3253           |
| 11  | H     | 0.43         | 0/1144      | 0.64        | 2/1541 (0.1%)    |
| 12  | I     | 0.23         | 0/1950      | 0.41        | 0/2621           |
| 13  | J     | 0.33         | 0/1879      | 0.57        | 3/2525 (0.1%)    |
| 14  | K     | 0.19         | 0/1539      | 0.31        | 0/2068           |
| 15  | L     | 0.17         | 0/1716      | 0.32        | 0/2303           |
| 16  | M     | 0.16         | 0/1385      | 0.36        | 0/1854           |
| 17  | N     | 0.23         | 0/1564      | 0.38        | 0/2104           |
| 18  | O     | 0.18         | 0/1044      | 0.33        | 0/1410           |
| 19  | P     | 0.29         | 0/1743      | 0.41        | 0/2340           |
| 20  | Q     | 0.22         | 0/1618      | 0.38        | 0/2169           |
| 21  | R     | 0.35         | 0/1410      | 0.49        | 1/1898 (0.1%)    |
| 22  | S     | 0.20         | 0/1479      | 0.37        | 0/1985           |
| 23  | T     | 0.42         | 0/1488      | 0.69        | 1/1981 (0.1%)    |
| 24  | U     | 0.21         | 0/1483      | 0.38        | 0/1996           |
| 25  | V     | 0.20         | 0/1308      | 0.35        | 0/1758           |
| 26  | W     | 0.32         | 0/887       | 0.56        | 2/1194 (0.2%)    |
| 27  | X     | 0.22         | 0/1022      | 0.42        | 0/1377           |
| 28  | Y     | 0.28         | 0/530       | 0.43        | 0/704            |
| 29  | Z     | 0.22         | 0/949       | 0.35        | 0/1283           |
| 30  | ZA    | 0.39         | 0/1571      | 0.57        | 1/2103 (0.0%)    |
| 31  | ZB    | 0.25         | 0/1485      | 0.43        | 1/1991 (0.1%)    |
| 32  | ZC    | 0.13         | 0/805       | 0.23        | 0/1088           |

| Mol | Chain | Bond lengths |         | Bond angles |               |
|-----|-------|--------------|---------|-------------|---------------|
|     |       | RMSZ         | # Z  >5 | RMSZ        | # Z  >5       |
| 33  | ZD    | 0.31         | 0/1174  | 0.41        | 0/1578        |
| 34  | ZE    | 0.22         | 0/1215  | 0.35        | 0/1637        |
| 35  | ZF    | 0.31         | 0/956   | 0.51        | 0/1284        |
| 36  | ZG    | 0.16         | 0/922   | 0.28        | 0/1239        |
| 37  | ZH    | 0.27         | 0/1119  | 0.41        | 0/1500        |
| 38  | ZI    | 0.21         | 0/1039  | 0.41        | 0/1392        |
| 39  | ZJ    | 0.29         | 0/1180  | 0.43        | 0/1580        |
| 40  | ZK    | 0.27         | 0/1131  | 0.40        | 0/1522        |
| 41  | ZL    | 0.18         | 0/791   | 0.35        | 0/1069        |
| 42  | ZM    | 0.19         | 0/686   | 0.28        | 0/924         |
| 43  | ZO    | 0.29         | 0/1049  | 0.43        | 0/1410        |
| 44  | ZP    | 0.22         | 0/1127  | 0.38        | 0/1505        |
| 45  | ZQ    | 0.30         | 0/1077  | 0.48        | 0/1439        |
| 46  | ZR    | 0.17         | 0/534   | 0.32        | 0/717         |
| 47  | ZS    | 0.13         | 0/797   | 0.27        | 0/1068        |
| 48  | ZT    | 0.34         | 0/627   | 0.45        | 0/847         |
| 49  | ZU    | 0.32         | 0/460   | 0.48        | 0/616         |
| 50  | ZV    | 0.39         | 0/461   | 0.71        | 0/613         |
| 51  | ZW    | 0.15         | 0/438   | 0.35        | 0/582         |
| 52  | ZY    | 0.13         | 0/2413  | 0.34        | 0/3287        |
| 53  | a     | 0.20         | 0/1005  | 0.36        | 0/1339        |
| 54  | b     | 0.41         | 0/1104  | 0.55        | 0/1480        |
| 55  | c     | 0.24         | 0/1212  | 0.39        | 0/1623        |
| 56  | d     | 0.39         | 0/489   | 0.46        | 0/648         |
| 57  | e     | 0.24         | 0/752   | 0.43        | 0/1011        |
| 58  | f     | 0.22         | 0/893   | 0.37        | 0/1199        |
| 59  | g     | 0.38         | 0/1019  | 0.52        | 0/1362        |
| 60  | h     | 0.22         | 0/877   | 0.36        | 0/1180        |
| 61  | i     | 0.21         | 0/874   | 0.33        | 0/1168        |
| 62  | j     | 0.19         | 0/963   | 0.32        | 0/1284        |
| 63  | k     | 0.20         | 0/780   | 0.37        | 0/1034        |
| 64  | l     | 0.23         | 0/666   | 0.36        | 0/883         |
| 65  | m     | 0.30         | 0/623   | 0.48        | 0/828         |
| 66  | n     | 0.25         | 0/451   | 0.38        | 0/600         |
| 67  | o     | 0.20         | 0/417   | 0.38        | 0/553         |
| 68  | p     | 0.11         | 0/228   | 0.26        | 0/293         |
| 69  | q     | 0.26         | 0/834   | 0.38        | 0/1103        |
| 70  | r     | 0.21         | 0/699   | 0.38        | 0/933         |
| 71  | s     | 0.26         | 0/1694  | 0.41        | 1/2311 (0.0%) |
| 72  | t     | 0.13         | 0/1709  | 0.35        | 0/2294        |
| 73  | u     | 0.29         | 0/1664  | 0.36        | 0/2253        |
| 74  | v     | 0.18         | 0/1642  | 0.32        | 0/2201        |
| 75  | w     | 0.24         | 0/2094  | 0.36        | 0/2816        |

| Mol | Chain | Bond lengths |          | Bond angles |                  |
|-----|-------|--------------|----------|-------------|------------------|
|     |       | RMSZ         | # Z  >5  | RMSZ        | # Z  >5          |
| 76  | x     | 0.18         | 0/1628   | 0.28        | 0/2195           |
| 77  | y     | 0.19         | 0/1845   | 0.31        | 0/2467           |
| 78  | z     | 0.18         | 0/1490   | 0.35        | 0/2004           |
| All | All   | 0.29         | 0/205004 | 0.45        | 96/300713 (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 |
|-----|-------|---------------------|---------------------|
| 7   | D     | 0                   | 1                   |
| 8   | E     | 0                   | 3                   |
| 9   | F     | 0                   | 1                   |
| 10  | G     | 0                   | 2                   |
| 11  | H     | 0                   | 2                   |
| 13  | J     | 0                   | 1                   |
| 21  | R     | 0                   | 1                   |
| 23  | T     | 0                   | 8                   |
| 30  | ZA    | 0                   | 1                   |
| 31  | ZB    | 0                   | 1                   |
| 33  | ZD    | 0                   | 1                   |
| 35  | ZF    | 0                   | 2                   |
| 38  | ZI    | 0                   | 1                   |
| 39  | ZJ    | 0                   | 1                   |
| 40  | ZK    | 0                   | 3                   |
| 49  | ZU    | 0                   | 1                   |
| 50  | ZV    | 0                   | 1                   |
| 54  | b     | 0                   | 1                   |
| 75  | w     | 0                   | 1                   |
| 77  | y     | 0                   | 1                   |
| All | All   | 0                   | 34                  |

There are no bond length outliers.

All (96) bond angle outliers are listed below:

| Mol | Chain | Res  | Type | Atoms     | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-----------|-------|-------------|----------|
| 6   | CA    | 1200 | A    | P-O3'-C3' | -9.56 | 105.85      | 120.20   |
| 6   | CA    | 869  | G    | P-O3'-C3' | -9.41 | 106.08      | 120.20   |
| 3   | A     | 170  | G    | P-O3'-C3' | -9.09 | 106.56      | 120.20   |
| 3   | A     | 2121 | G    | P-O3'-C3' | -8.90 | 106.85      | 120.20   |
| 3   | A     | 2120 | U    | P-O3'-C3' | -8.73 | 107.10      | 120.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 6   | CA    | 887  | U    | P-O3'-C3'   | -8.70 | 107.14      | 120.20   |
| 3   | A     | 166  | U    | P-O3'-C3'   | -8.69 | 107.17      | 120.20   |
| 6   | CA    | 967  | G    | P-O3'-C3'   | -8.55 | 107.37      | 120.20   |
| 6   | CA    | 1455 | A    | P-O3'-C3'   | -8.51 | 107.44      | 120.20   |
| 6   | CA    | 467  | A    | P-O3'-C3'   | -8.50 | 107.45      | 120.20   |
| 11  | H     | 55   | GLY  | N-CA-C      | -8.38 | 95.25       | 112.34   |
| 6   | CA    | 1454 | G    | P-O3'-C3'   | -8.37 | 107.65      | 120.20   |
| 6   | CA    | 1488 | G    | P-O3'-C3'   | -8.26 | 107.81      | 120.20   |
| 3   | A     | 3156 | A    | P-O3'-C3'   | -8.25 | 107.83      | 120.20   |
| 6   | CA    | 1217 | U    | P-O3'-C3'   | -8.23 | 107.86      | 120.20   |
| 6   | CA    | 822  | C    | P-O3'-C3'   | -8.19 | 107.92      | 120.20   |
| 3   | A     | 233  | U    | P-O3'-C3'   | -8.10 | 108.05      | 120.20   |
| 6   | CA    | 1322 | U    | P-O3'-C3'   | -8.01 | 108.18      | 120.20   |
| 3   | A     | 231  | G    | P-O3'-C3'   | -7.97 | 108.25      | 120.20   |
| 3   | A     | 171  | C    | P-O3'-C3'   | -7.96 | 108.27      | 120.20   |
| 6   | CA    | 1203 | G    | P-O3'-C3'   | -7.82 | 108.47      | 120.20   |
| 3   | A     | 234  | A    | P-O3'-C3'   | -7.62 | 108.77      | 120.20   |
| 9   | F     | 101  | PHE  | CA-C-N      | -7.57 | 113.24      | 123.46   |
| 9   | F     | 101  | PHE  | C-N-CA      | -7.57 | 113.24      | 123.46   |
| 6   | CA    | 235  | G    | P-O3'-C3'   | -7.56 | 108.86      | 120.20   |
| 6   | CA    | 876  | A    | P-O3'-C3'   | -7.53 | 108.91      | 120.20   |
| 6   | CA    | 1491 | A    | P-O3'-C3'   | -7.26 | 109.30      | 120.20   |
| 6   | CA    | 277  | A    | P-O3'-C3'   | -7.15 | 109.48      | 120.20   |
| 3   | A     | 737  | U    | P-O3'-C3'   | -7.12 | 109.52      | 120.20   |
| 6   | CA    | 87   | U    | P-O3'-C3'   | -7.09 | 109.57      | 120.20   |
| 6   | CA    | 977  | C    | P-O3'-C3'   | -7.06 | 109.61      | 120.20   |
| 8   | E     | 18   | PRO  | CB-CA-C     | 6.98  | 123.08      | 111.56   |
| 6   | CA    | 865  | G    | P-O3'-C3'   | -6.95 | 109.78      | 120.20   |
| 6   | CA    | 1218 | C    | P-O3'-C3'   | -6.81 | 109.98      | 120.20   |
| 3   | A     | 2120 | U    | C1'-O4'-C4' | -6.73 | 103.17      | 109.90   |
| 6   | CA    | 761  | C    | P-O3'-C3'   | -6.70 | 110.15      | 120.20   |
| 3   | A     | 167  | C    | P-O3'-C3'   | -6.57 | 110.35      | 120.20   |
| 3   | A     | 168  | U    | P-O3'-C3'   | -6.41 | 110.58      | 120.20   |
| 3   | A     | 1723 | G    | P-O3'-C3'   | -6.39 | 110.61      | 120.20   |
| 6   | CA    | 6    | G    | P-O3'-C3'   | -6.36 | 110.65      | 120.20   |
| 3   | A     | 1722 | C    | P-O3'-C3'   | -6.36 | 110.66      | 120.20   |
| 8   | E     | 18   | PRO  | N-CA-C      | -6.36 | 99.37       | 112.47   |
| 3   | A     | 2122 | A    | P-O3'-C3'   | -6.33 | 110.71      | 120.20   |
| 6   | CA    | 1464 | G    | P-O3'-C3'   | -6.31 | 110.74      | 120.20   |
| 6   | CA    | 238  | U    | P-O3'-C3'   | -6.28 | 110.78      | 120.20   |
| 26  | W     | 68   | THR  | N-CA-C      | -6.23 | 104.31      | 112.41   |
| 6   | CA    | 255  | A    | P-O3'-C3'   | -6.21 | 110.88      | 120.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 26  | W     | 6    | THR  | N-CA-C      | -6.12 | 105.77      | 113.18   |
| 6   | CA    | 1215 | G    | P-O3'-C3'   | -6.11 | 111.03      | 120.20   |
| 6   | CA    | 1504 | C    | P-O3'-C3'   | -6.04 | 111.14      | 120.20   |
| 6   | CA    | 233  | A    | P-O3'-C3'   | -6.03 | 111.15      | 120.20   |
| 21  | R     | 145  | HIS  | CA-CB-CG    | 6.03  | 119.83      | 113.80   |
| 3   | A     | 640  | C    | P-O3'-C3'   | -5.99 | 111.22      | 120.20   |
| 3   | A     | 2558 | G    | P-O3'-C3'   | -5.93 | 111.30      | 120.20   |
| 6   | CA    | 1078 | G    | P-O3'-C3'   | -5.93 | 111.30      | 120.20   |
| 13  | J     | 184  | LYS  | N-CA-CB     | 5.93  | 120.52      | 110.49   |
| 6   | CA    | 1490 | A    | P-O3'-C3'   | -5.91 | 111.34      | 120.20   |
| 6   | CA    | 877  | A    | P-O3'-C3'   | -5.82 | 111.47      | 120.20   |
| 6   | CA    | 1492 | U    | P-O3'-C3'   | -5.82 | 111.47      | 120.20   |
| 3   | A     | 613  | C    | P-O3'-C3'   | -5.81 | 111.49      | 120.20   |
| 13  | J     | 184  | LYS  | N-CA-C      | -5.81 | 98.43       | 110.80   |
| 6   | CA    | 870  | A    | P-O3'-C3'   | -5.76 | 111.56      | 120.20   |
| 6   | CA    | 966  | U    | P-O3'-C3'   | -5.71 | 111.63      | 120.20   |
| 11  | H     | 55   | GLY  | CA-C-O      | -5.66 | 113.42      | 121.52   |
| 6   | CA    | 1348 | U    | P-O3'-C3'   | -5.65 | 111.72      | 120.20   |
| 6   | CA    | 843  | U    | P-O3'-C3'   | -5.65 | 111.72      | 120.20   |
| 3   | A     | 658  | G    | P-O3'-C3'   | -5.63 | 111.76      | 120.20   |
| 6   | CA    | 923  | G    | P-O3'-C3'   | -5.58 | 111.84      | 120.20   |
| 3   | A     | 3158 | U    | C4'-C3'-O3' | 5.55  | 117.72      | 109.40   |
| 6   | CA    | 885  | A    | P-O3'-C3'   | -5.54 | 111.89      | 120.20   |
| 6   | CA    | 841  | G    | C4'-C3'-O3' | -5.54 | 104.69      | 113.00   |
| 6   | CA    | 317  | A    | P-O3'-C3'   | -5.52 | 111.92      | 120.20   |
| 6   | CA    | 1016 | G    | P-O3'-C3'   | -5.50 | 111.95      | 120.20   |
| 3   | A     | 2063 | U    | P-O3'-C3'   | -5.39 | 112.11      | 120.20   |
| 3   | A     | 186  | U    | P-O3'-C3'   | -5.30 | 112.25      | 120.20   |
| 23  | T     | 173  | LYS  | N-CA-C      | -5.29 | 105.62      | 111.71   |
| 8   | E     | 16   | PHE  | N-CA-C      | -5.28 | 103.68      | 111.81   |
| 31  | ZB    | 123  | HIS  | N-CA-C      | -5.27 | 106.81      | 113.18   |
| 6   | CA    | 730  | G    | P-O3'-C3'   | -5.24 | 112.34      | 120.20   |
| 6   | CA    | 519  | C    | P-O3'-C3'   | -5.24 | 112.34      | 120.20   |
| 6   | CA    | 1321 | C    | P-O3'-C3'   | -5.23 | 112.35      | 120.20   |
| 3   | A     | 2462 | U    | P-O3'-C3'   | 5.22  | 128.04      | 120.20   |
| 3   | A     | 2308 | G    | C4'-C3'-O3' | -5.21 | 101.59      | 109.40   |
| 30  | ZA    | 34   | PHE  | CA-CB-CG    | 5.18  | 118.98      | 113.80   |
| 6   | CA    | 254  | A    | P-O3'-C3'   | -5.16 | 112.47      | 120.20   |
| 71  | s     | 6    | SER  | N-CA-C      | -5.14 | 106.97      | 113.20   |
| 3   | A     | 2124 | U    | P-O3'-C3'   | -5.12 | 112.52      | 120.20   |
| 6   | CA    | 381  | G    | P-O3'-C3'   | -5.11 | 112.54      | 120.20   |
| 6   | CA    | 864  | U    | P-O3'-C3'   | -5.10 | 112.55      | 120.20   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 3   | A     | 497  | U    | P-O3'-C3'   | 5.07  | 127.81      | 120.20   |
| 3   | A     | 1721 | G    | P-O3'-C3'   | -5.06 | 112.60      | 120.20   |
| 6   | CA    | 17   | C    | P-O3'-C3'   | -5.05 | 112.62      | 120.20   |
| 8   | E     | 17   | LEU  | N-CA-C      | 5.05  | 119.11      | 112.35   |
| 3   | A     | 2066 | C    | P-O3'-C3'   | -5.04 | 112.64      | 120.20   |
| 3   | A     | 2046 | A    | C1'-C2'-O2' | 5.03  | 115.95      | 108.40   |
| 13  | J     | 182  | LYS  | N-CA-C      | -5.01 | 101.94      | 109.15   |

There are no chirality outliers.

All (34) planarity outliers are listed below:

| Mol | Chain | Res   | Type | Group     |
|-----|-------|-------|------|-----------|
| 7   | D     | 200   | ARG  | Sidechain |
| 8   | E     | 19    | ARG  | Sidechain |
| 8   | E     | 369   | ARG  | Sidechain |
| 8   | E     | 377   | ARG  | Sidechain |
| 9   | F     | 99    | ARG  | Sidechain |
| 10  | G     | 33    | ARG  | Sidechain |
| 10  | G     | 50    | ARG  | Sidechain |
| 11  | H     | 34    | ARG  | Sidechain |
| 11  | H     | 39    | ARG  | Sidechain |
| 13  | J     | 33    | ARG  | Sidechain |
| 21  | R     | 18    | ARG  | Sidechain |
| 23  | T     | 156   | ARG  | Sidechain |
| 23  | T     | 171   | ARG  | Sidechain |
| 23  | T     | 182   | ARG  | Sidechain |
| 23  | T     | 185   | ARG  | Sidechain |
| 23  | T     | 190   | ARG  | Sidechain |
| 23  | T     | 192   | ARG  | Sidechain |
| 23  | T     | 193   | ARG  | Sidechain |
| 23  | T     | 196   | ARG  | Sidechain |
| 30  | ZA    | 32    | ARG  | Sidechain |
| 31  | ZB    | 120   | ARG  | Sidechain |
| 33  | ZD    | 103   | ARG  | Sidechain |
| 35  | ZF    | 31    | ARG  | Sidechain |
| 35  | ZF    | 36    | ARG  | Sidechain |
| 38  | ZI    | 5     | ARG  | Sidechain |
| 39  | ZJ    | 36    | ARG  | Sidechain |
| 40  | ZK    | 11    | ALA  | Mainchain |
| 40  | ZK    | 12[A] | GLN  | Mainchain |
| 49  | ZU    | 42    | ARG  | Sidechain |
| 50  | ZV    | 12    | ARG  | Sidechain |

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| Mol | Chain | Res | Type | Group     |
|-----|-------|-----|------|-----------|
| 54  | b     | 65  | ARG  | Sidechain |
| 75  | w     | 3   | ARG  | Sidechain |
| 77  | y     | 88  | ARG  | Sidechain |

## 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   | 1     | 748   | 0        | 381      | 15      | 0            |
| 2   | 2     | 65    | 0        | 34       | 5       | 0            |
| 3   | A     | 64000 | 0        | 32201    | 512     | 0            |
| 4   | B     | 2609  | 0        | 1315     | 20      | 0            |
| 5   | C     | 3274  | 0        | 1654     | 38      | 0            |
| 6   | CA    | 34619 | 0        | 17423    | 469     | 0            |
| 7   | D     | 1873  | 0        | 1943     | 20      | 0            |
| 8   | E     | 3087  | 0        | 3173     | 27      | 0            |
| 9   | F     | 2786  | 0        | 2912     | 23      | 0            |
| 10  | G     | 2370  | 0        | 2360     | 27      | 0            |
| 11  | H     | 1126  | 0        | 1215     | 8       | 0            |
| 12  | I     | 1913  | 0        | 1998     | 6       | 0            |
| 13  | J     | 1847  | 0        | 1970     | 20      | 0            |
| 14  | K     | 1519  | 0        | 1588     | 19      | 0            |
| 15  | L     | 1680  | 0        | 1714     | 19      | 0            |
| 16  | M     | 1364  | 0        | 1396     | 16      | 0            |
| 17  | N     | 1538  | 0        | 1614     | 12      | 0            |
| 18  | O     | 1030  | 0        | 1113     | 1       | 0            |
| 19  | P     | 1703  | 0        | 1747     | 7       | 0            |
| 20  | Q     | 1587  | 0        | 1695     | 9       | 0            |
| 21  | R     | 1384  | 0        | 1412     | 9       | 0            |
| 22  | S     | 1456  | 0        | 1570     | 12      | 0            |
| 23  | T     | 1469  | 0        | 1579     | 21      | 0            |
| 24  | U     | 1448  | 0        | 1511     | 22      | 0            |
| 25  | V     | 1282  | 0        | 1341     | 12      | 0            |
| 26  | W     | 871   | 0        | 903      | 18      | 0            |
| 27  | X     | 1005  | 0        | 1045     | 18      | 0            |
| 28  | Y     | 517   | 0        | 535      | 8       | 0            |
| 29  | Z     | 934   | 0        | 987      | 5       | 0            |
| 30  | ZA    | 1545  | 0        | 1580     | 39      | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 31  | ZB    | 1459  | 0        | 1531     | 28      | 0            |
| 32  | ZC    | 786   | 0        | 797      | 10      | 0            |
| 33  | ZD    | 1150  | 0        | 1218     | 14      | 0            |
| 34  | ZE    | 1192  | 0        | 1252     | 17      | 0            |
| 35  | ZF    | 945   | 0        | 979      | 36      | 0            |
| 36  | ZG    | 904   | 0        | 944      | 10      | 0            |
| 37  | ZH    | 1100  | 0        | 1162     | 15      | 0            |
| 38  | ZI    | 1027  | 0        | 1080     | 28      | 0            |
| 39  | ZJ    | 1162  | 0        | 1202     | 26      | 0            |
| 40  | ZK    | 1110  | 0        | 1120     | 19      | 0            |
| 41  | ZL    | 782   | 0        | 854      | 13      | 0            |
| 42  | ZM    | 678   | 0        | 671      | 10      | 0            |
| 43  | ZO    | 1032  | 0        | 1072     | 19      | 0            |
| 44  | ZP    | 1109  | 0        | 1173     | 18      | 0            |
| 45  | ZQ    | 1060  | 0        | 1117     | 31      | 0            |
| 46  | ZR    | 526   | 0        | 558      | 7       | 0            |
| 47  | ZS    | 785   | 0        | 835      | 19      | 0            |
| 48  | ZT    | 617   | 0        | 628      | 22      | 0            |
| 49  | ZU    | 458   | 0        | 486      | 10      | 0            |
| 50  | ZV    | 449   | 0        | 425      | 8       | 0            |
| 51  | ZW    | 432   | 0        | 471      | 8       | 0            |
| 52  | ZY    | 2359  | 0        | 2318     | 50      | 0            |
| 53  | a     | 994   | 0        | 1075     | 14      | 0            |
| 54  | b     | 1081  | 0        | 1134     | 16      | 0            |
| 55  | c     | 1183  | 0        | 1211     | 13      | 0            |
| 56  | d     | 481   | 0        | 498      | 7       | 0            |
| 57  | e     | 744   | 0        | 784      | 14      | 0            |
| 58  | f     | 877   | 0        | 915      | 11      | 0            |
| 59  | g     | 1002  | 0        | 1062     | 1       | 0            |
| 60  | h     | 859   | 0        | 889      | 7       | 0            |
| 61  | i     | 865   | 0        | 931      | 8       | 0            |
| 62  | j     | 956   | 0        | 1067     | 8       | 0            |
| 63  | k     | 774   | 0        | 847      | 8       | 0            |
| 64  | l     | 654   | 0        | 668      | 5       | 0            |
| 65  | m     | 617   | 0        | 685      | 10      | 0            |
| 66  | n     | 442   | 0        | 478      | 11      | 0            |
| 67  | o     | 411   | 0        | 448      | 3       | 0            |
| 68  | p     | 227   | 0        | 272      | 4       | 0            |
| 69  | q     | 822   | 0        | 886      | 7       | 0            |
| 70  | r     | 691   | 0        | 723      | 4       | 0            |
| 71  | s     | 1655  | 0        | 1670     | 28      | 0            |
| 72  | t     | 1685  | 0        | 1779     | 56      | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 73  | u     | 1636  | 0        | 1743     | 22      | 0            |
| 74  | v     | 1619  | 0        | 1718     | 33      | 0            |
| 75  | w     | 2056  | 0        | 2145     | 29      | 0            |
| 76  | x     | 1610  | 0        | 1687     | 17      | 0            |
| 77  | y     | 1819  | 0        | 1882     | 22      | 0            |
| 78  | z     | 1466  | 0        | 1554     | 23      | 0            |
| 79  | A     | 1054  | 0        | 1240     | 32      | 0            |
| 79  | B     | 34    | 0        | 40       | 1       | 0            |
| 79  | C     | 136   | 0        | 160      | 6       | 0            |
| 79  | CA    | 646   | 0        | 760      | 25      | 0            |
| 79  | E     | 34    | 0        | 40       | 1       | 0            |
| 79  | T     | 34    | 0        | 40       | 5       | 0            |
| 80  | A     | 166   | 0        | 0        | 0       | 0            |
| 80  | B     | 2     | 0        | 0        | 0       | 0            |
| 80  | C     | 2     | 0        | 0        | 0       | 0            |
| 80  | CA    | 73    | 0        | 0        | 0       | 0            |
| 80  | E     | 1     | 0        | 0        | 0       | 0            |
| 80  | P     | 2     | 0        | 0        | 0       | 0            |
| 80  | R     | 1     | 0        | 0        | 0       | 0            |
| 80  | X     | 1     | 0        | 0        | 0       | 0            |
| 80  | ZA    | 1     | 0        | 0        | 0       | 0            |
| 80  | ZK    | 1     | 0        | 0        | 0       | 0            |
| 80  | ZQ    | 1     | 0        | 0        | 0       | 0            |
| 80  | k     | 1     | 0        | 0        | 0       | 0            |
| 80  | x     | 1     | 0        | 0        | 0       | 0            |
| 81  | A     | 20    | 0        | 38       | 1       | 0            |
| 81  | CA    | 10    | 0        | 19       | 0       | 0            |
| 82  | A     | 20    | 0        | 23       | 0       | 0            |
| 83  | ZS    | 1     | 0        | 0        | 0       | 0            |
| 83  | ZT    | 1     | 0        | 0        | 0       | 0            |
| 83  | ZV    | 1     | 0        | 0        | 0       | 0            |
| 83  | i     | 1     | 0        | 0        | 0       | 0            |
| 83  | l     | 1     | 0        | 0        | 0       | 0            |
| 83  | o     | 1     | 0        | 0        | 0       | 0            |
| 83  | q     | 1     | 0        | 0        | 0       | 0            |
| 83  | r     | 1     | 0        | 0        | 0       | 0            |
| 84  | A     | 5741  | 0        | 0        | 22      | 0            |
| 84  | B     | 58    | 0        | 0        | 0       | 0            |
| 84  | C     | 243   | 0        | 0        | 3       | 0            |
| 84  | CA    | 1595  | 0        | 0        | 18      | 0            |
| 84  | D     | 131   | 0        | 0        | 0       | 0            |
| 84  | E     | 153   | 0        | 0        | 1       | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 84  | F     | 136   | 0        | 0        | 0       | 0            |
| 84  | G     | 36    | 0        | 0        | 0       | 0            |
| 84  | H     | 9     | 0        | 0        | 0       | 0            |
| 84  | I     | 70    | 0        | 0        | 0       | 0            |
| 84  | J     | 27    | 0        | 0        | 0       | 0            |
| 84  | K     | 17    | 0        | 0        | 0       | 0            |
| 84  | L     | 25    | 0        | 0        | 0       | 0            |
| 84  | M     | 1     | 0        | 0        | 0       | 0            |
| 84  | N     | 81    | 0        | 0        | 1       | 0            |
| 84  | O     | 21    | 0        | 0        | 0       | 0            |
| 84  | P     | 132   | 0        | 0        | 2       | 0            |
| 84  | Q     | 80    | 0        | 0        | 0       | 0            |
| 84  | R     | 60    | 0        | 0        | 0       | 0            |
| 84  | S     | 67    | 0        | 0        | 0       | 0            |
| 84  | T     | 47    | 0        | 0        | 0       | 0            |
| 84  | U     | 49    | 0        | 0        | 1       | 0            |
| 84  | V     | 49    | 0        | 0        | 0       | 0            |
| 84  | X     | 43    | 0        | 0        | 0       | 0            |
| 84  | Y     | 26    | 0        | 0        | 0       | 0            |
| 84  | Z     | 30    | 0        | 0        | 0       | 0            |
| 84  | ZA    | 55    | 0        | 0        | 2       | 0            |
| 84  | ZB    | 24    | 0        | 0        | 0       | 0            |
| 84  | ZD    | 70    | 0        | 0        | 3       | 0            |
| 84  | ZE    | 33    | 0        | 0        | 0       | 0            |
| 84  | ZF    | 1     | 0        | 0        | 0       | 0            |
| 84  | ZM    | 28    | 0        | 0        | 0       | 0            |
| 84  | ZO    | 69    | 0        | 0        | 3       | 0            |
| 84  | ZP    | 43    | 0        | 0        | 1       | 0            |
| 84  | ZQ    | 11    | 0        | 0        | 0       | 0            |
| 84  | ZS    | 7     | 0        | 0        | 1       | 0            |
| 84  | ZT    | 15    | 0        | 0        | 0       | 0            |
| 84  | ZW    | 3     | 0        | 0        | 0       | 0            |
| 84  | a     | 23    | 0        | 0        | 0       | 0            |
| 84  | b     | 8     | 0        | 0        | 0       | 0            |
| 84  | c     | 81    | 0        | 0        | 1       | 0            |
| 84  | d     | 24    | 0        | 0        | 1       | 0            |
| 84  | e     | 10    | 0        | 0        | 0       | 0            |
| 84  | f     | 18    | 0        | 0        | 0       | 0            |
| 84  | g     | 67    | 0        | 0        | 0       | 0            |
| 84  | h     | 49    | 0        | 0        | 0       | 0            |
| 84  | i     | 40    | 0        | 0        | 0       | 0            |
| 84  | j     | 32    | 0        | 0        | 0       | 0            |

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| Mol | Chain | Non-H  | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|--------|----------|----------|---------|--------------|
| 84  | k     | 26     | 0        | 0        | 0       | 0            |
| 84  | l     | 47     | 0        | 0        | 0       | 0            |
| 84  | m     | 4      | 0        | 0        | 0       | 0            |
| 84  | n     | 19     | 0        | 0        | 0       | 0            |
| 84  | o     | 5      | 0        | 0        | 0       | 0            |
| 84  | p     | 2      | 0        | 0        | 0       | 0            |
| 84  | q     | 38     | 0        | 0        | 0       | 0            |
| 84  | r     | 30     | 0        | 0        | 0       | 0            |
| 84  | s     | 11     | 0        | 0        | 0       | 0            |
| 84  | t     | 1      | 0        | 0        | 0       | 0            |
| 84  | u     | 45     | 0        | 0        | 3       | 0            |
| 84  | w     | 50     | 0        | 0        | 2       | 0            |
| 84  | y     | 29     | 0        | 0        | 1       | 0            |
| 84  | z     | 14     | 0        | 0        | 0       | 0            |
| All | All   | 203205 | 0        | 144913   | 1954    | 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 6.

All (1954) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 6:CA:638:G:H1     | 6:CA:672:U:H3      | 0.96                     | 0.96              |
| 3:A:2271:A:H61    | 3:A:2883:C:H5      | 1.13                     | 0.92              |
| 3:A:3126:G:H1     | 3:A:3145:U:H3      | 1.18                     | 0.91              |
| 6:CA:1563:G:H1    | 6:CA:1583:U:H3     | 1.19                     | 0.90              |
| 3:A:2052:U:H3     | 3:A:2057:U:H5      | 1.22                     | 0.87              |
| 31:ZB:120:ARG:H   | 31:ZB:124:HIS:HD2  | 1.22                     | 0.86              |
| 6:CA:838:G:H1     | 6:CA:930:U:H3      | 1.21                     | 0.85              |
| 4:B:19:G:H1       | 4:B:62:U:H3        | 1.19                     | 0.84              |
| 3:A:3069:G:H1     | 3:A:3171:C:H5      | 1.27                     | 0.83              |
| 45:ZQ:27:VAL:HG11 | 45:ZQ:35:VAL:HG11  | 1.61                     | 0.82              |
| 15:L:30:LYS:HG3   | 15:L:63:GLU:HG3    | 1.61                     | 0.82              |
| 3:A:1781:A:H5''   | 79:A:3492:GET:H712 | 1.60                     | 0.82              |
| 6:CA:864:U:H5     | 6:CA:888:U:H3      | 1.28                     | 0.81              |
| 77:y:79:GLU:HG3   | 77:y:86:PRO:HG3    | 1.61                     | 0.81              |
| 11:H:55:GLY:O     | 11:H:56:PRO:C      | 2.24                     | 0.80              |
| 3:A:2119:C:H2'    | 3:A:2120:U:H4'     | 1.63                     | 0.80              |
| 43:ZO:84:LYS:HE2  | 43:ZO:84:LYS:H     | 1.47                     | 0.78              |
| 6:CA:1476:C:H5    | 6:CA:1481:G:H1     | 1.29                     | 0.77              |
| 75:w:87:MET:HE1   | 75:w:237:ILE:HD13  | 1.66                     | 0.77              |

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| Atom-1            | Atom-2              | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|---------------------|--------------------------|-------------------|
| 6:CA:40:A:H62     | 6:CA:456:G:H8       | 1.31                     | 0.77              |
| 6:CA:4:C:H5       | 6:CA:20:G:H1        | 1.32                     | 0.77              |
| 6:CA:1004:C:HO2'  | 43:ZO:2:THR:N       | 1.83                     | 0.77              |
| 14:K:128:ILE:HG12 | 14:K:134:MET:HE3    | 1.67                     | 0.76              |
| 6:CA:453:A:H3'    | 79:CA:1893:GET:H933 | 1.68                     | 0.76              |
| 26:W:22:PRO:HB2   | 26:W:28:PHE:HB3     | 1.68                     | 0.75              |
| 6:CA:153:C:OP2    | 45:ZQ:133:ASN:ND2   | 2.20                     | 0.75              |
| 39:ZJ:123:ARG:HG2 | 39:ZJ:133:VAL:HG22  | 1.69                     | 0.75              |
| 10:G:197:LYS:HG2  | 10:G:202:GLY:HA3    | 1.69                     | 0.74              |
| 3:A:516:G:OP1     | 9:F:354:LYS:NZ      | 2.21                     | 0.74              |
| 52:ZY:89:LEU:HB2  | 52:ZY:103:PHE:HB2   | 1.67                     | 0.74              |
| 72:t:62:LYS:HA    | 72:t:88:VAL:HB      | 1.69                     | 0.74              |
| 52:ZY:101:LYS:NZ  | 52:ZY:137:ILE:O     | 2.20                     | 0.73              |
| 17:N:47:ALA:HB1   | 17:N:48:PRO:HD2     | 1.69                     | 0.73              |
| 31:ZB:70:LEU:O    | 31:ZB:74:ASN:ND2    | 2.21                     | 0.73              |
| 3:A:3125:U:H3     | 3:A:3146:G:H1       | 1.35                     | 0.73              |
| 3:A:1530:A:C5     | 66:n:4:GLN:HG3      | 2.23                     | 0.73              |
| 78:z:146:GLN:HB2  | 78:z:177:VAL:HG22   | 1.69                     | 0.73              |
| 52:ZY:42:LEU:HB2  | 52:ZY:61:PHE:HB2    | 1.69                     | 0.73              |
| 3:A:3014:A:H4'    | 14:K:69:ARG:HG2     | 1.70                     | 0.73              |
| 6:CA:1051:A:O2'   | 6:CA:1053:G:N7      | 2.22                     | 0.72              |
| 3:A:1622:U:O4     | 26:W:90:ARG:NH1     | 2.21                     | 0.72              |
| 24:U:15:MET:HB2   | 24:U:121:TYR:HB3    | 1.71                     | 0.72              |
| 27:X:40:LYS:HG3   | 27:X:57:MET:HG2     | 1.71                     | 0.72              |
| 15:L:78:LYS:HG2   | 15:L:79:MET:HE2     | 1.72                     | 0.71              |
| 43:ZO:23:ARG:HG3  | 48:ZT:4:VAL:HG22    | 1.70                     | 0.71              |
| 54:b:33:THR:HG22  | 54:b:35:ALA:H       | 1.54                     | 0.71              |
| 30:ZA:126:LYS:HE3 | 30:ZA:154:ALA:HB1   | 1.70                     | 0.71              |
| 35:ZF:56:MET:HG3  | 35:ZF:99:ALA:HB2    | 1.72                     | 0.70              |
| 16:M:47:LYS:HD3   | 16:M:60:ASN:HD22    | 1.56                     | 0.70              |
| 3:A:3016:C:OP1    | 14:K:62:ARG:NH2     | 2.25                     | 0.70              |
| 52:ZY:145:THR:O   | 52:ZY:147:HIS:N     | 2.24                     | 0.70              |
| 3:A:2121:G:H4'    | 6:CA:883:G:H22      | 1.56                     | 0.70              |
| 6:CA:1261:G:H1    | 6:CA:1294:G:H22     | 1.40                     | 0.70              |
| 36:ZG:54:MET:HA   | 36:ZG:54:MET:HE3    | 1.74                     | 0.70              |
| 39:ZJ:49:LYS:NZ   | 40:ZK:35:GLU:OE2    | 2.25                     | 0.69              |
| 72:t:87:ARG:NH1   | 72:t:100:PHE:O      | 2.24                     | 0.69              |
| 3:A:1290:A:H5''   | 22:S:13:LYS:HD3     | 1.74                     | 0.69              |
| 6:CA:28:A:N7      | 84:CA:1927:HOH:O    | 2.25                     | 0.69              |
| 3:A:591:G:N2      | 3:A:2287:A:O2'      | 2.25                     | 0.69              |
| 6:CA:204:U:O2     | 30:ZA:182:ARG:NH2   | 2.21                     | 0.69              |

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| Atom-1             | Atom-2              | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|---------------------|--------------------------|-------------------|
| 6:CA:1656:A:O3'    | 77:y:31:ARG:NH2     | 2.25                     | 0.69              |
| 33:ZD:113:PRO:O    | 33:ZD:116:ARG:NH2   | 2.26                     | 0.68              |
| 52:ZY:135:ASN:HD21 | 52:ZY:139:GLU:HB2   | 1.58                     | 0.68              |
| 3:A:480:G:N7       | 79:A:3475:GET:O61   | 2.25                     | 0.68              |
| 3:A:2614:G:H5'     | 3:A:2616:U:C6       | 2.27                     | 0.68              |
| 20:Q:125:LEU:HD13  | 24:U:182:PRO:HG3    | 1.76                     | 0.68              |
| 24:U:146:THR:HG23  | 24:U:158:LEU:HD23   | 1.75                     | 0.68              |
| 6:CA:12:U:H2'      | 6:CA:13:C:C6        | 2.29                     | 0.68              |
| 6:CA:580:A:H2'     | 6:CA:581:A:C8       | 2.28                     | 0.68              |
| 48:ZT:36:LYS:HD2   | 48:ZT:43:ILE:HG12   | 1.75                     | 0.68              |
| 6:CA:1750:U:OP1    | 68:p:11:ARG:NH2     | 2.27                     | 0.68              |
| 6:CA:1729:A:H2'    | 79:CA:1882:GET:H931 | 1.74                     | 0.68              |
| 78:z:48:SER:OG     | 78:z:167:GLN:NE2    | 2.27                     | 0.67              |
| 2:2:3:A:OP1        | 6:CA:1615:C:N4      | 2.27                     | 0.67              |
| 6:CA:1527:U:OP2    | 36:ZG:43:ARG:NH2    | 2.25                     | 0.67              |
| 31:ZB:120:ARG:H    | 31:ZB:124:HIS:CD2   | 2.09                     | 0.67              |
| 71:s:3:LEU:HD12    | 71:s:4:PRO:HD2      | 1.76                     | 0.67              |
| 78:z:29:ASP:N      | 78:z:29:ASP:OD1     | 2.27                     | 0.67              |
| 6:CA:1024:U:H3     | 6:CA:1034:G:H1      | 1.43                     | 0.67              |
| 31:ZB:88:GLU:OE2   | 31:ZB:88:GLU:N      | 2.25                     | 0.67              |
| 3:A:2573:A:OP1     | 16:M:92:LYS:NZ      | 2.28                     | 0.67              |
| 49:ZU:16:LEU:HD12  | 49:ZU:27:GLN:HB3    | 1.76                     | 0.67              |
| 6:CA:1141:A:H2'    | 6:CA:1142:G:C8      | 2.29                     | 0.67              |
| 43:ZO:15:ASN:HD21  | 43:ZO:71:LYS:HA     | 1.60                     | 0.67              |
| 75:w:243:LYS:O     | 75:w:243:LYS:HD3    | 1.95                     | 0.67              |
| 3:A:489:U:H2'      | 3:A:490:A:H8        | 1.59                     | 0.67              |
| 4:B:113:G:H2'      | 4:B:114:C:C6        | 2.30                     | 0.66              |
| 15:L:28:ASP:OD2    | 15:L:32:ARG:NH1     | 2.29                     | 0.66              |
| 36:ZG:81:ARG:NH2   | 36:ZG:120:SER:O     | 2.28                     | 0.66              |
| 65:m:63:LYS:O      | 65:m:67:GLN:HG2     | 1.95                     | 0.66              |
| 8:E:36:VAL:HB      | 8:E:39:LYS:HD2      | 1.78                     | 0.66              |
| 35:ZF:106:ARG:HA   | 47:ZS:118:ALA:HB1   | 1.77                     | 0.66              |
| 3:A:1579:C:OP2     | 61:i:74:ARG:NH1     | 2.20                     | 0.66              |
| 6:CA:1459:A:H2'    | 6:CA:1460:G:C8      | 2.31                     | 0.66              |
| 6:CA:71:G:H21      | 6:CA:79:A:H62       | 1.43                     | 0.66              |
| 9:F:36:VAL:HG21    | 9:F:245:LEU:HD21    | 1.78                     | 0.66              |
| 37:ZH:98:GLU:OE2   | 52:ZY:60:SER:N      | 2.28                     | 0.66              |
| 3:A:1636:A:H2'     | 3:A:1637:A:C8       | 2.31                     | 0.66              |
| 66:n:20:ASN:ND2    | 66:n:42:ARG:O       | 2.28                     | 0.66              |
| 9:F:147:GLU:HG2    | 9:F:148:GLU:HG2     | 1.78                     | 0.65              |
| 6:CA:456:G:N2      | 79:CA:1883:GET:H221 | 2.11                     | 0.65              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 39:ZJ:100:VAL:HG11 | 39:ZJ:108:LYS:HG3  | 1.77                     | 0.65              |
| 76:x:38:GLN:N      | 76:x:38:GLN:OE1    | 2.28                     | 0.65              |
| 38:ZI:85:VAL:HG22  | 71:s:198:MET:HE2   | 1.79                     | 0.65              |
| 78:z:125:LEU:HD21  | 78:z:168:LEU:HD22  | 1.78                     | 0.65              |
| 6:CA:190:C:O2      | 30:ZA:145:ARG:NH1  | 2.29                     | 0.65              |
| 10:G:261:THR:HG23  | 10:G:264:GLN:HE21  | 1.61                     | 0.65              |
| 48:ZT:59:CYS:HB3   | 48:ZT:61:THR:HG22  | 1.78                     | 0.65              |
| 6:CA:633:U:H3      | 6:CA:677:G:H1      | 1.43                     | 0.65              |
| 3:A:2509:A:OP1     | 79:A:3480:GET:H832 | 1.97                     | 0.65              |
| 49:ZU:45:LYS:NZ    | 76:x:145:ASP:OD2   | 2.30                     | 0.65              |
| 3:A:2484:C:H1'     | 13:J:241:LYS:HD2   | 1.78                     | 0.65              |
| 69:q:7:THR:HB      | 69:q:22:GLN:NE2    | 2.12                     | 0.65              |
| 3:A:2123:A:H1'     | 3:A:2124:U:H5'     | 1.78                     | 0.65              |
| 23:T:87:ALA:HB2    | 79:T:301:GET:H712  | 1.77                     | 0.65              |
| 6:CA:503:G:H1      | 6:CA:532:C:H5      | 1.41                     | 0.64              |
| 16:M:88:GLN:HE22   | 16:M:168:GLU:HB2   | 1.62                     | 0.64              |
| 35:ZF:43:VAL:HG12  | 35:ZF:45:ALA:H     | 1.62                     | 0.64              |
| 72:t:128:LYS:NZ    | 72:t:132:ASP:OD1   | 2.30                     | 0.64              |
| 12:I:6:LYS:HG2     | 12:I:7:PRO:HD2     | 1.78                     | 0.64              |
| 23:T:192:ARG:HB3   | 23:T:196:ARG:HH11  | 1.62                     | 0.64              |
| 6:CA:1190:C:H2'    | 6:CA:1191:A:H8     | 1.62                     | 0.64              |
| 6:CA:1656:A:H1'    | 77:y:66:GLY:HA2    | 1.78                     | 0.64              |
| 41:ZL:36:VAL:HG22  | 41:ZL:106:THR:HG21 | 1.79                     | 0.64              |
| 6:CA:632:G:H22     | 6:CA:678:A:H2      | 1.44                     | 0.64              |
| 52:ZY:256:ILE:HB   | 52:ZY:270:LEU:HB2  | 1.79                     | 0.64              |
| 17:N:57:VAL:HG22   | 17:N:145:ILE:HG12  | 1.78                     | 0.64              |
| 6:CA:867:C:O2'     | 6:CA:884:G:N2      | 2.31                     | 0.64              |
| 3:A:2176:G:O2'     | 3:A:2178:C:N4      | 2.30                     | 0.64              |
| 6:CA:1398:A:N7     | 79:CA:1892:GET:O61 | 2.30                     | 0.64              |
| 6:CA:1590:C:N4     | 76:x:80:LYS:O      | 2.32                     | 0.63              |
| 6:CA:1260:U:H2'    | 6:CA:1261:G:C8     | 2.34                     | 0.63              |
| 79:T:301:GET:H322  | 79:T:301:GET:H713  | 1.61                     | 0.63              |
| 40:ZK:57:ARG:HG2   | 40:ZK:104:VAL:HG21 | 1.81                     | 0.63              |
| 6:CA:1466:U:OP2    | 74:v:4:GLN:NE2     | 2.31                     | 0.63              |
| 26:W:41:ILE:HD12   | 26:W:56:ILE:HD11   | 1.80                     | 0.63              |
| 35:ZF:76:VAL:HG21  | 35:ZF:97:LEU:HD13  | 1.81                     | 0.63              |
| 38:ZI:129:GLY:HA2  | 72:t:148:ASN:HA    | 1.81                     | 0.63              |
| 3:A:1057:U:H2'     | 3:A:1058:U:C6      | 2.34                     | 0.63              |
| 3:A:1438:U:H5      | 3:A:1777:A:N1      | 1.97                     | 0.63              |
| 3:A:1569:C:H4'     | 3:A:1571:C:H5'     | 1.81                     | 0.63              |
| 17:N:15:ARG:NH1    | 84:N:201:HOH:O     | 2.31                     | 0.63              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 61:i:11:THR:HG22   | 61:i:13:TYR:H      | 1.64                     | 0.62              |
| 63:k:94:ALA:O      | 63:k:98:ARG:HB2    | 1.98                     | 0.62              |
| 6:CA:733:A:OP1     | 31:ZB:79:ARG:NH1   | 2.32                     | 0.62              |
| 1:1:22:C:OP2       | 1:1:46:A:N6        | 2.32                     | 0.62              |
| 6:CA:576:C:OP1     | 51:ZW:26:LYS:NZ    | 2.32                     | 0.62              |
| 52:ZY:13:LEU:HB2   | 52:ZY:306:ILE:HB   | 1.82                     | 0.62              |
| 6:CA:308:U:H4'     | 6:CA:312:A:C8      | 2.34                     | 0.62              |
| 69:q:7:THR:HB      | 69:q:22:GLN:HE21   | 1.65                     | 0.62              |
| 71:s:79:ARG:NH1    | 71:s:164:ASN:O     | 2.32                     | 0.62              |
| 6:CA:125:A:H5''    | 75:w:134:ARG:HH12  | 1.64                     | 0.62              |
| 6:CA:1298:G:OP1    | 74:v:160:HIS:N     | 2.29                     | 0.62              |
| 45:ZQ:125:HIS:H    | 45:ZQ:128:LYS:HG3  | 1.63                     | 0.62              |
| 3:A:1461:U:OP1     | 66:n:21:ARG:NH2    | 2.30                     | 0.62              |
| 6:CA:902:U:O2      | 47:ZS:94:LYS:NZ    | 2.32                     | 0.62              |
| 45:ZQ:81:ASP:OD1   | 45:ZQ:84:ARG:NH2   | 2.29                     | 0.62              |
| 3:A:888:C:H2'      | 3:A:889:U:C6       | 2.34                     | 0.62              |
| 20:Q:131:LYS:HD3   | 20:Q:132:PRO:HD2   | 1.82                     | 0.62              |
| 31:ZB:100:ARG:HH11 | 31:ZB:102:GLU:HB2  | 1.65                     | 0.62              |
| 79:A:3488:GET:N33  | 4:B:91:A:OP1       | 2.33                     | 0.62              |
| 3:A:1601:G:H2'     | 3:A:1602:G:C8      | 2.35                     | 0.61              |
| 6:CA:883:G:O2'     | 6:CA:884:G:OP1     | 2.18                     | 0.61              |
| 54:b:116:LYS:NZ    | 54:b:120:GLU:OE2   | 2.33                     | 0.61              |
| 6:CA:1022:C:H3'    | 6:CA:1023:G:H21    | 1.64                     | 0.61              |
| 26:W:53:ALA:HB1    | 26:W:69:ALA:HB2    | 1.80                     | 0.61              |
| 44:ZP:92:CYS:HG    | 44:ZP:136:TRP:CD1  | 2.18                     | 0.61              |
| 73:u:143:LEU:O     | 73:u:169:ARG:NH2   | 2.32                     | 0.61              |
| 73:u:165:ILE:HB    | 73:u:192:TYR:HB2   | 1.82                     | 0.61              |
| 3:A:2023:C:H1'     | 3:A:3232:A:C8      | 2.35                     | 0.61              |
| 6:CA:1261:G:H22    | 6:CA:1294:G:N2     | 1.98                     | 0.61              |
| 6:CA:1495:U:OP2    | 40:ZK:75:LYS:NZ    | 2.33                     | 0.61              |
| 6:CA:1616:C:H2'    | 6:CA:1617:G:C8     | 2.36                     | 0.61              |
| 40:ZK:49:GLU:N     | 40:ZK:49:GLU:OE1   | 2.33                     | 0.61              |
| 52:ZY:26:THR:HG23  | 52:ZY:29:LYS:H     | 1.64                     | 0.61              |
| 35:ZF:82:GLY:HA3   | 35:ZF:115:PRO:HG2  | 1.83                     | 0.61              |
| 39:ZJ:64:GLU:OE1   | 39:ZJ:64:GLU:N     | 2.22                     | 0.61              |
| 44:ZP:70:LYS:HB3   | 44:ZP:93:LEU:HD22  | 1.81                     | 0.61              |
| 76:x:80:LYS:HG3    | 76:x:83:ARG:HH21   | 1.65                     | 0.61              |
| 3:A:777:U:H5'      | 79:A:3482:GET:H611 | 1.82                     | 0.61              |
| 8:E:29:VAL:HG22    | 8:E:218:ILE:HD13   | 1.81                     | 0.61              |
| 72:t:33:LYS:HB3    | 72:t:41:ARG:HH12   | 1.63                     | 0.61              |
| 3:A:719:U:H5       | 3:A:2619:U:O2      | 1.84                     | 0.61              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 3:A:2321:C:H2'     | 3:A:2322:C:C6      | 2.35                     | 0.61              |
| 6:CA:898:U:OP1     | 47:ZS:81:LYS:NZ    | 2.28                     | 0.61              |
| 3:A:3240:U:H4'     | 3:A:3241:G:O5'     | 2.01                     | 0.61              |
| 5:C:55:U:O2'       | 5:C:87:C:N4        | 2.34                     | 0.61              |
| 6:CA:1116:G:H2'    | 6:CA:1117:A:C8     | 2.36                     | 0.61              |
| 25:V:83:ARG:HB2    | 56:d:37:LYS:HG3    | 1.83                     | 0.61              |
| 3:A:1759:G:H2'     | 3:A:1760:U:C6      | 2.35                     | 0.60              |
| 3:A:2860:C:H2'     | 3:A:2861:G:C8      | 2.36                     | 0.60              |
| 3:A:3068:U:H3      | 3:A:3172:G:H1      | 1.48                     | 0.60              |
| 5:C:51:G:O6        | 79:C:204:GET:N21   | 2.34                     | 0.60              |
| 6:CA:595:A:N1      | 84:CA:1963:HOH:O   | 2.31                     | 0.60              |
| 6:CA:1450:G:H2'    | 6:CA:1451:A:C8     | 2.36                     | 0.60              |
| 8:E:92:TYR:HB3     | 8:E:99:LEU:HD22    | 1.82                     | 0.60              |
| 3:A:1506:C:O2'     | 3:A:1507:C:OP1     | 2.18                     | 0.60              |
| 43:ZO:88:ARG:NH1   | 84:ZO:205:HOH:O    | 2.25                     | 0.60              |
| 52:ZY:120:ARG:HH21 | 52:ZY:121:GLN:HG2  | 1.65                     | 0.60              |
| 29:Z:105:VAL:HG11  | 29:Z:108:ILE:HG13  | 1.82                     | 0.60              |
| 77:y:57:ASP:OD2    | 77:y:72:ARG:NH1    | 2.34                     | 0.60              |
| 3:A:921:G:O2'      | 3:A:1050:A:N1      | 2.31                     | 0.60              |
| 52:ZY:135:ASN:OD1  | 52:ZY:138:GLY:N    | 2.29                     | 0.60              |
| 43:ZO:113:HIS:HD2  | 43:ZO:117:ARG:HH21 | 1.49                     | 0.60              |
| 52:ZY:281:LYS:O    | 52:ZY:281:LYS:HG3  | 2.00                     | 0.60              |
| 71:s:30:GLN:HE22   | 71:s:32:HIS:CD2    | 2.20                     | 0.60              |
| 8:E:90:VAL:HG22    | 8:E:104:THR:HG23   | 1.84                     | 0.60              |
| 3:A:1041:U:H5''    | 3:A:1042:A:OP2     | 2.02                     | 0.60              |
| 6:CA:1590:C:H5'    | 6:CA:1591:G:H5'    | 1.83                     | 0.60              |
| 79:T:301:GET:H713  | 79:T:301:GET:N32   | 2.16                     | 0.60              |
| 3:A:765:A:H2'      | 3:A:766:C:C6       | 2.37                     | 0.59              |
| 3:A:3149:G:H3'     | 3:A:3150:G:H8      | 1.65                     | 0.59              |
| 14:K:90:MET:HE2    | 14:K:179:ILE:HG22  | 1.83                     | 0.59              |
| 3:A:2488:C:OP1     | 13:J:49:ARG:NH2    | 2.23                     | 0.59              |
| 6:CA:107:A:H2'     | 6:CA:108:G:C8      | 2.37                     | 0.59              |
| 58:f:58:LEU:HD23   | 58:f:70:MET:HE1    | 1.84                     | 0.59              |
| 3:A:2128:A:H2'     | 3:A:2129:A:C8      | 2.36                     | 0.59              |
| 6:CA:765:U:H3'     | 6:CA:766:A:H8      | 1.67                     | 0.59              |
| 30:ZA:91:HIS:O     | 33:ZD:11:ARG:NH2   | 2.33                     | 0.59              |
| 74:v:139:ILE:HG12  | 74:v:185:ILE:HG22  | 1.85                     | 0.59              |
| 6:CA:822:C:H5''    | 23:T:196:ARG:NH2   | 2.17                     | 0.59              |
| 45:ZQ:27:VAL:HG11  | 45:ZQ:35:VAL:CG1   | 2.31                     | 0.59              |
| 3:A:1780:G:H5''    | 3:A:1781:A:H5'     | 1.84                     | 0.59              |
| 65:m:9:LYS:O       | 65:m:13:GLU:HG2    | 2.02                     | 0.59              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 6:CA:1051:A:H8    | 6:CA:1052:C:N3     | 2.00                     | 0.59              |
| 35:ZF:76:VAL:HG13 | 35:ZF:110:ILE:HG23 | 1.85                     | 0.59              |
| 6:CA:154:A:H2'    | 6:CA:155:A:O4'     | 2.03                     | 0.59              |
| 6:CA:1447:A:OP1   | 76:x:185:ARG:NE    | 2.33                     | 0.59              |
| 16:M:30:ARG:HD2   | 16:M:118:ILE:HA    | 1.83                     | 0.59              |
| 48:ZT:37:CYS:HA   | 48:ZT:77:CYS:HB3   | 1.85                     | 0.59              |
| 52:ZY:22:SER:HB3  | 52:ZY:71:VAL:HG22  | 1.84                     | 0.59              |
| 72:t:87:ARG:NH2   | 72:t:220:GLN:OE1   | 2.36                     | 0.59              |
| 3:A:3129:U:H2'    | 3:A:3130:C:C6      | 2.38                     | 0.59              |
| 6:CA:1444:U:O2'   | 6:CA:1445:A:O5'    | 2.20                     | 0.59              |
| 73:u:240:GLU:OE1  | 73:u:243:LYS:NZ    | 2.35                     | 0.59              |
| 40:ZK:51:GLU:H    | 40:ZK:51:GLU:CD    | 2.10                     | 0.58              |
| 3:A:1750:G:OP1    | 54:b:133:LYS:NZ    | 2.30                     | 0.58              |
| 6:CA:273:G:N7     | 77:y:188:ARG:NH2   | 2.50                     | 0.58              |
| 6:CA:1310:U:H2'   | 6:CA:1311:C:C6     | 2.38                     | 0.58              |
| 6:CA:1499:A:H2'   | 6:CA:1500:A:C8     | 2.38                     | 0.58              |
| 50:ZV:20:GLN:HB2  | 50:ZV:25:SER:HA    | 1.84                     | 0.58              |
| 73:u:35:LYS:HB3   | 73:u:242:ALA:HB1   | 1.85                     | 0.58              |
| 73:u:147:HIS:ND1  | 73:u:190:ASP:OD2   | 2.29                     | 0.58              |
| 6:CA:594:A:N7     | 84:CA:1965:HOH:O   | 2.32                     | 0.58              |
| 6:CA:909:A:H2'    | 6:CA:910:A:C8      | 2.39                     | 0.58              |
| 48:ZT:74:THR:HG1  | 48:ZT:77:CYS:HG    | 1.51                     | 0.58              |
| 71:s:30:GLN:NE2   | 71:s:32:HIS:H      | 2.01                     | 0.58              |
| 78:z:67:ARG:HH22  | 78:z:124:ASP:HB3   | 1.68                     | 0.58              |
| 3:A:752:G:OP1     | 79:A:3480:GET:N12  | 2.36                     | 0.58              |
| 4:B:19:G:N2       | 4:B:62:U:O2        | 2.27                     | 0.58              |
| 26:W:34:VAL:O     | 26:W:38:ASN:ND2    | 2.35                     | 0.58              |
| 6:CA:357:U:H2'    | 6:CA:358:A:O4'     | 2.02                     | 0.58              |
| 6:CA:500:A:OP2    | 31:ZB:176:ASN:ND2  | 2.33                     | 0.58              |
| 40:ZK:51:GLU:OE1  | 40:ZK:51:GLU:N     | 2.36                     | 0.58              |
| 50:ZV:30:LEU:H    | 50:ZV:39:CYS:HA    | 1.69                     | 0.58              |
| 3:A:27:C:H4'      | 3:A:60:A:H4'       | 1.86                     | 0.58              |
| 10:G:211:LEU:HB3  | 10:G:219:TYR:HB2   | 1.86                     | 0.58              |
| 30:ZA:124:TYR:O   | 30:ZA:126:LYS:NZ   | 2.37                     | 0.58              |
| 3:A:250:C:H2'     | 3:A:251:A:C8       | 2.38                     | 0.58              |
| 6:CA:12:U:OP1     | 73:u:79:ARG:NH1    | 2.37                     | 0.58              |
| 6:CA:875:A:OP1    | 35:ZF:47:ARG:NH1   | 2.29                     | 0.58              |
| 6:CA:1444:U:O2'   | 6:CA:1445:A:O4'    | 2.19                     | 0.58              |
| 31:ZB:114:PHE:HA  | 31:ZB:119:ALA:HB3  | 1.84                     | 0.58              |
| 22:S:92:ARG:HG2   | 55:c:76:GLU:HG3    | 1.85                     | 0.58              |
| 40:ZK:109:GLU:HG3 | 40:ZK:114:VAL:HG23 | 1.85                     | 0.58              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 73:u:166:PRO:HG3   | 84:u:324:HOH:O     | 2.03                     | 0.58              |
| 30:ZA:32:ARG:HG2   | 30:ZA:34:PHE:CE2   | 2.39                     | 0.58              |
| 3:A:2738:A:OP1     | 15:L:154:ARG:NH1   | 2.37                     | 0.57              |
| 6:CA:856:U:OP1     | 72:t:214:LYS:NZ    | 2.37                     | 0.57              |
| 3:A:2023:C:H1'     | 3:A:3232:A:H8      | 1.69                     | 0.57              |
| 6:CA:137:A:OP2     | 77:y:187:LYS:NZ    | 2.34                     | 0.57              |
| 6:CA:144:U:H2'     | 6:CA:145:A:H8      | 1.69                     | 0.57              |
| 31:ZB:108:ARG:HH21 | 31:ZB:110:GLN:HE21 | 1.52                     | 0.57              |
| 72:t:179:VAL:HG21  | 72:t:187:LYS:HE3   | 1.86                     | 0.57              |
| 1:l:22:C:H5        | 1:l:46:A:H61       | 1.53                     | 0.57              |
| 10:G:116:ASP:OD1   | 10:G:116:ASP:N     | 2.38                     | 0.57              |
| 34:ZE:55:ARG:HD3   | 48:ZT:47:PHE:CD2   | 2.39                     | 0.57              |
| 74:v:63:GLN:N      | 74:v:63:GLN:OE1    | 2.36                     | 0.57              |
| 3:A:765:A:H2'      | 3:A:766:C:H6       | 1.68                     | 0.57              |
| 6:CA:69:A:N1       | 6:CA:81:U:H5       | 2.03                     | 0.57              |
| 6:CA:343:C:H5''    | 30:ZA:23:ALA:HB2   | 1.86                     | 0.57              |
| 74:v:33:GLN:HE21   | 74:v:58:GLY:HA3    | 1.68                     | 0.57              |
| 6:CA:1261:G:H22    | 6:CA:1294:G:H22    | 1.52                     | 0.57              |
| 3:A:1270:G:H4'     | 24:U:15:MET:HG3    | 1.87                     | 0.57              |
| 6:CA:1169:G:N2     | 50:ZV:29:GLY:O     | 2.38                     | 0.57              |
| 31:ZB:112:GLN:NE2  | 31:ZB:153:GLN:HE22 | 2.02                     | 0.57              |
| 55:c:128:ARG:HG2   | 55:c:149:ALA:HB3   | 1.86                     | 0.57              |
| 3:A:489:U:H2'      | 3:A:490:A:C8       | 2.40                     | 0.57              |
| 3:A:1538:C:H2'     | 3:A:1539:U:C6      | 2.40                     | 0.57              |
| 3:A:610:U:H2'      | 3:A:611:A:C8       | 2.39                     | 0.57              |
| 6:CA:596:G:H5'     | 6:CA:602:G:N2      | 2.20                     | 0.57              |
| 3:A:1476:U:OP2     | 79:A:3493:GET:N12  | 2.38                     | 0.57              |
| 6:CA:279:G:N2      | 84:CA:1987:HOH:O   | 2.36                     | 0.57              |
| 31:ZB:112:GLN:HE21 | 31:ZB:148:VAL:HB   | 1.70                     | 0.57              |
| 52:ZY:199:THR:OG1  | 52:ZY:200:ILE:N    | 2.37                     | 0.57              |
| 77:y:163:GLU:OE1   | 77:y:163:GLU:N     | 2.37                     | 0.57              |
| 3:A:497:U:H2'      | 3:A:498:G:H8       | 1.70                     | 0.56              |
| 6:CA:1510:U:OP2    | 46:ZR:38:HIS:ND1   | 2.28                     | 0.56              |
| 3:A:2583:U:H2'     | 3:A:2584:C:C6      | 2.40                     | 0.56              |
| 6:CA:1050:U:O2'    | 6:CA:1051:A:H5'    | 2.06                     | 0.56              |
| 3:A:239:U:H2'      | 3:A:240:U:C6       | 2.41                     | 0.56              |
| 3:A:1327:G:OP1     | 9:F:204:ARG:NH1    | 2.38                     | 0.56              |
| 3:A:2027:U:OP2     | 28:Y:48:ARG:NH2    | 2.38                     | 0.56              |
| 3:A:2956:A:H1'     | 3:A:2958:U:OP2     | 2.05                     | 0.56              |
| 3:A:3163:A:H5''    | 3:A:3165:G:OP2     | 2.05                     | 0.56              |
| 45:ZQ:29:HIS:HB2   | 45:ZQ:32:ARG:HB3   | 1.87                     | 0.56              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 52:ZY:19:TRP:HB2   | 52:ZY:38:ARG:HG3   | 1.87                     | 0.56              |
| 72:t:131:ASP:N     | 72:t:131:ASP:OD1   | 2.38                     | 0.56              |
| 1:1:35:C:H2'       | 1:1:36:G:C8        | 2.41                     | 0.56              |
| 3:A:608:U:H2'      | 3:A:609:C:C6       | 2.40                     | 0.56              |
| 3:A:2668:U:H2'     | 3:A:2669:A:H8      | 1.69                     | 0.56              |
| 3:A:2958:U:H5      | 84:A:9190:HOH:O    | 1.88                     | 0.56              |
| 6:CA:36:C:H2'      | 6:CA:37:U:C6       | 2.41                     | 0.56              |
| 6:CA:635:U:H2'     | 6:CA:636:U:H6      | 1.70                     | 0.56              |
| 6:CA:635:U:H2'     | 6:CA:636:U:C6      | 2.41                     | 0.56              |
| 6:CA:1239:U:H4'    | 6:CA:1240:G:O5'    | 2.03                     | 0.56              |
| 30:ZA:124:TYR:HB3  | 30:ZA:126:LYS:NZ   | 2.20                     | 0.56              |
| 60:h:48:ARG:HG3    | 60:h:104:PRO:HD3   | 1.87                     | 0.56              |
| 3:A:2597:A:H2'     | 3:A:2598:G:C8      | 2.40                     | 0.56              |
| 6:CA:1450:G:H2'    | 6:CA:1451:A:H8     | 1.69                     | 0.56              |
| 57:e:23:LYS:HB2    | 57:e:95:ASP:HB3    | 1.87                     | 0.56              |
| 71:s:83:GLN:HG2    | 71:s:99:ALA:HB1    | 1.88                     | 0.56              |
| 6:CA:868:A:N6      | 6:CA:882:U:H5''    | 2.20                     | 0.56              |
| 6:CA:992:C:O2'     | 6:CA:1095:A:N1     | 2.34                     | 0.56              |
| 6:CA:1539:U:H2'    | 6:CA:1540:C:C6     | 2.41                     | 0.56              |
| 6:CA:1566:C:H2'    | 6:CA:1567:A:H8     | 1.70                     | 0.56              |
| 45:ZQ:55:ILE:HG12  | 45:ZQ:75:ILE:HD13  | 1.87                     | 0.56              |
| 72:t:224:ASP:HB3   | 72:t:227:SER:HB2   | 1.87                     | 0.56              |
| 3:A:297:A:H2'      | 3:A:298:A:C8       | 2.40                     | 0.56              |
| 3:A:1525:G:N7      | 79:A:3493:GET:O31  | 2.34                     | 0.56              |
| 3:A:2861:G:H2'     | 3:A:2862:U:C6      | 2.41                     | 0.56              |
| 6:CA:1267:G:N2     | 6:CA:1270:A:OP2    | 2.33                     | 0.56              |
| 52:ZY:206:LEU:HD11 | 52:ZY:227:LEU:HD12 | 1.88                     | 0.56              |
| 76:x:50:ASP:OD1    | 76:x:50:ASP:N      | 2.37                     | 0.56              |
| 32:ZC:70:ASP:OD1   | 32:ZC:70:ASP:N     | 2.34                     | 0.56              |
| 41:ZL:46:GLN:OE1   | 41:ZL:47:ASN:ND2   | 2.39                     | 0.56              |
| 72:t:143:THR:HG22  | 72:t:205:LEU:HD21  | 1.86                     | 0.56              |
| 3:A:178:C:OP2      | 53:a:122:ARG:NH1   | 2.36                     | 0.56              |
| 3:A:2672:C:H4'     | 3:A:2673:C:H5'     | 1.88                     | 0.56              |
| 79:A:3481:GET:H111 | 84:A:5781:HOH:O    | 2.06                     | 0.56              |
| 6:CA:72:A:H2'      | 6:CA:74:U:H1'      | 1.87                     | 0.56              |
| 6:CA:822:C:H5''    | 23:T:196:ARG:HH22  | 1.71                     | 0.56              |
| 6:CA:970:C:H5      | 6:CA:973:A:H5''    | 1.71                     | 0.56              |
| 6:CA:1567:A:H2'    | 6:CA:1568:A:H8     | 1.71                     | 0.56              |
| 17:N:118:GLU:HG2   | 17:N:143:PHE:HE2   | 1.71                     | 0.56              |
| 41:ZL:44:ALA:HA    | 41:ZL:49:ILE:HD12  | 1.87                     | 0.56              |
| 45:ZQ:57:VAL:HB    | 45:ZQ:60:PHE:HE2   | 1.71                     | 0.56              |

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| Atom-1            | Atom-2              | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|---------------------|--------------------------|-------------------|
| 74:v:107:LYS:NZ   | 74:v:175:HIS:O      | 2.39                     | 0.56              |
| 26:W:6:THR:HG21   | 26:W:70:LYS:HB2     | 1.88                     | 0.55              |
| 6:CA:584:G:N7     | 84:CA:1969:HOH:O    | 2.33                     | 0.55              |
| 6:CA:872:G:H22    | 6:CA:876:A:H5''     | 1.71                     | 0.55              |
| 6:CA:1500:A:H2'   | 6:CA:1501:A:C8      | 2.42                     | 0.55              |
| 3:A:1741:A:H2'    | 3:A:1742:A:C8       | 2.41                     | 0.55              |
| 6:CA:1594:C:H2'   | 6:CA:1595:C:H6      | 1.71                     | 0.55              |
| 8:E:84:MET:HE1    | 8:E:181:ILE:CD1     | 2.36                     | 0.55              |
| 9:F:303:SER:OG    | 22:S:39:ARG:NH2     | 2.40                     | 0.55              |
| 3:A:1575:G:N7     | 54:b:73:LYS:NZ      | 2.55                     | 0.55              |
| 6:CA:960:C:H2'    | 6:CA:961:G:O4'      | 2.07                     | 0.55              |
| 9:F:156:GLU:CD    | 9:F:156:GLU:H       | 2.14                     | 0.55              |
| 27:X:7:SER:O      | 27:X:7:SER:OG       | 2.25                     | 0.55              |
| 43:ZO:41:MET:HG2  | 43:ZO:129:VAL:HG21  | 1.87                     | 0.55              |
| 3:A:2008:G:OP1    | 23:T:134:LYS:NZ     | 2.40                     | 0.55              |
| 3:A:2611:C:O2'    | 3:A:2644:U:OP1      | 2.24                     | 0.55              |
| 30:ZA:141:HIS:O   | 30:ZA:145:ARG:NH1   | 2.40                     | 0.55              |
| 58:f:2:ALA:N      | 58:f:5:ASP:OD1      | 2.39                     | 0.55              |
| 3:A:522:G:H2'     | 3:A:523:A:C8        | 2.42                     | 0.55              |
| 3:A:702:A:H2'     | 3:A:703:G:O4'       | 2.07                     | 0.55              |
| 3:A:2079:A:H5''   | 84:P:518:HOH:O      | 2.06                     | 0.55              |
| 75:w:45:ILE:HG13  | 75:w:61:VAL:HG21    | 1.88                     | 0.55              |
| 6:CA:1341:C:O3'   | 37:ZH:29:LYS:NZ     | 2.39                     | 0.55              |
| 66:n:42:ARG:HG3   | 66:n:47:THR:OG1     | 2.07                     | 0.55              |
| 41:ZL:27:SER:HB2  | 41:ZL:111:VAL:HA    | 1.89                     | 0.55              |
| 48:ZT:42:ASN:ND2  | 48:ZT:56:CYS:SG     | 2.65                     | 0.55              |
| 74:v:67:ILE:O     | 74:v:71:THR:OG1     | 2.23                     | 0.55              |
| 3:A:601:C:H2'     | 3:A:602:A:C8        | 2.42                     | 0.55              |
| 3:A:601:C:H2'     | 3:A:602:A:H8        | 1.72                     | 0.55              |
| 33:ZD:36:LYS:NZ   | 84:ZD:206:HOH:O     | 2.32                     | 0.55              |
| 35:ZF:106:ARG:NH2 | 47:ZS:117:GLU:O     | 2.40                     | 0.55              |
| 3:A:1125:G:O6     | 60:h:20:LYS:NZ      | 2.39                     | 0.54              |
| 3:A:2027:U:H4'    | 3:A:2028:A:H5'      | 1.89                     | 0.54              |
| 3:A:2668:U:H2'    | 3:A:2669:A:C8       | 2.42                     | 0.54              |
| 3:A:2780:U:H1'    | 8:E:250:ALA:HB3     | 1.89                     | 0.54              |
| 6:CA:1130:A:H2'   | 6:CA:1131:C:C6      | 2.42                     | 0.54              |
| 6:CA:1646:A:OP2   | 79:CA:1879:GET:H21  | 2.07                     | 0.54              |
| 72:t:48:ILE:HD12  | 72:t:49:ASN:H       | 1.72                     | 0.54              |
| 75:w:100:ARG:HH21 | 75:w:118:GLU:HG2    | 1.72                     | 0.54              |
| 6:CA:1617:G:OP2   | 79:CA:1882:GET:O61  | 2.20                     | 0.54              |
| 6:CA:1618:U:H3    | 79:CA:1882:GET:H212 | 1.54                     | 0.54              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 44:ZP:54:LEU:HD11  | 44:ZP:82:LYS:HZ2  | 1.72                     | 0.54              |
| 3:A:2905:C:OP2     | 8:E:28:LYS:NZ     | 2.39                     | 0.54              |
| 6:CA:247:C:O2      | 30:ZA:182:ARG:NH2 | 2.40                     | 0.54              |
| 48:ZT:11:ASN:HB3   | 48:ZT:14:THR:HG23 | 1.88                     | 0.54              |
| 52:ZY:218:LEU:HD11 | 52:ZY:241:PHE:HZ  | 1.73                     | 0.54              |
| 53:a:72:THR:HG23   | 53:a:81:GLN:HB2   | 1.90                     | 0.54              |
| 72:t:138:PHE:HE2   | 72:t:216:LYS:HD3  | 1.73                     | 0.54              |
| 74:v:173:ILE:HG12  | 74:v:186:LYS:HG2  | 1.89                     | 0.54              |
| 6:CA:604:A:O2'     | 6:CA:610:A:N1     | 2.40                     | 0.54              |
| 6:CA:1594:C:O4'    | 49:ZU:21:SER:OG   | 2.25                     | 0.54              |
| 30:ZA:137:VAL:O    | 30:ZA:139:ARG:NH2 | 2.41                     | 0.54              |
| 75:w:179:ARG:HD3   | 75:w:230:GLU:HA   | 1.90                     | 0.54              |
| 3:A:2334:A:H2'     | 3:A:2335:C:C6     | 2.42                     | 0.54              |
| 6:CA:1534:G:H5''   | 39:ZJ:135:GLY:HA3 | 1.90                     | 0.54              |
| 3:A:347:A:O4'      | 9:F:82:GLY:HA3    | 2.07                     | 0.54              |
| 3:A:790:A:H2'      | 3:A:791:A:C8      | 2.43                     | 0.54              |
| 6:CA:614:C:H2'     | 6:CA:615:U:C6     | 2.43                     | 0.54              |
| 52:ZY:39:ASP:OD1   | 52:ZY:41:THR:OG1  | 2.23                     | 0.54              |
| 3:A:2614:G:H5'     | 3:A:2616:U:H6     | 1.72                     | 0.54              |
| 3:A:2795:G:O2'     | 67:o:24:TYR:O     | 2.22                     | 0.54              |
| 5:C:92:A:OP1       | 64:l:80:THR:OG1   | 2.24                     | 0.54              |
| 6:CA:1037:G:H5''   | 72:t:150:VAL:HG13 | 1.90                     | 0.54              |
| 3:A:678:C:H4'      | 3:A:679:G:O5'     | 2.08                     | 0.54              |
| 26:W:56:ILE:HG12   | 26:W:65:VAL:HG22  | 1.88                     | 0.54              |
| 3:A:1444:U:O2'     | 3:A:1445:C:H5'    | 2.08                     | 0.54              |
| 3:A:2662:A:H2'     | 3:A:2663:U:H6     | 1.73                     | 0.54              |
| 6:CA:841:G:H2'     | 6:CA:842:G:C8     | 2.42                     | 0.54              |
| 16:M:19:ILE:HD11   | 16:M:123:MET:HE2  | 1.90                     | 0.54              |
| 35:ZF:81:THR:HG21  | 35:ZF:85:LYS:HD2  | 1.88                     | 0.54              |
| 43:ZO:23:ARG:CG    | 48:ZT:4:VAL:HG22  | 2.38                     | 0.54              |
| 63:k:70:LYS:NZ     | 63:k:70:LYS:HB2   | 2.23                     | 0.54              |
| 6:CA:1728:A:H2'    | 6:CA:1729:A:C8    | 2.43                     | 0.54              |
| 15:L:71:CYS:SG     | 15:L:154:ARG:HB3  | 2.48                     | 0.54              |
| 34:ZE:103:GLU:HA   | 34:ZE:106:ARG:NH2 | 2.23                     | 0.54              |
| 35:ZF:60:GLN:HE22  | 35:ZF:99:ALA:HB1  | 1.73                     | 0.54              |
| 35:ZF:123:ARG:CZ   | 47:ZS:89:ALA:HB2  | 2.37                     | 0.54              |
| 52:ZY:111:LEU:HD21 | 52:ZY:127:ARG:HE  | 1.73                     | 0.54              |
| 69:q:72:LEU:HD11   | 69:q:83:LEU:HD12  | 1.90                     | 0.54              |
| 74:v:165:THR:HA    | 74:v:169:ILE:HD12 | 1.90                     | 0.54              |
| 3:A:1504:C:OP2     | 29:Z:37:LYS:NZ    | 2.38                     | 0.53              |
| 78:z:77:LEU:HD22   | 78:z:86:VAL:HG21  | 1.88                     | 0.53              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 3:A:57:G:H2'       | 5:C:33:A:O2'       | 2.08                     | 0.53              |
| 7:D:196:TRP:O      | 7:D:198:LYS:HG3    | 2.07                     | 0.53              |
| 15:L:36:LEU:HD21   | 15:L:69:ARG:HH11   | 1.72                     | 0.53              |
| 43:ZO:28:ARG:HA    | 43:ZO:60:LYS:HG2   | 1.89                     | 0.53              |
| 3:A:1757:A:H1'     | 3:A:1759:G:C5      | 2.43                     | 0.53              |
| 3:A:2869:A:N7      | 7:D:215:ASN:ND2    | 2.54                     | 0.53              |
| 6:CA:144:U:H2'     | 6:CA:145:A:C8      | 2.43                     | 0.53              |
| 6:CA:1230:U:H2'    | 6:CA:1231:G:H8     | 1.73                     | 0.53              |
| 53:a:38:GLU:CD     | 53:a:38:GLU:H      | 2.15                     | 0.53              |
| 3:A:2596:A:H2'     | 3:A:2597:A:C8      | 2.44                     | 0.53              |
| 6:CA:390:A:H5''    | 84:CA:2170:HOH:O   | 2.08                     | 0.53              |
| 6:CA:1623:A:H2'    | 6:CA:1624:C:C6     | 2.43                     | 0.53              |
| 65:m:8:ILE:HG13    | 65:m:65:LEU:HD13   | 1.89                     | 0.53              |
| 3:A:2574:A:H5''    | 16:M:103:GLY:HA3   | 1.90                     | 0.53              |
| 6:CA:54:C:O2'      | 6:CA:448:G:N7      | 2.34                     | 0.53              |
| 6:CA:71:G:N2       | 6:CA:79:A:H62      | 2.05                     | 0.53              |
| 37:ZH:112:ASP:OD1  | 37:ZH:114:THR:N    | 2.42                     | 0.53              |
| 13:J:163:LEU:HD23  | 19:P:7:LEU:HD11    | 1.91                     | 0.53              |
| 30:ZA:141:HIS:O    | 30:ZA:145:ARG:HD3  | 2.08                     | 0.53              |
| 31:ZB:112:GLN:HE22 | 31:ZB:153:GLN:HE22 | 1.57                     | 0.53              |
| 41:ZL:81:TYR:HB3   | 50:ZV:52:PHE:HB3   | 1.89                     | 0.53              |
| 6:CA:1482:G:OP1    | 6:CA:1526:U:H5''   | 2.09                     | 0.53              |
| 54:b:72:VAL:HG12   | 54:b:101:LEU:HD21  | 1.90                     | 0.53              |
| 3:A:851:G:C4       | 79:A:3480:GET:H833 | 2.44                     | 0.53              |
| 84:A:7440:HOH:O    | 55:c:32:ARG:HB3    | 2.09                     | 0.53              |
| 53:a:38:GLU:OE2    | 53:a:38:GLU:N      | 2.41                     | 0.53              |
| 71:s:139:VAL:HG23  | 71:s:141:ILE:HG13  | 1.91                     | 0.53              |
| 3:A:1491:A:H8      | 3:A:1492:C:O2'     | 1.92                     | 0.53              |
| 3:A:2575:C:OP2     | 3:A:2576:A:O2'     | 2.22                     | 0.53              |
| 6:CA:722:G:H2'     | 6:CA:723:A:H8      | 1.74                     | 0.53              |
| 48:ZT:44:THR:HG21  | 48:ZT:63:LEU:HD13  | 1.91                     | 0.53              |
| 78:z:33:ASP:OD1    | 78:z:33:ASP:N      | 2.39                     | 0.53              |
| 3:A:2827:C:H2'     | 3:A:2828:C:C6      | 2.44                     | 0.53              |
| 6:CA:884:G:H4'     | 6:CA:885:A:H5'     | 1.90                     | 0.53              |
| 6:CA:888:U:H2'     | 6:CA:889:A:C8      | 2.44                     | 0.53              |
| 6:CA:1390:U:H5''   | 38:ZI:3:ARG:HH11   | 1.73                     | 0.53              |
| 16:M:35:LEU:HD12   | 16:M:65:VAL:HG13   | 1.91                     | 0.53              |
| 6:CA:1374:U:O2'    | 6:CA:1376:A:N7     | 2.41                     | 0.52              |
| 28:Y:27:LYS:HD3    | 28:Y:29:PHE:CZ     | 2.44                     | 0.52              |
| 39:ZJ:8:ASP:OD1    | 39:ZJ:8:ASP:N      | 2.39                     | 0.52              |
| 44:ZP:48:HIS:HB3   | 44:ZP:103:LEU:HD11 | 1.91                     | 0.52              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 52:ZY:38:ARG:HA    | 52:ZY:67:ILE:HG23 | 1.91                     | 0.52              |
| 3:A:3156:A:H2'     | 11:H:57:PHE:CZ    | 2.45                     | 0.52              |
| 6:CA:1566:C:H2'    | 6:CA:1567:A:C8    | 2.44                     | 0.52              |
| 7:D:104:LEU:HD22   | 7:D:136:ILE:HD11  | 1.90                     | 0.52              |
| 72:t:180:THR:OG1   | 72:t:183:GLN:OE1  | 2.26                     | 0.52              |
| 3:A:2342:U:H2'     | 3:A:2343:U:C6     | 2.44                     | 0.52              |
| 3:A:3185:U:H2'     | 3:A:3186:C:C6     | 2.45                     | 0.52              |
| 6:CA:115:U:H2'     | 6:CA:116:U:C6     | 2.45                     | 0.52              |
| 31:ZB:108:ARG:HH21 | 31:ZB:110:GLN:NE2 | 2.07                     | 0.52              |
| 33:ZD:43:LYS:HE2   | 33:ZD:43:LYS:N    | 2.25                     | 0.52              |
| 71:s:208:GLU:HG2   | 71:s:210:ILE:HG12 | 1.91                     | 0.52              |
| 3:A:2095:G:H2'     | 3:A:2096:C:C6     | 2.44                     | 0.52              |
| 6:CA:67:A:O2'      | 6:CA:69:A:OP1     | 2.27                     | 0.52              |
| 62:j:94:LYS:HA     | 62:j:94:LYS:HE2   | 1.92                     | 0.52              |
| 6:CA:140:G:H2'     | 6:CA:141:G:C8     | 2.43                     | 0.52              |
| 6:CA:1359:G:H5'    | 41:ZL:88:ARG:HH21 | 1.73                     | 0.52              |
| 17:N:151:GLU:HG2   | 55:c:101:VAL:HG11 | 1.90                     | 0.52              |
| 3:A:163:U:H2'      | 3:A:164:G:O4'     | 2.09                     | 0.52              |
| 6:CA:1264:G:O2'    | 6:CA:1291:A:N1    | 2.36                     | 0.52              |
| 6:CA:1500:A:O3'    | 40:ZK:83:SER:OG   | 2.28                     | 0.52              |
| 16:M:108:ILE:HD12  | 39:ZJ:16:ARG:NH2  | 2.25                     | 0.52              |
| 29:Z:48:SER:HB2    | 62:j:66:VAL:HG11  | 1.92                     | 0.52              |
| 74:v:159:ILE:HG13  | 74:v:169:ILE:HD11 | 1.92                     | 0.52              |
| 3:A:159:G:H4'      | 62:j:100:LEU:HD12 | 1.91                     | 0.52              |
| 3:A:1123:C:H2'     | 3:A:1124:G:N2     | 2.24                     | 0.52              |
| 6:CA:925:A:H4'     | 6:CA:1043:G:O2'   | 2.09                     | 0.52              |
| 10:G:261:THR:H     | 10:G:264:GLN:HE21 | 1.58                     | 0.52              |
| 72:t:222:LYS:NZ    | 72:t:223:PHE:O    | 2.33                     | 0.52              |
| 3:A:3129:U:H2'     | 3:A:3130:C:H6     | 1.75                     | 0.52              |
| 5:C:26:U:H2'       | 5:C:27:U:C6       | 2.45                     | 0.52              |
| 6:CA:118:A:H1'     | 6:CA:386:A:C5     | 2.45                     | 0.52              |
| 6:CA:725:U:H5'     | 6:CA:726:A:OP2    | 2.10                     | 0.52              |
| 8:E:113:GLU:OE2    | 8:E:167:LYS:N     | 2.32                     | 0.52              |
| 23:T:83:ALA:HB1    | 79:T:301:GET:H711 | 1.92                     | 0.52              |
| 38:ZI:103:ASP:OD2  | 71:s:41:ARG:HD2   | 2.09                     | 0.52              |
| 53:a:87:LYS:HE2    | 53:a:95:ILE:HD11  | 1.92                     | 0.52              |
| 3:A:3109:A:H2      | 11:H:146:GLN:HG2  | 1.75                     | 0.52              |
| 6:CA:1190:C:H2'    | 6:CA:1191:A:C8    | 2.43                     | 0.52              |
| 14:K:9:ILE:O       | 14:K:72:LYS:NZ    | 2.43                     | 0.52              |
| 24:U:23:ILE:HD11   | 24:U:51:ALA:HB1   | 1.91                     | 0.52              |
| 52:ZY:296:ASN:HA   | 52:ZY:310:GLN:HA  | 1.91                     | 0.52              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 75:w:126:VAL:HG13 | 75:w:139:VAL:HG23  | 1.92                     | 0.52              |
| 6:CA:1250:C:P     | 50:ZV:44:ARG:HH22  | 2.33                     | 0.51              |
| 6:CA:1769:A:H1'   | 47:ZS:141:ILE:HD12 | 1.91                     | 0.51              |
| 32:ZC:29:LYS:NZ   | 32:ZC:33:GLU:OE2   | 2.42                     | 0.51              |
| 71:s:113:ARG:NH1  | 71:s:113:ARG:HA    | 2.25                     | 0.51              |
| 3:A:1075:U:H2'    | 3:A:1076:A:O4'     | 2.10                     | 0.51              |
| 3:A:3023:A:O2'    | 14:K:63:LYS:HD2    | 2.10                     | 0.51              |
| 5:C:107:A:OP1     | 64:l:32:LYS:NZ     | 2.40                     | 0.51              |
| 6:CA:100:U:OP1    | 79:CA:1875:GET:N32 | 2.43                     | 0.51              |
| 6:CA:1313:A:H2'   | 6:CA:1314:A:C8     | 2.45                     | 0.51              |
| 6:CA:1567:A:H2'   | 6:CA:1568:A:C8     | 2.45                     | 0.51              |
| 58:f:73:ARG:NH1   | 58:f:108:VAL:HG21  | 2.26                     | 0.51              |
| 60:h:39:GLN:CD    | 60:h:39:GLN:H      | 2.18                     | 0.51              |
| 3:A:452:C:H2'     | 3:A:453:A:H8       | 1.74                     | 0.51              |
| 3:A:898:U:H2'     | 3:A:899:U:C6       | 2.45                     | 0.51              |
| 3:A:2511:U:H2'    | 3:A:2512:U:C6      | 2.45                     | 0.51              |
| 6:CA:748:C:H5'    | 6:CA:749:G:OP2     | 2.10                     | 0.51              |
| 6:CA:856:U:C2     | 6:CA:857:A:C8      | 2.98                     | 0.51              |
| 8:E:256:HIS:HA    | 8:E:257:PRO:C      | 2.34                     | 0.51              |
| 12:I:17:ASP:HB2   | 12:I:20:VAL:HG23   | 1.92                     | 0.51              |
| 13:J:183:GLY:O    | 13:J:184:LYS:HB3   | 2.10                     | 0.51              |
| 35:ZF:11:VAL:HG23 | 35:ZF:75:HIS:HB2   | 1.91                     | 0.51              |
| 74:v:39:GLU:OE2   | 74:v:41:ARG:NH1    | 2.43                     | 0.51              |
| 1:1:36:G:H22      | 2:2:1:C:H5         | 1.58                     | 0.51              |
| 3:A:735:G:H2'     | 3:A:736:C:C6       | 2.45                     | 0.51              |
| 3:A:993:A:H2'     | 3:A:996:C:C5       | 2.46                     | 0.51              |
| 3:A:2701:A:O2'    | 3:A:2702:A:H2'     | 2.11                     | 0.51              |
| 4:B:114:C:H2'     | 4:B:115:U:O4'      | 2.11                     | 0.51              |
| 37:ZH:27:LEU:HD11 | 37:ZH:29:LYS:HZ1   | 1.76                     | 0.51              |
| 52:ZY:158:PRO:HD2 | 52:ZY:200:ILE:HG21 | 1.93                     | 0.51              |
| 54:b:33:THR:HG22  | 54:b:35:ALA:N      | 2.25                     | 0.51              |
| 58:f:76:ARG:HG2   | 58:f:88:MET:HE3    | 1.92                     | 0.51              |
| 3:A:488:C:H2'     | 3:A:489:U:C6       | 2.46                     | 0.51              |
| 3:A:2948:U:O2'    | 3:A:2949:A:H5'     | 2.10                     | 0.51              |
| 6:CA:436:U:H2'    | 6:CA:437:C:O4'     | 2.11                     | 0.51              |
| 6:CA:865:G:H2'    | 6:CA:866:U:C6      | 2.46                     | 0.51              |
| 40:ZK:127:ASN:OD1 | 40:ZK:130:ARG:NH2  | 2.44                     | 0.51              |
| 76:x:161:ASP:OD1  | 76:x:161:ASP:N     | 2.40                     | 0.51              |
| 3:A:813:G:C4      | 79:A:3484:GET:H531 | 2.46                     | 0.51              |
| 3:A:843:G:H1'     | 3:A:1531:A:N6      | 2.24                     | 0.51              |
| 3:A:928:A:N6      | 3:A:1049:U:H3      | 2.08                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 3:A:2914:U:H2'     | 3:A:2915:U:C6      | 2.46                     | 0.51              |
| 4:B:3:U:H2'        | 4:B:4:U:C6         | 2.46                     | 0.51              |
| 7:D:112:ILE:HG13   | 70:r:86:VAL:HG22   | 1.93                     | 0.51              |
| 30:ZA:120:TYR:HE2  | 30:ZA:156:ILE:HG21 | 1.74                     | 0.51              |
| 37:ZH:45:PHE:O     | 37:ZH:49:GLU:HG3   | 2.10                     | 0.51              |
| 52:ZY:61:PHE:HB3   | 52:ZY:92:TRP:CE3   | 2.46                     | 0.51              |
| 74:v:109:LYS:HB3   | 74:v:114:LEU:HD11  | 1.92                     | 0.51              |
| 3:A:201:A:H4'      | 3:A:203:C:C5       | 2.46                     | 0.51              |
| 3:A:1491:A:H2'     | 3:A:1491:A:N3      | 2.26                     | 0.51              |
| 3:A:1855:G:N3      | 3:A:2035:A:H2'     | 2.26                     | 0.51              |
| 3:A:2662:A:H2'     | 3:A:2663:U:C6      | 2.45                     | 0.51              |
| 3:A:2917:A:H2'     | 3:A:2918:A:C8      | 2.45                     | 0.51              |
| 3:A:3028:A:H2'     | 3:A:3029:G:O4'     | 2.11                     | 0.51              |
| 6:CA:406:A:H4'     | 6:CA:407:G:O5'     | 2.11                     | 0.51              |
| 6:CA:676:A:H2'     | 6:CA:677:G:H8      | 1.74                     | 0.51              |
| 6:CA:751:A:H1'     | 6:CA:753:G:C5      | 2.46                     | 0.51              |
| 6:CA:855:G:H2'     | 6:CA:856:U:C6      | 2.46                     | 0.51              |
| 6:CA:1057:A:H2'    | 6:CA:1058:A:C8     | 2.46                     | 0.51              |
| 14:K:36:LYS:HB2    | 14:K:78:LEU:HD11   | 1.92                     | 0.51              |
| 48:ZT:74:THR:OG1   | 48:ZT:77:CYS:SG    | 2.59                     | 0.51              |
| 72:t:152:LYS:HD3   | 72:t:153:THR:HG23  | 1.93                     | 0.51              |
| 3:A:1557:U:H2'     | 3:A:1558:U:C6      | 2.45                     | 0.51              |
| 6:CA:1458:C:H2'    | 6:CA:1459:A:H5''   | 1.93                     | 0.51              |
| 3:A:119:G:O2'      | 13:J:106:LYS:NZ    | 2.37                     | 0.51              |
| 3:A:1273:A:H2'     | 3:A:1274:C:O4'     | 2.11                     | 0.51              |
| 3:A:1491:A:H4'     | 3:A:1492:C:OP1     | 2.11                     | 0.51              |
| 74:v:104:GLU:OE1   | 74:v:174:ARG:NE    | 2.41                     | 0.51              |
| 1:1:9:G:H5'        | 1:1:11:C:OP2       | 2.11                     | 0.51              |
| 3:A:1135:U:OP1     | 3:A:1157:U:O2'     | 2.25                     | 0.51              |
| 79:A:3491:GET:H713 | 84:A:4061:HOH:O    | 2.11                     | 0.51              |
| 5:C:59:A:H5''      | 5:C:61:A:C8        | 2.46                     | 0.51              |
| 6:CA:1:U:N3        | 6:CA:3:U:O4        | 2.44                     | 0.51              |
| 6:CA:125:A:H5''    | 75:w:134:ARG:NH1   | 2.26                     | 0.51              |
| 7:D:70:LYS:HD2     | 7:D:72:ARG:CZ      | 2.41                     | 0.51              |
| 45:ZQ:52:LYS:HA    | 45:ZQ:55:ILE:HD12  | 1.92                     | 0.51              |
| 45:ZQ:115:GLU:HG2  | 45:ZQ:122:LEU:HD21 | 1.92                     | 0.51              |
| 46:ZR:60:VAL:HB    | 46:ZR:101:TYR:HB2  | 1.93                     | 0.51              |
| 6:CA:959:U:H2'     | 6:CA:960:C:C6      | 2.45                     | 0.50              |
| 6:CA:1037:G:OP1    | 72:t:151:ARG:HG2   | 2.11                     | 0.50              |
| 6:CA:1057:A:H5'    | 6:CA:1268:U:C5     | 2.46                     | 0.50              |
| 30:ZA:155:LYS:O    | 30:ZA:156:ILE:HG13 | 2.11                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 38:ZI:88:ILE:HB    | 38:ZI:95:HIS:NE2   | 2.27                     | 0.50              |
| 43:ZO:23:ARG:HH22  | 43:ZO:66:THR:C     | 2.19                     | 0.50              |
| 63:k:91:GLN:OE1    | 63:k:91:GLN:HA     | 2.11                     | 0.50              |
| 72:t:179:VAL:HG13  | 72:t:183:GLN:HB2   | 1.92                     | 0.50              |
| 73:u:160:VAL:HG11  | 73:u:205:THR:HA    | 1.92                     | 0.50              |
| 3:A:774:G:O2'      | 3:A:1806:A:N3      | 2.37                     | 0.50              |
| 3:A:2581:U:H2'     | 3:A:2582:C:H6      | 1.77                     | 0.50              |
| 3:A:3281:U:H2'     | 3:A:3282:U:C6      | 2.46                     | 0.50              |
| 6:CA:821:U:H2'     | 6:CA:822:C:O4'     | 2.11                     | 0.50              |
| 52:ZY:154:VAL:O    | 52:ZY:155:ARG:NE   | 2.42                     | 0.50              |
| 52:ZY:256:ILE:HD12 | 52:ZY:288:LEU:HD21 | 1.92                     | 0.50              |
| 55:c:94:ALA:HB3    | 55:c:121:VAL:HG13  | 1.93                     | 0.50              |
| 1:1:9:G:H1'        | 1:1:45:G:H2'       | 1.93                     | 0.50              |
| 6:CA:1033:U:H2'    | 6:CA:1034:G:C8     | 2.47                     | 0.50              |
| 6:CA:1598:C:H2'    | 6:CA:1599:C:H6     | 1.77                     | 0.50              |
| 26:W:39:GLU:HG3    | 26:W:40:ARG:HD3    | 1.92                     | 0.50              |
| 57:e:33:LYS:NZ     | 57:e:33:LYS:HB3    | 2.26                     | 0.50              |
| 1:1:9:G:H2'        | 1:1:11:C:H41       | 1.75                     | 0.50              |
| 6:CA:404:C:O2'     | 6:CA:407:G:O6      | 2.28                     | 0.50              |
| 6:CA:1051:A:O2'    | 79:CA:1887:GET:N12 | 2.45                     | 0.50              |
| 6:CA:1390:U:O2'    | 6:CA:1392:G:OP2    | 2.26                     | 0.50              |
| 1:1:36:G:H1        | 2:2:1:C:H5         | 1.59                     | 0.50              |
| 3:A:1640:G:H2'     | 3:A:1641:C:C6      | 2.46                     | 0.50              |
| 25:V:84:TYR:HB2    | 56:d:39:PRO:HD3    | 1.92                     | 0.50              |
| 51:ZW:29:LYS:HE2   | 51:ZW:35:TYR:CE1   | 2.47                     | 0.50              |
| 6:CA:521:U:OP1     | 45:ZQ:65:GLY:N     | 2.43                     | 0.50              |
| 6:CA:1224:U:H2'    | 6:CA:1225:G:C8     | 2.46                     | 0.50              |
| 6:CA:1308:C:H2'    | 6:CA:1309:C:H6     | 1.76                     | 0.50              |
| 8:E:249:VAL:HG21   | 8:E:265:PRO:HG2    | 1.94                     | 0.50              |
| 9:F:182:VAL:HG11   | 9:F:225:GLY:HA3    | 1.93                     | 0.50              |
| 52:ZY:199:THR:O    | 52:ZY:200:ILE:HG13 | 2.11                     | 0.50              |
| 71:s:190:ASP:OD1   | 71:s:192:GLN:N     | 2.42                     | 0.50              |
| 3:A:165:U:O4       | 3:A:236:U:H5       | 1.95                     | 0.50              |
| 3:A:431:C:H2'      | 3:A:432:G:H8       | 1.76                     | 0.50              |
| 3:A:987:A:N3       | 15:L:198:LYS:NZ    | 2.59                     | 0.50              |
| 3:A:1066:C:H2'     | 3:A:1067:A:H8      | 1.77                     | 0.50              |
| 3:A:1263:C:C2      | 20:Q:131:LYS:HE3   | 2.46                     | 0.50              |
| 6:CA:638:G:H2'     | 6:CA:639:A:H8      | 1.76                     | 0.50              |
| 6:CA:774:A:C8      | 43:ZO:107:SER:HA   | 2.47                     | 0.50              |
| 6:CA:1201:U:H3     | 6:CA:1224:U:H3     | 1.60                     | 0.50              |
| 71:s:76:CYS:HB2    | 71:s:123:VAL:HG12  | 1.93                     | 0.50              |

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| Atom-1              | Atom-2              | Interatomic distance (Å) | Clash overlap (Å) |
|---------------------|---------------------|--------------------------|-------------------|
| 74:v:47:LEU:HB3     | 74:v:85:ILE:HD13    | 1.94                     | 0.50              |
| 3:A:517:G:H2'       | 3:A:518:U:C6        | 2.47                     | 0.50              |
| 3:A:1413:U:H2'      | 3:A:1414:U:C6       | 2.46                     | 0.50              |
| 3:A:3022:U:H1'      | 3:A:3023:A:H5''     | 1.94                     | 0.50              |
| 6:CA:1565:G:OP1     | 40:ZK:91:HIS:HB2    | 2.12                     | 0.50              |
| 6:CA:1581:C:H2'     | 6:CA:1582:G:C8      | 2.47                     | 0.50              |
| 6:CA:1590:C:OP1     | 49:ZU:18:ARG:NH2    | 2.44                     | 0.50              |
| 26:W:27:VAL:HG21    | 26:W:107:PHE:HE2    | 1.75                     | 0.50              |
| 26:W:53:ALA:HB1     | 26:W:69:ALA:CB      | 2.42                     | 0.50              |
| 36:ZG:107:ILE:HA    | 36:ZG:111:MET:HE2   | 1.94                     | 0.50              |
| 70:r:13:LYS:HG2     | 70:r:14:LYS:HZ2     | 1.77                     | 0.50              |
| 72:t:69:CYS:HA      | 72:t:83:LYS:HA      | 1.94                     | 0.50              |
| 3:A:927:A:H5'       | 79:A:3486:GET:H32   | 1.94                     | 0.50              |
| 3:A:2022:A:O4'      | 30:ZA:99:ARG:NH2    | 2.45                     | 0.50              |
| 3:A:2197:U:O2       | 3:A:2225:U:H4'      | 2.12                     | 0.50              |
| 3:A:2284:G:H2'      | 3:A:2285:G:C8       | 2.47                     | 0.50              |
| 3:A:2917:A:H2'      | 3:A:2918:A:H8       | 1.76                     | 0.50              |
| 30:ZA:18:ARG:NH1    | 30:ZA:22:GLY:O      | 2.44                     | 0.50              |
| 44:ZP:62:LYS:HE3    | 44:ZP:118:PRO:HB3   | 1.93                     | 0.50              |
| 57:e:18:VAL:HG11    | 57:e:93:ILE:HD12    | 1.93                     | 0.50              |
| 3:A:452:C:H2'       | 3:A:453:A:C8        | 2.47                     | 0.49              |
| 3:A:1013:G:H2'      | 3:A:1014:U:C6       | 2.47                     | 0.49              |
| 3:A:2170:A:N1       | 6:CA:1619:C:O2'     | 2.36                     | 0.49              |
| 3:A:2282:A:H2'      | 3:A:2283:A:C8       | 2.47                     | 0.49              |
| 3:A:2667:U:H2'      | 3:A:2668:U:C6       | 2.46                     | 0.49              |
| 3:A:3185:U:H2'      | 3:A:3186:C:H6       | 1.77                     | 0.49              |
| 6:CA:1261:G:N2      | 6:CA:1294:G:H22     | 2.10                     | 0.49              |
| 6:CA:1278:G:H2'     | 6:CA:1279:C:C6      | 2.47                     | 0.49              |
| 6:CA:1536:U:H4'     | 6:CA:1574:C:H4'     | 1.93                     | 0.49              |
| 79:CA:1883:GET:H322 | 79:CA:1883:GET:H311 | 1.76                     | 0.49              |
| 8:E:57:VAL:HG22     | 8:E:73:VAL:HG22     | 1.94                     | 0.49              |
| 38:ZI:89:SER:C      | 38:ZI:91:LEU:H      | 2.20                     | 0.49              |
| 65:m:7:ASP:OD1      | 65:m:10:GLU:HB3     | 2.12                     | 0.49              |
| 76:x:71:SER:O       | 76:x:71:SER:OG      | 2.27                     | 0.49              |
| 3:A:1015:C:H5'      | 25:V:110:LYS:HE2    | 1.93                     | 0.49              |
| 3:A:1757:A:H1'      | 3:A:1759:G:C4       | 2.47                     | 0.49              |
| 3:A:1759:G:O2'      | 3:A:1760:U:OP1      | 2.28                     | 0.49              |
| 3:A:2614:G:H8       | 3:A:2651:G:H2'      | 1.77                     | 0.49              |
| 6:CA:552:U:H5       | 6:CA:569:A:N7       | 2.11                     | 0.49              |
| 6:CA:676:A:H2'      | 6:CA:677:G:C8       | 2.47                     | 0.49              |
| 6:CA:1319:U:H2'     | 6:CA:1320:G:C8      | 2.47                     | 0.49              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 31:ZB:105:LEU:O    | 31:ZB:111:THR:OG1  | 2.23                     | 0.49              |
| 75:w:122:LYS:HD2   | 75:w:164:LEU:HD21  | 1.93                     | 0.49              |
| 3:A:2:U:H2'        | 3:A:3:C:C6         | 2.46                     | 0.49              |
| 3:A:202:G:C2       | 9:F:218:LYS:HE3    | 2.47                     | 0.49              |
| 3:A:2122:A:H5''    | 3:A:2123:A:N7      | 2.28                     | 0.49              |
| 3:A:2321:C:H2'     | 3:A:2322:C:H6      | 1.76                     | 0.49              |
| 6:CA:753:G:O2'     | 6:CA:754:C:O5'     | 2.30                     | 0.49              |
| 6:CA:1301:A:OP1    | 38:ZI:45:ARG:NH2   | 2.44                     | 0.49              |
| 6:CA:1625:U:H2'    | 6:CA:1626:A:C8     | 2.48                     | 0.49              |
| 33:ZD:26:ARG:O     | 33:ZD:29:LYS:HG3   | 2.12                     | 0.49              |
| 39:ZJ:53:ASP:HB3   | 39:ZJ:56:LYS:HD2   | 1.93                     | 0.49              |
| 6:CA:500:A:H5''    | 31:ZB:172:VAL:HG12 | 1.94                     | 0.49              |
| 6:CA:1141:A:H2'    | 6:CA:1142:G:H8     | 1.74                     | 0.49              |
| 65:m:29:LYS:HD3    | 65:m:39:LYS:NZ     | 2.27                     | 0.49              |
| 72:t:68:VAL:O      | 72:t:84:ILE:N      | 2.43                     | 0.49              |
| 3:A:822:U:O2       | 3:A:2272:A:H1'     | 2.13                     | 0.49              |
| 4:B:102:G:N7       | 24:U:66:LYS:NZ     | 2.48                     | 0.49              |
| 6:CA:1528:G:H4'    | 50:ZV:14:PHE:CE2   | 2.47                     | 0.49              |
| 6:CA:91:A:OP1      | 84:CA:1901:HOH:O   | 2.20                     | 0.49              |
| 14:K:147:THR:HB    | 14:K:187:ILE:HD11  | 1.95                     | 0.49              |
| 31:ZB:154:LYS:N    | 31:ZB:154:LYS:HD3  | 2.28                     | 0.49              |
| 61:i:65:ILE:HD12   | 61:i:69:LYS:HB2    | 1.94                     | 0.49              |
| 78:z:6:LEU:N       | 78:z:39:PHE:O      | 2.38                     | 0.49              |
| 3:A:265:U:H2'      | 3:A:266:U:C6       | 2.48                     | 0.49              |
| 3:A:1167:U:OP1     | 3:A:1168:A:O2'     | 2.31                     | 0.49              |
| 3:A:1645:U:O2      | 3:A:1729:G:O2'     | 2.31                     | 0.49              |
| 3:A:2811:A:H4'     | 3:A:2812:G:C8      | 2.48                     | 0.49              |
| 6:CA:251:U:H2'     | 6:CA:252:C:C6      | 2.48                     | 0.49              |
| 6:CA:270:G:H2'     | 6:CA:271:C:C6      | 2.48                     | 0.49              |
| 6:CA:832:A:O2'     | 6:CA:933:A:N6      | 2.40                     | 0.49              |
| 6:CA:903:A:OP2     | 47:ZS:99:LYS:NZ    | 2.31                     | 0.49              |
| 6:CA:987:U:H2'     | 6:CA:988:U:C6      | 2.48                     | 0.49              |
| 6:CA:1477:G:N7     | 40:ZK:102:ARG:NH2  | 2.49                     | 0.49              |
| 15:L:36:LEU:HD11   | 15:L:69:ARG:HD2    | 1.94                     | 0.49              |
| 52:ZY:161:LYS:NZ   | 52:ZY:162:SER:OG   | 2.45                     | 0.49              |
| 72:t:145:ARG:HH22  | 72:t:152:LYS:HA    | 1.77                     | 0.49              |
| 3:A:2589:G:H2'     | 3:A:2589:G:N3      | 2.28                     | 0.49              |
| 6:CA:281:U:H2'     | 6:CA:282:U:C6      | 2.48                     | 0.49              |
| 52:ZY:218:LEU:HD21 | 52:ZY:248:LEU:HD22 | 1.93                     | 0.49              |
| 77:y:5:ILE:HD12    | 77:y:16:ILE:HD12   | 1.93                     | 0.49              |
| 3:A:868:A:O2'      | 79:A:3480:GET:H32  | 2.12                     | 0.49              |

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| Atom-1            | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 3:A:2796:A:H5''   | 67:o:19:ILE:HD12 | 1.94                     | 0.49              |
| 6:CA:74:U:H2'     | 6:CA:75:A:C4     | 2.48                     | 0.49              |
| 6:CA:1291:A:H4'   | 6:CA:1292:A:O5'  | 2.13                     | 0.49              |
| 6:CA:1491:A:O2'   | 6:CA:1492:U:H5'  | 2.12                     | 0.49              |
| 24:U:15:MET:HG2   | 24:U:122:GLN:OE1 | 2.12                     | 0.49              |
| 47:ZS:151:ARG:NH2 | 84:ZS:301:HOH:O  | 2.46                     | 0.49              |
| 48:ZT:58:ASN:OD1  | 48:ZT:58:ASN:N   | 2.41                     | 0.49              |
| 58:f:4:GLN:O      | 58:f:78:ARG:NH1  | 2.46                     | 0.49              |
| 72:t:32:ILE:HA    | 72:t:96:LEU:HB2  | 1.95                     | 0.49              |
| 3:A:1306:G:H2'    | 3:A:1307:C:C6    | 2.47                     | 0.49              |
| 5:C:5:U:H2'       | 5:C:6:U:C6       | 2.48                     | 0.49              |
| 6:CA:574:A:H2'    | 6:CA:575:G:C8    | 2.48                     | 0.49              |
| 6:CA:1114:U:H2'   | 6:CA:1115:U:C6   | 2.48                     | 0.49              |
| 13:J:159:ASP:HB3  | 13:J:160:PRO:HD3 | 1.94                     | 0.49              |
| 17:N:49:LYS:HD3   | 62:j:116:TYR:CE1 | 2.47                     | 0.49              |
| 42:ZM:1:MET:HB3   | 42:ZM:10:GLU:HG2 | 1.93                     | 0.49              |
| 84:A:5296:HOH:O   | 9:F:68:THR:HG21  | 2.12                     | 0.48              |
| 6:CA:1001:U:H4'   | 6:CA:1002:G:OP2  | 2.12                     | 0.48              |
| 6:CA:1221:U:H2'   | 6:CA:1222:C:C6   | 2.47                     | 0.48              |
| 7:D:189:TYR:CG    | 7:D:196:TRP:HB2  | 2.48                     | 0.48              |
| 11:H:120:LYS:HE2  | 11:H:122:GLU:OE1 | 2.14                     | 0.48              |
| 27:X:120:LYS:HD2  | 27:X:124:ASP:OD1 | 2.12                     | 0.48              |
| 3:A:620:G:O6      | 22:S:56:LYS:NZ   | 2.46                     | 0.48              |
| 84:A:6021:HOH:O   | 7:D:195:SER:HB3  | 2.13                     | 0.48              |
| 6:CA:638:G:N2     | 6:CA:672:U:O2    | 2.31                     | 0.48              |
| 6:CA:864:U:H1'    | 35:ZF:31:ARG:HB3 | 1.95                     | 0.48              |
| 6:CA:987:U:H2'    | 6:CA:988:U:H6    | 1.79                     | 0.48              |
| 10:G:91:GLY:HA3   | 10:G:94:ASN:HD22 | 1.78                     | 0.48              |
| 27:X:86:ARG:HB2   | 27:X:92:TYR:CE2  | 2.48                     | 0.48              |
| 72:t:189:ILE:HB   | 72:t:190:PRO:HD3 | 1.95                     | 0.48              |
| 3:A:419:U:H2'     | 3:A:420:G:H8     | 1.79                     | 0.48              |
| 3:A:2010:A:H2'    | 3:A:2011:A:C8    | 2.49                     | 0.48              |
| 3:A:2291:G:H2'    | 3:A:2292:G:C8    | 2.47                     | 0.48              |
| 3:A:2783:U:H2'    | 3:A:2784:C:C6    | 2.48                     | 0.48              |
| 6:CA:527:A:H5'    | 6:CA:532:C:H42   | 1.78                     | 0.48              |
| 6:CA:638:G:H2'    | 6:CA:639:A:C8    | 2.49                     | 0.48              |
| 6:CA:1061:A:H4'   | 6:CA:1062:A:O4'  | 2.13                     | 0.48              |
| 40:ZK:25:GLN:HG2  | 40:ZK:27:LYS:HG3 | 1.95                     | 0.48              |
| 3:A:167:C:H2'     | 3:A:168:U:C6     | 2.48                     | 0.48              |
| 3:A:1803:G:OP1    | 79:T:301:GET:N32 | 2.46                     | 0.48              |
| 3:A:2853:U:H2'    | 3:A:2854:U:H2'   | 1.95                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 6:CA:102:A:H4'     | 6:CA:104:A:C8      | 2.48                     | 0.48              |
| 6:CA:1021:G:H1     | 6:CA:1037:G:H1     | 1.61                     | 0.48              |
| 8:E:106:TRP:CH2    | 8:E:161:LEU:HD13   | 2.49                     | 0.48              |
| 31:ZB:65:LYS:HA    | 31:ZB:70:LEU:HD11  | 1.96                     | 0.48              |
| 31:ZB:148:VAL:HG11 | 31:ZB:156:ILE:HD11 | 1.95                     | 0.48              |
| 35:ZF:15:TYR:HB3   | 35:ZF:22:PHE:HB2   | 1.93                     | 0.48              |
| 47:ZS:82:PRO:HA    | 47:ZS:93:PRO:HA    | 1.95                     | 0.48              |
| 54:b:36:HIS:HB2    | 54:b:40:HIS:CE1    | 2.49                     | 0.48              |
| 6:CA:722:G:H2'     | 6:CA:723:A:C8      | 2.48                     | 0.48              |
| 8:E:172:ALA:HA     | 79:E:402:GET:H833  | 1.95                     | 0.48              |
| 27:X:13:MET:HE3    | 27:X:85:TRP:CE2    | 2.47                     | 0.48              |
| 45:ZQ:51:ASP:OD1   | 45:ZQ:52:LYS:N     | 2.47                     | 0.48              |
| 53:a:32:SER:HA     | 53:a:49:PRO:HA     | 1.95                     | 0.48              |
| 74:v:43:THR:HG22   | 74:v:46:LYS:H      | 1.76                     | 0.48              |
| 76:x:72:HIS:CD2    | 76:x:107:LYS:HG2   | 2.48                     | 0.48              |
| 3:A:851:G:O6       | 79:A:3480:GET:H12  | 2.13                     | 0.48              |
| 3:A:2485:C:H41     | 5:C:147:C:H3'      | 1.77                     | 0.48              |
| 3:A:3125:U:O2      | 3:A:3146:G:N2      | 2.41                     | 0.48              |
| 6:CA:973:A:O2'     | 6:CA:974:U:H5'     | 2.14                     | 0.48              |
| 6:CA:1410:U:H4'    | 50:ZV:24:CYS:HB2   | 1.94                     | 0.48              |
| 6:CA:1653:C:OP1    | 30:ZA:66:ARG:NH2   | 2.46                     | 0.48              |
| 43:ZO:28:ARG:HB3   | 43:ZO:29:PRO:HD3   | 1.96                     | 0.48              |
| 3:A:1367:C:OP1     | 79:A:3490:GET:H21  | 2.14                     | 0.48              |
| 3:A:1729:G:H2'     | 3:A:1730:A:C8      | 2.48                     | 0.48              |
| 3:A:2122:A:H3'     | 3:A:2123:A:C8      | 2.49                     | 0.48              |
| 3:A:2181:U:H2'     | 3:A:2182:C:H6      | 1.79                     | 0.48              |
| 3:A:3283:G:N2      | 3:A:3284:U:O4      | 2.33                     | 0.48              |
| 6:CA:188:U:N3      | 6:CA:189:U:O4      | 2.47                     | 0.48              |
| 6:CA:1021:G:H22    | 6:CA:1037:G:N2     | 2.11                     | 0.48              |
| 6:CA:1339:U:H2'    | 6:CA:1340:G:H8     | 1.78                     | 0.48              |
| 6:CA:1530:A:O2'    | 6:CA:1531:A:OP1    | 2.30                     | 0.48              |
| 13:J:101:GLU:HB2   | 13:J:105:GLU:HG3   | 1.95                     | 0.48              |
| 52:ZY:236:VAL:HG22 | 52:ZY:252:THR:HG22 | 1.95                     | 0.48              |
| 57:e:22:GLY:C      | 57:e:23:LYS:HD3    | 2.38                     | 0.48              |
| 3:A:422:A:H2'      | 3:A:423:C:C6       | 2.48                     | 0.48              |
| 3:A:3111:A:C4      | 21:R:182:ILE:HD12  | 2.48                     | 0.48              |
| 6:CA:1405:G:H2'    | 6:CA:1406:U:C6     | 2.48                     | 0.48              |
| 6:CA:1618:U:OP2    | 79:CA:1882:GET:O31 | 2.31                     | 0.48              |
| 6:CA:1631:U:H5''   | 6:CA:1632:U:OP2    | 2.14                     | 0.48              |
| 6:CA:1764:G:OP1    | 47:ZS:79:HIS:NE2   | 2.41                     | 0.48              |
| 14:K:137:SER:HB2   | 14:K:143:GLU:HG2   | 1.95                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 35:ZF:98:ARG:NH2   | 47:ZS:111:ALA:O    | 2.47                     | 0.48              |
| 53:a:53:GLU:OE2    | 53:a:69:LYS:NZ     | 2.41                     | 0.48              |
| 53:a:88:GLU:H      | 53:a:88:GLU:CD     | 2.21                     | 0.48              |
| 54:b:41:ALA:HB2    | 54:b:77:TYR:HE1    | 1.78                     | 0.48              |
| 77:y:70:PRO:HB2    | 77:y:103:ASN:HD22  | 1.78                     | 0.48              |
| 3:A:2742:U:O2'     | 3:A:2743:A:OP1     | 2.28                     | 0.48              |
| 6:CA:184:C:H2'     | 6:CA:185:G:O4'     | 2.14                     | 0.48              |
| 6:CA:396:A:O2'     | 6:CA:1646:A:N3     | 2.40                     | 0.48              |
| 6:CA:770:U:H2'     | 6:CA:771:G:C8      | 2.48                     | 0.48              |
| 13:J:86:ASN:OD1    | 13:J:90:GLN:NE2    | 2.46                     | 0.48              |
| 48:ZT:19:HIS:HB3   | 48:ZT:22:LYS:HG3   | 1.95                     | 0.48              |
| 56:d:20:LYS:O      | 84:d:101:HOH:O     | 2.20                     | 0.48              |
| 69:q:28:TYR:HB3    | 69:q:69:VAL:HB     | 1.96                     | 0.48              |
| 72:t:86:LEU:HB3    | 72:t:98:THR:HB     | 1.96                     | 0.48              |
| 3:A:249:C:H2'      | 3:A:250:C:C6       | 2.48                     | 0.48              |
| 3:A:1238:A:H2'     | 3:A:1239:C:O4'     | 2.14                     | 0.48              |
| 3:A:2009:C:H2'     | 3:A:2010:A:C8      | 2.49                     | 0.48              |
| 6:CA:152:G:H3'     | 45:ZQ:133:ASN:HD22 | 1.78                     | 0.48              |
| 6:CA:348:A:N6      | 84:CA:2059:HOH:O   | 2.46                     | 0.48              |
| 6:CA:447:G:OP1     | 45:ZQ:109:LYS:NZ   | 2.46                     | 0.48              |
| 6:CA:579:C:H2'     | 6:CA:580:A:C8      | 2.47                     | 0.48              |
| 6:CA:952:U:H2'     | 6:CA:953:A:C8      | 2.48                     | 0.48              |
| 6:CA:989:A:P       | 34:ZE:107:LYS:HE2  | 2.53                     | 0.48              |
| 6:CA:1496:G:O2'    | 6:CA:1498:G:OP2    | 2.22                     | 0.48              |
| 23:T:192:ARG:O     | 23:T:196:ARG:HG2   | 2.14                     | 0.48              |
| 37:ZH:128:PHE:O    | 37:ZH:136:ARG:NH1  | 2.41                     | 0.48              |
| 71:s:124:THR:HA    | 71:s:146:LEU:HB2   | 1.96                     | 0.48              |
| 3:A:2934:A:H2'     | 3:A:2935:C:H6      | 1.78                     | 0.47              |
| 79:A:3486:GET:H322 | 79:A:3486:GET:H713 | 1.79                     | 0.47              |
| 84:C:375:HOH:O     | 66:n:14:ALA:HB3    | 2.13                     | 0.47              |
| 6:CA:835:A:H8      | 84:CA:2195:HOH:O   | 1.97                     | 0.47              |
| 10:G:178:ASN:HA    | 10:G:183:TRP:CD2   | 2.48                     | 0.47              |
| 15:L:69:ARG:HH11   | 15:L:69:ARG:HG2    | 1.79                     | 0.47              |
| 25:V:122:LYS:HE3   | 25:V:124:GLU:OE1   | 2.14                     | 0.47              |
| 31:ZB:110:GLN:OE1  | 31:ZB:126:ARG:HB2  | 2.14                     | 0.47              |
| 73:u:199:THR:O     | 84:u:301:HOH:O     | 2.20                     | 0.47              |
| 75:w:207:VAL:HG13  | 75:w:219:VAL:HG13  | 1.96                     | 0.47              |
| 3:A:3112:A:O2'     | 3:A:3167:C:H5      | 1.97                     | 0.47              |
| 6:CA:502:U:H2'     | 6:CA:503:G:C8      | 2.50                     | 0.47              |
| 6:CA:551:G:H2'     | 6:CA:552:U:O2      | 2.14                     | 0.47              |
| 6:CA:1704:C:H2'    | 6:CA:1705:A:O4'    | 2.13                     | 0.47              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 38:ZI:105:GLU:OE2 | 71:s:42:PRO:HD3   | 2.14                     | 0.47              |
| 42:ZM:32:VAL:HG22 | 42:ZM:60:ARG:HD2  | 1.96                     | 0.47              |
| 54:b:45:GLY:HA3   | 54:b:71:PHE:CZ    | 2.48                     | 0.47              |
| 69:q:74:CYS:SG    | 69:q:76:VAL:HG13  | 2.54                     | 0.47              |
| 1:1:10:G:H2'      | 1:1:11:C:C6       | 2.48                     | 0.47              |
| 3:A:568:A:H2'     | 3:A:569:U:O4'     | 2.13                     | 0.47              |
| 3:A:730:G:H2'     | 3:A:731:C:C6      | 2.49                     | 0.47              |
| 3:A:1797:U:H5'    | 84:A:6481:HOH:O   | 2.14                     | 0.47              |
| 3:A:2119:C:C2'    | 3:A:2120:U:H4'    | 2.41                     | 0.47              |
| 3:A:2173:U:C2     | 3:A:2174:A:C8     | 3.03                     | 0.47              |
| 3:A:2626:C:H5     | 84:A:9149:HOH:O   | 1.97                     | 0.47              |
| 3:A:3238:C:HO2'   | 3:A:3239:U:H6     | 1.62                     | 0.47              |
| 4:B:3:U:H2'       | 4:B:4:U:H6        | 1.79                     | 0.47              |
| 5:C:103:G:H4'     | 5:C:134:A:H5'     | 1.97                     | 0.47              |
| 6:CA:291:U:O2     | 84:CA:1902:HOH:O  | 2.20                     | 0.47              |
| 19:P:68:ARG:HG2   | 19:P:128:LYS:HG3  | 1.96                     | 0.47              |
| 45:ZQ:39:GLU:O    | 45:ZQ:43:LYS:HD3  | 2.14                     | 0.47              |
| 65:m:14:LEU:HD21  | 65:m:52:TYR:CG    | 2.49                     | 0.47              |
| 75:w:118:GLU:HA   | 75:w:121:TYR:HE1  | 1.79                     | 0.47              |
| 3:A:2942:U:H2'    | 3:A:2943:U:C6     | 2.49                     | 0.47              |
| 4:B:28:A:H2'      | 4:B:29:C:C6       | 2.50                     | 0.47              |
| 6:CA:320:A:H5'    | 30:ZA:40:PRO:HA   | 1.95                     | 0.47              |
| 6:CA:382:C:H2'    | 6:CA:383:C:C6     | 2.49                     | 0.47              |
| 6:CA:1319:U:H2'   | 6:CA:1320:G:H8    | 1.79                     | 0.47              |
| 6:CA:1326:A:H2'   | 6:CA:1327:G:H8    | 1.78                     | 0.47              |
| 6:CA:1703:U:H2'   | 6:CA:1704:C:C6    | 2.49                     | 0.47              |
| 8:E:369:ARG:HH11  | 28:Y:11:SER:HB3   | 1.80                     | 0.47              |
| 10:G:202:GLY:O    | 10:G:206:GLU:HG3  | 2.15                     | 0.47              |
| 13:J:184:LYS:HG3  | 13:J:195:THR:HG23 | 1.96                     | 0.47              |
| 17:N:187:GLU:O    | 17:N:190:GLU:HG3  | 2.14                     | 0.47              |
| 57:e:57:LEU:HD11  | 57:e:90:THR:HG21  | 1.94                     | 0.47              |
| 3:A:231:G:H2'     | 3:A:232:C:C6      | 2.49                     | 0.47              |
| 3:A:518:U:H2'     | 3:A:519:G:O4'     | 2.14                     | 0.47              |
| 3:A:1168:A:H3'    | 3:A:1169:G:H5'    | 1.96                     | 0.47              |
| 3:A:2222:G:O2'    | 3:A:2225:U:OP2    | 2.23                     | 0.47              |
| 3:A:2973:C:H2'    | 3:A:2974:A:O4'    | 2.14                     | 0.47              |
| 6:CA:674:C:H2'    | 6:CA:675:A:O4'    | 2.15                     | 0.47              |
| 6:CA:1033:U:H2'   | 6:CA:1034:G:H8    | 1.80                     | 0.47              |
| 6:CA:1410:U:H2'   | 6:CA:1412:A:H5'   | 1.96                     | 0.47              |
| 6:CA:1576:A:P     | 40:ZK:86:ARG:HH22 | 2.38                     | 0.47              |
| 7:D:6:ARG:NH2     | 7:D:199:THR:O     | 2.38                     | 0.47              |

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| Atom-1            | Atom-2              | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|---------------------|--------------------------|-------------------|
| 15:L:4:ARG:NH1    | 15:L:99:ILE:HG13    | 2.28                     | 0.47              |
| 33:ZD:50:GLU:OE1  | 33:ZD:50:GLU:N      | 2.48                     | 0.47              |
| 78:z:72:ARG:HG2   | 78:z:75:ARG:NH2     | 2.30                     | 0.47              |
| 3:A:252:C:H2'     | 3:A:253:C:O4'       | 2.15                     | 0.47              |
| 3:A:421:C:H2'     | 3:A:422:A:C8        | 2.50                     | 0.47              |
| 3:A:1630:U:H2'    | 3:A:1631:C:C6       | 2.49                     | 0.47              |
| 3:A:1726:U:H2'    | 3:A:1727:A:C8       | 2.50                     | 0.47              |
| 3:A:2900:U:H2'    | 3:A:2901:G:C8       | 2.50                     | 0.47              |
| 6:CA:293:U:H2'    | 6:CA:294:C:C6       | 2.50                     | 0.47              |
| 6:CA:427:A:H61    | 79:CA:1893:GET:H311 | 1.79                     | 0.47              |
| 6:CA:1022:C:H42   | 6:CA:1036:C:H42     | 1.63                     | 0.47              |
| 6:CA:1032:G:H2'   | 6:CA:1033:U:C6      | 2.49                     | 0.47              |
| 6:CA:1145:U:H2'   | 6:CA:1146:G:C8      | 2.50                     | 0.47              |
| 6:CA:1467:G:N2    | 6:CA:1467:G:OP2     | 2.47                     | 0.47              |
| 6:CA:1534:G:C4    | 39:ZJ:134:ARG:HG2   | 2.50                     | 0.47              |
| 8:E:56:ILE:HD13   | 8:E:356:LEU:HD22    | 1.96                     | 0.47              |
| 15:L:140:THR:HG23 | 15:L:141:LYS:O      | 2.15                     | 0.47              |
| 17:N:118:GLU:HG2  | 17:N:143:PHE:CE2    | 2.50                     | 0.47              |
| 24:U:37:LYS:HD3   | 24:U:37:LYS:HA      | 1.71                     | 0.47              |
| 35:ZF:11:VAL:HG12 | 35:ZF:27:ASP:O      | 2.14                     | 0.47              |
| 38:ZI:68:GLY:O    | 38:ZI:69:ILE:HD12   | 2.15                     | 0.47              |
| 38:ZI:87:GLU:OE1  | 38:ZI:87:GLU:N      | 2.42                     | 0.47              |
| 41:ZL:94:ALA:HB3  | 41:ZL:98:ILE:HD13   | 1.96                     | 0.47              |
| 48:ZT:40:CYS:SG   | 48:ZT:59:CYS:HB2    | 2.55                     | 0.47              |
| 54:b:88:ASP:O     | 54:b:121:LYS:HE3    | 2.15                     | 0.47              |
| 72:t:32:ILE:HB    | 72:t:43:VAL:HG22    | 1.96                     | 0.47              |
| 73:u:163:ARG:HD3  | 73:u:165:ILE:HD11   | 1.96                     | 0.47              |
| 3:A:419:U:H2'     | 3:A:420:G:C8        | 2.50                     | 0.47              |
| 3:A:675:U:H5      | 3:A:680:G:O6        | 1.97                     | 0.47              |
| 3:A:1064:G:OP1    | 56:d:19:SER:HB2     | 2.15                     | 0.47              |
| 3:A:1759:G:H2'    | 3:A:1760:U:H6       | 1.79                     | 0.47              |
| 3:A:2181:U:H2'    | 3:A:2182:C:C6       | 2.49                     | 0.47              |
| 3:A:3098:C:OP1    | 84:A:3601:HOH:O     | 2.20                     | 0.47              |
| 5:C:121:U:O2'     | 5:C:122:A:H5'       | 2.15                     | 0.47              |
| 6:CA:326:G:H3'    | 33:ZD:133:LYS:HB2   | 1.97                     | 0.47              |
| 6:CA:843:U:O2'    | 6:CA:1017:G:H5''    | 2.15                     | 0.47              |
| 6:CA:868:A:C2     | 6:CA:885:A:C5       | 3.03                     | 0.47              |
| 6:CA:1012:G:H22   | 6:CA:1046:A:H2      | 1.63                     | 0.47              |
| 6:CA:1390:U:H5''  | 38:ZI:3:ARG:HD3     | 1.97                     | 0.47              |
| 6:CA:1434:G:H2'   | 6:CA:1434:G:N3      | 2.29                     | 0.47              |
| 24:U:16:SER:O     | 24:U:118:GLU:HG2    | 2.14                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 45:ZQ:124:THR:O    | 45:ZQ:125:HIS:HB3  | 2.14                     | 0.47              |
| 60:h:14:LEU:HD11   | 60:h:31:GLN:HB2    | 1.97                     | 0.47              |
| 3:A:10:A:H2'       | 3:A:11:A:C8        | 2.50                     | 0.47              |
| 3:A:447:A:O2'      | 3:A:3162:A:N1      | 2.47                     | 0.47              |
| 3:A:2147:A:H2'     | 3:A:2148:A:C8      | 2.50                     | 0.47              |
| 6:CA:544:A:OP1     | 84:CA:1903:HOH:O   | 2.21                     | 0.47              |
| 6:CA:636:U:H2'     | 6:CA:637:G:H8      | 1.78                     | 0.47              |
| 6:CA:1624:C:H2'    | 6:CA:1625:U:C6     | 2.50                     | 0.47              |
| 10:G:160:PHE:HA    | 10:G:163:LEU:HB3   | 1.97                     | 0.47              |
| 23:T:192:ARG:O     | 23:T:193:ARG:C     | 2.57                     | 0.47              |
| 24:U:22:GLN:HB2    | 24:U:78:ILE:HD11   | 1.97                     | 0.47              |
| 25:V:5:HIS:ND1     | 25:V:5:HIS:O       | 2.48                     | 0.47              |
| 41:ZL:32:GLN:O     | 41:ZL:36:VAL:HG23  | 2.15                     | 0.47              |
| 52:ZY:135:ASN:ND2  | 52:ZY:139:GLU:HB2  | 2.28                     | 0.47              |
| 73:u:226:GLU:OE1   | 73:u:228:GLN:NE2   | 2.48                     | 0.47              |
| 74:v:30:LEU:HB2    | 74:v:35:TYR:HB2    | 1.97                     | 0.47              |
| 75:w:92:LEU:HD12   | 75:w:99:PHE:HE1    | 1.80                     | 0.47              |
| 78:z:153:LYS:HG2   | 78:z:154:ASP:OD1   | 2.15                     | 0.47              |
| 3:A:1341:U:H4'     | 5:C:10:A:OP1       | 2.15                     | 0.47              |
| 3:A:1539:U:H2'     | 3:A:1540:G:C8      | 2.50                     | 0.47              |
| 3:A:2009:C:H2'     | 3:A:2010:A:H8      | 1.80                     | 0.47              |
| 6:CA:263:G:H2'     | 6:CA:264:C:C6      | 2.50                     | 0.47              |
| 6:CA:888:U:H2'     | 6:CA:889:A:H8      | 1.80                     | 0.47              |
| 6:CA:1021:G:N2     | 6:CA:1037:G:H22    | 2.12                     | 0.47              |
| 17:N:64:LYS:HG3    | 55:c:69:TRP:CD1    | 2.50                     | 0.47              |
| 43:ZO:83:ILE:HG13  | 43:ZO:122:SER:HB2  | 1.96                     | 0.47              |
| 52:ZY:178:ASP:OD1  | 52:ZY:178:ASP:N    | 2.48                     | 0.47              |
| 68:p:1:MET:HE3     | 68:p:6:ARG:HD3     | 1.97                     | 0.47              |
| 3:A:566:C:H4'      | 3:A:567:A:O5'      | 2.15                     | 0.46              |
| 3:A:602:A:H2'      | 3:A:603:A:C8       | 2.50                     | 0.46              |
| 3:A:703:G:O2'      | 3:A:714:A:N6       | 2.49                     | 0.46              |
| 3:A:1539:U:H5'     | 3:A:1636:A:H1'     | 1.97                     | 0.46              |
| 3:A:1748:C:H2'     | 3:A:1749:A:H8      | 1.80                     | 0.46              |
| 79:CA:1892:GET:H23 | 79:CA:1892:GET:H52 | 1.63                     | 0.46              |
| 26:W:27:VAL:HG21   | 26:W:107:PHE:CE2   | 2.50                     | 0.46              |
| 3:A:78:G:H2'       | 3:A:79:C:H6        | 1.80                     | 0.46              |
| 3:A:2597:A:H2'     | 3:A:2598:G:H8      | 1.79                     | 0.46              |
| 3:A:2845:G:O2'     | 3:A:2848:C:OP2     | 2.30                     | 0.46              |
| 10:G:178:ASN:HA    | 10:G:183:TRP:CG    | 2.50                     | 0.46              |
| 15:L:66:GLU:HA     | 15:L:66:GLU:OE2    | 2.16                     | 0.46              |
| 39:ZJ:27:LYS:HB3   | 39:ZJ:27:LYS:HE2   | 1.68                     | 0.46              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 45:ZQ:90:ARG:HA   | 45:ZQ:93:ARG:HD2  | 1.97                     | 0.46              |
| 65:m:42:LYS:HG2   | 65:m:55:VAL:HG22  | 1.96                     | 0.46              |
| 74:v:40:VAL:HG22  | 74:v:49:VAL:HG22  | 1.97                     | 0.46              |
| 74:v:43:THR:HG22  | 74:v:45:THR:H     | 1.79                     | 0.46              |
| 77:y:148:SER:OG   | 77:y:150:GLU:OE1  | 2.26                     | 0.46              |
| 78:z:21:PHE:O     | 78:z:25:GLU:HG3   | 2.15                     | 0.46              |
| 3:A:1067:A:H2'    | 3:A:1068:U:C6     | 2.50                     | 0.46              |
| 6:CA:77:A:C8      | 77:y:154:ARG:HD3  | 2.50                     | 0.46              |
| 6:CA:1390:U:H5'   | 38:ZI:2:GLY:O     | 2.15                     | 0.46              |
| 6:CA:1745:U:H2'   | 6:CA:1746:U:C6    | 2.51                     | 0.46              |
| 9:F:322:LYS:O     | 9:F:326:LEU:HG    | 2.16                     | 0.46              |
| 16:M:108:ILE:HD12 | 39:ZJ:16:ARG:HH21 | 1.81                     | 0.46              |
| 22:S:20:LYS:HE2   | 22:S:20:LYS:HB3   | 1.67                     | 0.46              |
| 48:ZT:33:MET:HG3  | 48:ZT:35:VAL:HG23 | 1.96                     | 0.46              |
| 72:t:59:ASP:O     | 72:t:62:LYS:HG2   | 2.16                     | 0.46              |
| 3:A:1607:G:H2'    | 3:A:1608:G:C8     | 2.50                     | 0.46              |
| 3:A:1828:A:O4'    | 3:A:3195:A:H5'    | 2.16                     | 0.46              |
| 3:A:2764:A:H5''   | 15:L:114:GLY:HA2  | 1.98                     | 0.46              |
| 3:A:2912:A:N1     | 3:A:2944:C:O2'    | 2.43                     | 0.46              |
| 3:A:2998:U:OP1    | 8:E:349:ARG:NH2   | 2.48                     | 0.46              |
| 6:CA:1257:A:H4'   | 6:CA:1258:G:H5'   | 1.96                     | 0.46              |
| 6:CA:1369:U:H2'   | 6:CA:1370:G:C8    | 2.51                     | 0.46              |
| 26:W:22:PRO:HB3   | 26:W:93:ILE:HD12  | 1.96                     | 0.46              |
| 31:ZB:120:ARG:N   | 31:ZB:124:HIS:HD2 | 2.03                     | 0.46              |
| 35:ZF:98:ARG:HA   | 35:ZF:98:ARG:NH1  | 2.31                     | 0.46              |
| 47:ZS:123:GLU:O   | 72:t:77:GLU:HG2   | 2.14                     | 0.46              |
| 52:ZY:276:VAL:O   | 52:ZY:278:ALA:N   | 2.47                     | 0.46              |
| 78:z:14:GLU:HG2   | 78:z:42:VAL:HG23  | 1.97                     | 0.46              |
| 3:A:126:U:H2'     | 3:A:128:C:C5      | 2.51                     | 0.46              |
| 3:A:497:U:H2'     | 3:A:498:G:C8      | 2.51                     | 0.46              |
| 3:A:655:A:OP1     | 22:S:179:ARG:NH2  | 2.42                     | 0.46              |
| 3:A:910:A:OP1     | 55:c:47:LYS:NZ    | 2.41                     | 0.46              |
| 3:A:1463:G:N7     | 84:A:3649:HOH:O   | 2.36                     | 0.46              |
| 3:A:2138:A:H2'    | 3:A:2139:A:C8     | 2.51                     | 0.46              |
| 6:CA:36:C:H2'     | 6:CA:37:U:H6      | 1.80                     | 0.46              |
| 6:CA:186:A:OP1    | 30:ZA:140:SER:OG  | 2.27                     | 0.46              |
| 6:CA:764:U:H3     | 33:ZD:95:PRO:HG3  | 1.80                     | 0.46              |
| 22:S:161:LYS:HD2  | 22:S:161:LYS:HA   | 1.69                     | 0.46              |
| 37:ZH:39:GLU:O    | 37:ZH:40:PRO:C    | 2.57                     | 0.46              |
| 71:s:167:LYS:HE2  | 71:s:167:LYS:HB3  | 1.72                     | 0.46              |
| 73:u:111:LYS:HB2  | 73:u:123:ALA:HB2  | 1.97                     | 0.46              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 3:A:2783:U:H2'    | 3:A:2784:C:H6      | 1.81                     | 0.46              |
| 3:A:2896:C:H2'    | 79:A:3498:GET:H933 | 1.96                     | 0.46              |
| 5:C:5:U:H2'       | 5:C:6:U:H6         | 1.80                     | 0.46              |
| 16:M:27:ARG:HG2   | 16:M:27:ARG:HH11   | 1.80                     | 0.46              |
| 44:ZP:56:LYS:HE3  | 44:ZP:96:VAL:O     | 2.15                     | 0.46              |
| 47:ZS:130:TYR:HB2 | 72:t:111:ARG:HB3   | 1.97                     | 0.46              |
| 51:ZW:54:ARG:HH11 | 51:ZW:56:MET:CE    | 2.29                     | 0.46              |
| 52:ZY:68:VAL:HA   | 52:ZY:84:SER:HA    | 1.97                     | 0.46              |
| 54:b:101:LEU:HA   | 54:b:107:LYS:HG3   | 1.97                     | 0.46              |
| 66:n:24:PRO:HB2   | 66:n:27:ILE:HD13   | 1.97                     | 0.46              |
| 3:A:164:G:H2'     | 3:A:165:U:C5       | 2.50                     | 0.46              |
| 3:A:813:G:O6      | 79:A:3484:GET:H311 | 2.15                     | 0.46              |
| 3:A:1424:A:N1     | 61:i:2:ALA:HB1     | 2.31                     | 0.46              |
| 7:D:109:GLU:HG3   | 7:D:138:GLY:HA2    | 1.97                     | 0.46              |
| 30:ZA:15:ARG:HD3  | 30:ZA:28:PHE:HB3   | 1.98                     | 0.46              |
| 30:ZA:41:ALA:HB2  | 30:ZA:63:ARG:HG3   | 1.97                     | 0.46              |
| 32:ZC:76:LEU:HD23 | 32:ZC:76:LEU:HA    | 1.78                     | 0.46              |
| 32:ZC:83:PRO:HG2  | 32:ZC:86:ILE:HD13  | 1.96                     | 0.46              |
| 34:ZE:55:ARG:HD3  | 48:ZT:47:PHE:CG    | 2.51                     | 0.46              |
| 46:ZR:70:LYS:HD3  | 46:ZR:70:LYS:HA    | 1.76                     | 0.46              |
| 61:i:106:LYS:O    | 61:i:110:GLU:HG2   | 2.16                     | 0.46              |
| 68:p:2:ARG:HB3    | 68:p:5:TRP:CD1     | 2.50                     | 0.46              |
| 72:t:149:GLN:HE21 | 72:t:151:ARG:HG3   | 1.80                     | 0.46              |
| 3:A:378:G:H4'     | 21:R:18:ARG:O      | 2.16                     | 0.46              |
| 3:A:2451:C:N4     | 3:A:2458:C:O4'     | 2.47                     | 0.46              |
| 6:CA:1278:G:H2'   | 6:CA:1279:C:H6     | 1.80                     | 0.46              |
| 7:D:189:TYR:CD2   | 7:D:196:TRP:HB2    | 2.51                     | 0.46              |
| 13:J:150:LYS:O    | 13:J:177:PRO:HG2   | 2.15                     | 0.46              |
| 14:K:137:SER:CB   | 14:K:143:GLU:HG2   | 2.46                     | 0.46              |
| 16:M:114:TYR:O    | 16:M:114:TYR:HD1   | 1.99                     | 0.46              |
| 22:S:153:PHE:O    | 22:S:161:LYS:HG3   | 2.15                     | 0.46              |
| 26:W:93:ILE:C     | 26:W:108:TYR:HE1   | 2.24                     | 0.46              |
| 36:ZG:14:SER:OG   | 36:ZG:15:PHE:N     | 2.42                     | 0.46              |
| 43:ZO:18:GLU:HG3  | 43:ZO:69:LEU:HD23  | 1.97                     | 0.46              |
| 71:s:144:ILE:HG12 | 71:s:158:VAL:HB    | 1.97                     | 0.46              |
| 3:A:1440:C:H2'    | 3:A:1441:A:C8      | 2.51                     | 0.46              |
| 3:A:2860:C:H2'    | 3:A:2861:G:H8      | 1.77                     | 0.46              |
| 6:CA:370:C:OP1    | 75:w:10:LYS:HE2    | 2.16                     | 0.46              |
| 6:CA:511:U:O2'    | 45:ZQ:60:PHE:O     | 2.34                     | 0.46              |
| 9:F:355:GLY:O     | 9:F:359:GLN:HG3    | 2.15                     | 0.46              |
| 27:X:42:PHE:CZ    | 27:X:50:PRO:HA     | 2.51                     | 0.46              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 33:ZD:24:LYS:HB3  | 33:ZD:24:LYS:HE3   | 1.64                     | 0.46              |
| 34:ZE:87:ASP:OD1  | 34:ZE:88:LEU:N     | 2.49                     | 0.46              |
| 59:g:51:TRP:CZ2   | 59:g:72:PRO:HD2    | 2.50                     | 0.46              |
| 6:CA:987:U:C2     | 6:CA:988:U:C5      | 3.04                     | 0.46              |
| 6:CA:1383:U:O2'   | 6:CA:1384:G:H5'    | 2.15                     | 0.46              |
| 6:CA:1408:U:H5''  | 6:CA:1410:U:OP2    | 2.16                     | 0.46              |
| 6:CA:1539:U:H2'   | 6:CA:1540:C:H6     | 1.80                     | 0.46              |
| 42:ZM:5:LYS:HB2   | 42:ZM:7:GLN:HE21   | 1.81                     | 0.46              |
| 72:t:103:MET:HE1  | 72:t:212:ILE:O     | 2.16                     | 0.46              |
| 3:A:703:G:H2'     | 3:A:713:G:N2       | 2.30                     | 0.45              |
| 3:A:2429:U:H5'    | 13:J:69:ARG:HG3    | 1.98                     | 0.45              |
| 4:B:66:G:N7       | 79:B:203:GET:O43   | 2.44                     | 0.45              |
| 4:B:76:G:H1'      | 4:B:105:A:H61      | 1.80                     | 0.45              |
| 5:C:146:G:N7      | 79:C:206:GET:H832  | 2.31                     | 0.45              |
| 6:CA:12:U:H5''    | 73:u:79:ARG:HH12   | 1.81                     | 0.45              |
| 6:CA:773:A:C4     | 78:z:100:ARG:HG3   | 2.50                     | 0.45              |
| 6:CA:1519:U:H5''  | 39:ZJ:132:LYS:HE2  | 1.98                     | 0.45              |
| 25:V:84:TYR:CE1   | 56:d:36:ILE:HG22   | 2.51                     | 0.45              |
| 31:ZB:169:PRO:HB2 | 31:ZB:173:LYS:HB3  | 1.98                     | 0.45              |
| 34:ZE:136:PRO:HG2 | 34:ZE:139:TRP:HB2  | 1.97                     | 0.45              |
| 41:ZL:76:LYS:HA   | 41:ZL:76:LYS:HD3   | 1.71                     | 0.45              |
| 42:ZM:44:ARG:NH1  | 71:s:189:PRO:O     | 2.49                     | 0.45              |
| 44:ZP:6:PRO:HG3   | 44:ZP:14:LYS:HG2   | 1.97                     | 0.45              |
| 72:t:168:MET:O    | 72:t:172:MET:HB2   | 2.15                     | 0.45              |
| 74:v:114:LEU:HD11 | 74:v:119:ALA:HB2   | 1.98                     | 0.45              |
| 1:1:22:C:H2'      | 1:1:23:G:O4'       | 2.16                     | 0.45              |
| 3:A:647:G:H2'     | 3:A:648:C:C6       | 2.52                     | 0.45              |
| 3:A:927:A:C2'     | 3:A:928:A:H5'      | 2.46                     | 0.45              |
| 3:A:2797:A:H2'    | 3:A:2799:C:H5''    | 1.97                     | 0.45              |
| 3:A:3130:C:H2'    | 3:A:3131:A:C8      | 2.51                     | 0.45              |
| 6:CA:346:G:OP1    | 79:CA:1875:GET:O23 | 2.31                     | 0.45              |
| 6:CA:755:U:H2'    | 6:CA:756:U:O4'     | 2.16                     | 0.45              |
| 6:CA:1006:A:H1'   | 43:ZO:9:ASP:OD1    | 2.16                     | 0.45              |
| 6:CA:1136:A:N1    | 6:CA:1554:U:H5     | 2.14                     | 0.45              |
| 6:CA:1339:U:H2'   | 6:CA:1340:G:C8     | 2.51                     | 0.45              |
| 6:CA:1420:A:H4'   | 6:CA:1421:G:H5'    | 1.97                     | 0.45              |
| 38:ZI:107:ALA:HA  | 38:ZI:110:VAL:HG12 | 1.99                     | 0.45              |
| 61:i:22:VAL:CG1   | 61:i:30:LEU:HG     | 2.47                     | 0.45              |
| 3:A:44:U:OP2      | 81:A:3470:SPD:H51  | 2.15                     | 0.45              |
| 3:A:396:G:O6      | 79:A:3471:GET:N12  | 2.49                     | 0.45              |
| 3:A:523:A:H2'     | 3:A:524:C:C6       | 2.51                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 3:A:928:A:H62      | 3:A:1049:U:H3      | 1.62                     | 0.45              |
| 3:A:1628:U:H2'     | 3:A:1629:U:C6      | 2.51                     | 0.45              |
| 3:A:3182:G:H2'     | 3:A:3183:G:O4'     | 2.16                     | 0.45              |
| 5:C:63:G:OP1       | 79:C:204:GET:N32   | 2.49                     | 0.45              |
| 6:CA:1300:G:H2'    | 6:CA:1301:A:O4'    | 2.15                     | 0.45              |
| 10:G:40:HIS:CE1    | 10:G:42:ALA:HB3    | 2.51                     | 0.45              |
| 15:L:72:ALA:HB2    | 15:L:155:ALA:HB2   | 1.97                     | 0.45              |
| 30:ZA:114:THR:O    | 30:ZA:118:GLN:HG3  | 2.16                     | 0.45              |
| 39:ZJ:36:ARG:HE    | 39:ZJ:105:MET:HE1  | 1.81                     | 0.45              |
| 40:ZK:44:GLU:HG3   | 40:ZK:45:LEU:HG    | 1.98                     | 0.45              |
| 40:ZK:70:HIS:HB2   | 40:ZK:120:GLY:O    | 2.16                     | 0.45              |
| 49:ZU:11:LYS:HB3   | 49:ZU:11:LYS:HE2   | 1.61                     | 0.45              |
| 3:A:1066:C:H2'     | 3:A:1067:A:C8      | 2.51                     | 0.45              |
| 3:A:1558:U:H2'     | 3:A:1559:G:C8      | 2.52                     | 0.45              |
| 3:A:3081:A:H8      | 20:Q:6:PRO:HG2     | 1.82                     | 0.45              |
| 79:A:3497:GET:H931 | 84:A:4132:HOH:O    | 2.16                     | 0.45              |
| 5:C:6:U:H2'        | 5:C:7:U:C6         | 2.52                     | 0.45              |
| 6:CA:952:U:H2'     | 6:CA:953:A:H8      | 1.82                     | 0.45              |
| 6:CA:1026:C:O2'    | 72:t:202:GLN:NE2   | 2.48                     | 0.45              |
| 7:D:206:PRO:HG3    | 7:D:213:GLY:HA3    | 1.99                     | 0.45              |
| 10:G:212:MET:HG3   | 10:G:212:MET:O     | 2.15                     | 0.45              |
| 27:X:13:MET:HE1    | 27:X:54:ALA:HB3    | 1.99                     | 0.45              |
| 27:X:57:MET:HE3    | 27:X:57:MET:HB2    | 1.90                     | 0.45              |
| 3:A:402:G:H2'      | 3:A:403:U:C6       | 2.52                     | 0.45              |
| 3:A:578:G:H2'      | 3:A:579:C:C6       | 2.51                     | 0.45              |
| 3:A:2059:A:H1'     | 3:A:2196:A:N6      | 2.32                     | 0.45              |
| 3:A:2875:U:H5      | 84:A:4450:HOH:O    | 1.99                     | 0.45              |
| 6:CA:17:C:H2'      | 6:CA:18:C:C6       | 2.51                     | 0.45              |
| 6:CA:528:G:H21     | 79:CA:1886:GET:H21 | 1.81                     | 0.45              |
| 6:CA:621:U:O4      | 79:CA:1880:GET:N12 | 2.48                     | 0.45              |
| 6:CA:1365:C:O2'    | 38:ZI:52:GLY:HA3   | 2.17                     | 0.45              |
| 30:ZA:64:ALA:HB2   | 30:ZA:181:GLY:HA2  | 1.97                     | 0.45              |
| 30:ZA:139:ARG:NH1  | 30:ZA:139:ARG:HB2  | 2.32                     | 0.45              |
| 35:ZF:74:VAL:O     | 35:ZF:108:GLY:N    | 2.48                     | 0.45              |
| 35:ZF:79:ARG:HB2   | 35:ZF:114:THR:HA   | 1.97                     | 0.45              |
| 52:ZY:260:ASN:HB2  | 52:ZY:267:LEU:HD13 | 1.99                     | 0.45              |
| 57:e:11:VAL:HG11   | 57:e:69:TYR:CZ     | 2.52                     | 0.45              |
| 2:2:3:A:N6         | 6:CA:1612:C:H5'    | 2.31                     | 0.45              |
| 3:A:364:A:N3       | 3:A:366:G:H5''     | 2.32                     | 0.45              |
| 3:A:816:C:H5''     | 3:A:817:U:O5'      | 2.17                     | 0.45              |
| 3:A:995:A:H2'      | 15:L:22:TYR:CZ     | 2.51                     | 0.45              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 3:A:1739:G:H5''   | 7:D:22:LEU:HD22    | 1.97                     | 0.45              |
| 3:A:3241:G:H1'    | 3:A:3244:G:O4'     | 2.16                     | 0.45              |
| 5:C:78:G:OP2      | 79:C:205:GET:H531  | 2.17                     | 0.45              |
| 6:CA:290:A:H3'    | 84:CA:2001:HOH:O   | 2.17                     | 0.45              |
| 6:CA:467:A:H4'    | 31:ZB:123:HIS:O    | 2.16                     | 0.45              |
| 6:CA:1011:G:H2'   | 6:CA:1012:G:C8     | 2.52                     | 0.45              |
| 6:CA:1097:G:OP1   | 68:p:11:ARG:NH2    | 2.49                     | 0.45              |
| 14:K:24:THR:OG1   | 14:K:39:LYS:NZ     | 2.50                     | 0.45              |
| 27:X:86:ARG:HD2   | 27:X:92:TYR:CZ     | 2.52                     | 0.45              |
| 52:ZY:296:ASN:N   | 52:ZY:296:ASN:OD1  | 2.49                     | 0.45              |
| 1:1:11:C:H2'      | 1:1:12:C:C6        | 2.52                     | 0.45              |
| 3:A:589:U:O2'     | 3:A:1100:A:N1      | 2.49                     | 0.45              |
| 3:A:2267:A:H5''   | 21:R:83:TRP:O      | 2.17                     | 0.45              |
| 3:A:2288:A:N3     | 3:A:2724:G:O2'     | 2.36                     | 0.45              |
| 3:A:2485:C:N4     | 5:C:147:C:H3'      | 2.31                     | 0.45              |
| 3:A:3098:C:H2'    | 3:A:3099:G:C8      | 2.51                     | 0.45              |
| 6:CA:280:G:H2'    | 6:CA:281:U:C6      | 2.52                     | 0.45              |
| 6:CA:621:U:H5     | 84:CA:2573:HOH:O   | 1.99                     | 0.45              |
| 6:CA:1068:U:OP1   | 73:u:154:THR:OG1   | 2.33                     | 0.45              |
| 6:CA:1117:A:H2'   | 6:CA:1118:C:C6     | 2.52                     | 0.45              |
| 6:CA:1592:U:H2'   | 6:CA:1593:C:C6     | 2.52                     | 0.45              |
| 6:CA:1611:C:H4'   | 6:CA:1612:C:H5''   | 1.99                     | 0.45              |
| 6:CA:1735:G:H1'   | 6:CA:1756:A:H2     | 1.81                     | 0.45              |
| 9:F:282:VAL:HG12  | 22:S:29:LEU:HG     | 1.99                     | 0.45              |
| 10:G:75:LEU:HG    | 10:G:76:THR:HG23   | 1.99                     | 0.45              |
| 10:G:254:LYS:HB3  | 10:G:254:LYS:HE3   | 1.77                     | 0.45              |
| 35:ZF:40:GLY:CA   | 35:ZF:49:GLU:HG2   | 2.46                     | 0.45              |
| 54:b:15:ARG:HD2   | 54:b:79:HIS:CD2    | 2.51                     | 0.45              |
| 76:x:159:ALA:HB3  | 76:x:225:ARG:HA    | 1.99                     | 0.45              |
| 3:A:167:C:H42     | 3:A:235:G:H1       | 1.64                     | 0.45              |
| 3:A:1496:A:H1'    | 3:A:1497:U:C5      | 2.52                     | 0.45              |
| 3:A:2349:U:H5     | 3:A:2494:C:OP2     | 2.00                     | 0.45              |
| 3:A:3126:G:O6     | 3:A:3145:U:O4      | 2.35                     | 0.45              |
| 6:CA:22:A:OP1     | 79:CA:1884:GET:O23 | 2.35                     | 0.45              |
| 6:CA:30:G:H4'     | 44:ZP:131:SER:HB2  | 1.97                     | 0.45              |
| 6:CA:899:A:C8     | 35:ZF:118:SER:HA   | 2.52                     | 0.45              |
| 29:Z:68:GLU:HG2   | 29:Z:69:THR:N      | 2.31                     | 0.45              |
| 34:ZE:56:ASP:O    | 48:ZT:46:VAL:HA    | 2.17                     | 0.45              |
| 42:ZM:86:SER:OG   | 48:ZT:9:HIS:O      | 2.32                     | 0.45              |
| 72:t:176:VAL:HG12 | 72:t:184:LEU:HD13  | 1.99                     | 0.45              |
| 6:CA:93:U:H5''    | 84:w:307:HOH:O     | 2.16                     | 0.45              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 6:CA:743:G:H5''    | 75:w:23:LEU:HD11  | 1.98                     | 0.45              |
| 6:CA:1715:A:H2'    | 6:CA:1716:U:C6    | 2.52                     | 0.45              |
| 12:I:83:PHE:HB2    | 12:I:137:PRO:HG3  | 1.99                     | 0.45              |
| 26:W:6:THR:O       | 26:W:7:LYS:C      | 2.58                     | 0.45              |
| 49:ZU:22:ARG:NH2   | 76:x:148:ARG:HD3  | 2.31                     | 0.45              |
| 52:ZY:198:ILE:HG13 | 52:ZY:199:THR:N   | 2.31                     | 0.45              |
| 71:s:9:LEU:HD21    | 71:s:50:ILE:HD12  | 1.99                     | 0.45              |
| 78:z:171:LYS:HA    | 78:z:171:LYS:HD3  | 1.74                     | 0.45              |
| 3:A:247:G:H2'      | 3:A:248:C:C6      | 2.51                     | 0.45              |
| 3:A:418:U:H2'      | 3:A:419:U:C6      | 2.51                     | 0.45              |
| 3:A:1869:G:C8      | 70:r:23:VAL:HG12  | 2.52                     | 0.45              |
| 3:A:3111:A:C5      | 21:R:182:ILE:HG23 | 2.52                     | 0.45              |
| 6:CA:1632:U:H5''   | 6:CA:1633:G:H5''  | 1.99                     | 0.45              |
| 8:E:34:LYS:HA      | 8:E:34:LYS:HD2    | 1.66                     | 0.45              |
| 16:M:80:ARG:O      | 16:M:84:VAL:HG23  | 2.17                     | 0.45              |
| 26:W:82:LYS:HE3    | 26:W:82:LYS:HB3   | 1.62                     | 0.45              |
| 53:a:41:GLU:O      | 53:a:44:LYS:HE2   | 2.17                     | 0.45              |
| 75:w:211:LYS:HB2   | 75:w:211:LYS:HE3  | 1.76                     | 0.45              |
| 3:A:2131:G:OP1     | 63:k:74:LYS:HE3   | 2.17                     | 0.44              |
| 3:A:3119:G:H22     | 3:A:3149:G:N2     | 2.15                     | 0.44              |
| 4:B:61:A:H2'       | 4:B:62:U:H6       | 1.82                     | 0.44              |
| 6:CA:876:A:H2      | 6:CA:968:A:H1'    | 1.82                     | 0.44              |
| 16:M:164:LYS:HG2   | 16:M:165:TYR:CE1  | 2.52                     | 0.44              |
| 38:ZI:41:ILE:HD13  | 38:ZI:47:ARG:HG2  | 1.98                     | 0.44              |
| 66:n:8:ARG:HB3     | 66:n:8:ARG:NH1    | 2.33                     | 0.44              |
| 77:y:39:GLU:OE1    | 77:y:40:SER:N     | 2.50                     | 0.44              |
| 3:A:193:A:H2'      | 3:A:194:A:C8      | 2.51                     | 0.44              |
| 3:A:596:C:H2'      | 3:A:597:G:C8      | 2.51                     | 0.44              |
| 3:A:1041:U:H3'     | 3:A:1042:A:H5'    | 1.98                     | 0.44              |
| 3:A:1539:U:H2'     | 3:A:1540:G:H8     | 1.81                     | 0.44              |
| 3:A:2169:U:H2'     | 3:A:2176:G:N2     | 2.31                     | 0.44              |
| 3:A:2270:G:H4'     | 21:R:139:TYR:CZ   | 2.52                     | 0.44              |
| 3:A:2451:C:H2'     | 3:A:2457:A:C2     | 2.53                     | 0.44              |
| 84:C:452:HOH:O     | 13:J:183:GLY:HA2  | 2.17                     | 0.44              |
| 6:CA:882:U:O2      | 6:CA:884:G:N1     | 2.49                     | 0.44              |
| 6:CA:1233:G:H2'    | 6:CA:1234:G:O4'   | 2.16                     | 0.44              |
| 6:CA:1771:C:O2     | 47:ZS:154:ARG:HB3 | 2.17                     | 0.44              |
| 22:S:76:ALA:HA     | 22:S:79:LYS:HG3   | 1.99                     | 0.44              |
| 58:f:51:ASP:OD1    | 58:f:53:LYS:HG2   | 2.17                     | 0.44              |
| 72:t:129:THR:OG1   | 72:t:133:HIS:HB2  | 2.17                     | 0.44              |
| 3:A:422:A:H2'      | 3:A:423:C:H6      | 1.82                     | 0.44              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 3:A:606:A:N1      | 3:A:884:G:O2'      | 2.47                     | 0.44              |
| 3:A:2583:U:H2'    | 3:A:2584:C:H6      | 1.82                     | 0.44              |
| 5:C:129:A:H2'     | 5:C:130:A:C8       | 2.52                     | 0.44              |
| 6:CA:555:C:H2'    | 6:CA:556:A:O4'     | 2.18                     | 0.44              |
| 6:CA:636:U:H2'    | 6:CA:637:G:C8      | 2.53                     | 0.44              |
| 6:CA:765:U:H3'    | 6:CA:766:A:C8      | 2.50                     | 0.44              |
| 6:CA:1116:G:H2'   | 6:CA:1117:A:H8     | 1.79                     | 0.44              |
| 7:D:108:PRO:HB2   | 70:r:93:LEU:HD22   | 2.00                     | 0.44              |
| 23:T:136:ASP:OD2  | 23:T:138:HIS:HD2   | 2.01                     | 0.44              |
| 26:W:94:ARG:HG2   | 26:W:96:VAL:HG23   | 2.00                     | 0.44              |
| 30:ZA:113:ALA:HB2 | 30:ZA:169:LEU:HG   | 1.99                     | 0.44              |
| 33:ZD:131:LEU:O   | 84:ZD:201:HOH:O    | 2.21                     | 0.44              |
| 37:ZH:22:LYS:HB2  | 37:ZH:22:LYS:HE2   | 1.82                     | 0.44              |
| 41:ZL:98:ILE:O    | 41:ZL:102:ILE:HG13 | 2.17                     | 0.44              |
| 49:ZU:18:ARG:HD3  | 49:ZU:26:THR:HG23  | 2.00                     | 0.44              |
| 49:ZU:40:ILE:HG13 | 49:ZU:62:GLU:HG2   | 1.99                     | 0.44              |
| 52:ZY:199:THR:O   | 52:ZY:207:ASN:ND2  | 2.51                     | 0.44              |
| 58:f:70:MET:HE3   | 58:f:70:MET:HB2    | 1.85                     | 0.44              |
| 71:s:13:ASP:OD2   | 71:s:179:ARG:NH2   | 2.44                     | 0.44              |
| 71:s:56:LYS:HA    | 71:s:56:LYS:HD2    | 1.76                     | 0.44              |
| 78:z:5:ILE:HD12   | 78:z:5:ILE:N       | 2.32                     | 0.44              |
| 2:2:2:G:OP2       | 2:2:2:G:N2         | 2.45                     | 0.44              |
| 3:A:431:C:H2'     | 3:A:432:G:C8       | 2.51                     | 0.44              |
| 3:A:1161:U:H2'    | 3:A:1162:U:C6      | 2.53                     | 0.44              |
| 3:A:1333:A:N6     | 3:A:1361:A:O2'     | 2.50                     | 0.44              |
| 3:A:2171:A:C5     | 6:CA:1732:G:H5''   | 2.52                     | 0.44              |
| 5:C:68:A:H2'      | 5:C:69:U:C6        | 2.52                     | 0.44              |
| 6:CA:761:C:H2'    | 6:CA:762:U:C6      | 2.52                     | 0.44              |
| 8:E:17:LEU:O      | 8:E:19:ARG:N       | 2.50                     | 0.44              |
| 23:T:115:TRP:CZ2  | 23:T:119:LEU:HD22  | 2.52                     | 0.44              |
| 37:ZH:99:ALA:O    | 37:ZH:103:GLU:HG2  | 2.16                     | 0.44              |
| 51:ZW:57:ASN:OD1  | 51:ZW:57:ASN:N     | 2.50                     | 0.44              |
| 58:f:73:ARG:HH12  | 58:f:108:VAL:HG21  | 1.83                     | 0.44              |
| 75:w:66:MET:SD    | 84:w:326:HOH:O     | 2.61                     | 0.44              |
| 3:A:85:U:OP1      | 22:S:167:SER:OG    | 2.29                     | 0.44              |
| 3:A:502:U:H2'     | 3:A:503:G:O4'      | 2.18                     | 0.44              |
| 3:A:1421:C:H2'    | 3:A:1422:U:C6      | 2.52                     | 0.44              |
| 3:A:1566:G:O2'    | 3:A:1583:A:N1      | 2.41                     | 0.44              |
| 3:A:2448:G:H2'    | 3:A:2449:G:C8      | 2.52                     | 0.44              |
| 3:A:3234:U:H2'    | 3:A:3235:A:C8      | 2.52                     | 0.44              |
| 6:CA:854:A:H62    | 6:CA:898:U:H3      | 1.65                     | 0.44              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 6:CA:856:U:H2'     | 6:CA:857:A:H8     | 1.82                     | 0.44              |
| 6:CA:888:U:H4'     | 35:ZF:13:ARG:HD3  | 1.98                     | 0.44              |
| 6:CA:1411:G:O6     | 32:ZC:64:TYR:OH   | 2.22                     | 0.44              |
| 7:D:90:ALA:HB2     | 7:D:101:ILE:HD12  | 2.00                     | 0.44              |
| 23:T:182:ARG:HA    | 23:T:185:ARG:HE   | 1.82                     | 0.44              |
| 37:ZH:26:GLY:HA3   | 76:x:25:LEU:HD22  | 2.00                     | 0.44              |
| 38:ZI:5:ARG:N      | 38:ZI:5:ARG:HD3   | 2.33                     | 0.44              |
| 52:ZY:154:VAL:HG23 | 52:ZY:167:SER:HB3 | 1.99                     | 0.44              |
| 71:s:30:GLN:HE22   | 71:s:32:HIS:CG    | 2.35                     | 0.44              |
| 72:t:94:LYS:HE2    | 72:t:94:LYS:HB3   | 1.60                     | 0.44              |
| 3:A:450:A:H2'      | 3:A:451:U:C6      | 2.53                     | 0.44              |
| 3:A:2990:C:H2'     | 3:A:2991:U:O4'    | 2.17                     | 0.44              |
| 6:CA:918:G:H2'     | 6:CA:919:C:C6     | 2.52                     | 0.44              |
| 7:D:149:LYS:HD2    | 7:D:155:LYS:HE2   | 1.99                     | 0.44              |
| 24:U:149:VAL:HG21  | 24:U:158:LEU:HD21 | 2.00                     | 0.44              |
| 38:ZI:18:GLU:HA    | 38:ZI:71:PHE:HB3  | 2.00                     | 0.44              |
| 40:ZK:56:LYS:HB2   | 40:ZK:56:LYS:HE2  | 1.75                     | 0.44              |
| 47:ZS:85:CYS:HB2   | 47:ZS:136:CYS:HB3 | 1.99                     | 0.44              |
| 72:t:88:VAL:HA     | 72:t:98:THR:HG22  | 1.98                     | 0.44              |
| 3:A:1434:A:H5'     | 64:l:12:HIS:O     | 2.18                     | 0.44              |
| 3:A:1753:A:H2'     | 3:A:1754:G:C8     | 2.53                     | 0.44              |
| 3:A:2907:A:H2'     | 3:A:2908:U:O4'    | 2.18                     | 0.44              |
| 3:A:3130:C:H2'     | 3:A:3131:A:H8     | 1.83                     | 0.44              |
| 6:CA:105:U:OP1     | 30:ZA:15:ARG:NH2  | 2.47                     | 0.44              |
| 11:H:118:GLU:OE1   | 11:H:118:GLU:N    | 2.51                     | 0.44              |
| 35:ZF:98:ARG:HH21  | 47:ZS:111:ALA:HB1 | 1.82                     | 0.44              |
| 54:b:117:ALA:O     | 54:b:121:LYS:HG3  | 2.18                     | 0.44              |
| 60:h:57:LYS:HD3    | 60:h:59:ILE:HD11  | 1.99                     | 0.44              |
| 75:w:104:ASP:O     | 75:w:190:GLY:HA3  | 2.17                     | 0.44              |
| 3:A:247:G:H2'      | 3:A:248:C:H6      | 1.83                     | 0.44              |
| 3:A:2186:A:H2'     | 3:A:2187:G:O4'    | 2.18                     | 0.44              |
| 84:A:4134:HOH:O    | 19:P:169:LYS:HE3  | 2.18                     | 0.44              |
| 4:B:57:A:H4'       | 16:M:150:HIS:HB2  | 2.00                     | 0.44              |
| 6:CA:45:U:O2       | 6:CA:423:G:H1'    | 2.17                     | 0.44              |
| 6:CA:1308:C:H2'    | 6:CA:1309:C:C6    | 2.52                     | 0.44              |
| 20:Q:13:LYS:HD3    | 20:Q:38:ARG:NH2   | 2.33                     | 0.44              |
| 38:ZI:71:PHE:CE1   | 38:ZI:73:LEU:HB3  | 2.53                     | 0.44              |
| 38:ZI:71:PHE:HE1   | 38:ZI:73:LEU:HB3  | 1.82                     | 0.44              |
| 3:A:2:U:H2'        | 3:A:3:C:H6        | 1.83                     | 0.44              |
| 3:A:420:G:H2'      | 3:A:421:C:C6      | 2.53                     | 0.44              |
| 3:A:569:U:OP2      | 79:A:3473:GET:O41 | 2.25                     | 0.44              |

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| Atom-1             | Atom-2              | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|---------------------|--------------------------|-------------------|
| 3:A:940:G:N3       | 3:A:2537:A:H2'      | 2.33                     | 0.44              |
| 3:A:1441:A:H2'     | 3:A:1442:U:C6       | 2.53                     | 0.44              |
| 5:C:125:C:H2'      | 5:C:126:C:H6        | 1.82                     | 0.44              |
| 6:CA:145:A:H4'     | 79:CA:1888:GET:H712 | 2.00                     | 0.44              |
| 6:CA:348:A:C2      | 44:ZP:35:GLY:HA3    | 2.53                     | 0.44              |
| 6:CA:770:U:H2'     | 6:CA:771:G:H8       | 1.83                     | 0.44              |
| 6:CA:929:U:H5'     | 34:ZE:15:ALA:O      | 2.18                     | 0.44              |
| 6:CA:1468:A:H2'    | 6:CA:1469:C:H6      | 1.83                     | 0.44              |
| 14:K:134:MET:HE1   | 14:K:161:ILE:HD11   | 1.99                     | 0.44              |
| 30:ZA:156:ILE:HD12 | 30:ZA:156:ILE:O     | 2.18                     | 0.44              |
| 31:ZB:116:LEU:HB3  | 31:ZB:118:LEU:HG    | 2.00                     | 0.44              |
| 42:ZM:79:LEU:HD21  | 71:s:59:LEU:HD22    | 2.00                     | 0.44              |
| 45:ZQ:25:ILE:HD11  | 45:ZQ:73:GLY:HA3    | 1.99                     | 0.44              |
| 3:A:238:C:H2'      | 3:A:239:U:C6        | 2.53                     | 0.43              |
| 3:A:568:A:OP1      | 60:h:60:ARG:NH1     | 2.48                     | 0.43              |
| 3:A:911:G:H2'      | 3:A:912:C:C6        | 2.53                     | 0.43              |
| 3:A:1414:U:H2'     | 3:A:1415:U:C6       | 2.53                     | 0.43              |
| 3:A:2112:C:N4      | 3:A:2156:U:H2'      | 2.33                     | 0.43              |
| 6:CA:546:G:OP1     | 51:ZW:55:LYS:HG3    | 2.17                     | 0.43              |
| 6:CA:1116:G:N3     | 6:CA:1610:A:H2      | 2.15                     | 0.43              |
| 10:G:41:LYS:HB2    | 25:V:68:THR:O       | 2.17                     | 0.43              |
| 25:V:93:ILE:H      | 25:V:93:ILE:HG13    | 1.65                     | 0.43              |
| 30:ZA:32:ARG:O     | 30:ZA:35:GLU:HG2    | 2.18                     | 0.43              |
| 39:ZJ:16:ARG:NH1   | 39:ZJ:19:ASN:HA     | 2.32                     | 0.43              |
| 45:ZQ:7:ILE:HG22   | 45:ZQ:27:VAL:HG13   | 2.00                     | 0.43              |
| 50:ZV:31:ILE:N     | 50:ZV:38:LEU:O      | 2.49                     | 0.43              |
| 72:t:46:THR:OG1    | 72:t:47:LEU:N       | 2.48                     | 0.43              |
| 3:A:209:U:H4'      | 53:a:100:HIS:CD2    | 2.53                     | 0.43              |
| 3:A:3126:G:H2'     | 3:A:3127:G:C8       | 2.53                     | 0.43              |
| 4:B:76:G:H1'       | 4:B:105:A:N6        | 2.33                     | 0.43              |
| 5:C:7:U:H2'        | 5:C:8:C:C6          | 2.53                     | 0.43              |
| 6:CA:522:U:H2'     | 6:CA:523:A:H5''     | 1.99                     | 0.43              |
| 6:CA:928:U:H2'     | 34:ZE:14:SER:OG     | 2.18                     | 0.43              |
| 6:CA:1140:G:C2     | 6:CA:1141:A:C8      | 3.06                     | 0.43              |
| 6:CA:1205:C:H2'    | 6:CA:1206:A:H8      | 1.82                     | 0.43              |
| 14:K:25:ILE:HD13   | 14:K:38:LEU:HD12    | 1.99                     | 0.43              |
| 30:ZA:117:ARG:NH1  | 30:ZA:117:ARG:HG3   | 2.32                     | 0.43              |
| 49:ZU:19:THR:HG21  | 49:ZU:27:GLN:HG3    | 1.99                     | 0.43              |
| 71:s:127:ARG:HH21  | 71:s:152:PRO:HD3    | 1.83                     | 0.43              |
| 74:v:124:LEU:HD22  | 74:v:135:VAL:HG13   | 2.00                     | 0.43              |
| 3:A:111:C:P        | 19:P:147:ARG:HE     | 2.42                     | 0.43              |

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| Atom-1             | Atom-2              | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|---------------------|--------------------------|-------------------|
| 3:A:419:U:H4'      | 60:h:88:ASN:O       | 2.18                     | 0.43              |
| 3:A:2602:A:O2'     | 79:A:3495:GET:N33   | 2.51                     | 0.43              |
| 3:A:2831:C:OP1     | 27:X:40:LYS:NZ      | 2.51                     | 0.43              |
| 3:A:3040:A:O4'     | 8:E:18:PRO:HG2      | 2.18                     | 0.43              |
| 3:A:3240:U:H5'     | 3:A:3241:G:C2       | 2.54                     | 0.43              |
| 4:B:12:U:OP2       | 4:B:69:C:O2'        | 2.35                     | 0.43              |
| 5:C:124:U:H5''     | 5:C:125:C:H5        | 1.82                     | 0.43              |
| 6:CA:256:U:H2'     | 6:CA:257:C:C6       | 2.53                     | 0.43              |
| 6:CA:888:U:H4'     | 35:ZF:13:ARG:CD     | 2.48                     | 0.43              |
| 79:CA:1876:GET:H12 | 79:CA:1876:GET:H131 | 1.87                     | 0.43              |
| 10:G:117:GLU:OE2   | 10:G:120:LYS:NZ     | 2.48                     | 0.43              |
| 24:U:15:MET:HG3    | 24:U:16:SER:N       | 2.32                     | 0.43              |
| 30:ZA:92:PRO:HB3   | 33:ZD:12:ALA:HB2    | 2.00                     | 0.43              |
| 30:ZA:199:ARG:H    | 30:ZA:199:ARG:HG2   | 1.61                     | 0.43              |
| 34:ZE:26:PHE:CZ    | 34:ZE:28:LEU:HB2    | 2.54                     | 0.43              |
| 37:ZH:88:LEU:HD12  | 37:ZH:88:LEU:HA     | 1.80                     | 0.43              |
| 39:ZJ:36:ARG:HE    | 39:ZJ:36:ARG:HB3    | 1.69                     | 0.43              |
| 43:ZO:91:ASP:OD1   | 84:ZO:201:HOH:O     | 2.21                     | 0.43              |
| 57:e:16:GLY:O      | 57:e:19:MET:HB2     | 2.18                     | 0.43              |
| 72:t:33:LYS:HB3    | 72:t:33:LYS:HE2     | 1.90                     | 0.43              |
| 3:A:1131:A:H2'     | 3:A:1132:C:C6       | 2.53                     | 0.43              |
| 3:A:2171:A:C6      | 6:CA:1732:G:H5''    | 2.52                     | 0.43              |
| 5:C:4:C:H2'        | 5:C:5:U:C6          | 2.53                     | 0.43              |
| 6:CA:798:U:O4      | 6:CA:799:A:N6       | 2.51                     | 0.43              |
| 6:CA:1084:G:O2'    | 6:CA:1100:G:O6      | 2.32                     | 0.43              |
| 6:CA:1145:U:H2'    | 6:CA:1146:G:H8      | 1.83                     | 0.43              |
| 6:CA:1196:A:O2'    | 6:CA:1226:A:N1      | 2.39                     | 0.43              |
| 6:CA:1625:U:H2'    | 6:CA:1626:A:H8      | 1.83                     | 0.43              |
| 7:D:2:GLY:HA2      | 7:D:207:VAL:HG23    | 2.00                     | 0.43              |
| 14:K:29:GLY:HA3    | 14:K:82:VAL:HG13    | 2.00                     | 0.43              |
| 23:T:94:ARG:O      | 23:T:96:MET:HG2     | 2.19                     | 0.43              |
| 34:ZE:110:ASP:O    | 34:ZE:114:ARG:HG2   | 2.18                     | 0.43              |
| 35:ZF:70:GLY:HA3   | 72:t:29:TRP:HH2     | 1.82                     | 0.43              |
| 39:ZJ:88:ARG:HB3   | 39:ZJ:98:TYR:O      | 2.18                     | 0.43              |
| 48:ZT:73:LEU:HD21  | 48:ZT:79:PHE:HB3    | 2.00                     | 0.43              |
| 49:ZU:19:THR:CG2   | 49:ZU:27:GLN:HG3    | 2.49                     | 0.43              |
| 52:ZY:121:GLN:OE1  | 52:ZY:163:ASN:ND2   | 2.47                     | 0.43              |
| 52:ZY:233:ALA:H    | 52:ZY:257:LYS:HE3   | 1.83                     | 0.43              |
| 72:t:81:TYR:HB2    | 72:t:109:LYS:HB2    | 2.00                     | 0.43              |
| 3:A:2531:U:OP1     | 3:A:2657:U:O2'      | 2.28                     | 0.43              |
| 3:A:3126:G:H2'     | 3:A:3127:G:H8       | 1.83                     | 0.43              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 5:C:37:A:H5''      | 5:C:39:G:O4'      | 2.18                     | 0.43              |
| 6:CA:4:C:H5        | 6:CA:20:G:N1      | 2.08                     | 0.43              |
| 6:CA:136:A:H1'     | 6:CA:137:A:OP2    | 2.19                     | 0.43              |
| 6:CA:503:G:H8      | 6:CA:503:G:OP2    | 2.02                     | 0.43              |
| 6:CA:824:U:O2'     | 6:CA:825:A:H5'    | 2.18                     | 0.43              |
| 6:CA:872:G:H2'     | 6:CA:873:U:C6     | 2.54                     | 0.43              |
| 6:CA:1047:C:H2'    | 6:CA:1048:C:H6    | 1.84                     | 0.43              |
| 6:CA:1301:A:H61    | 74:v:162:GLY:HA3  | 1.82                     | 0.43              |
| 6:CA:1554:U:H2'    | 6:CA:1555:C:C6    | 2.54                     | 0.43              |
| 8:E:123:TYR:CZ     | 8:E:124:LYS:HG3   | 2.53                     | 0.43              |
| 10:G:8:LYS:HB3     | 10:G:12:TYR:CD1   | 2.53                     | 0.43              |
| 10:G:76:THR:HG21   | 10:G:109:ALA:HA   | 2.01                     | 0.43              |
| 13:J:35:TYR:CD1    | 13:J:43:PRO:HD3   | 2.52                     | 0.43              |
| 13:J:177:PRO:HB3   | 13:J:220:ASN:OD1  | 2.18                     | 0.43              |
| 27:X:18:PRO:HA     | 27:X:51:ALA:HA    | 2.00                     | 0.43              |
| 27:X:72:LYS:HB3    | 27:X:72:LYS:HE3   | 1.78                     | 0.43              |
| 28:Y:57:ARG:O      | 28:Y:60:LYS:HD2   | 2.18                     | 0.43              |
| 30:ZA:177:PRO:HB3  | 84:ZA:437:HOH:O   | 2.18                     | 0.43              |
| 35:ZF:26:THR:OG1   | 35:ZF:30:GLY:HA2  | 2.17                     | 0.43              |
| 38:ZI:89:SER:HA    | 71:s:198:MET:HE3  | 1.99                     | 0.43              |
| 45:ZQ:9:THR:HG23   | 45:ZQ:23:PHE:HB2  | 2.00                     | 0.43              |
| 73:u:175:ALA:HB2   | 73:u:193:THR:HG21 | 2.01                     | 0.43              |
| 3:A:741:G:H5''     | 84:A:7440:HOH:O   | 2.18                     | 0.43              |
| 3:A:767:C:H5''     | 7:D:21:ARG:HD3    | 2.01                     | 0.43              |
| 3:A:842:U:O4       | 79:A:3481:GET:H32 | 2.19                     | 0.43              |
| 3:A:1003:U:H5      | 84:A:5492:HOH:O   | 2.02                     | 0.43              |
| 3:A:2577:G:H2'     | 3:A:2577:G:N3     | 2.33                     | 0.43              |
| 5:C:57:C:H4'       | 5:C:63:G:N7       | 2.34                     | 0.43              |
| 6:CA:282:U:H2'     | 6:CA:283:C:C6     | 2.54                     | 0.43              |
| 6:CA:1112:A:H5''   | 47:ZS:64:PRO:HG3  | 2.01                     | 0.43              |
| 11:H:96:ARG:H      | 11:H:96:ARG:HG2   | 1.59                     | 0.43              |
| 33:ZD:80:MET:HE3   | 33:ZD:83:THR:HB   | 1.99                     | 0.43              |
| 39:ZJ:57:ARG:HB2   | 39:ZJ:60:GLU:HG3  | 2.01                     | 0.43              |
| 40:ZK:135:ILE:HD13 | 40:ZK:135:ILE:HA  | 1.87                     | 0.43              |
| 41:ZL:19:HIS:CE1   | 41:ZL:95:PRO:HA   | 2.53                     | 0.43              |
| 71:s:122:ILE:HA    | 71:s:144:ILE:O    | 2.18                     | 0.43              |
| 74:v:196:ASN:ND2   | 74:v:199:GLY:HA3  | 2.34                     | 0.43              |
| 3:A:81:U:H2'       | 3:A:82:C:O4'      | 2.19                     | 0.43              |
| 3:A:203:C:OP2      | 9:F:222:ASN:HB2   | 2.18                     | 0.43              |
| 3:A:238:C:H2'      | 3:A:239:U:H6      | 1.83                     | 0.43              |
| 3:A:704:A:C2       | 3:A:714:A:H1'     | 2.53                     | 0.43              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 3:A:909:U:H5      | 84:A:7841:HOH:O    | 2.02                     | 0.43              |
| 3:A:1563:G:H2'    | 3:A:1564:C:C6      | 2.54                     | 0.43              |
| 3:A:1858:U:H2'    | 3:A:1859:C:C6      | 2.53                     | 0.43              |
| 3:A:2506:G:H2'    | 3:A:2506:G:N3      | 2.34                     | 0.43              |
| 4:B:26:G:H2'      | 4:B:27:C:O4'       | 2.19                     | 0.43              |
| 5:C:6:U:H2'       | 5:C:7:U:H6         | 1.83                     | 0.43              |
| 6:CA:15:U:H2'     | 6:CA:16:G:O4'      | 2.19                     | 0.43              |
| 6:CA:30:G:H2'     | 6:CA:31:C:C6       | 2.53                     | 0.43              |
| 6:CA:938:U:H2'    | 6:CA:939:C:O4'     | 2.18                     | 0.43              |
| 21:R:51:VAL:HA    | 21:R:56:ARG:O      | 2.19                     | 0.43              |
| 23:T:170:ALA:C    | 23:T:172:GLU:H     | 2.27                     | 0.43              |
| 30:ZA:117:ARG:NH1 | 30:ZA:128:LEU:HB2  | 2.34                     | 0.43              |
| 33:ZD:128:CYS:O   | 84:ZD:202:HOH:O    | 2.21                     | 0.43              |
| 38:ZI:103:ASP:OD1 | 38:ZI:105:GLU:N    | 2.51                     | 0.43              |
| 46:ZR:47:TYR:O    | 46:ZR:51:MET:HG2   | 2.19                     | 0.43              |
| 52:ZY:89:LEU:HD21 | 52:ZY:124:SER:HB3  | 2.00                     | 0.43              |
| 3:A:563:G:OP2     | 79:A:3478:GET:N32  | 2.51                     | 0.43              |
| 3:A:1438:U:C5     | 3:A:1777:A:N1      | 2.83                     | 0.43              |
| 3:A:1518:G:H2'    | 3:A:1519:G:C8      | 2.53                     | 0.43              |
| 3:A:1657:U:H2'    | 3:A:1658:G:C8      | 2.54                     | 0.43              |
| 6:CA:61:A:H2'     | 6:CA:62:A:O4'      | 2.19                     | 0.43              |
| 6:CA:381:G:H5''   | 6:CA:1704:C:O2'    | 2.19                     | 0.43              |
| 6:CA:726:A:H2'    | 6:CA:727:A:C8      | 2.53                     | 0.43              |
| 6:CA:1151:U:O2    | 6:CA:1155:U:H5     | 2.01                     | 0.43              |
| 6:CA:1154:A:H5''  | 6:CA:1155:U:OP2    | 2.18                     | 0.43              |
| 6:CA:1209:U:O2'   | 6:CA:1210:U:O5'    | 2.32                     | 0.43              |
| 6:CA:1614:C:H2'   | 6:CA:1615:C:O4'    | 2.18                     | 0.43              |
| 10:G:197:LYS:HE2  | 10:G:197:LYS:HB3   | 1.79                     | 0.43              |
| 13:J:185:ALA:O    | 13:J:189:THR:HG23  | 2.18                     | 0.43              |
| 23:T:175:LEU:H    | 23:T:175:LEU:HG    | 1.67                     | 0.43              |
| 31:ZB:92:LYS:HB2  | 31:ZB:95:TYR:CD2   | 2.54                     | 0.43              |
| 38:ZI:89:SER:O    | 38:ZI:91:LEU:N     | 2.52                     | 0.43              |
| 74:v:33:GLN:OE1   | 74:v:33:GLN:N      | 2.52                     | 0.43              |
| 78:z:17:VAL:HG23  | 78:z:81:PHE:HE2    | 1.82                     | 0.43              |
| 3:A:273:G:O6      | 3:A:294:G:H1'      | 2.19                     | 0.43              |
| 3:A:443:G:O6      | 79:A:3478:GET:H931 | 2.19                     | 0.43              |
| 3:A:1768:C:OP2    | 65:m:48:LYS:HG2    | 2.18                     | 0.43              |
| 3:A:2465:C:H2'    | 57:e:51:VAL:HG11   | 2.01                     | 0.43              |
| 6:CA:347:U:O2'    | 6:CA:349:A:H5''    | 2.19                     | 0.43              |
| 6:CA:1208:A:C2'   | 6:CA:1209:U:H5'    | 2.49                     | 0.43              |
| 6:CA:1302:C:H4'   | 74:v:204:PRO:HB3   | 2.01                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 8:E:84:MET:HE3     | 8:E:162:CYS:HB3    | 2.00                     | 0.43              |
| 10:G:290:ILE:O     | 10:G:294:LYS:HG2   | 2.19                     | 0.43              |
| 14:K:109:GLN:HG3   | 14:K:110:LYS:N     | 2.31                     | 0.43              |
| 16:M:10:LEU:HD23   | 16:M:10:LEU:HA     | 1.79                     | 0.43              |
| 21:R:67:ILE:HD11   | 21:R:80:LYS:HB3    | 2.01                     | 0.43              |
| 23:T:190:ARG:O     | 23:T:191:GLU:C     | 2.60                     | 0.43              |
| 24:U:172:LYS:HD3   | 24:U:172:LYS:HA    | 1.56                     | 0.43              |
| 35:ZF:40:GLY:HA2   | 35:ZF:49:GLU:HG2   | 2.01                     | 0.43              |
| 44:ZP:3:ASN:OD1    | 84:ZP:201:HOH:O    | 2.21                     | 0.43              |
| 55:c:36:GLY:HA3    | 55:c:40:HIS:CE1    | 2.54                     | 0.43              |
| 55:c:92:LYS:HD3    | 55:c:92:LYS:HA     | 1.64                     | 0.43              |
| 57:e:7:ASN:HB3     | 57:e:8:THR:H       | 1.62                     | 0.43              |
| 73:u:177:PRO:O     | 73:u:181:LYS:HD2   | 2.18                     | 0.43              |
| 78:z:29:ASP:OD2    | 78:z:72:ARG:NH1    | 2.43                     | 0.43              |
| 3:A:20:G:H1'       | 5:C:100:A:N3       | 2.34                     | 0.43              |
| 3:A:407:A:H2'      | 3:A:408:A:C8       | 2.54                     | 0.43              |
| 3:A:1727:A:H2'     | 3:A:1728:C:O4'     | 2.18                     | 0.43              |
| 3:A:1760:U:H2'     | 3:A:1761:U:C6      | 2.54                     | 0.43              |
| 3:A:2801:G:O2'     | 3:A:2925:A:N1      | 2.48                     | 0.43              |
| 3:A:3210:A:H2'     | 3:A:3211:A:C8      | 2.54                     | 0.43              |
| 6:CA:424:C:H5''    | 44:ZP:50:LYS:HE3   | 2.01                     | 0.43              |
| 6:CA:875:A:H5''    | 35:ZF:47:ARG:CZ    | 2.49                     | 0.43              |
| 6:CA:1326:A:H2'    | 6:CA:1327:G:C8     | 2.54                     | 0.43              |
| 12:I:201:TRP:CD1   | 12:I:202:PRO:HD2   | 2.54                     | 0.43              |
| 35:ZF:37:VAL:HG12  | 35:ZF:62:VAL:HG13  | 1.99                     | 0.43              |
| 38:ZI:100:LEU:HB3  | 38:ZI:102:VAL:HG13 | 2.00                     | 0.43              |
| 39:ZJ:48:LYS:HB3   | 40:ZK:35:GLU:OE1   | 2.18                     | 0.43              |
| 55:c:72[A]:GLN:NE2 | 84:c:202:HOH:O     | 2.52                     | 0.43              |
| 72:t:29:TRP:N      | 72:t:29:TRP:CD1    | 2.87                     | 0.43              |
| 72:t:120:LEU:HD21  | 72:t:122:GLU:HG3   | 2.01                     | 0.43              |
| 73:u:206:LEU:HD23  | 73:u:206:LEU:HA    | 1.91                     | 0.43              |
| 3:A:6:C:H2'        | 3:A:7:U:C6         | 2.54                     | 0.42              |
| 3:A:1067:A:H2'     | 3:A:1068:U:H6      | 1.84                     | 0.42              |
| 3:A:1570:U:O4      | 54:b:115:ARG:HD2   | 2.18                     | 0.42              |
| 3:A:3072:G:H4'     | 3:A:3073:C:OP1     | 2.19                     | 0.42              |
| 4:B:1:G:C4         | 10:G:266:ALA:HA    | 2.54                     | 0.42              |
| 5:C:49:G:OP2       | 62:j:48:ARG:NH1    | 2.52                     | 0.42              |
| 6:CA:752:C:C4      | 45:ZQ:48:TYR:HD1   | 2.37                     | 0.42              |
| 6:CA:1047:C:H2'    | 6:CA:1048:C:C6     | 2.54                     | 0.42              |
| 31:ZB:106:GLU:HA   | 31:ZB:111:THR:HG21 | 2.01                     | 0.42              |
| 44:ZP:73:ARG:HD2   | 44:ZP:73:ARG:HA    | 1.82                     | 0.42              |

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| Atom-1             | Atom-2              | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|---------------------|--------------------------|-------------------|
| 3:A:2796:A:P       | 67:o:26:ARG:HH21    | 2.41                     | 0.42              |
| 3:A:2807:G:OP1     | 79:A:3496:GET:N32   | 2.52                     | 0.42              |
| 6:CA:99:A:H2'      | 6:CA:100:U:O4'      | 2.20                     | 0.42              |
| 6:CA:1468:A:H2'    | 6:CA:1469:C:C6      | 2.54                     | 0.42              |
| 9:F:182:VAL:HG11   | 9:F:225:GLY:CA      | 2.49                     | 0.42              |
| 9:F:320:LYS:HE3    | 9:F:320:LYS:HB3     | 1.80                     | 0.42              |
| 24:U:139:LYS:HG2   | 24:U:141:VAL:HG23   | 2.01                     | 0.42              |
| 57:e:22:GLY:O      | 57:e:23:LYS:HD3     | 2.20                     | 0.42              |
| 64:l:38:GLY:O      | 64:l:41:SER:HB3     | 2.20                     | 0.42              |
| 3:A:62:G:OP2       | 19:P:169:LYS:NZ     | 2.51                     | 0.42              |
| 3:A:92:G:H2'       | 3:A:93:A:C8         | 2.54                     | 0.42              |
| 3:A:240:U:H2'      | 3:A:241:C:C6        | 2.55                     | 0.42              |
| 3:A:1279:A:H2'     | 3:A:1280:C:C6       | 2.54                     | 0.42              |
| 3:A:2310:G:H5''    | 8:E:255:TRP:CD1     | 2.53                     | 0.42              |
| 3:A:2647:A:H5'     | 10:G:175:HIS:HA     | 2.01                     | 0.42              |
| 6:CA:726:A:H2'     | 6:CA:727:A:H8       | 1.84                     | 0.42              |
| 6:CA:1173:A:C2     | 6:CA:1531:A:C4      | 3.07                     | 0.42              |
| 6:CA:1325:C:H2'    | 6:CA:1326:A:H8      | 1.83                     | 0.42              |
| 6:CA:1489:A:C6     | 74:v:5:ILE:HD11     | 2.55                     | 0.42              |
| 6:CA:1559:G:O2'    | 6:CA:1585:G:O6      | 2.30                     | 0.42              |
| 9:F:54:SER:OG      | 9:F:57:ALA:HB2      | 2.18                     | 0.42              |
| 13:J:215:LEU:HD23  | 13:J:215:LEU:HA     | 1.89                     | 0.42              |
| 35:ZF:43:VAL:HG21  | 35:ZF:48:ASP:HB2    | 2.00                     | 0.42              |
| 38:ZI:85:VAL:HG21  | 71:s:198:MET:HG2    | 2.00                     | 0.42              |
| 43:ZO:84:LYS:H     | 43:ZO:84:LYS:CE     | 2.25                     | 0.42              |
| 47:ZS:103:ILE:HD12 | 47:ZS:130:TYR:CD2   | 2.55                     | 0.42              |
| 74:v:8:LYS:HD3     | 74:v:8:LYS:HA       | 1.75                     | 0.42              |
| 75:w:194:VAL:HG11  | 75:w:232:ALA:HB2    | 2.01                     | 0.42              |
| 76:x:42:LEU:HD21   | 76:x:90:ILE:HG12    | 2.01                     | 0.42              |
| 3:A:928:A:H1'      | 84:A:8071:HOH:O     | 2.18                     | 0.42              |
| 3:A:1502:G:N2      | 29:Z:34:LYS:HE3     | 2.35                     | 0.42              |
| 3:A:1552:A:H2'     | 3:A:1553:G:O4'      | 2.19                     | 0.42              |
| 3:A:1747:G:H2'     | 3:A:1748:C:O4'      | 2.19                     | 0.42              |
| 84:A:6593:HOH:O    | 15:L:92:HIS:HD2     | 2.03                     | 0.42              |
| 6:CA:105:U:OP1     | 79:CA:1891:GET:H832 | 2.18                     | 0.42              |
| 6:CA:472:G:N2      | 6:CA:495:A:OP1      | 2.52                     | 0.42              |
| 6:CA:1559:G:OP2    | 37:ZH:121:ARG:HG2   | 2.19                     | 0.42              |
| 6:CA:1656:A:C2     | 6:CA:1695:G:N2      | 2.85                     | 0.42              |
| 7:D:150:LEU:HD11   | 7:D:156:LYS:HD2     | 2.02                     | 0.42              |
| 14:K:71:VAL:O      | 14:K:75:ILE:HG13    | 2.19                     | 0.42              |
| 17:N:46:VAL:O      | 17:N:49:LYS:HB2     | 2.19                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 35:ZF:29:SER:HB2   | 72:t:66:PHE:CE1    | 2.54                     | 0.42              |
| 45:ZQ:20:ARG:HB3   | 45:ZQ:76:TYR:CD1   | 2.54                     | 0.42              |
| 45:ZQ:41:ARG:NH2   | 45:ZQ:52:LYS:O     | 2.51                     | 0.42              |
| 52:ZY:19:TRP:HB3   | 52:ZY:286:ILE:HD11 | 2.01                     | 0.42              |
| 52:ZY:253:SER:HA   | 52:ZY:284:GLU:OE1  | 2.20                     | 0.42              |
| 58:f:4:GLN:HB3     | 58:f:78:ARG:HH22   | 1.84                     | 0.42              |
| 1:1:10:G:P         | 1:1:46:A:H5'       | 2.60                     | 0.42              |
| 1:1:27:U:H2'       | 1:1:28:C:H6        | 1.84                     | 0.42              |
| 3:A:676:C:O2'      | 3:A:679:G:O6       | 2.36                     | 0.42              |
| 3:A:1043:C:O2'     | 79:A:3486:GET:N21  | 2.47                     | 0.42              |
| 3:A:1725:C:H2'     | 3:A:1726:U:O4'     | 2.19                     | 0.42              |
| 3:A:1837:A:O2'     | 3:A:2954:G:H4'     | 2.19                     | 0.42              |
| 3:A:2262:U:H2'     | 3:A:2263:A:O4'     | 2.19                     | 0.42              |
| 3:A:2424:U:O2'     | 3:A:2425:U:H5'     | 2.20                     | 0.42              |
| 3:A:2623:U:H2'     | 3:A:2624:U:C6      | 2.55                     | 0.42              |
| 3:A:2778:G:OP1     | 8:E:5:LYS:NZ       | 2.48                     | 0.42              |
| 3:A:2934:A:H2'     | 3:A:2935:C:C6      | 2.54                     | 0.42              |
| 6:CA:1617:G:H2'    | 6:CA:1618:U:O2     | 2.19                     | 0.42              |
| 9:F:42:ARG:NH2     | 9:F:118:GLU:OE1    | 2.52                     | 0.42              |
| 14:K:113:GLU:HG3   | 14:K:125:HIS:CD2   | 2.53                     | 0.42              |
| 15:L:69:ARG:HG2    | 15:L:69:ARG:NH1    | 2.34                     | 0.42              |
| 17:N:57:VAL:HG23   | 17:N:115:ARG:HD2   | 2.01                     | 0.42              |
| 27:X:32:ARG:HG3    | 27:X:32:ARG:HH11   | 1.84                     | 0.42              |
| 30:ZA:117:ARG:NH2  | 30:ZA:164:PHE:HB3  | 2.34                     | 0.42              |
| 37:ZH:44:ARG:O     | 37:ZH:47:VAL:HG22  | 2.19                     | 0.42              |
| 41:ZL:107:ILE:HG22 | 41:ZL:107:ILE:O    | 2.19                     | 0.42              |
| 52:ZY:234:SER:HB2  | 52:ZY:253:SER:HB2  | 2.01                     | 0.42              |
| 53:a:27:ARG:HG2    | 53:a:78:PHE:CE1    | 2.54                     | 0.42              |
| 72:t:130:ALA:HB2   | 72:t:179:VAL:N     | 2.34                     | 0.42              |
| 73:u:171:LYS:HD3   | 73:u:171:LYS:HA    | 1.76                     | 0.42              |
| 74:v:94:GLU:O      | 74:v:96:ALA:N      | 2.52                     | 0.42              |
| 78:z:5:ILE:HD12    | 78:z:5:ILE:H       | 1.85                     | 0.42              |
| 3:A:202:G:N2       | 9:F:218:LYS:HE3    | 2.35                     | 0.42              |
| 3:A:933:U:H5       | 84:A:8238:HOH:O    | 2.03                     | 0.42              |
| 3:A:1757:A:H1'     | 3:A:1759:G:C6      | 2.55                     | 0.42              |
| 3:A:1775:G:O2'     | 66:n:3:SER:O       | 2.34                     | 0.42              |
| 6:CA:151:G:OP1     | 77:y:15:SER:OG     | 2.24                     | 0.42              |
| 6:CA:926:C:OP1     | 6:CA:1042:C:O2'    | 2.36                     | 0.42              |
| 6:CA:1517:G:N2     | 6:CA:1543:C:H1'    | 2.35                     | 0.42              |
| 7:D:109:GLU:OE2    | 7:D:139:HIS:HD2    | 2.02                     | 0.42              |
| 19:P:65:ARG:NH1    | 84:P:401:HOH:O     | 2.41                     | 0.42              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 23:T:169:ALA:O    | 23:T:172:GLU:HG3   | 2.20                     | 0.42              |
| 32:ZC:59:PHE:CZ   | 32:ZC:62:GLN:HA    | 2.55                     | 0.42              |
| 63:k:94:ALA:O     | 63:k:98:ARG:CB     | 2.66                     | 0.42              |
| 75:w:175:PHE:HE1  | 75:w:198:ARG:HD2   | 1.85                     | 0.42              |
| 3:A:1160:G:H4'    | 24:U:104:MET:HE2   | 2.02                     | 0.42              |
| 3:A:1558:U:H2'    | 3:A:1559:G:H8      | 1.85                     | 0.42              |
| 3:A:2026:G:H4'    | 3:A:2027:U:OP2     | 2.20                     | 0.42              |
| 3:A:2423:U:H2'    | 3:A:2424:U:C6      | 2.55                     | 0.42              |
| 3:A:2785:C:O2'    | 3:A:2786:U:H5'     | 2.20                     | 0.42              |
| 4:B:97:U:H4'      | 24:U:133:ARG:HB2   | 2.02                     | 0.42              |
| 6:CA:873:U:O2'    | 6:CA:875:A:N7      | 2.41                     | 0.42              |
| 13:J:117:ILE:HD13 | 13:J:121:LYS:O     | 2.18                     | 0.42              |
| 27:X:79:VAL:HG23  | 27:X:80:ARG:HG2    | 2.02                     | 0.42              |
| 27:X:90:GLY:O     | 28:Y:16:GLY:HA2    | 2.19                     | 0.42              |
| 28:Y:50:ALA:HA    | 28:Y:55:TYR:CG     | 2.55                     | 0.42              |
| 40:ZK:50:SER:HA   | 40:ZK:53:TRP:HD1   | 1.84                     | 0.42              |
| 66:n:8:ARG:HB3    | 66:n:8:ARG:HH11    | 1.84                     | 0.42              |
| 72:t:117:TRP:HB3  | 72:t:153:THR:HG22  | 2.02                     | 0.42              |
| 73:u:59:LYS:NZ    | 84:u:303:HOH:O     | 2.42                     | 0.42              |
| 73:u:76:MET:HE3   | 73:u:76:MET:HB3    | 1.85                     | 0.42              |
| 75:w:62:LYS:HD2   | 75:w:66:MET:HG2    | 2.01                     | 0.42              |
| 3:A:73:G:H5'      | 17:N:58:VAL:HB     | 2.01                     | 0.42              |
| 3:A:1863:A:OP2    | 79:A:3482:GET:H933 | 2.20                     | 0.42              |
| 3:A:2713:A:H2'    | 3:A:2714:G:O4'     | 2.20                     | 0.42              |
| 3:A:2765:U:H5     | 84:A:5555:HOH:O    | 2.02                     | 0.42              |
| 6:CA:245:A:H2'    | 6:CA:246:A:O4'     | 2.20                     | 0.42              |
| 6:CA:579:C:H2'    | 6:CA:580:A:H8      | 1.85                     | 0.42              |
| 6:CA:1598:C:H2'   | 6:CA:1599:C:C6     | 2.53                     | 0.42              |
| 12:I:38:LYS:HE3   | 12:I:168:GLU:OE2   | 2.20                     | 0.42              |
| 13:J:30:ARG:HA    | 13:J:30:ARG:HD2    | 1.68                     | 0.42              |
| 26:W:88:GLN:OE1   | 26:W:88:GLN:N      | 2.53                     | 0.42              |
| 27:X:66:LYS:HG3   | 27:X:68:GLU:OE1    | 2.19                     | 0.42              |
| 72:t:97:LEU:HG    | 72:t:232:HIS:CG    | 2.55                     | 0.42              |
| 3:A:123:C:H2'     | 3:A:124:G:H8       | 1.85                     | 0.42              |
| 3:A:157:A:H2'     | 3:A:157:A:N3       | 2.35                     | 0.42              |
| 3:A:1093:C:H4'    | 3:A:1278:U:C4      | 2.55                     | 0.42              |
| 3:A:2328:A:H2'    | 3:A:2329:G:H8      | 1.84                     | 0.42              |
| 3:A:2782:U:H2'    | 3:A:2783:U:C6      | 2.55                     | 0.42              |
| 3:A:3237:C:H2'    | 3:A:3238:C:C6      | 2.54                     | 0.42              |
| 6:CA:581:A:H2'    | 6:CA:582:G:O4'     | 2.20                     | 0.42              |
| 6:CA:906:G:OP1    | 6:CA:1044:G:N2     | 2.40                     | 0.42              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 6:CA:1508:C:H4'   | 6:CA:1514:G:O6     | 2.19                     | 0.42              |
| 8:E:236:LYS:HE2   | 8:E:236:LYS:HB2    | 1.86                     | 0.42              |
| 8:E:347:SER:O     | 8:E:351:LEU:HG     | 2.20                     | 0.42              |
| 10:G:275:LYS:H    | 10:G:275:LYS:HG2   | 1.63                     | 0.42              |
| 25:V:111:THR:O    | 25:V:115:LEU:HG    | 2.20                     | 0.42              |
| 28:Y:60:LYS:HA    | 28:Y:60:LYS:HE3    | 2.01                     | 0.42              |
| 38:ZI:24:LEU:HB3  | 38:ZI:58:MET:HE2   | 2.01                     | 0.42              |
| 62:j:82:GLU:HG2   | 62:j:84:LYS:HG3    | 2.02                     | 0.42              |
| 3:A:304:U:H2'     | 3:A:305:C:C6       | 2.55                     | 0.42              |
| 3:A:534:G:H2'     | 3:A:535:C:C6       | 2.55                     | 0.42              |
| 3:A:1137:A:H5''   | 3:A:1138:U:OP1     | 2.19                     | 0.42              |
| 3:A:1537:U:C2     | 3:A:1538:C:C5      | 3.08                     | 0.42              |
| 3:A:2018:U:H2'    | 3:A:2019:A:C8      | 2.54                     | 0.42              |
| 6:CA:175:G:N2     | 84:CA:2039:HOH:O   | 2.43                     | 0.42              |
| 6:CA:720:U:H2'    | 6:CA:721:U:C6      | 2.55                     | 0.42              |
| 6:CA:1541:U:H5'   | 39:ZJ:39:GLY:N     | 2.35                     | 0.42              |
| 6:CA:1651:U:OP1   | 30:ZA:51:HIS:ND1   | 2.38                     | 0.42              |
| 10:G:246:LYS:HA   | 10:G:246:LYS:HD3   | 1.85                     | 0.42              |
| 25:V:14:MET:HE1   | 25:V:55:LYS:HB2    | 2.02                     | 0.42              |
| 30:ZA:83:THR:HG21 | 30:ZA:111:ILE:HD12 | 2.01                     | 0.42              |
| 34:ZE:89:TYR:CD1  | 34:ZE:150:VAL:HG12 | 2.55                     | 0.42              |
| 38:ZI:27:ASP:OD1  | 38:ZI:30:THR:OG1   | 2.24                     | 0.42              |
| 45:ZQ:35:VAL:HG22 | 45:ZQ:40:LEU:HG    | 2.02                     | 0.42              |
| 48:ZT:47:PHE:CE2  | 48:ZT:49:HIS:HB2   | 2.55                     | 0.42              |
| 51:ZW:54:ARG:HD3  | 51:ZW:56:MET:HE2   | 2.02                     | 0.42              |
| 73:u:96:VAL:HG21  | 73:u:203:GLU:HG3   | 2.02                     | 0.42              |
| 77:y:46:LYS:HE3   | 77:y:46:LYS:HB3    | 1.90                     | 0.42              |
| 77:y:182:GLN:NE2  | 84:y:303:HOH:O     | 2.35                     | 0.42              |
| 3:A:286:A:O2'     | 3:A:287:G:H5'      | 2.20                     | 0.41              |
| 3:A:397:A:C2      | 5:C:17:A:H1'       | 2.54                     | 0.41              |
| 3:A:685:G:OP1     | 79:A:3479:GET:O61  | 2.32                     | 0.41              |
| 3:A:1530:A:N7     | 66:n:4:GLN:HG3     | 2.34                     | 0.41              |
| 3:A:1557:U:H2'    | 3:A:1558:U:H6      | 1.85                     | 0.41              |
| 3:A:1857:A:H5'    | 23:T:102:LYS:O     | 2.20                     | 0.41              |
| 3:A:2614:G:H4'    | 3:A:2615:A:H5''    | 2.01                     | 0.41              |
| 6:CA:396:A:H2'    | 6:CA:397:C:C6      | 2.55                     | 0.41              |
| 6:CA:454:G:C5     | 6:CA:455:U:C5      | 3.07                     | 0.41              |
| 6:CA:501:A:N7     | 31:ZB:172:VAL:HG21 | 2.35                     | 0.41              |
| 6:CA:1197:A:H5''  | 6:CA:1198:G:C8     | 2.55                     | 0.41              |
| 6:CA:1236:U:H2'   | 6:CA:1237:G:H5''   | 2.01                     | 0.41              |
| 9:F:171:LYS:HA    | 9:F:176:ASN:HB2    | 2.02                     | 0.41              |

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| Atom-1              | Atom-2              | Interatomic distance (Å) | Clash overlap (Å) |
|---------------------|---------------------|--------------------------|-------------------|
| 20:Q:32:GLN:HG2     | 84:U:205:HOH:O      | 2.19                     | 0.41              |
| 36:ZG:61:ARG:NH1    | 36:ZG:88:GLU:OE2    | 2.53                     | 0.41              |
| 37:ZH:82:GLN:HE22   | 37:ZH:118:ALA:HA    | 1.85                     | 0.41              |
| 39:ZJ:96:LYS:HD3    | 39:ZJ:98:TYR:OH     | 2.20                     | 0.41              |
| 74:v:63:GLN:HE22    | 74:v:65:ARG:HB2     | 1.85                     | 0.41              |
| 77:y:1:MET:HE3      | 77:y:1:MET:HB2      | 1.80                     | 0.41              |
| 3:A:298:A:H1'       | 3:A:2137:A:N3       | 2.35                     | 0.41              |
| 3:A:677:U:H5''      | 3:A:678:C:H5        | 1.85                     | 0.41              |
| 3:A:1289:C:OP2      | 79:A:3489:GET:O23   | 2.35                     | 0.41              |
| 3:A:2204:U:H2'      | 3:A:2205:C:C6       | 2.55                     | 0.41              |
| 5:C:77:A:H2'        | 5:C:78:G:O4'        | 2.19                     | 0.41              |
| 6:CA:416:C:H2'      | 6:CA:417:A:O4'      | 2.20                     | 0.41              |
| 6:CA:470:A:H2'      | 6:CA:471:U:C6       | 2.54                     | 0.41              |
| 6:CA:732:G:H4'      | 31:ZB:72:GLU:OE1    | 2.19                     | 0.41              |
| 6:CA:762:U:H2'      | 6:CA:763:G:O4'      | 2.21                     | 0.41              |
| 6:CA:832:A:H4'      | 6:CA:833:A:O5'      | 2.21                     | 0.41              |
| 79:CA:1876:GET:H833 | 72:t:162:ARG:NH2    | 2.35                     | 0.41              |
| 38:ZI:22:PRO:HA     | 52:ZY:212:LYS:NZ    | 2.35                     | 0.41              |
| 44:ZP:56:LYS:HE2    | 44:ZP:93:LEU:HG     | 2.02                     | 0.41              |
| 51:ZW:48:THR:O      | 51:ZW:48:THR:OG1    | 2.36                     | 0.41              |
| 63:k:85:LYS:HD3     | 63:k:85:LYS:HA      | 1.82                     | 0.41              |
| 72:t:198:GLU:HB2    | 72:t:210:ILE:HD13   | 2.01                     | 0.41              |
| 3:A:544:A:H2'       | 3:A:555:G:O6        | 2.20                     | 0.41              |
| 3:A:869:A:H2'       | 3:A:870:C:C6        | 2.56                     | 0.41              |
| 3:A:3194:U:H5       | 84:A:9072:HOH:O     | 2.02                     | 0.41              |
| 5:C:18:U:H5         | 84:C:414:HOH:O      | 2.03                     | 0.41              |
| 5:C:52:A:H2'        | 5:C:53:A:O4'        | 2.19                     | 0.41              |
| 6:CA:496:U:H2'      | 6:CA:497:U:C6       | 2.56                     | 0.41              |
| 6:CA:769:A:N7       | 84:CA:1990:HOH:O    | 2.37                     | 0.41              |
| 6:CA:868:A:C8       | 6:CA:882:U:C4       | 3.08                     | 0.41              |
| 6:CA:1020:G:H2'     | 6:CA:1021:G:C8      | 2.56                     | 0.41              |
| 6:CA:1103:A:H2'     | 6:CA:1104:C:O4'     | 2.20                     | 0.41              |
| 6:CA:1476:C:H5      | 6:CA:1481:G:N1      | 2.08                     | 0.41              |
| 6:CA:1568:A:H5''    | 79:CA:1878:GET:H931 | 2.02                     | 0.41              |
| 6:CA:1571:C:O2      | 79:CA:1878:GET:N12  | 2.52                     | 0.41              |
| 9:F:102:ALA:O       | 9:F:103:PRO:C       | 2.63                     | 0.41              |
| 15:L:99:ILE:HG22    | 15:L:123:HIS:HB2    | 2.02                     | 0.41              |
| 35:ZF:28:LEU:HD12   | 35:ZF:28:LEU:HA     | 1.80                     | 0.41              |
| 37:ZH:114:THR:HA    | 37:ZH:117:VAL:O     | 2.20                     | 0.41              |
| 39:ZJ:15:LEU:HB2    | 39:ZJ:22:ILE:HB     | 2.01                     | 0.41              |
| 43:ZO:22:LYS:O      | 84:ZO:202:HOH:O     | 2.21                     | 0.41              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 57:e:25:THR:HG22  | 57:e:92:ALA:HB3   | 2.02                     | 0.41              |
| 61:i:106:LYS:HE3  | 61:i:106:LYS:HB3  | 1.79                     | 0.41              |
| 75:w:158:ASP:OD2  | 75:w:174:LYS:HE2  | 2.20                     | 0.41              |
| 77:y:20:ASP:HB3   | 77:y:23:LYS:HG3   | 2.03                     | 0.41              |
| 3:A:1496:A:H1'    | 3:A:1497:U:C6     | 2.55                     | 0.41              |
| 3:A:1748:C:H5'    | 61:i:77:GLY:O     | 2.20                     | 0.41              |
| 8:E:385:LYS:HA    | 8:E:388:GLU:HG3   | 2.03                     | 0.41              |
| 13:J:137:LEU:HG   | 19:P:3:ALA:HB2    | 2.02                     | 0.41              |
| 23:T:187:LYS:HE3  | 23:T:187:LYS:HB2  | 1.31                     | 0.41              |
| 35:ZF:44:LYS:H    | 35:ZF:44:LYS:HG3  | 1.61                     | 0.41              |
| 39:ZJ:78:HIS:ND1  | 39:ZJ:78:HIS:C    | 2.78                     | 0.41              |
| 39:ZJ:106:GLU:O   | 39:ZJ:110:ARG:HG3 | 2.21                     | 0.41              |
| 51:ZW:46:ASN:OD1  | 51:ZW:46:ASN:N    | 2.53                     | 0.41              |
| 57:e:37:ALA:HB1   | 57:e:39:LYS:NZ    | 2.36                     | 0.41              |
| 77:y:31:ARG:HH11  | 77:y:34:GLN:NE2   | 2.19                     | 0.41              |
| 78:z:110:ARG:HD3  | 78:z:110:ARG:HA   | 1.65                     | 0.41              |
| 1:1:10:G:N2       | 1:1:26:G:H1'      | 2.36                     | 0.41              |
| 3:A:484:G:OP1     | 24:U:160:LYS:NZ   | 2.52                     | 0.41              |
| 3:A:901:C:C4      | 3:A:903:U:H1'     | 2.56                     | 0.41              |
| 3:A:911:G:O2'     | 56:d:30:LYS:HE2   | 2.21                     | 0.41              |
| 3:A:2197:U:OP1    | 3:A:2873:G:O2'    | 2.28                     | 0.41              |
| 3:A:2640:A:H2'    | 3:A:2641:C:O4'    | 2.21                     | 0.41              |
| 6:CA:47:A:N1      | 6:CA:375:G:H1'    | 2.35                     | 0.41              |
| 6:CA:52:U:H2'     | 6:CA:53:G:C8      | 2.55                     | 0.41              |
| 6:CA:522:U:C2'    | 6:CA:523:A:H5''   | 2.50                     | 0.41              |
| 6:CA:744:C:H5''   | 75:w:21:ASP:CG    | 2.45                     | 0.41              |
| 6:CA:1623:A:H2'   | 6:CA:1624:C:H6    | 1.83                     | 0.41              |
| 14:K:189:ASP:OD1  | 14:K:189:ASP:N    | 2.54                     | 0.41              |
| 20:Q:179:LEU:HG   | 20:Q:183:LYS:HD2  | 2.02                     | 0.41              |
| 32:ZC:70:ASP:O    | 32:ZC:74:GLU:HG2  | 2.20                     | 0.41              |
| 36:ZG:25:LEU:HD12 | 36:ZG:25:LEU:HA   | 1.79                     | 0.41              |
| 44:ZP:39:LYS:HZ2  | 44:ZP:39:LYS:HB3  | 1.85                     | 0.41              |
| 44:ZP:133:LEU:HG  | 44:ZP:137:LYS:HE2 | 2.03                     | 0.41              |
| 45:ZQ:98:GLU:OE1  | 45:ZQ:99:LYS:N    | 2.54                     | 0.41              |
| 53:a:121:LYS:HB3  | 53:a:121:LYS:HE3  | 1.66                     | 0.41              |
| 71:s:120:LEU:HD21 | 71:s:144:ILE:HD12 | 2.03                     | 0.41              |
| 72:t:38:PHE:CD2   | 72:t:73:LEU:HD13  | 2.55                     | 0.41              |
| 72:t:64:ARG:O     | 72:t:87:ARG:HA    | 2.20                     | 0.41              |
| 72:t:123:ALA:HB2  | 72:t:165:ARG:HG3  | 2.02                     | 0.41              |
| 77:y:58:LYS:HA    | 77:y:107:SER:HB3  | 2.01                     | 0.41              |
| 3:A:656:A:H2'     | 3:A:657:A:C8      | 2.56                     | 0.41              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 3:A:2044:U:H2'     | 3:A:2045:G:C8     | 2.56                     | 0.41              |
| 3:A:2255:U:H5      | 84:E:633:HOH:O    | 2.03                     | 0.41              |
| 5:C:79:A:C2        | 79:C:205:GET:H833 | 2.55                     | 0.41              |
| 5:C:146:G:O2'      | 5:C:148:G:OP1     | 2.30                     | 0.41              |
| 6:CA:818:C:H2'     | 6:CA:819:C:C6     | 2.56                     | 0.41              |
| 6:CA:904:C:N3      | 6:CA:1047:C:H4'   | 2.34                     | 0.41              |
| 6:CA:1293:C:H2'    | 6:CA:1294:G:O4'   | 2.19                     | 0.41              |
| 10:G:83:LEU:HB3    | 10:G:88:ILE:HB    | 2.03                     | 0.41              |
| 24:U:160:LYS:HD2   | 24:U:160:LYS:HA   | 1.80                     | 0.41              |
| 26:W:35:LYS:HA     | 26:W:38:ASN:HD22  | 1.86                     | 0.41              |
| 33:ZD:49:ILE:HB    | 33:ZD:50:GLU:OE1  | 2.21                     | 0.41              |
| 45:ZQ:92:VAL:HG11  | 45:ZQ:99:LYS:HD2  | 2.02                     | 0.41              |
| 47:ZS:150:SER:OG   | 47:ZS:153:ASP:HB2 | 2.21                     | 0.41              |
| 52:ZY:31:ASP:HA    | 52:ZY:47:LEU:HD12 | 2.03                     | 0.41              |
| 52:ZY:125:ALA:HB2  | 52:ZY:154:VAL:HB  | 2.02                     | 0.41              |
| 58:f:95:VAL:HG12   | 58:f:97:VAL:HG13  | 2.03                     | 0.41              |
| 64:l:27:LEU:HA     | 64:l:34:CYS:HA    | 2.01                     | 0.41              |
| 75:w:181:VAL:HG12  | 75:w:227:VAL:HA   | 2.03                     | 0.41              |
| 3:A:1010:G:C6      | 25:V:109:VAL:HG22 | 2.56                     | 0.41              |
| 3:A:2063:U:H2'     | 3:A:2064:A:C5     | 2.56                     | 0.41              |
| 3:A:2492:G:H4'     | 3:A:2494:C:C2     | 2.55                     | 0.41              |
| 6:CA:152:G:OP2     | 45:ZQ:133:ASN:HB2 | 2.20                     | 0.41              |
| 6:CA:558:C:H41     | 44:ZP:69:ARG:NH2  | 2.19                     | 0.41              |
| 6:CA:567:U:H4'     | 6:CA:568:A:H5''   | 2.02                     | 0.41              |
| 6:CA:899:A:O4'     | 35:ZF:119:ASP:HB2 | 2.21                     | 0.41              |
| 6:CA:1172:A:N6     | 6:CA:1433:C:O5'   | 2.54                     | 0.41              |
| 11:H:56:PRO:O      | 11:H:59:VAL:N     | 2.44                     | 0.41              |
| 11:H:120:LYS:HE2   | 11:H:120:LYS:HB3  | 1.78                     | 0.41              |
| 24:U:104:MET:HE3   | 24:U:104:MET:HB2  | 1.93                     | 0.41              |
| 39:ZJ:6:GLN:HE22   | 46:ZR:44:GLN:HA   | 1.86                     | 0.41              |
| 45:ZQ:129:LEU:HD23 | 45:ZQ:129:LEU:HA  | 1.97                     | 0.41              |
| 48:ZT:44:THR:HG21  | 48:ZT:63:LEU:CD1  | 2.50                     | 0.41              |
| 57:e:15:LEU:HD12   | 57:e:15:LEU:HA    | 1.84                     | 0.41              |
| 66:n:43:HIS:O      | 66:n:47:THR:HG23  | 2.21                     | 0.41              |
| 3:A:535:C:H2'      | 3:A:536:U:C6      | 2.56                     | 0.41              |
| 3:A:2861:G:H2'     | 3:A:2862:U:H6     | 1.85                     | 0.41              |
| 5:C:142:U:H2'      | 5:C:143:U:C6      | 2.56                     | 0.41              |
| 6:CA:126:G:C2      | 77:y:195:ILE:HG13 | 2.55                     | 0.41              |
| 6:CA:241:U:H2'     | 6:CA:242:A:H8     | 1.86                     | 0.41              |
| 6:CA:511:U:OP1     | 45:ZQ:37:LYS:HE2  | 2.21                     | 0.41              |
| 6:CA:1014:U:H2'    | 6:CA:1015:C:C6    | 2.56                     | 0.41              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 9:F:61:THR:HG23   | 9:F:91:PHE:CE1    | 2.56                     | 0.41              |
| 23:T:167:ALA:O    | 23:T:168:GLU:C    | 2.63                     | 0.41              |
| 27:X:10:LYS:HD3   | 27:X:125:LEU:HD22 | 2.02                     | 0.41              |
| 27:X:87:ARG:HH22  | 27:X:137:VAL:C    | 2.29                     | 0.41              |
| 35:ZF:34:ILE:HG12 | 35:ZF:71:ILE:HD11 | 2.03                     | 0.41              |
| 38:ZI:49:LYS:HE2  | 38:ZI:49:LYS:HB3  | 1.76                     | 0.41              |
| 52:ZY:201:SER:HB3 | 52:ZY:206:LEU:HB2 | 2.01                     | 0.41              |
| 58:f:73:ARG:NH1   | 58:f:73:ARG:HG3   | 2.35                     | 0.41              |
| 65:m:30:LYS:HB2   | 65:m:38:PHE:CZ    | 2.56                     | 0.41              |
| 75:w:31:ALA:HB3   | 75:w:38:LEU:HG    | 2.03                     | 0.41              |
| 76:x:34:GLN:O     | 76:x:37:GLN:HG3   | 2.21                     | 0.41              |
| 77:y:61:PHE:HA    | 77:y:62:PRO:HD3   | 1.95                     | 0.41              |
| 3:A:530:U:H2'     | 3:A:531:U:C6      | 2.55                     | 0.41              |
| 3:A:956:A:O3'     | 15:L:39:LYS:HE3   | 2.21                     | 0.41              |
| 3:A:1104:G:H2'    | 3:A:1105:A:O4'    | 2.21                     | 0.41              |
| 3:A:1114:U:H2'    | 3:A:1115:U:O4'    | 2.20                     | 0.41              |
| 3:A:1301:A:H2'    | 3:A:1302:G:H8     | 1.84                     | 0.41              |
| 3:A:1576:C:H1'    | 54:b:76:ASN:HB2   | 2.02                     | 0.41              |
| 3:A:1598:G:H2'    | 3:A:1599:C:C6     | 2.56                     | 0.41              |
| 3:A:2334:A:H2'    | 3:A:2335:C:H6     | 1.84                     | 0.41              |
| 3:A:2339:A:H2'    | 3:A:2340:G:O4'    | 2.21                     | 0.41              |
| 3:A:2553:C:OP1    | 69:q:89:LYS:HB2   | 2.20                     | 0.41              |
| 3:A:2776:C:H2'    | 3:A:2777:G:O4'    | 2.20                     | 0.41              |
| 3:A:2967:U:H2'    | 3:A:2968:C:C6     | 2.56                     | 0.41              |
| 3:A:3008:U:H2'    | 3:A:3009:G:C8     | 2.56                     | 0.41              |
| 4:B:60:C:H2'      | 4:B:61:A:H8       | 1.86                     | 0.41              |
| 6:CA:206:U:H2'    | 6:CA:207:A:C8     | 2.56                     | 0.41              |
| 6:CA:892:G:O2'    | 6:CA:893:A:H5'    | 2.21                     | 0.41              |
| 6:CA:929:U:H5''   | 34:ZE:14:SER:HB3  | 2.01                     | 0.41              |
| 6:CA:1364:A:H4'   | 6:CA:1365:C:O5'   | 2.21                     | 0.41              |
| 6:CA:1425:U:H2'   | 6:CA:1426:U:C6    | 2.55                     | 0.41              |
| 6:CA:1476:C:N4    | 6:CA:1482:G:O6    | 2.54                     | 0.41              |
| 6:CA:1622:U:H2'   | 6:CA:1623:A:H8    | 1.85                     | 0.41              |
| 10:G:103:LEU:O    | 10:G:107:ARG:HG2  | 2.21                     | 0.41              |
| 10:G:134:ALA:HA   | 10:G:141:PRO:HD3  | 2.03                     | 0.41              |
| 14:K:8:GLN:OE1    | 14:K:8:GLN:HA     | 2.21                     | 0.41              |
| 24:U:59:LEU:HG    | 24:U:65:VAL:HB    | 2.03                     | 0.41              |
| 34:ZE:66:VAL:HG23 | 34:ZE:67:THR:HG23 | 2.03                     | 0.41              |
| 34:ZE:94:LYS:HB2  | 34:ZE:94:LYS:HE3  | 1.90                     | 0.41              |
| 36:ZG:18:LYS:HD2  | 36:ZG:36:LEU:O    | 2.21                     | 0.41              |
| 36:ZG:111:MET:HG2 | 39:ZJ:119:ILE:HB  | 2.03                     | 0.41              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 42:ZM:17:CYS:HB2  | 42:ZM:56:SER:HB3  | 2.03                     | 0.41              |
| 57:e:101:ILE:H    | 57:e:101:ILE:HG13 | 1.51                     | 0.41              |
| 62:j:8:GLU:HG3    | 62:j:9:LEU:N      | 2.35                     | 0.41              |
| 62:j:45:GLY:HA2   | 62:j:48:ARG:HH11  | 1.86                     | 0.41              |
| 71:s:51:SER:O     | 71:s:55:GLU:HG3   | 2.21                     | 0.41              |
| 3:A:636:A:H4'     | 3:A:637:A:OP1     | 2.21                     | 0.41              |
| 3:A:934:U:H2'     | 3:A:935:U:C6      | 2.56                     | 0.41              |
| 3:A:1061:U:H5''   | 55:c:22:ILE:HD12  | 2.03                     | 0.41              |
| 3:A:1477:A:H2'    | 3:A:1478:A:C8     | 2.56                     | 0.41              |
| 3:A:2223:C:OP1    | 3:A:2224:A:O2'    | 2.35                     | 0.41              |
| 3:A:2614:G:C8     | 3:A:2651:G:H2'    | 2.54                     | 0.41              |
| 3:A:3174:G:H2'    | 3:A:3175:C:C6     | 2.56                     | 0.41              |
| 5:C:86:U:OP1      | 79:C:204:GET:N12  | 2.53                     | 0.41              |
| 6:CA:136:A:O4'    | 6:CA:138:U:H5'    | 2.20                     | 0.41              |
| 6:CA:1426:U:C2    | 6:CA:1427:C:C5    | 3.09                     | 0.41              |
| 12:I:19:LYS:HG3   | 12:I:20:VAL:N     | 2.35                     | 0.41              |
| 21:R:32:THR:HA    | 21:R:58:ILE:HD13  | 2.02                     | 0.41              |
| 23:T:193:ARG:O    | 23:T:197:ILE:HG12 | 2.21                     | 0.41              |
| 39:ZJ:6:GLN:NE2   | 46:ZR:44:GLN:HA   | 2.35                     | 0.41              |
| 65:m:70:PRO:HA    | 65:m:71:PRO:HD3   | 1.94                     | 0.41              |
| 72:t:193:ILE:O    | 72:t:197:ILE:HG13 | 2.20                     | 0.41              |
| 77:y:142:ARG:HG2  | 77:y:147:LEU:HB2  | 2.03                     | 0.41              |
| 78:z:33:ASP:O     | 78:z:36:PRO:HD2   | 2.21                     | 0.41              |
| 78:z:120:LYS:HD3  | 78:z:120:LYS:HA   | 1.89                     | 0.41              |
| 3:A:251:A:H2'     | 3:A:252:C:C6      | 2.56                     | 0.40              |
| 3:A:499:U:C2      | 3:A:500:A:C8      | 3.09                     | 0.40              |
| 3:A:961:U:H2'     | 3:A:962:C:C6      | 2.56                     | 0.40              |
| 3:A:1591:U:H2'    | 3:A:1592:G:C8     | 2.56                     | 0.40              |
| 3:A:1640:G:H2'    | 3:A:1641:C:H6     | 1.86                     | 0.40              |
| 3:A:1738:U:H2'    | 7:D:50:HIS:CD2    | 2.56                     | 0.40              |
| 3:A:2328:A:H2'    | 3:A:2329:G:C8     | 2.57                     | 0.40              |
| 3:A:2555:U:H4'    | 3:A:2556:A:O4'    | 2.21                     | 0.40              |
| 3:A:2576:A:H5'    | 3:A:2577:G:C8     | 2.56                     | 0.40              |
| 4:B:24:A:H2'      | 4:B:25:A:C8       | 2.57                     | 0.40              |
| 6:CA:152:G:C8     | 45:ZQ:133:ASN:HB3 | 2.56                     | 0.40              |
| 6:CA:468:C:H4'    | 31:ZB:120:ARG:NE  | 2.35                     | 0.40              |
| 6:CA:1209:U:O2'   | 6:CA:1210:U:H6    | 2.04                     | 0.40              |
| 6:CA:1225:G:H8    | 6:CA:1225:G:OP2   | 2.04                     | 0.40              |
| 6:CA:1351:A:H2'   | 6:CA:1352:C:O4'   | 2.21                     | 0.40              |
| 6:CA:1624:C:H2'   | 6:CA:1625:U:H6    | 1.86                     | 0.40              |
| 13:J:167:LEU:HD23 | 13:J:167:LEU:HA   | 1.91                     | 0.40              |

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| Atom-1            | Atom-2              | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|---------------------|--------------------------|-------------------|
| 20:Q:114:ASP:OD1  | 20:Q:114:ASP:N      | 2.52                     | 0.40              |
| 23:T:197:ILE:HG12 | 23:T:197:ILE:H      | 1.51                     | 0.40              |
| 28:Y:43:ARG:HH11  | 28:Y:43:ARG:HG3     | 1.86                     | 0.40              |
| 32:ZC:60:SER:HB2  | 74:v:28:ARG:HD2     | 2.03                     | 0.40              |
| 36:ZG:53:PRO:HB3  | 36:ZG:83:MET:SD     | 2.61                     | 0.40              |
| 42:ZM:36:ILE:HD13 | 42:ZM:78:LEU:HD23   | 2.04                     | 0.40              |
| 42:ZM:53:TYR:OH   | 42:ZM:76:ASP:OD2    | 2.26                     | 0.40              |
| 44:ZP:88:PRO:O    | 44:ZP:89:ASN:HB2    | 2.20                     | 0.40              |
| 52:ZY:85:TRP:HA   | 52:ZY:109:ASP:HB3   | 2.02                     | 0.40              |
| 69:q:25:VAL:HG22  | 69:q:72:LEU:HD22    | 2.02                     | 0.40              |
| 74:v:62:GLU:HB2   | 74:v:63:GLN:OE1     | 2.20                     | 0.40              |
| 74:v:160:HIS:C    | 74:v:165:THR:HG21   | 2.46                     | 0.40              |
| 75:w:200:LYS:HE2  | 75:w:200:LYS:HB2    | 1.88                     | 0.40              |
| 78:z:161:LYS:O    | 78:z:164:SER:OG     | 2.33                     | 0.40              |
| 3:A:24:A:C4       | 3:A:320:G:C8        | 3.09                     | 0.40              |
| 3:A:107:A:H4'     | 3:A:108:G:H5'       | 2.03                     | 0.40              |
| 3:A:402:G:H5'     | 21:R:26:PHE:HZ      | 1.85                     | 0.40              |
| 3:A:671:A:H5''    | 22:S:43:PRO:HB2     | 2.03                     | 0.40              |
| 3:A:758:G:C6      | 3:A:849:A:C4        | 3.09                     | 0.40              |
| 3:A:948:G:N3      | 3:A:988:U:H5'       | 2.36                     | 0.40              |
| 3:A:1082:A:H5'    | 56:d:22:HIS:O       | 2.20                     | 0.40              |
| 3:A:1127:A:C4     | 3:A:1129:G:C8       | 3.09                     | 0.40              |
| 3:A:1491:A:N3     | 3:A:1491:A:C2'      | 2.83                     | 0.40              |
| 3:A:1748:C:H2'    | 3:A:1749:A:C8       | 2.56                     | 0.40              |
| 3:A:2266:U:H5     | 84:A:3776:HOH:O     | 2.03                     | 0.40              |
| 6:CA:72:A:O2'     | 6:CA:73:U:OP1       | 2.36                     | 0.40              |
| 6:CA:411:G:H5''   | 79:CA:1889:GET:H713 | 2.03                     | 0.40              |
| 6:CA:929:U:O2     | 34:ZE:61:SER:HB2    | 2.21                     | 0.40              |
| 6:CA:1426:U:H2'   | 6:CA:1427:C:H6      | 1.86                     | 0.40              |
| 25:V:112:ASN:HB3  | 25:V:128:LEU:HD13   | 2.04                     | 0.40              |
| 30:ZA:67:ILE:HG13 | 84:ZA:437:HOH:O     | 2.21                     | 0.40              |
| 32:ZC:11:ILE:HG12 | 32:ZC:42:VAL:HG22   | 2.03                     | 0.40              |
| 32:ZC:61:TRP:HE1  | 74:v:24:GLU:CD      | 2.27                     | 0.40              |
| 35:ZF:68:GLU:HG3  | 35:ZF:69:VAL:N      | 2.36                     | 0.40              |
| 41:ZL:21:ILE:HD13 | 41:ZL:92:LEU:HB2    | 2.04                     | 0.40              |
| 42:ZM:71:ARG:NE   | 48:ZT:4:VAL:HG21    | 2.36                     | 0.40              |
| 43:ZO:23:ARG:HH22 | 43:ZO:67:GLY:N      | 2.19                     | 0.40              |
| 53:a:42:LYS:HG2   | 53:a:43:TYR:CD1     | 2.56                     | 0.40              |
| 53:a:86:THR:HG22  | 53:a:96:PRO:HA      | 2.03                     | 0.40              |
| 74:v:158:MET:SD   | 74:v:190:MET:HB2    | 2.60                     | 0.40              |
| 75:w:127:LYS:HA   | 75:w:127:LYS:HD2    | 1.92                     | 0.40              |

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| Atom-1            | Atom-2              | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|---------------------|--------------------------|-------------------|
| 76:x:118:LEU:HD22 | 76:x:129:PRO:HB2    | 2.03                     | 0.40              |
| 3:A:224:U:H2'     | 3:A:225:G:C8        | 2.56                     | 0.40              |
| 3:A:888:C:H2'     | 3:A:889:U:H6        | 1.83                     | 0.40              |
| 3:A:1166:C:O2'    | 3:A:1233:A:N1       | 2.32                     | 0.40              |
| 3:A:3064:C:H2'    | 3:A:3065:G:H8       | 1.85                     | 0.40              |
| 6:CA:454:G:C8     | 79:CA:1893:GET:H931 | 2.57                     | 0.40              |
| 6:CA:1094:A:H2'   | 6:CA:1095:A:C8      | 2.56                     | 0.40              |
| 6:CA:1185:C:H2'   | 6:CA:1186:C:C6      | 2.57                     | 0.40              |
| 6:CA:1507:U:OP1   | 46:ZR:81:ARG:NH2    | 2.54                     | 0.40              |
| 9:F:99:ARG:CZ     | 9:F:99:ARG:HB3      | 2.50                     | 0.40              |
| 18:O:35:GLN:OE1   | 24:U:157:TYR:OH     | 2.37                     | 0.40              |
| 20:Q:189:THR:O    | 20:Q:193:GLN:HG3    | 2.20                     | 0.40              |
| 24:U:120:MET:SD   | 24:U:120:MET:C      | 3.04                     | 0.40              |
| 52:ZY:49:GLY:HA2  | 52:ZY:54:TYR:CE1    | 2.57                     | 0.40              |
| 55:c:7:LYS:HD3    | 55:c:7:LYS:HA       | 1.96                     | 0.40              |
| 63:k:74:LYS:HZ3   | 63:k:74:LYS:HG3     | 1.79                     | 0.40              |
| 72:t:229:LEU:HD13 | 72:t:229:LEU:HA     | 1.87                     | 0.40              |
| 75:w:243:LYS:HD2  | 75:w:245:ILE:HG12   | 2.03                     | 0.40              |
| 1:l:24:G:H2'      | 1:l:25:C:C6         | 2.56                     | 0.40              |
| 3:A:148:G:H2'     | 3:A:149:U:H6        | 1.86                     | 0.40              |
| 3:A:2742:U:HO2'   | 3:A:2743:A:P        | 2.43                     | 0.40              |
| 6:CA:466:A:H61    | 6:CA:528:G:N2       | 2.20                     | 0.40              |
| 6:CA:1044:G:OP1   | 34:ZE:9:LYS:HB2     | 2.22                     | 0.40              |
| 6:CA:1072:G:N7    | 44:ZP:2:GLY:N       | 2.68                     | 0.40              |
| 6:CA:1653:C:OP2   | 84:CA:1907:HOH:O    | 2.22                     | 0.40              |
| 55:c:100:PRO:HG2  | 55:c:123:ILE:HG22   | 2.04                     | 0.40              |
| 73:u:99:ILE:HD13  | 73:u:128:LYS:HG2    | 2.04                     | 0.40              |
| 75:w:243:LYS:HD3  | 75:w:243:LYS:C      | 2.46                     | 0.40              |
| 76:x:89:ILE:HD12  | 76:x:89:ILE:HA      | 1.88                     | 0.40              |
| 3:A:146:A:N7      | 63:k:25:ILE:HG12    | 2.36                     | 0.40              |
| 3:A:632:G:C2      | 3:A:633:U:H1'       | 2.56                     | 0.40              |
| 3:A:1526:G:N7     | 79:A:3493:GET:H32   | 2.36                     | 0.40              |
| 3:A:2345:A:H2'    | 3:A:2346:C:C6       | 2.57                     | 0.40              |
| 3:A:2998:U:H5''   | 8:E:349:ARG:HH22    | 1.87                     | 0.40              |
| 3:A:3139:G:H2'    | 3:A:3140:U:C6       | 2.57                     | 0.40              |
| 3:A:3268:U:H2'    | 3:A:3269:C:C6       | 2.55                     | 0.40              |
| 5:C:100:A:C8      | 5:C:101:A:C8        | 3.09                     | 0.40              |
| 6:CA:542:G:OP2    | 84:CA:1908:HOH:O    | 2.22                     | 0.40              |
| 6:CA:557:G:N2     | 84:CA:2083:HOH:O    | 2.53                     | 0.40              |
| 6:CA:640:G:N2     | 6:CA:670:U:H3       | 2.19                     | 0.40              |
| 16:M:11:ARG:CZ    | 16:M:11:ARG:HB2     | 2.52                     | 0.40              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 30:ZA:90:TYR:HB3  | 30:ZA:108:ILE:HB  | 2.02                     | 0.40              |
| 30:ZA:123:HIS:O   | 30:ZA:150:ARG:HD2 | 2.21                     | 0.40              |
| 54:b:96:ILE:HD13  | 54:b:96:ILE:N     | 2.36                     | 0.40              |
| 72:t:127:VAL:HG11 | 72:t:176:VAL:HG21 | 2.02                     | 0.40              |
| 72:t:132:ASP:HB3  | 72:t:221:PRO:HB3  | 2.03                     | 0.40              |
| 75:w:118:GLU:HA   | 75:w:121:TYR:CE1  | 2.57                     | 0.40              |
| 76:x:143:ARG:HE   | 76:x:143:ARG:HB2  | 1.66                     | 0.40              |
| 78:z:19:GLN:HA    | 78:z:22:ILE:HD12  | 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 |     |
|-----|-------|---------------|------------|---------|----------|-------------|-----|
| 7   | D     | 245/254 (96%) | 236 (96%)  | 8 (3%)  | 1 (0%)   | 30          | 27  |
| 8   | E     | 385/389 (99%) | 379 (98%)  | 6 (2%)  | 0        | 100         | 100 |
| 9   | F     | 359/363 (99%) | 353 (98%)  | 6 (2%)  | 0        | 100         | 100 |
| 10  | G     | 289/298 (97%) | 281 (97%)  | 8 (3%)  | 0        | 100         | 100 |
| 11  | H     | 139/165 (84%) | 132 (95%)  | 5 (4%)  | 2 (1%)   | 9           | 4   |
| 12  | I     | 235/241 (98%) | 229 (97%)  | 6 (3%)  | 0        | 100         | 100 |
| 13  | J     | 231/263 (88%) | 227 (98%)  | 3 (1%)  | 1 (0%)   | 30          | 27  |
| 14  | K     | 188/191 (98%) | 182 (97%)  | 6 (3%)  | 0        | 100         | 100 |
| 15  | L     | 202/220 (92%) | 201 (100%) | 1 (0%)  | 0        | 100         | 100 |
| 16  | M     | 168/172 (98%) | 161 (96%)  | 7 (4%)  | 0        | 100         | 100 |
| 17  | N     | 192/198 (97%) | 184 (96%)  | 7 (4%)  | 1 (0%)   | 24          | 21  |
| 18  | O     | 127/131 (97%) | 126 (99%)  | 1 (1%)  | 0        | 100         | 100 |
| 19  | P     | 201/204 (98%) | 196 (98%)  | 5 (2%)  | 0        | 100         | 100 |

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| Mol | Chain | Analysed      | Favoured   | Allowed  | Outliers | Percentiles |     |
|-----|-------|---------------|------------|----------|----------|-------------|-----|
| 20  | Q     | 197/200 (98%) | 195 (99%)  | 2 (1%)   | 0        | 100         | 100 |
| 21  | R     | 168/185 (91%) | 165 (98%)  | 3 (2%)   | 0        | 100         | 100 |
| 22  | S     | 183/186 (98%) | 178 (97%)  | 5 (3%)   | 0        | 100         | 100 |
| 23  | T     | 180/208 (86%) | 169 (94%)  | 11 (6%)  | 0        | 100         | 100 |
| 24  | U     | 170/186 (91%) | 165 (97%)  | 5 (3%)   | 0        | 100         | 100 |
| 25  | V     | 157/160 (98%) | 155 (99%)  | 2 (1%)   | 0        | 100         | 100 |
| 26  | W     | 105/119 (88%) | 94 (90%)   | 11 (10%) | 0        | 100         | 100 |
| 27  | X     | 134/137 (98%) | 132 (98%)  | 2 (2%)   | 0        | 100         | 100 |
| 28  | Y     | 60/156 (38%)  | 59 (98%)   | 1 (2%)   | 0        | 100         | 100 |
| 29  | Z     | 115/140 (82%) | 115 (100%) | 0        | 0        | 100         | 100 |
| 30  | ZA    | 192/204 (94%) | 184 (96%)  | 8 (4%)   | 0        | 100         | 100 |
| 31  | ZB    | 176/189 (93%) | 172 (98%)  | 4 (2%)   | 0        | 100         | 100 |
| 32  | ZC    | 91/123 (74%)  | 88 (97%)   | 3 (3%)   | 0        | 100         | 100 |
| 33  | ZD    | 141/155 (91%) | 139 (99%)  | 2 (1%)   | 0        | 100         | 100 |
| 34  | ZE    | 148/151 (98%) | 142 (96%)  | 5 (3%)   | 1 (1%)   | 18          | 14  |
| 35  | ZF    | 125/132 (95%) | 114 (91%)  | 10 (8%)  | 1 (1%)   | 16          | 11  |
| 36  | ZG    | 114/141 (81%) | 111 (97%)  | 3 (3%)   | 0        | 100         | 100 |
| 37  | ZH    | 139/142 (98%) | 131 (94%)  | 8 (6%)   | 0        | 100         | 100 |
| 38  | ZI    | 126/137 (92%) | 118 (94%)  | 7 (6%)   | 1 (1%)   | 16          | 11  |
| 39  | ZJ    | 139/145 (96%) | 135 (97%)  | 4 (3%)   | 0        | 100         | 100 |
| 40  | ZK    | 140/145 (97%) | 136 (97%)  | 4 (3%)   | 0        | 100         | 100 |
| 41  | ZL    | 98/118 (83%)  | 89 (91%)   | 9 (9%)   | 0        | 100         | 100 |
| 42  | ZM    | 85/87 (98%)   | 84 (99%)   | 1 (1%)   | 0        | 100         | 100 |
| 43  | ZO    | 127/130 (98%) | 124 (98%)  | 3 (2%)   | 0        | 100         | 100 |
| 44  | ZP    | 141/145 (97%) | 139 (99%)  | 2 (1%)   | 0        | 100         | 100 |
| 45  | ZQ    | 128/135 (95%) | 120 (94%)  | 6 (5%)   | 2 (2%)   | 7           | 3   |
| 46  | ZR    | 64/130 (49%)  | 61 (95%)   | 3 (5%)   | 0        | 100         | 100 |
| 47  | ZS    | 96/182 (53%)  | 94 (98%)   | 2 (2%)   | 0        | 100         | 100 |
| 48  | ZT    | 79/82 (96%)   | 75 (95%)   | 4 (5%)   | 0        | 100         | 100 |
| 49  | ZU    | 57/67 (85%)   | 53 (93%)   | 4 (7%)   | 0        | 100         | 100 |
| 50  | ZV    | 52/56 (93%)   | 41 (79%)   | 10 (19%) | 1 (2%)   | 6           | 3   |

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| Mol | Chain | Analysed          | Favoured    | Allowed  | Outliers | Percentiles |     |
|-----|-------|-------------------|-------------|----------|----------|-------------|-----|
| 51  | ZW    | 52/63 (82%)       | 50 (96%)    | 2 (4%)   | 0        | 100         | 100 |
| 52  | ZY    | 303/315 (96%)     | 278 (92%)   | 22 (7%)  | 3 (1%)   | 12          | 8   |
| 53  | a     | 124/127 (98%)     | 122 (98%)   | 2 (2%)   | 0        | 100         | 100 |
| 54  | b     | 133/136 (98%)     | 130 (98%)   | 3 (2%)   | 0        | 100         | 100 |
| 55  | c     | 147/149 (99%)     | 139 (95%)   | 7 (5%)   | 1 (1%)   | 18          | 14  |
| 56  | d     | 56/76 (74%)       | 56 (100%)   | 0        | 0        | 100         | 100 |
| 57  | e     | 97/105 (92%)      | 97 (100%)   | 0        | 0        | 100         | 100 |
| 58  | f     | 105/113 (93%)     | 104 (99%)   | 1 (1%)   | 0        | 100         | 100 |
| 59  | g     | 121/149 (81%)     | 120 (99%)   | 1 (1%)   | 0        | 100         | 100 |
| 60  | h     | 104/107 (97%)     | 102 (98%)   | 2 (2%)   | 0        | 100         | 100 |
| 61  | i     | 107/115 (93%)     | 104 (97%)   | 3 (3%)   | 0        | 100         | 100 |
| 62  | j     | 116/120 (97%)     | 115 (99%)   | 1 (1%)   | 0        | 100         | 100 |
| 63  | k     | 96/99 (97%)       | 94 (98%)    | 2 (2%)   | 0        | 100         | 100 |
| 64  | l     | 81/85 (95%)       | 79 (98%)    | 2 (2%)   | 0        | 100         | 100 |
| 65  | m     | 75/78 (96%)       | 75 (100%)   | 0        | 0        | 100         | 100 |
| 66  | n     | 48/51 (94%)       | 46 (96%)    | 2 (4%)   | 0        | 100         | 100 |
| 67  | o     | 49/52 (94%)       | 49 (100%)   | 0        | 0        | 100         | 100 |
| 68  | p     | 22/25 (88%)       | 22 (100%)   | 0        | 0        | 100         | 100 |
| 69  | q     | 101/106 (95%)     | 100 (99%)   | 1 (1%)   | 0        | 100         | 100 |
| 70  | r     | 88/99 (89%)       | 86 (98%)    | 2 (2%)   | 0        | 100         | 100 |
| 71  | s     | 208/264 (79%)     | 200 (96%)   | 8 (4%)   | 0        | 100         | 100 |
| 72  | t     | 208/256 (81%)     | 189 (91%)   | 19 (9%)  | 0        | 100         | 100 |
| 73  | u     | 214/249 (86%)     | 211 (99%)   | 3 (1%)   | 0        | 100         | 100 |
| 74  | v     | 207/250 (83%)     | 197 (95%)   | 9 (4%)   | 1 (0%)   | 24          | 21  |
| 75  | w     | 258/264 (98%)     | 253 (98%)   | 5 (2%)   | 0        | 100         | 100 |
| 76  | x     | 204/223 (92%)     | 198 (97%)   | 6 (3%)   | 0        | 100         | 100 |
| 77  | y     | 224/236 (95%)     | 219 (98%)   | 5 (2%)   | 0        | 100         | 100 |
| 78  | z     | 180/188 (96%)     | 172 (96%)   | 8 (4%)   | 0        | 100         | 100 |
| All | All   | 10616/11662 (91%) | 10271 (97%) | 329 (3%) | 16 (0%)  | 44          | 42  |

All (16) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 11  | H     | 119 | ILE  |
| 17  | N     | 47  | ALA  |
| 34  | ZE    | 63  | ALA  |
| 52  | ZY    | 146 | SER  |
| 52  | ZY    | 199 | THR  |
| 11  | H     | 56  | PRO  |
| 13  | J     | 184 | LYS  |
| 52  | ZY    | 311 | VAL  |
| 35  | ZF    | 121 | THR  |
| 50  | ZV    | 14  | PHE  |
| 74  | v     | 40  | VAL  |
| 7   | D     | 196 | TRP  |
| 45  | ZQ    | 5   | VAL  |
| 45  | ZQ    | 33  | PRO  |
| 38  | ZI    | 69  | ILE  |
| 55  | c     | 15  | VAL  |

### 5.3.2 Protein sidechains ⓘ

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

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

| Mol | Chain | Analysed       | Rotameric  | Outliers | Percentiles |     |
|-----|-------|----------------|------------|----------|-------------|-----|
| 7   | D     | 186/193 (96%)  | 185 (100%) | 1 (0%)   | 81          | 87  |
| 8   | E     | 328/330 (99%)  | 325 (99%)  | 3 (1%)   | 70          | 78  |
| 9   | F     | 298/300 (99%)  | 294 (99%)  | 4 (1%)   | 61          | 68  |
| 10  | G     | 247/252 (98%)  | 243 (98%)  | 4 (2%)   | 55          | 62  |
| 11  | H     | 124/145 (86%)  | 123 (99%)  | 1 (1%)   | 73          | 80  |
| 12  | I     | 199/202 (98%)  | 196 (98%)  | 3 (2%)   | 57          | 64  |
| 13  | J     | 196/216 (91%)  | 190 (97%)  | 6 (3%)   | 35          | 37  |
| 14  | K     | 168/168 (100%) | 163 (97%)  | 5 (3%)   | 36          | 38  |
| 15  | L     | 178/189 (94%)  | 177 (99%)  | 1 (1%)   | 78          | 85  |
| 16  | M     | 143/145 (99%)  | 138 (96%)  | 5 (4%)   | 32          | 32  |
| 17  | N     | 156/160 (98%)  | 151 (97%)  | 5 (3%)   | 34          | 35  |
| 18  | O     | 110/111 (99%)  | 110 (100%) | 0        | 100         | 100 |

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| Mol | Chain | Analysed      | Rotameric  | Outliers | Percentiles |     |
|-----|-------|---------------|------------|----------|-------------|-----|
| 19  | P     | 175/176 (99%) | 175 (100%) | 0        | 100         | 100 |
| 20  | Q     | 166/167 (99%) | 166 (100%) | 0        | 100         | 100 |
| 21  | R     | 142/152 (93%) | 140 (99%)  | 2 (1%)   | 59          | 66  |
| 22  | S     | 153/154 (99%) | 150 (98%)  | 3 (2%)   | 48          | 54  |
| 23  | T     | 146/170 (86%) | 128 (88%)  | 18 (12%) | 4           | 3   |
| 24  | U     | 154/168 (92%) | 152 (99%)  | 2 (1%)   | 61          | 68  |
| 25  | V     | 138/139 (99%) | 134 (97%)  | 4 (3%)   | 37          | 40  |
| 26  | W     | 96/106 (91%)  | 89 (93%)   | 7 (7%)   | 13          | 9   |
| 27  | X     | 104/105 (99%) | 102 (98%)  | 2 (2%)   | 50          | 56  |
| 28  | Y     | 55/131 (42%)  | 53 (96%)   | 2 (4%)   | 31          | 31  |
| 29  | Z     | 103/118 (87%) | 102 (99%)  | 1 (1%)   | 68          | 75  |
| 30  | ZA    | 157/167 (94%) | 153 (98%)  | 4 (2%)   | 42          | 45  |
| 31  | ZB    | 155/163 (95%) | 148 (96%)  | 7 (4%)   | 24          | 23  |
| 32  | ZC    | 87/108 (81%)  | 85 (98%)   | 2 (2%)   | 44          | 49  |
| 33  | ZD    | 127/138 (92%) | 126 (99%)  | 1 (1%)   | 73          | 80  |
| 34  | ZE    | 130/131 (99%) | 127 (98%)  | 3 (2%)   | 44          | 49  |
| 35  | ZF    | 98/102 (96%)  | 89 (91%)   | 9 (9%)   | 8           | 5   |
| 36  | ZG    | 97/118 (82%)  | 95 (98%)   | 2 (2%)   | 47          | 52  |
| 37  | ZH    | 115/116 (99%) | 112 (97%)  | 3 (3%)   | 40          | 44  |
| 38  | ZI    | 113/121 (93%) | 108 (96%)  | 5 (4%)   | 25          | 24  |
| 39  | ZJ    | 125/129 (97%) | 118 (94%)  | 7 (6%)   | 19          | 16  |
| 40  | ZK    | 115/118 (98%) | 112 (97%)  | 3 (3%)   | 40          | 44  |
| 41  | ZL    | 90/104 (86%)  | 88 (98%)   | 2 (2%)   | 45          | 50  |
| 42  | ZM    | 72/72 (100%)  | 72 (100%)  | 0        | 100         | 100 |
| 43  | ZO    | 113/114 (99%) | 110 (97%)  | 3 (3%)   | 39          | 42  |
| 44  | ZP    | 117/119 (98%) | 113 (97%)  | 4 (3%)   | 32          | 33  |
| 45  | ZQ    | 114/118 (97%) | 107 (94%)  | 7 (6%)   | 17          | 14  |
| 46  | ZR    | 59/107 (55%)  | 57 (97%)   | 2 (3%)   | 32          | 33  |
| 47  | ZS    | 85/158 (54%)  | 83 (98%)   | 2 (2%)   | 43          | 47  |
| 48  | ZT    | 72/73 (99%)   | 68 (94%)   | 4 (6%)   | 19          | 16  |
| 49  | ZU    | 52/60 (87%)   | 48 (92%)   | 4 (8%)   | 12          | 8   |

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| Mol | Chain | Analysed        | Rotameric  | Outliers | Percentiles |     |
|-----|-------|-----------------|------------|----------|-------------|-----|
| 50  | ZV    | 47/48 (98%)     | 44 (94%)   | 3 (6%)   | 16          | 12  |
| 51  | ZW    | 47/54 (87%)     | 46 (98%)   | 1 (2%)   | 47          | 52  |
| 52  | ZY    | 258/267 (97%)   | 250 (97%)  | 8 (3%)   | 35          | 37  |
| 53  | a     | 111/112 (99%)   | 108 (97%)  | 3 (3%)   | 39          | 42  |
| 54  | b     | 113/114 (99%)   | 108 (96%)  | 5 (4%)   | 25          | 24  |
| 55  | c     | 120/120 (100%)  | 119 (99%)  | 1 (1%)   | 73          | 80  |
| 56  | d     | 48/66 (73%)     | 46 (96%)   | 2 (4%)   | 26          | 25  |
| 57  | e     | 79/84 (94%)     | 78 (99%)   | 1 (1%)   | 61          | 68  |
| 58  | f     | 95/100 (95%)    | 94 (99%)   | 1 (1%)   | 65          | 73  |
| 59  | g     | 109/130 (84%)   | 103 (94%)  | 6 (6%)   | 19          | 17  |
| 60  | h     | 92/93 (99%)     | 92 (100%)  | 0        | 100         | 100 |
| 61  | i     | 94/99 (95%)     | 94 (100%)  | 0        | 100         | 100 |
| 62  | j     | 101/102 (99%)   | 100 (99%)  | 1 (1%)   | 68          | 75  |
| 63  | k     | 80/81 (99%)     | 79 (99%)   | 1 (1%)   | 61          | 68  |
| 64  | l     | 69/70 (99%)     | 68 (99%)   | 1 (1%)   | 59          | 66  |
| 65  | m     | 69/70 (99%)     | 67 (97%)   | 2 (3%)   | 37          | 40  |
| 66  | n     | 47/48 (98%)     | 42 (89%)   | 5 (11%)  | 6           | 4   |
| 67  | o     | 46/47 (98%)     | 46 (100%)  | 0        | 100         | 100 |
| 68  | p     | 23/24 (96%)     | 23 (100%)  | 0        | 100         | 100 |
| 69  | q     | 87/90 (97%)     | 86 (99%)   | 1 (1%)   | 65          | 73  |
| 70  | r     | 70/76 (92%)     | 69 (99%)   | 1 (1%)   | 59          | 66  |
| 71  | s     | 182/218 (84%)   | 174 (96%)  | 8 (4%)   | 25          | 24  |
| 72  | t     | 185/223 (83%)   | 176 (95%)  | 9 (5%)   | 22          | 20  |
| 73  | u     | 178/203 (88%)   | 175 (98%)  | 3 (2%)   | 53          | 60  |
| 74  | v     | 165/192 (86%)   | 163 (99%)  | 2 (1%)   | 63          | 70  |
| 75  | w     | 219/222 (99%)   | 214 (98%)  | 5 (2%)   | 44          | 49  |
| 76  | x     | 175/192 (91%)   | 171 (98%)  | 4 (2%)   | 44          | 49  |
| 77  | y     | 194/202 (96%)   | 187 (96%)  | 7 (4%)   | 31          | 31  |
| 78  | z     | 163/168 (97%)   | 157 (96%)  | 6 (4%)   | 30          | 30  |
| All | All   | 9124/9848 (93%) | 8884 (97%) | 240 (3%) | 41          | 44  |

All (240) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 7   | D     | 188 | LYS  |
| 8   | E     | 17  | LEU  |
| 8   | E     | 34  | LYS  |
| 8   | E     | 377 | ARG  |
| 9   | F     | 15  | GLU  |
| 9   | F     | 61  | THR  |
| 9   | F     | 145 | GLN  |
| 9   | F     | 320 | LYS  |
| 10  | G     | 123 | GLU  |
| 10  | G     | 124 | GLU  |
| 10  | G     | 245 | GLU  |
| 10  | G     | 275 | LYS  |
| 11  | H     | 96  | ARG  |
| 12  | I     | 36  | LYS  |
| 12  | I     | 40  | LYS  |
| 12  | I     | 54  | ARG  |
| 13  | J     | 27  | LEU  |
| 13  | J     | 29  | GLU  |
| 13  | J     | 32  | LYS  |
| 13  | J     | 86  | ASN  |
| 13  | J     | 122 | LYS  |
| 13  | J     | 184 | LYS  |
| 14  | K     | 16  | VAL  |
| 14  | K     | 17  | THR  |
| 14  | K     | 82  | VAL  |
| 14  | K     | 118 | LEU  |
| 14  | K     | 157 | ASN  |
| 15  | L     | 193 | ASP  |
| 16  | M     | 21  | VAL  |
| 16  | M     | 29  | THR  |
| 16  | M     | 52  | VAL  |
| 16  | M     | 64  | SER  |
| 16  | M     | 109 | ASP  |
| 17  | N     | 3   | ILE  |
| 17  | N     | 86  | THR  |
| 17  | N     | 127 | ASP  |
| 17  | N     | 129 | THR  |
| 17  | N     | 195 | LYS  |
| 21  | R     | 54  | HIS  |
| 21  | R     | 100 | SER  |
| 22  | S     | 6   | VAL  |
| 22  | S     | 7   | THR  |
| 22  | S     | 186 | VAL  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 23  | T     | 89  | SER  |
| 23  | T     | 168 | GLU  |
| 23  | T     | 171 | ARG  |
| 23  | T     | 172 | GLU  |
| 23  | T     | 173 | LYS  |
| 23  | T     | 175 | LEU  |
| 23  | T     | 176 | LYS  |
| 23  | T     | 178 | GLU  |
| 23  | T     | 180 | GLU  |
| 23  | T     | 182 | ARG  |
| 23  | T     | 184 | LEU  |
| 23  | T     | 185 | ARG  |
| 23  | T     | 187 | LYS  |
| 23  | T     | 191 | GLU  |
| 23  | T     | 193 | ARG  |
| 23  | T     | 195 | GLN  |
| 23  | T     | 196 | ARG  |
| 23  | T     | 197 | ILE  |
| 24  | U     | 94  | ARG  |
| 24  | U     | 114 | VAL  |
| 25  | V     | 3   | HIS  |
| 25  | V     | 52  | MET  |
| 25  | V     | 101 | CYS  |
| 25  | V     | 110 | LYS  |
| 26  | W     | 4   | ILE  |
| 26  | W     | 9   | THR  |
| 26  | W     | 43  | VAL  |
| 26  | W     | 55  | THR  |
| 26  | W     | 68  | THR  |
| 26  | W     | 96  | VAL  |
| 26  | W     | 105 | LEU  |
| 27  | X     | 7   | SER  |
| 27  | X     | 68  | GLU  |
| 28  | Y     | 1   | MET  |
| 28  | Y     | 12  | LYS  |
| 29  | Z     | 24  | VAL  |
| 30  | ZA    | 27  | GLN  |
| 30  | ZA    | 79  | VAL  |
| 30  | ZA    | 104 | THR  |
| 30  | ZA    | 163 | GLN  |
| 31  | ZB    | 10  | LYS  |
| 31  | ZB    | 61  | THR  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 31  | ZB    | 62  | ARG  |
| 31  | ZB    | 89  | ASP  |
| 31  | ZB    | 120 | ARG  |
| 31  | ZB    | 122 | ILE  |
| 31  | ZB    | 173 | LYS  |
| 32  | ZC    | 17  | GLN  |
| 32  | ZC    | 70  | ASP  |
| 33  | ZD    | 30  | LYS  |
| 34  | ZE    | 7   | SER  |
| 34  | ZE    | 16  | ILE  |
| 34  | ZE    | 62  | GLN  |
| 35  | ZF    | 9   | PHE  |
| 35  | ZF    | 31  | ARG  |
| 35  | ZF    | 32  | GLU  |
| 35  | ZF    | 36  | ARG  |
| 35  | ZF    | 72  | THR  |
| 35  | ZF    | 74  | VAL  |
| 35  | ZF    | 94  | GLN  |
| 35  | ZF    | 105 | LEU  |
| 35  | ZF    | 121 | THR  |
| 36  | ZG    | 41  | VAL  |
| 36  | ZG    | 110 | GLU  |
| 37  | ZH    | 16  | THR  |
| 37  | ZH    | 39  | GLU  |
| 37  | ZH    | 64  | ILE  |
| 38  | ZI    | 5   | ARG  |
| 38  | ZI    | 7   | LYS  |
| 38  | ZI    | 66  | VAL  |
| 38  | ZI    | 119 | LEU  |
| 38  | ZI    | 122 | VAL  |
| 39  | ZJ    | 8   | ASP  |
| 39  | ZJ    | 73  | MET  |
| 39  | ZJ    | 78  | HIS  |
| 39  | ZJ    | 92  | GLN  |
| 39  | ZJ    | 100 | VAL  |
| 39  | ZJ    | 105 | MET  |
| 39  | ZJ    | 133 | VAL  |
| 40  | ZK    | 79  | LEU  |
| 40  | ZK    | 83  | SER  |
| 40  | ZK    | 109 | GLU  |
| 41  | ZL    | 21  | ILE  |
| 41  | ZL    | 55  | VAL  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 43  | ZO    | 43  | LYS  |
| 43  | ZO    | 58  | SER  |
| 43  | ZO    | 65  | LEU  |
| 44  | ZP    | 16  | ARG  |
| 44  | ZP    | 101 | GLU  |
| 44  | ZP    | 107 | PHE  |
| 44  | ZP    | 121 | ARG  |
| 45  | ZQ    | 26  | ASP  |
| 45  | ZQ    | 28  | LEU  |
| 45  | ZQ    | 32  | ARG  |
| 45  | ZQ    | 34  | ASN  |
| 45  | ZQ    | 35  | VAL  |
| 45  | ZQ    | 47  | LEU  |
| 45  | ZQ    | 77  | GLN  |
| 46  | ZR    | 39  | VAL  |
| 46  | ZR    | 90  | LYS  |
| 47  | ZS    | 107 | VAL  |
| 47  | ZS    | 121 | TYR  |
| 48  | ZT    | 2   | VAL  |
| 48  | ZT    | 46  | VAL  |
| 48  | ZT    | 65  | THR  |
| 48  | ZT    | 75  | GLU  |
| 49  | ZU    | 7   | VAL  |
| 49  | ZU    | 36  | SER  |
| 49  | ZU    | 42  | ARG  |
| 49  | ZU    | 58  | GLU  |
| 50  | ZV    | 12  | ARG  |
| 50  | ZV    | 13  | ASN  |
| 50  | ZV    | 16  | LYS  |
| 51  | ZW    | 8   | LEU  |
| 52  | ZY    | 37  | SER  |
| 52  | ZY    | 137 | ILE  |
| 52  | ZY    | 187 | ASP  |
| 52  | ZY    | 192 | THR  |
| 52  | ZY    | 195 | ILE  |
| 52  | ZY    | 218 | LEU  |
| 52  | ZY    | 265 | THR  |
| 52  | ZY    | 274 | PHE  |
| 53  | a     | 72  | THR  |
| 53  | a     | 94  | THR  |
| 53  | a     | 118 | LEU  |
| 54  | b     | 52  | ARG  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 54  | b     | 67  | ARG  |
| 54  | b     | 101 | LEU  |
| 54  | b     | 120 | GLU  |
| 54  | b     | 133 | LYS  |
| 55  | c     | 85  | GLU  |
| 56  | d     | 20  | LYS  |
| 56  | d     | 37  | LYS  |
| 57  | e     | 101 | ILE  |
| 58  | f     | 45  | THR  |
| 59  | g     | 81  | LYS  |
| 59  | g     | 98  | THR  |
| 59  | g     | 99  | GLN  |
| 59  | g     | 122 | LYS  |
| 59  | g     | 132 | LYS  |
| 59  | g     | 147 | LEU  |
| 62  | j     | 6   | VAL  |
| 63  | k     | 96  | SER  |
| 64  | l     | 41  | SER  |
| 65  | m     | 6   | LYS  |
| 65  | m     | 64  | LYS  |
| 66  | n     | 3   | SER  |
| 66  | n     | 4   | GLN  |
| 66  | n     | 25  | GLN  |
| 66  | n     | 36  | ARG  |
| 66  | n     | 47  | THR  |
| 69  | q     | 76  | VAL  |
| 70  | r     | 89  | THR  |
| 71  | s     | 8   | ASN  |
| 71  | s     | 10  | THR  |
| 71  | s     | 80  | THR  |
| 71  | s     | 83  | GLN  |
| 71  | s     | 101 | ARG  |
| 71  | s     | 124 | THR  |
| 71  | s     | 156 | VAL  |
| 71  | s     | 205 | ARG  |
| 72  | t     | 43  | VAL  |
| 72  | t     | 50  | LYS  |
| 72  | t     | 68  | VAL  |
| 72  | t     | 89  | ASP  |
| 72  | t     | 121 | VAL  |
| 72  | t     | 152 | LYS  |
| 72  | t     | 154 | THR  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 72  | t     | 170 | GLU  |
| 72  | t     | 229 | LEU  |
| 73  | u     | 36  | LEU  |
| 73  | u     | 118 | SER  |
| 73  | u     | 149 | LEU  |
| 74  | v     | 43  | THR  |
| 74  | v     | 56  | THR  |
| 75  | w     | 44  | LEU  |
| 75  | w     | 101 | LEU  |
| 75  | w     | 102 | VAL  |
| 75  | w     | 170 | SER  |
| 75  | w     | 260 | GLN  |
| 76  | x     | 59  | VAL  |
| 76  | x     | 64  | ILE  |
| 76  | x     | 161 | ASP  |
| 76  | x     | 225 | ARG  |
| 77  | y     | 40  | SER  |
| 77  | y     | 88  | ARG  |
| 77  | y     | 119 | THR  |
| 77  | y     | 132 | ARG  |
| 77  | y     | 153 | VAL  |
| 77  | y     | 169 | TYR  |
| 77  | y     | 225 | GLU  |
| 78  | z     | 17  | VAL  |
| 78  | z     | 28  | THR  |
| 78  | z     | 29  | ASP  |
| 78  | z     | 35  | ARG  |
| 78  | z     | 89  | LEU  |
| 78  | z     | 161 | LYS  |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (83) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 8   | E     | 24  | ASN  |
| 8   | E     | 165 | GLN  |
| 8   | E     | 224 | HIS  |
| 8   | E     | 243 | HIS  |
| 8   | E     | 259 | ASN  |
| 8   | E     | 316 | ASN  |
| 8   | E     | 318 | ASN  |
| 9   | F     | 321 | ASN  |
| 10  | G     | 111 | GLN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 10  | G     | 242 | ASN  |
| 10  | G     | 244 | HIS  |
| 10  | G     | 264 | GLN  |
| 11  | H     | 90  | ASN  |
| 13  | J     | 90  | GLN  |
| 14  | K     | 96  | HIS  |
| 15  | L     | 92  | HIS  |
| 16  | M     | 41  | GLN  |
| 16  | M     | 60  | ASN  |
| 19  | P     | 32  | GLN  |
| 21  | R     | 28  | ASN  |
| 21  | R     | 50  | GLN  |
| 21  | R     | 116 | HIS  |
| 21  | R     | 121 | GLN  |
| 21  | R     | 133 | HIS  |
| 21  | R     | 142 | HIS  |
| 23  | T     | 67  | ASN  |
| 24  | U     | 19  | ASN  |
| 24  | U     | 60  | GLN  |
| 24  | U     | 152 | GLN  |
| 25  | V     | 16  | GLN  |
| 25  | V     | 77  | ASN  |
| 26  | W     | 38  | ASN  |
| 26  | W     | 61  | ASN  |
| 26  | W     | 102 | GLN  |
| 27  | X     | 9   | ASN  |
| 28  | Y     | 42  | GLN  |
| 29  | Z     | 83  | GLN  |
| 29  | Z     | 135 | ASN  |
| 30  | ZA    | 110 | GLN  |
| 30  | ZA    | 123 | HIS  |
| 31  | ZB    | 74  | ASN  |
| 31  | ZB    | 110 | GLN  |
| 31  | ZB    | 112 | GLN  |
| 32  | ZC    | 62  | GLN  |
| 34  | ZE    | 5   | HIS  |
| 34  | ZE    | 69  | ASN  |
| 34  | ZE    | 78  | ASN  |
| 34  | ZE    | 105 | ASN  |
| 36  | ZG    | 103 | ASN  |
| 37  | ZH    | 138 | GLN  |
| 39  | ZJ    | 137 | HIS  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 41  | ZL    | 43  | ASN  |
| 43  | ZO    | 12  | ASN  |
| 43  | ZO    | 64  | GLN  |
| 44  | ZP    | 75  | GLN  |
| 46  | ZR    | 44  | GLN  |
| 47  | ZS    | 87  | ASN  |
| 48  | ZT    | 17  | GLN  |
| 49  | ZU    | 27  | GLN  |
| 51  | ZW    | 51  | ASN  |
| 52  | ZY    | 237 | HIS  |
| 53  | a     | 6   | GLN  |
| 53  | a     | 15  | ASN  |
| 54  | b     | 51  | GLN  |
| 54  | b     | 122 | HIS  |
| 55  | c     | 38  | GLN  |
| 58  | f     | 20  | HIS  |
| 61  | i     | 61  | GLN  |
| 62  | j     | 62  | GLN  |
| 63  | k     | 62  | ASN  |
| 65  | m     | 51  | GLN  |
| 66  | n     | 11  | GLN  |
| 69  | q     | 22  | GLN  |
| 71  | s     | 30  | GLN  |
| 71  | s     | 83  | GLN  |
| 71  | s     | 168 | HIS  |
| 72  | t     | 74  | GLN  |
| 72  | t     | 99  | ASN  |
| 72  | t     | 146 | GLN  |
| 73  | u     | 184 | GLN  |
| 78  | z     | 3   | ASN  |
| 78  | z     | 9   | ASN  |
| 78  | z     | 167 | GLN  |

### 5.3.3 RNA ⓘ

| Mol | Chain | Analysed        | Backbone Outliers | Pucker Outliers |
|-----|-------|-----------------|-------------------|-----------------|
| 1   | 1     | 33/76 (43%)     | 3 (9%)            | 0               |
| 2   | 2     | 2/3 (66%)       | 0                 | 0               |
| 3   | A     | 2980/3283 (90%) | 369 (12%)         | 30 (1%)         |
| 4   | B     | 121/122 (99%)   | 13 (10%)          | 1 (0%)          |
| 5   | C     | 153/158 (96%)   | 21 (13%)          | 0               |

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| Mol | Chain | Analysed        | Backbone Outliers | Pucker Outliers |
|-----|-------|-----------------|-------------------|-----------------|
| 6   | CA    | 1611/1775 (90%) | 356 (22%)         | 20 (1%)         |
| All | All   | 4900/5417 (90%) | 762 (15%)         | 51 (1%)         |

All (762) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 1     | 22  | C    |
| 1   | 1     | 24  | G    |
| 1   | 1     | 42  | G    |
| 3   | A     | 14  | A    |
| 3   | A     | 15  | G    |
| 3   | A     | 24  | A    |
| 3   | A     | 38  | A    |
| 3   | A     | 47  | A    |
| 3   | A     | 57  | G    |
| 3   | A     | 58  | A    |
| 3   | A     | 63  | A    |
| 3   | A     | 64  | A    |
| 3   | A     | 84  | G    |
| 3   | A     | 90  | G    |
| 3   | A     | 97  | A    |
| 3   | A     | 107 | A    |
| 3   | A     | 108 | G    |
| 3   | A     | 109 | C    |
| 3   | A     | 116 | U    |
| 3   | A     | 120 | A    |
| 3   | A     | 127 | C    |
| 3   | A     | 129 | G    |
| 3   | A     | 143 | U    |
| 3   | A     | 145 | G    |
| 3   | A     | 146 | A    |
| 3   | A     | 163 | U    |
| 3   | A     | 165 | U    |
| 3   | A     | 166 | U    |
| 3   | A     | 167 | C    |
| 3   | A     | 168 | U    |
| 3   | A     | 170 | G    |
| 3   | A     | 179 | A    |
| 3   | A     | 182 | U    |
| 3   | A     | 192 | C    |
| 3   | A     | 211 | A    |
| 3   | A     | 212 | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3   | A     | 237 | G    |
| 3   | A     | 244 | G    |
| 3   | A     | 259 | G    |
| 3   | A     | 276 | U    |
| 3   | A     | 285 | A    |
| 3   | A     | 288 | U    |
| 3   | A     | 295 | U    |
| 3   | A     | 313 | A    |
| 3   | A     | 319 | U    |
| 3   | A     | 339 | A    |
| 3   | A     | 340 | C    |
| 3   | A     | 366 | G    |
| 3   | A     | 389 | A    |
| 3   | A     | 391 | U    |
| 3   | A     | 392 | A    |
| 3   | A     | 393 | C    |
| 3   | A     | 411 | G    |
| 3   | A     | 412 | A    |
| 3   | A     | 426 | A    |
| 3   | A     | 430 | A    |
| 3   | A     | 431 | C    |
| 3   | A     | 432 | G    |
| 3   | A     | 436 | U    |
| 3   | A     | 437 | C    |
| 3   | A     | 438 | G    |
| 3   | A     | 461 | C    |
| 3   | A     | 469 | A    |
| 3   | A     | 470 | A    |
| 3   | A     | 498 | G    |
| 3   | A     | 499 | U    |
| 3   | A     | 501 | G    |
| 3   | A     | 504 | U    |
| 3   | A     | 506 | A    |
| 3   | A     | 508 | A    |
| 3   | A     | 514 | U    |
| 3   | A     | 528 | U    |
| 3   | A     | 529 | G    |
| 3   | A     | 551 | U    |
| 3   | A     | 552 | C    |
| 3   | A     | 553 | U    |
| 3   | A     | 555 | G    |
| 3   | A     | 557 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3   | A     | 566 | C    |
| 3   | A     | 567 | A    |
| 3   | A     | 595 | A    |
| 3   | A     | 606 | A    |
| 3   | A     | 623 | A    |
| 3   | A     | 627 | U    |
| 3   | A     | 635 | A    |
| 3   | A     | 636 | A    |
| 3   | A     | 651 | A    |
| 3   | A     | 658 | G    |
| 3   | A     | 661 | A    |
| 3   | A     | 663 | A    |
| 3   | A     | 668 | G    |
| 3   | A     | 677 | U    |
| 3   | A     | 678 | C    |
| 3   | A     | 679 | G    |
| 3   | A     | 680 | G    |
| 3   | A     | 710 | U    |
| 3   | A     | 716 | G    |
| 3   | A     | 719 | U    |
| 3   | A     | 724 | G    |
| 3   | A     | 728 | G    |
| 3   | A     | 729 | A    |
| 3   | A     | 743 | G    |
| 3   | A     | 749 | A    |
| 3   | A     | 760 | A    |
| 3   | A     | 773 | A    |
| 3   | A     | 792 | C    |
| 3   | A     | 804 | C    |
| 3   | A     | 808 | U    |
| 3   | A     | 817 | U    |
| 3   | A     | 822 | U    |
| 3   | A     | 839 | A    |
| 3   | A     | 840 | U    |
| 3   | A     | 850 | G    |
| 3   | A     | 851 | G    |
| 3   | A     | 857 | A    |
| 3   | A     | 859 | G    |
| 3   | A     | 860 | A    |
| 3   | A     | 866 | C    |
| 3   | A     | 867 | G    |
| 3   | A     | 868 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 3   | A     | 880  | G    |
| 3   | A     | 887  | C    |
| 3   | A     | 902  | C    |
| 3   | A     | 903  | U    |
| 3   | A     | 923  | U    |
| 3   | A     | 925  | C    |
| 3   | A     | 927  | A    |
| 3   | A     | 928  | A    |
| 3   | A     | 941  | G    |
| 3   | A     | 948  | G    |
| 3   | A     | 949  | A    |
| 3   | A     | 957  | G    |
| 3   | A     | 994  | A    |
| 3   | A     | 996  | C    |
| 3   | A     | 1010 | G    |
| 3   | A     | 1011 | A    |
| 3   | A     | 1028 | U    |
| 3   | A     | 1029 | U    |
| 3   | A     | 1042 | A    |
| 3   | A     | 1044 | G    |
| 3   | A     | 1045 | A    |
| 3   | A     | 1051 | G    |
| 3   | A     | 1064 | G    |
| 3   | A     | 1078 | G    |
| 3   | A     | 1106 | A    |
| 3   | A     | 1127 | A    |
| 3   | A     | 1128 | U    |
| 3   | A     | 1129 | G    |
| 3   | A     | 1139 | C    |
| 3   | A     | 1148 | C    |
| 3   | A     | 1159 | A    |
| 3   | A     | 1165 | U    |
| 3   | A     | 1168 | A    |
| 3   | A     | 1169 | G    |
| 3   | A     | 1170 | A    |
| 3   | A     | 1233 | A    |
| 3   | A     | 1234 | A    |
| 3   | A     | 1254 | G    |
| 3   | A     | 1255 | A    |
| 3   | A     | 1256 | U    |
| 3   | A     | 1277 | A    |
| 3   | A     | 1296 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 3   | A     | 1299 | G    |
| 3   | A     | 1342 | U    |
| 3   | A     | 1343 | G    |
| 3   | A     | 1362 | A    |
| 3   | A     | 1368 | C    |
| 3   | A     | 1377 | G    |
| 3   | A     | 1380 | C    |
| 3   | A     | 1389 | A    |
| 3   | A     | 1410 | A    |
| 3   | A     | 1418 | A    |
| 3   | A     | 1424 | A    |
| 3   | A     | 1450 | G    |
| 3   | A     | 1451 | C    |
| 3   | A     | 1454 | A    |
| 3   | A     | 1476 | U    |
| 3   | A     | 1492 | C    |
| 3   | A     | 1498 | G    |
| 3   | A     | 1503 | U    |
| 3   | A     | 1504 | C    |
| 3   | A     | 1506 | C    |
| 3   | A     | 1507 | C    |
| 3   | A     | 1525 | G    |
| 3   | A     | 1529 | A    |
| 3   | A     | 1531 | A    |
| 3   | A     | 1535 | A    |
| 3   | A     | 1571 | C    |
| 3   | A     | 1582 | A    |
| 3   | A     | 1583 | A    |
| 3   | A     | 1664 | U    |
| 3   | A     | 1690 | A    |
| 3   | A     | 1691 | G    |
| 3   | A     | 1710 | C    |
| 3   | A     | 1723 | G    |
| 3   | A     | 1740 | A    |
| 3   | A     | 1756 | A    |
| 3   | A     | 1757 | A    |
| 3   | A     | 1758 | U    |
| 3   | A     | 1759 | G    |
| 3   | A     | 1760 | U    |
| 3   | A     | 1763 | U    |
| 3   | A     | 1781 | A    |
| 3   | A     | 1784 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 3   | A     | 1791 | C    |
| 3   | A     | 1792 | A    |
| 3   | A     | 1820 | G    |
| 3   | A     | 1822 | U    |
| 3   | A     | 1828 | A    |
| 3   | A     | 1835 | A    |
| 3   | A     | 1848 | G    |
| 3   | A     | 1876 | G    |
| 3   | A     | 2007 | U    |
| 3   | A     | 2008 | G    |
| 3   | A     | 2015 | A    |
| 3   | A     | 2026 | G    |
| 3   | A     | 2027 | U    |
| 3   | A     | 2028 | A    |
| 3   | A     | 2036 | G    |
| 3   | A     | 2037 | G    |
| 3   | A     | 2046 | A    |
| 3   | A     | 2055 | U    |
| 3   | A     | 2073 | A    |
| 3   | A     | 2084 | G    |
| 3   | A     | 2120 | U    |
| 3   | A     | 2121 | G    |
| 3   | A     | 2123 | A    |
| 3   | A     | 2124 | U    |
| 3   | A     | 2125 | G    |
| 3   | A     | 2159 | A    |
| 3   | A     | 2164 | G    |
| 3   | A     | 2171 | A    |
| 3   | A     | 2187 | G    |
| 3   | A     | 2188 | G    |
| 3   | A     | 2196 | A    |
| 3   | A     | 2222 | G    |
| 3   | A     | 2225 | U    |
| 3   | A     | 2228 | A    |
| 3   | A     | 2229 | U    |
| 3   | A     | 2230 | G    |
| 3   | A     | 2249 | U    |
| 3   | A     | 2250 | G    |
| 3   | A     | 2251 | U    |
| 3   | A     | 2288 | A    |
| 3   | A     | 2289 | C    |
| 3   | A     | 2290 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 3   | A     | 2300 | G    |
| 3   | A     | 2303 | U    |
| 3   | A     | 2308 | G    |
| 3   | A     | 2309 | G    |
| 3   | A     | 2312 | A    |
| 3   | A     | 2317 | A    |
| 3   | A     | 2318 | G    |
| 3   | A     | 2319 | A    |
| 3   | A     | 2326 | U    |
| 3   | A     | 2350 | G    |
| 3   | A     | 2426 | A    |
| 3   | A     | 2429 | U    |
| 3   | A     | 2450 | U    |
| 3   | A     | 2462 | U    |
| 3   | A     | 2463 | U    |
| 3   | A     | 2465 | C    |
| 3   | A     | 2467 | U    |
| 3   | A     | 2468 | G    |
| 3   | A     | 2485 | C    |
| 3   | A     | 2493 | A    |
| 3   | A     | 2506 | G    |
| 3   | A     | 2507 | G    |
| 3   | A     | 2514 | G    |
| 3   | A     | 2526 | A    |
| 3   | A     | 2552 | U    |
| 3   | A     | 2556 | A    |
| 3   | A     | 2574 | A    |
| 3   | A     | 2577 | G    |
| 3   | A     | 2589 | G    |
| 3   | A     | 2590 | G    |
| 3   | A     | 2591 | A    |
| 3   | A     | 2594 | A    |
| 3   | A     | 2604 | A    |
| 3   | A     | 2619 | U    |
| 3   | A     | 2628 | G    |
| 3   | A     | 2629 | U    |
| 3   | A     | 2652 | U    |
| 3   | A     | 2653 | G    |
| 3   | A     | 2655 | C    |
| 3   | A     | 2662 | A    |
| 3   | A     | 2677 | G    |
| 3   | A     | 2678 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 3   | A     | 2696 | G    |
| 3   | A     | 2699 | A    |
| 3   | A     | 2700 | G    |
| 3   | A     | 2701 | A    |
| 3   | A     | 2702 | A    |
| 3   | A     | 2703 | A    |
| 3   | A     | 2705 | G    |
| 3   | A     | 2710 | C    |
| 3   | A     | 2714 | G    |
| 3   | A     | 2717 | A    |
| 3   | A     | 2742 | U    |
| 3   | A     | 2743 | A    |
| 3   | A     | 2744 | C    |
| 3   | A     | 2745 | A    |
| 3   | A     | 2747 | A    |
| 3   | A     | 2760 | U    |
| 3   | A     | 2767 | C    |
| 3   | A     | 2771 | G    |
| 3   | A     | 2772 | A    |
| 3   | A     | 2787 | A    |
| 3   | A     | 2799 | C    |
| 3   | A     | 2810 | A    |
| 3   | A     | 2814 | G    |
| 3   | A     | 2823 | U    |
| 3   | A     | 2835 | U    |
| 3   | A     | 2836 | A    |
| 3   | A     | 2842 | C    |
| 3   | A     | 2847 | G    |
| 3   | A     | 2883 | C    |
| 3   | A     | 2890 | G    |
| 3   | A     | 2897 | C    |
| 3   | A     | 2898 | G    |
| 3   | A     | 2913 | A    |
| 3   | A     | 2960 | G    |
| 3   | A     | 2979 | C    |
| 3   | A     | 2993 | C    |
| 3   | A     | 3023 | A    |
| 3   | A     | 3031 | A    |
| 3   | A     | 3032 | U    |
| 3   | A     | 3043 | C    |
| 3   | A     | 3052 | A    |
| 3   | A     | 3053 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 3   | A     | 3070 | C    |
| 3   | A     | 3072 | G    |
| 3   | A     | 3074 | U    |
| 3   | A     | 3076 | G    |
| 3   | A     | 3079 | G    |
| 3   | A     | 3082 | U    |
| 3   | A     | 3084 | C    |
| 3   | A     | 3090 | A    |
| 3   | A     | 3094 | A    |
| 3   | A     | 3096 | G    |
| 3   | A     | 3097 | G    |
| 3   | A     | 3109 | A    |
| 3   | A     | 3111 | A    |
| 3   | A     | 3112 | A    |
| 3   | A     | 3113 | G    |
| 3   | A     | 3121 | U    |
| 3   | A     | 3135 | A    |
| 3   | A     | 3137 | A    |
| 3   | A     | 3139 | G    |
| 3   | A     | 3142 | G    |
| 3   | A     | 3149 | G    |
| 3   | A     | 3158 | U    |
| 3   | A     | 3159 | U    |
| 3   | A     | 3165 | G    |
| 3   | A     | 3175 | C    |
| 3   | A     | 3182 | G    |
| 3   | A     | 3192 | C    |
| 3   | A     | 3204 | A    |
| 3   | A     | 3207 | U    |
| 3   | A     | 3229 | U    |
| 3   | A     | 3230 | A    |
| 3   | A     | 3233 | G    |
| 3   | A     | 3239 | U    |
| 3   | A     | 3240 | U    |
| 3   | A     | 3241 | G    |
| 3   | A     | 3242 | U    |
| 3   | A     | 3243 | U    |
| 3   | A     | 3244 | G    |
| 3   | A     | 3257 | G    |
| 3   | A     | 3266 | C    |
| 3   | A     | 3271 | G    |
| 3   | A     | 3277 | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 4   | B     | 7   | G    |
| 4   | B     | 11  | A    |
| 4   | B     | 23  | A    |
| 4   | B     | 43  | A    |
| 4   | B     | 55  | U    |
| 4   | B     | 56  | A    |
| 4   | B     | 66  | G    |
| 4   | B     | 74  | G    |
| 4   | B     | 77  | A    |
| 4   | B     | 79  | U    |
| 4   | B     | 100 | G    |
| 4   | B     | 113 | G    |
| 4   | B     | 122 | U    |
| 5   | C     | 22  | U    |
| 5   | C     | 34  | U    |
| 5   | C     | 35  | C    |
| 5   | C     | 52  | A    |
| 5   | C     | 59  | A    |
| 5   | C     | 62  | C    |
| 5   | C     | 63  | G    |
| 5   | C     | 83  | G    |
| 5   | C     | 88  | A    |
| 5   | C     | 91  | G    |
| 5   | C     | 100 | A    |
| 5   | C     | 101 | A    |
| 5   | C     | 102 | C    |
| 5   | C     | 107 | A    |
| 5   | C     | 109 | U    |
| 5   | C     | 112 | G    |
| 5   | C     | 121 | U    |
| 5   | C     | 122 | A    |
| 5   | C     | 123 | U    |
| 5   | C     | 148 | G    |
| 5   | C     | 153 | G    |
| 6   | CA    | 4   | C    |
| 6   | CA    | 25  | C    |
| 6   | CA    | 26  | A    |
| 6   | CA    | 27  | U    |
| 6   | CA    | 34  | G    |
| 6   | CA    | 35  | U    |
| 6   | CA    | 47  | A    |
| 6   | CA    | 57  | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 6   | CA    | 60  | U    |
| 6   | CA    | 62  | A    |
| 6   | CA    | 72  | A    |
| 6   | CA    | 73  | U    |
| 6   | CA    | 74  | U    |
| 6   | CA    | 75  | A    |
| 6   | CA    | 76  | U    |
| 6   | CA    | 77  | A    |
| 6   | CA    | 103 | A    |
| 6   | CA    | 113 | C    |
| 6   | CA    | 115 | U    |
| 6   | CA    | 126 | G    |
| 6   | CA    | 127 | U    |
| 6   | CA    | 137 | A    |
| 6   | CA    | 138 | U    |
| 6   | CA    | 142 | C    |
| 6   | CA    | 143 | A    |
| 6   | CA    | 151 | G    |
| 6   | CA    | 156 | U    |
| 6   | CA    | 157 | U    |
| 6   | CA    | 162 | A    |
| 6   | CA    | 163 | G    |
| 6   | CA    | 166 | A    |
| 6   | CA    | 173 | G    |
| 6   | CA    | 176 | C    |
| 6   | CA    | 177 | A    |
| 6   | CA    | 179 | A    |
| 6   | CA    | 182 | C    |
| 6   | CA    | 183 | C    |
| 6   | CA    | 188 | U    |
| 6   | CA    | 189 | U    |
| 6   | CA    | 190 | C    |
| 6   | CA    | 191 | U    |
| 6   | CA    | 192 | G    |
| 6   | CA    | 193 | G    |
| 6   | CA    | 197 | G    |
| 6   | CA    | 238 | U    |
| 6   | CA    | 246 | A    |
| 6   | CA    | 254 | A    |
| 6   | CA    | 261 | U    |
| 6   | CA    | 267 | C    |
| 6   | CA    | 269 | U    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 6   | CA    | 270 | G    |
| 6   | CA    | 282 | U    |
| 6   | CA    | 288 | A    |
| 6   | CA    | 298 | C    |
| 6   | CA    | 303 | C    |
| 6   | CA    | 305 | A    |
| 6   | CA    | 309 | U    |
| 6   | CA    | 310 | C    |
| 6   | CA    | 311 | G    |
| 6   | CA    | 318 | G    |
| 6   | CA    | 326 | G    |
| 6   | CA    | 327 | C    |
| 6   | CA    | 341 | A    |
| 6   | CA    | 348 | A    |
| 6   | CA    | 349 | A    |
| 6   | CA    | 350 | C    |
| 6   | CA    | 359 | A    |
| 6   | CA    | 379 | G    |
| 6   | CA    | 383 | C    |
| 6   | CA    | 389 | A    |
| 6   | CA    | 390 | A    |
| 6   | CA    | 391 | C    |
| 6   | CA    | 392 | G    |
| 6   | CA    | 393 | G    |
| 6   | CA    | 404 | C    |
| 6   | CA    | 405 | A    |
| 6   | CA    | 407 | G    |
| 6   | CA    | 412 | G    |
| 6   | CA    | 413 | C    |
| 6   | CA    | 414 | A    |
| 6   | CA    | 415 | G    |
| 6   | CA    | 423 | G    |
| 6   | CA    | 428 | U    |
| 6   | CA    | 429 | U    |
| 6   | CA    | 433 | C    |
| 6   | CA    | 437 | C    |
| 6   | CA    | 448 | G    |
| 6   | CA    | 449 | A    |
| 6   | CA    | 450 | G    |
| 6   | CA    | 457 | A    |
| 6   | CA    | 466 | A    |
| 6   | CA    | 469 | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 6   | CA    | 496 | U    |
| 6   | CA    | 499 | G    |
| 6   | CA    | 500 | A    |
| 6   | CA    | 503 | G    |
| 6   | CA    | 516 | A    |
| 6   | CA    | 523 | A    |
| 6   | CA    | 527 | A    |
| 6   | CA    | 529 | G    |
| 6   | CA    | 530 | A    |
| 6   | CA    | 531 | A    |
| 6   | CA    | 546 | G    |
| 6   | CA    | 547 | U    |
| 6   | CA    | 548 | C    |
| 6   | CA    | 554 | C    |
| 6   | CA    | 557 | G    |
| 6   | CA    | 567 | U    |
| 6   | CA    | 568 | A    |
| 6   | CA    | 571 | U    |
| 6   | CA    | 572 | C    |
| 6   | CA    | 583 | A    |
| 6   | CA    | 584 | G    |
| 6   | CA    | 595 | A    |
| 6   | CA    | 608 | A    |
| 6   | CA    | 609 | A    |
| 6   | CA    | 612 | A    |
| 6   | CA    | 628 | U    |
| 6   | CA    | 633 | U    |
| 6   | CA    | 639 | A    |
| 6   | CA    | 674 | C    |
| 6   | CA    | 675 | A    |
| 6   | CA    | 676 | A    |
| 6   | CA    | 678 | A    |
| 6   | CA    | 679 | C    |
| 6   | CA    | 683 | U    |
| 6   | CA    | 714 | A    |
| 6   | CA    | 726 | A    |
| 6   | CA    | 727 | A    |
| 6   | CA    | 736 | G    |
| 6   | CA    | 737 | U    |
| 6   | CA    | 745 | A    |
| 6   | CA    | 746 | G    |
| 6   | CA    | 749 | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 6   | CA    | 750 | C    |
| 6   | CA    | 751 | A    |
| 6   | CA    | 752 | C    |
| 6   | CA    | 753 | G    |
| 6   | CA    | 754 | C    |
| 6   | CA    | 755 | U    |
| 6   | CA    | 764 | U    |
| 6   | CA    | 765 | U    |
| 6   | CA    | 782 | A    |
| 6   | CA    | 784 | A    |
| 6   | CA    | 787 | A    |
| 6   | CA    | 788 | C    |
| 6   | CA    | 790 | C    |
| 6   | CA    | 791 | A    |
| 6   | CA    | 796 | U    |
| 6   | CA    | 797 | C    |
| 6   | CA    | 800 | U    |
| 6   | CA    | 801 | U    |
| 6   | CA    | 814 | A    |
| 6   | CA    | 815 | G    |
| 6   | CA    | 826 | A    |
| 6   | CA    | 827 | U    |
| 6   | CA    | 833 | A    |
| 6   | CA    | 854 | A    |
| 6   | CA    | 862 | G    |
| 6   | CA    | 864 | U    |
| 6   | CA    | 866 | U    |
| 6   | CA    | 877 | A    |
| 6   | CA    | 880 | C    |
| 6   | CA    | 881 | U    |
| 6   | CA    | 882 | U    |
| 6   | CA    | 883 | G    |
| 6   | CA    | 884 | G    |
| 6   | CA    | 895 | G    |
| 6   | CA    | 896 | A    |
| 6   | CA    | 903 | A    |
| 6   | CA    | 905 | U    |
| 6   | CA    | 915 | U    |
| 6   | CA    | 918 | G    |
| 6   | CA    | 922 | A    |
| 6   | CA    | 930 | U    |
| 6   | CA    | 936 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 6   | CA    | 960  | C    |
| 6   | CA    | 962  | A    |
| 6   | CA    | 966  | U    |
| 6   | CA    | 967  | G    |
| 6   | CA    | 968  | A    |
| 6   | CA    | 973  | A    |
| 6   | CA    | 975  | A    |
| 6   | CA    | 977  | C    |
| 6   | CA    | 991  | C    |
| 6   | CA    | 996  | A    |
| 6   | CA    | 998  | C    |
| 6   | CA    | 1010 | G    |
| 6   | CA    | 1021 | G    |
| 6   | CA    | 1023 | G    |
| 6   | CA    | 1025 | U    |
| 6   | CA    | 1044 | G    |
| 6   | CA    | 1046 | A    |
| 6   | CA    | 1051 | A    |
| 6   | CA    | 1052 | C    |
| 6   | CA    | 1062 | A    |
| 6   | CA    | 1066 | U    |
| 6   | CA    | 1067 | U    |
| 6   | CA    | 1070 | G    |
| 6   | CA    | 1108 | A    |
| 6   | CA    | 1120 | G    |
| 6   | CA    | 1121 | A    |
| 6   | CA    | 1128 | C    |
| 6   | CA    | 1129 | C    |
| 6   | CA    | 1134 | G    |
| 6   | CA    | 1151 | U    |
| 6   | CA    | 1153 | A    |
| 6   | CA    | 1154 | A    |
| 6   | CA    | 1155 | U    |
| 6   | CA    | 1164 | A    |
| 6   | CA    | 1166 | A    |
| 6   | CA    | 1169 | G    |
| 6   | CA    | 1170 | G    |
| 6   | CA    | 1172 | A    |
| 6   | CA    | 1184 | U    |
| 6   | CA    | 1187 | A    |
| 6   | CA    | 1188 | G    |
| 6   | CA    | 1189 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 6   | CA    | 1198 | G    |
| 6   | CA    | 1199 | G    |
| 6   | CA    | 1204 | A    |
| 6   | CA    | 1209 | U    |
| 6   | CA    | 1210 | U    |
| 6   | CA    | 1212 | A    |
| 6   | CA    | 1213 | G    |
| 6   | CA    | 1214 | A    |
| 6   | CA    | 1215 | G    |
| 6   | CA    | 1216 | C    |
| 6   | CA    | 1218 | C    |
| 6   | CA    | 1219 | U    |
| 6   | CA    | 1221 | U    |
| 6   | CA    | 1222 | C    |
| 6   | CA    | 1224 | U    |
| 6   | CA    | 1227 | U    |
| 6   | CA    | 1228 | U    |
| 6   | CA    | 1232 | U    |
| 6   | CA    | 1235 | G    |
| 6   | CA    | 1237 | G    |
| 6   | CA    | 1240 | G    |
| 6   | CA    | 1248 | G    |
| 6   | CA    | 1256 | U    |
| 6   | CA    | 1257 | A    |
| 6   | CA    | 1258 | G    |
| 6   | CA    | 1277 | U    |
| 6   | CA    | 1284 | U    |
| 6   | CA    | 1285 | U    |
| 6   | CA    | 1288 | G    |
| 6   | CA    | 1291 | A    |
| 6   | CA    | 1306 | A    |
| 6   | CA    | 1308 | C    |
| 6   | CA    | 1311 | C    |
| 6   | CA    | 1316 | U    |
| 6   | CA    | 1322 | U    |
| 6   | CA    | 1323 | G    |
| 6   | CA    | 1324 | C    |
| 6   | CA    | 1329 | G    |
| 6   | CA    | 1331 | G    |
| 6   | CA    | 1343 | G    |
| 6   | CA    | 1346 | G    |
| 6   | CA    | 1347 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 6   | CA    | 1348 | U    |
| 6   | CA    | 1349 | G    |
| 6   | CA    | 1354 | U    |
| 6   | CA    | 1359 | G    |
| 6   | CA    | 1360 | G    |
| 6   | CA    | 1365 | C    |
| 6   | CA    | 1366 | U    |
| 6   | CA    | 1367 | A    |
| 6   | CA    | 1368 | U    |
| 6   | CA    | 1371 | A    |
| 6   | CA    | 1373 | U    |
| 6   | CA    | 1374 | U    |
| 6   | CA    | 1375 | G    |
| 6   | CA    | 1380 | C    |
| 6   | CA    | 1381 | G    |
| 6   | CA    | 1384 | G    |
| 6   | CA    | 1385 | G    |
| 6   | CA    | 1389 | U    |
| 6   | CA    | 1390 | U    |
| 6   | CA    | 1401 | A    |
| 6   | CA    | 1402 | C    |
| 6   | CA    | 1403 | A    |
| 6   | CA    | 1404 | G    |
| 6   | CA    | 1408 | U    |
| 6   | CA    | 1411 | G    |
| 6   | CA    | 1412 | A    |
| 6   | CA    | 1421 | G    |
| 6   | CA    | 1422 | A    |
| 6   | CA    | 1425 | U    |
| 6   | CA    | 1435 | C    |
| 6   | CA    | 1436 | A    |
| 6   | CA    | 1445 | A    |
| 6   | CA    | 1447 | A    |
| 6   | CA    | 1459 | A    |
| 6   | CA    | 1460 | G    |
| 6   | CA    | 1466 | U    |
| 6   | CA    | 1468 | A    |
| 6   | CA    | 1471 | U    |
| 6   | CA    | 1479 | G    |
| 6   | CA    | 1482 | G    |
| 6   | CA    | 1483 | C    |
| 6   | CA    | 1486 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 6   | CA    | 1490 | A    |
| 6   | CA    | 1491 | A    |
| 6   | CA    | 1492 | U    |
| 6   | CA    | 1493 | C    |
| 6   | CA    | 1496 | G    |
| 6   | CA    | 1497 | G    |
| 6   | CA    | 1498 | G    |
| 6   | CA    | 1499 | A    |
| 6   | CA    | 1510 | U    |
| 6   | CA    | 1511 | G    |
| 6   | CA    | 1512 | C    |
| 6   | CA    | 1513 | U    |
| 6   | CA    | 1517 | G    |
| 6   | CA    | 1518 | A    |
| 6   | CA    | 1531 | A    |
| 6   | CA    | 1532 | U    |
| 6   | CA    | 1534 | G    |
| 6   | CA    | 1535 | U    |
| 6   | CA    | 1550 | G    |
| 6   | CA    | 1553 | U    |
| 6   | CA    | 1554 | U    |
| 6   | CA    | 1558 | A    |
| 6   | CA    | 1559 | G    |
| 6   | CA    | 1560 | U    |
| 6   | CA    | 1565 | G    |
| 6   | CA    | 1568 | A    |
| 6   | CA    | 1576 | A    |
| 6   | CA    | 1579 | U    |
| 6   | CA    | 1580 | G    |
| 6   | CA    | 1582 | G    |
| 6   | CA    | 1586 | A    |
| 6   | CA    | 1591 | G    |
| 6   | CA    | 1592 | U    |
| 6   | CA    | 1594 | C    |
| 6   | CA    | 1609 | C    |
| 6   | CA    | 1632 | U    |
| 6   | CA    | 1633 | G    |
| 6   | CA    | 1653 | C    |
| 6   | CA    | 1655 | G    |
| 6   | CA    | 1725 | A    |
| 6   | CA    | 1730 | A    |
| 6   | CA    | 1731 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 6   | CA    | 1732 | G    |
| 6   | CA    | 1737 | A    |
| 6   | CA    | 1741 | A    |
| 6   | CA    | 1744 | U    |
| 6   | CA    | 1752 | G    |
| 6   | CA    | 1755 | G    |
| 6   | CA    | 1767 | G    |
| 6   | CA    | 1768 | G    |
| 6   | CA    | 1769 | A    |
| 6   | CA    | 1770 | U    |
| 6   | CA    | 1771 | C    |
| 6   | CA    | 1773 | U    |

All (51) RNA pucker outliers are listed below:

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 3   | A     | 41   | A    |
| 3   | A     | 431  | C    |
| 3   | A     | 437  | C    |
| 3   | A     | 497  | U    |
| 3   | A     | 538  | G    |
| 3   | A     | 566  | C    |
| 3   | A     | 678  | C    |
| 3   | A     | 816  | C    |
| 3   | A     | 839  | A    |
| 3   | A     | 859  | G    |
| 3   | A     | 1333 | A    |
| 3   | A     | 1491 | A    |
| 3   | A     | 1506 | C    |
| 3   | A     | 1759 | G    |
| 3   | A     | 2027 | U    |
| 3   | A     | 2123 | A    |
| 3   | A     | 2124 | U    |
| 3   | A     | 2196 | A    |
| 3   | A     | 2462 | U    |
| 3   | A     | 2628 | G    |
| 3   | A     | 2652 | U    |
| 3   | A     | 2701 | A    |
| 3   | A     | 2742 | U    |
| 3   | A     | 2897 | C    |
| 3   | A     | 2958 | U    |
| 3   | A     | 3022 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 3   | A     | 3158 | U    |
| 3   | A     | 3238 | C    |
| 3   | A     | 3240 | U    |
| 3   | A     | 3270 | U    |
| 4   | B     | 121  | C    |
| 6   | CA    | 61   | A    |
| 6   | CA    | 72   | A    |
| 6   | CA    | 73   | U    |
| 6   | CA    | 136  | A    |
| 6   | CA    | 176  | C    |
| 6   | CA    | 389  | A    |
| 6   | CA    | 406  | A    |
| 6   | CA    | 546  | G    |
| 6   | CA    | 674  | C    |
| 6   | CA    | 1107 | A    |
| 6   | CA    | 1204 | A    |
| 6   | CA    | 1221 | U    |
| 6   | CA    | 1239 | U    |
| 6   | CA    | 1310 | U    |
| 6   | CA    | 1346 | G    |
| 6   | CA    | 1364 | A    |
| 6   | CA    | 1424 | G    |
| 6   | CA    | 1434 | G    |
| 6   | CA    | 1467 | G    |
| 6   | CA    | 1530 | A    |

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

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

## 5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

Of 322 ligands modelled in this entry, 261 are monoatomic - leaving 61 for Mogul analysis.

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 |
| 79  | GET  | A     | 3487 | -    | 33,36,36     | 0.76 | 0        | 43,55,55    | 1.04 | 3 (6%)   |
| 79  | GET  | A     | 3479 | -    | 33,36,36     | 0.78 | 0        | 43,55,55    | 0.94 | 2 (4%)   |
| 79  | GET  | A     | 3474 | -    | 33,36,36     | 0.79 | 0        | 43,55,55    | 1.04 | 1 (2%)   |
| 79  | GET  | A     | 3471 | -    | 33,36,36     | 0.80 | 0        | 43,55,55    | 1.16 | 5 (11%)  |
| 79  | GET  | A     | 3489 | -    | 33,36,36     | 0.76 | 0        | 43,55,55    | 1.01 | 3 (6%)   |
| 79  | GET  | C     | 206  | -    | 33,36,36     | 0.77 | 0        | 43,55,55    | 0.83 | 1 (2%)   |
| 79  | GET  | CA    | 1885 | -    | 33,36,36     | 0.74 | 0        | 43,55,55    | 1.06 | 3 (6%)   |
| 79  | GET  | CA    | 1887 | -    | 33,36,36     | 0.77 | 0        | 43,55,55    | 1.45 | 8 (18%)  |
| 79  | GET  | A     | 3486 | -    | 33,36,36     | 0.75 | 0        | 43,55,55    | 1.02 | 3 (6%)   |
| 79  | GET  | CA    | 1890 | -    | 33,36,36     | 0.52 | 0        | 43,55,55    | 0.91 | 2 (4%)   |
| 79  | GET  | B     | 203  | -    | 33,36,36     | 0.76 | 0        | 43,55,55    | 0.91 | 2 (4%)   |
| 79  | GET  | CA    | 1886 | -    | 33,36,36     | 0.72 | 0        | 43,55,55    | 1.63 | 11 (25%) |
| 79  | GET  | A     | 3494 | -    | 33,36,36     | 0.75 | 0        | 43,55,55    | 1.29 | 5 (11%)  |
| 79  | GET  | CA    | 1892 | -    | 33,36,36     | 0.71 | 0        | 43,55,55    | 0.88 | 1 (2%)   |
| 81  | SPD  | A     | 3468 | -    | 9,9,9        | 0.30 | 0        | 8,8,8       | 0.25 | 0        |
| 79  | GET  | A     | 3484 | -    | 33,36,36     | 0.82 | 0        | 43,55,55    | 1.11 | 5 (11%)  |
| 79  | GET  | CA    | 1880 | -    | 33,36,36     | 0.72 | 0        | 43,55,55    | 1.32 | 5 (11%)  |
| 79  | GET  | A     | 3493 | -    | 33,36,36     | 0.68 | 0        | 43,55,55    | 1.15 | 3 (6%)   |
| 79  | GET  | T     | 301  | -    | 33,36,36     | 0.79 | 0        | 43,55,55    | 1.22 | 4 (9%)   |
| 79  | GET  | A     | 3488 | -    | 33,36,36     | 0.79 | 0        | 43,55,55    | 1.08 | 2 (4%)   |
| 82  | 3HE  | A     | 3469 | -    | 21,21,21     | 0.57 | 0        | 19,30,30    | 0.95 | 0        |
| 79  | GET  | A     | 3497 | -    | 33,36,36     | 0.79 | 0        | 43,55,55    | 0.99 | 2 (4%)   |
| 79  | GET  | A     | 3492 | -    | 33,36,36     | 0.77 | 0        | 43,55,55    | 0.95 | 2 (4%)   |
| 79  | GET  | C     | 203  | -    | 33,36,36     | 0.75 | 0        | 43,55,55    | 1.03 | 3 (6%)   |
| 79  | GET  | CA    | 1888 | -    | 33,36,36     | 0.72 | 0        | 43,55,55    | 0.94 | 2 (4%)   |
| 79  | GET  | A     | 3490 | -    | 33,36,36     | 0.83 | 0        | 43,55,55    | 1.42 | 7 (16%)  |
| 79  | GET  | A     | 3481 | -    | 33,36,36     | 0.82 | 0        | 43,55,55    | 1.04 | 2 (4%)   |
| 79  | GET  | CA    | 1889 | -    | 33,36,36     | 0.72 | 0        | 43,55,55    | 0.88 | 1 (2%)   |
| 79  | GET  | A     | 3476 | -    | 33,36,36     | 0.84 | 0        | 43,55,55    | 1.11 | 3 (6%)   |
| 79  | GET  | A     | 3495 | -    | 33,36,36     | 0.73 | 0        | 43,55,55    | 0.95 | 3 (6%)   |
| 81  | SPD  | CA    | 1881 | -    | 9,9,9        | 0.27 | 0        | 8,8,8       | 0.27 | 0        |
| 79  | GET  | A     | 3301 | -    | 33,36,36     | 0.77 | 0        | 43,55,55    | 1.01 | 3 (6%)   |

| Mol | Type | Chain | Res  | Link | Bond lengths |      |          | Bond angles |      |          |
|-----|------|-------|------|------|--------------|------|----------|-------------|------|----------|
|     |      |       |      |      | Counts       | RMSZ | # Z  > 2 | Counts      | RMSZ | # Z  > 2 |
| 79  | GET  | A     | 3499 | -    | 33,36,36     | 0.74 | 0        | 43,55,55    | 1.13 | 5 (11%)  |
| 79  | GET  | CA    | 1876 | -    | 33,36,36     | 0.74 | 0        | 43,55,55    | 1.19 | 4 (9%)   |
| 79  | GET  | A     | 3482 | -    | 33,36,36     | 0.77 | 0        | 43,55,55    | 0.91 | 1 (2%)   |
| 79  | GET  | CA    | 1878 | -    | 33,36,36     | 0.80 | 0        | 43,55,55    | 1.00 | 3 (6%)   |
| 79  | GET  | E     | 402  | -    | 33,36,36     | 0.73 | 0        | 43,55,55    | 1.18 | 3 (6%)   |
| 79  | GET  | A     | 3496 | -    | 33,36,36     | 0.74 | 0        | 43,55,55    | 1.24 | 4 (9%)   |
| 79  | GET  | A     | 3475 | -    | 33,36,36     | 0.73 | 0        | 43,55,55    | 0.99 | 1 (2%)   |
| 79  | GET  | A     | 3478 | -    | 33,36,36     | 0.69 | 0        | 43,55,55    | 1.35 | 6 (13%)  |
| 79  | GET  | A     | 3477 | -    | 33,36,36     | 0.46 | 0        | 43,55,55    | 0.81 | 1 (2%)   |
| 79  | GET  | A     | 3480 | -    | 33,36,36     | 0.84 | 1 (3%)   | 43,55,55    | 1.04 | 4 (9%)   |
| 79  | GET  | A     | 3491 | -    | 33,36,36     | 0.75 | 0        | 43,55,55    | 1.47 | 9 (20%)  |
| 79  | GET  | A     | 3500 | -    | 33,36,36     | 0.75 | 0        | 43,55,55    | 1.03 | 3 (6%)   |
| 79  | GET  | CA    | 1874 | -    | 33,36,36     | 0.76 | 0        | 43,55,55    | 0.96 | 3 (6%)   |
| 79  | GET  | CA    | 1877 | -    | 33,36,36     | 0.82 | 0        | 43,55,55    | 1.12 | 6 (13%)  |
| 79  | GET  | CA    | 1883 | -    | 33,36,36     | 0.54 | 0        | 43,55,55    | 1.20 | 7 (16%)  |
| 79  | GET  | CA    | 1891 | -    | 33,36,36     | 0.71 | 0        | 43,55,55    | 1.18 | 4 (9%)   |
| 79  | GET  | A     | 3473 | -    | 33,36,36     | 0.76 | 0        | 43,55,55    | 1.11 | 4 (9%)   |
| 79  | GET  | A     | 3483 | -    | 33,36,36     | 0.75 | 0        | 43,55,55    | 0.99 | 3 (6%)   |
| 79  | GET  | CA    | 1884 | -    | 33,36,36     | 0.75 | 0        | 43,55,55    | 1.09 | 4 (9%)   |
| 79  | GET  | CA    | 1893 | -    | 33,36,36     | 0.49 | 0        | 43,55,55    | 1.00 | 4 (9%)   |
| 81  | SPD  | A     | 3470 | -    | 9,9,9        | 0.29 | 0        | 8,8,8       | 0.32 | 0        |
| 79  | GET  | CA    | 1875 | -    | 33,36,36     | 0.77 | 0        | 43,55,55    | 1.17 | 4 (9%)   |
| 79  | GET  | C     | 204  | -    | 33,36,36     | 0.76 | 0        | 43,55,55    | 0.88 | 2 (4%)   |
| 79  | GET  | CA    | 1882 | -    | 33,36,36     | 0.72 | 0        | 43,55,55    | 1.54 | 11 (25%) |
| 79  | GET  | A     | 3498 | -    | 33,36,36     | 0.78 | 0        | 43,55,55    | 1.15 | 5 (11%)  |
| 79  | GET  | C     | 205  | -    | 33,36,36     | 0.77 | 0        | 43,55,55    | 1.11 | 3 (6%)   |
| 79  | GET  | A     | 3472 | -    | 33,36,36     | 0.79 | 0        | 43,55,55    | 0.88 | 0        |
| 79  | GET  | A     | 3485 | -    | 33,36,36     | 0.79 | 0        | 43,55,55    | 1.20 | 6 (13%)  |
| 79  | GET  | CA    | 1879 | -    | 33,36,36     | 0.75 | 0        | 43,55,55    | 1.14 | 4 (9%)   |

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   |
|-----|------|-------|------|------|---------|------------|---------|
| 79  | GET  | A     | 3487 | -    | -       | 5/13/74/74 | 0/3/3/3 |
| 79  | GET  | A     | 3479 | -    | -       | 1/13/74/74 | 0/3/3/3 |
| 79  | GET  | A     | 3474 | -    | -       | 2/13/74/74 | 0/3/3/3 |
| 79  | GET  | A     | 3471 | -    | -       | 5/13/74/74 | 0/3/3/3 |
| 79  | GET  | A     | 3489 | -    | -       | 1/13/74/74 | 0/3/3/3 |
| 79  | GET  | C     | 206  | -    | -       | 1/13/74/74 | 0/3/3/3 |
| 79  | GET  | CA    | 1885 | -    | -       | 1/13/74/74 | 0/3/3/3 |
| 79  | GET  | CA    | 1887 | -    | -       | 7/13/74/74 | 0/3/3/3 |
| 79  | GET  | A     | 3486 | -    | -       | 1/13/74/74 | 0/3/3/3 |
| 79  | GET  | CA    | 1890 | -    | -       | 0/13/74/74 | 0/3/3/3 |
| 79  | GET  | B     | 203  | -    | -       | 3/13/74/74 | 0/3/3/3 |
| 79  | GET  | CA    | 1886 | -    | -       | 4/13/74/74 | 0/3/3/3 |
| 79  | GET  | A     | 3494 | -    | -       | 3/13/74/74 | 0/3/3/3 |
| 79  | GET  | CA    | 1892 | -    | -       | 4/13/74/74 | 0/3/3/3 |
| 81  | SPD  | A     | 3468 | -    | -       | 0/7/7/7    | -       |
| 79  | GET  | A     | 3484 | -    | -       | 4/13/74/74 | 0/3/3/3 |
| 79  | GET  | CA    | 1880 | -    | -       | 2/13/74/74 | 0/3/3/3 |
| 79  | GET  | A     | 3493 | -    | -       | 1/13/74/74 | 0/3/3/3 |
| 79  | GET  | T     | 301  | -    | -       | 5/13/74/74 | 0/3/3/3 |
| 79  | GET  | A     | 3488 | -    | -       | 3/13/74/74 | 0/3/3/3 |
| 82  | 3HE  | A     | 3469 | -    | -       | 0/8/36/36  | 0/2/2/2 |
| 79  | GET  | A     | 3497 | -    | -       | 4/13/74/74 | 0/3/3/3 |
| 79  | GET  | A     | 3492 | -    | -       | 2/13/74/74 | 0/3/3/3 |
| 79  | GET  | C     | 203  | -    | -       | 4/13/74/74 | 0/3/3/3 |
| 79  | GET  | CA    | 1888 | -    | -       | 4/13/74/74 | 0/3/3/3 |
| 79  | GET  | A     | 3490 | -    | -       | 3/13/74/74 | 1/3/3/3 |
| 79  | GET  | A     | 3481 | -    | -       | 1/13/74/74 | 0/3/3/3 |
| 79  | GET  | CA    | 1889 | -    | -       | 5/13/74/74 | 0/3/3/3 |
| 79  | GET  | A     | 3476 | -    | -       | 1/13/74/74 | 0/3/3/3 |
| 79  | GET  | A     | 3495 | -    | -       | 1/13/74/74 | 0/3/3/3 |
| 81  | SPD  | CA    | 1881 | -    | -       | 0/7/7/7    | -       |
| 79  | GET  | A     | 3301 | -    | -       | 1/13/74/74 | 0/3/3/3 |
| 79  | GET  | A     | 3499 | -    | -       | 1/13/74/74 | 0/3/3/3 |
| 79  | GET  | CA    | 1876 | -    | -       | 2/13/74/74 | 0/3/3/3 |
| 79  | GET  | A     | 3482 | -    | -       | 3/13/74/74 | 0/3/3/3 |
| 79  | GET  | CA    | 1878 | -    | -       | 1/13/74/74 | 0/3/3/3 |
| 79  | GET  | E     | 402  | -    | -       | 1/13/74/74 | 0/3/3/3 |
| 79  | GET  | A     | 3496 | -    | -       | 1/13/74/74 | 0/3/3/3 |

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| Mol | Type | Chain | Res  | Link | Chirals | Torsions   | Rings   |
|-----|------|-------|------|------|---------|------------|---------|
| 79  | GET  | A     | 3475 | -    | -       | 5/13/74/74 | 0/3/3/3 |
| 79  | GET  | A     | 3478 | -    | -       | 3/13/74/74 | 0/3/3/3 |
| 79  | GET  | A     | 3477 | -    | -       | 4/13/74/74 | 0/3/3/3 |
| 79  | GET  | A     | 3480 | -    | -       | 5/13/74/74 | 0/3/3/3 |
| 79  | GET  | A     | 3491 | -    | -       | 5/13/74/74 | 0/3/3/3 |
| 79  | GET  | A     | 3500 | -    | -       | 1/13/74/74 | 0/3/3/3 |
| 79  | GET  | CA    | 1874 | -    | -       | 1/13/74/74 | 0/3/3/3 |
| 79  | GET  | CA    | 1877 | -    | -       | 2/13/74/74 | 0/3/3/3 |
| 79  | GET  | CA    | 1883 | -    | -       | 7/13/74/74 | 0/3/3/3 |
| 79  | GET  | CA    | 1891 | -    | -       | 2/13/74/74 | 0/3/3/3 |
| 79  | GET  | A     | 3473 | -    | -       | 1/13/74/74 | 0/3/3/3 |
| 79  | GET  | A     | 3483 | -    | -       | 1/13/74/74 | 0/3/3/3 |
| 79  | GET  | CA    | 1884 | -    | -       | 1/13/74/74 | 0/3/3/3 |
| 79  | GET  | CA    | 1893 | -    | -       | 9/13/74/74 | 1/3/3/3 |
| 81  | SPD  | A     | 3470 | -    | -       | 0/7/7/7    | -       |
| 79  | GET  | CA    | 1875 | -    | -       | 4/13/74/74 | 0/3/3/3 |
| 79  | GET  | C     | 204  | -    | -       | 1/13/74/74 | 0/3/3/3 |
| 79  | GET  | CA    | 1882 | -    | -       | 9/13/74/74 | 0/3/3/3 |
| 79  | GET  | A     | 3498 | -    | -       | 5/13/74/74 | 0/3/3/3 |
| 79  | GET  | C     | 205  | -    | -       | 3/13/74/74 | 0/3/3/3 |
| 79  | GET  | A     | 3472 | -    | -       | 2/13/74/74 | 0/3/3/3 |
| 79  | GET  | A     | 3485 | -    | -       | 1/13/74/74 | 0/3/3/3 |
| 79  | GET  | CA    | 1879 | -    | -       | 3/13/74/74 | 0/3/3/3 |

All (1) bond length outliers are listed below:

| Mol | Chain | Res  | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 79  | A     | 3480 | GET  | O53-C53 | -2.34 | 1.40        | 1.43     |

All (211) bond angle outliers are listed below:

| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 79  | CA    | 1886 | GET  | C11-O51-C51 | 5.99  | 122.71      | 113.06   |
| 79  | CA    | 1887 | GET  | C11-O51-C51 | 4.84  | 120.86      | 113.06   |
| 79  | A     | 3490 | GET  | O11-C42-C32 | -4.81 | 97.71       | 109.18   |
| 79  | CA    | 1882 | GET  | C11-O51-C51 | 4.62  | 120.50      | 113.06   |
| 79  | A     | 3491 | GET  | C11-O51-C51 | 4.57  | 120.42      | 113.06   |
| 79  | CA    | 1880 | GET  | C11-O51-C51 | 4.21  | 119.84      | 113.06   |
| 79  | A     | 3496 | GET  | C11-O51-C51 | 4.06  | 119.60      | 113.06   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 79  | A     | 3478 | GET  | C11-O51-C51 | 3.94  | 119.41      | 113.06   |
| 79  | A     | 3485 | GET  | C11-O51-C51 | 3.86  | 119.28      | 113.06   |
| 79  | A     | 3499 | GET  | C11-O51-C51 | 3.83  | 119.23      | 113.06   |
| 79  | A     | 3487 | GET  | C11-O51-C51 | 3.80  | 119.19      | 113.06   |
| 79  | CA    | 1879 | GET  | C11-O51-C51 | 3.78  | 119.15      | 113.06   |
| 79  | A     | 3473 | GET  | C11-O51-C51 | 3.73  | 119.07      | 113.06   |
| 79  | A     | 3496 | GET  | O51-C51-C41 | 3.68  | 113.04      | 107.87   |
| 79  | A     | 3476 | GET  | C11-O51-C51 | 3.65  | 118.94      | 113.06   |
| 79  | A     | 3488 | GET  | C11-O51-C51 | 3.64  | 118.92      | 113.06   |
| 79  | CA    | 1886 | GET  | O51-C51-C41 | 3.63  | 112.97      | 107.87   |
| 79  | CA    | 1884 | GET  | C11-O51-C51 | 3.62  | 118.89      | 113.06   |
| 79  | CA    | 1880 | GET  | O51-C51-C41 | 3.62  | 112.95      | 107.87   |
| 79  | CA    | 1876 | GET  | C11-O51-C51 | 3.57  | 118.81      | 113.06   |
| 79  | CA    | 1875 | GET  | C11-O51-C51 | 3.51  | 118.72      | 113.06   |
| 79  | A     | 3474 | GET  | C11-O51-C51 | 3.49  | 118.69      | 113.06   |
| 79  | A     | 3498 | GET  | C11-O51-C51 | 3.44  | 118.61      | 113.06   |
| 79  | T     | 301  | GET  | C93-N33-C33 | 3.41  | 119.35      | 114.38   |
| 79  | A     | 3494 | GET  | O11-C42-C52 | 3.39  | 116.30      | 107.28   |
| 79  | T     | 301  | GET  | C41-C51-C61 | 3.36  | 119.71      | 113.15   |
| 79  | CA    | 1893 | GET  | C71-C61-C51 | 3.35  | 115.95      | 112.02   |
| 79  | E     | 402  | GET  | C11-O51-C51 | 3.29  | 118.37      | 113.06   |
| 79  | A     | 3493 | GET  | C93-N33-C33 | 3.23  | 119.08      | 114.38   |
| 79  | A     | 3493 | GET  | C11-O51-C51 | 3.18  | 118.18      | 113.06   |
| 79  | CA    | 1891 | GET  | C11-O51-C51 | 3.18  | 118.18      | 113.06   |
| 79  | E     | 402  | GET  | C93-N33-C33 | 3.17  | 119.00      | 114.38   |
| 79  | A     | 3497 | GET  | C11-O51-C51 | 3.16  | 118.15      | 113.06   |
| 79  | A     | 3471 | GET  | C53-O53-C13 | 3.14  | 116.59      | 111.53   |
| 79  | A     | 3494 | GET  | C93-N33-C33 | 3.14  | 118.95      | 114.38   |
| 79  | A     | 3490 | GET  | C11-O51-C51 | 3.07  | 118.01      | 113.06   |
| 79  | C     | 205  | GET  | C13-C23-C33 | 3.05  | 114.39      | 109.34   |
| 79  | CA    | 1878 | GET  | C11-O51-C51 | 3.05  | 117.98      | 113.06   |
| 79  | A     | 3471 | GET  | C11-O51-C51 | 2.91  | 117.75      | 113.06   |
| 79  | CA    | 1891 | GET  | O11-C42-C52 | 2.91  | 115.01      | 107.28   |
| 79  | C     | 203  | GET  | C11-O51-C51 | 2.91  | 117.74      | 113.06   |
| 79  | A     | 3492 | GET  | O61-C61-C51 | 2.89  | 114.38      | 108.72   |
| 79  | A     | 3480 | GET  | C71-C61-C51 | -2.89 | 108.63      | 112.02   |
| 79  | CA    | 1883 | GET  | C11-O51-C51 | 2.88  | 117.69      | 113.06   |
| 79  | CA    | 1877 | GET  | C71-C61-C51 | -2.85 | 108.68      | 112.02   |
| 79  | A     | 3480 | GET  | O61-C61-C51 | 2.83  | 114.26      | 108.72   |
| 79  | CA    | 1883 | GET  | C22-C32-C42 | 2.83  | 116.68      | 109.53   |
| 79  | A     | 3500 | GET  | C53-O53-C13 | 2.82  | 116.08      | 111.53   |
| 79  | A     | 3486 | GET  | C11-O51-C51 | 2.81  | 117.59      | 113.06   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 79  | A     | 3490 | GET  | O11-C42-C52 | 2.80  | 114.74      | 107.28   |
| 79  | CA    | 1882 | GET  | O51-C11-C21 | 2.80  | 116.36      | 110.06   |
| 79  | A     | 3485 | GET  | O61-C61-C51 | 2.79  | 114.18      | 108.72   |
| 79  | CA    | 1886 | GET  | O11-C42-C52 | 2.79  | 114.70      | 107.28   |
| 79  | C     | 205  | GET  | C11-O51-C51 | 2.78  | 117.54      | 113.06   |
| 79  | T     | 301  | GET  | C31-C41-C51 | -2.75 | 103.39      | 109.68   |
| 79  | A     | 3491 | GET  | O61-C61-C51 | 2.75  | 114.11      | 108.72   |
| 79  | CA    | 1887 | GET  | O51-C51-C41 | 2.75  | 111.72      | 107.87   |
| 79  | CA    | 1887 | GET  | C53-O53-C13 | 2.74  | 115.95      | 111.53   |
| 79  | A     | 3488 | GET  | O61-C61-C51 | 2.74  | 114.08      | 108.72   |
| 79  | A     | 3498 | GET  | O61-C61-C51 | 2.74  | 114.07      | 108.72   |
| 79  | A     | 3471 | GET  | O61-C61-C51 | 2.72  | 114.05      | 108.72   |
| 79  | CA    | 1885 | GET  | O51-C51-C41 | 2.71  | 111.68      | 107.87   |
| 79  | CA    | 1875 | GET  | O61-C61-C51 | 2.71  | 114.01      | 108.72   |
| 79  | A     | 3478 | GET  | C53-O53-C13 | 2.69  | 115.87      | 111.53   |
| 79  | A     | 3489 | GET  | C11-O51-C51 | 2.68  | 117.38      | 113.06   |
| 79  | B     | 203  | GET  | C11-O51-C51 | 2.68  | 117.37      | 113.06   |
| 79  | A     | 3478 | GET  | O11-C42-C52 | 2.66  | 114.35      | 107.28   |
| 79  | A     | 3481 | GET  | C93-N33-C33 | 2.65  | 118.25      | 114.38   |
| 79  | A     | 3491 | GET  | O11-C42-C32 | -2.65 | 102.85      | 109.18   |
| 79  | A     | 3475 | GET  | C11-O51-C51 | 2.63  | 117.30      | 113.06   |
| 79  | A     | 3483 | GET  | C11-O51-C51 | 2.62  | 117.28      | 113.06   |
| 79  | A     | 3491 | GET  | C71-C61-C51 | -2.61 | 108.97      | 112.02   |
| 79  | CA    | 1877 | GET  | C41-C51-C61 | 2.60  | 118.22      | 113.15   |
| 79  | C     | 204  | GET  | C11-O51-C51 | 2.59  | 117.24      | 113.06   |
| 79  | A     | 3499 | GET  | C93-N33-C33 | 2.59  | 118.16      | 114.38   |
| 79  | A     | 3491 | GET  | O51-C51-C61 | -2.59 | 100.72      | 107.18   |
| 79  | CA    | 1891 | GET  | O61-C61-C51 | 2.58  | 113.77      | 108.72   |
| 79  | CA    | 1882 | GET  | O11-C42-C32 | -2.58 | 103.02      | 109.18   |
| 79  | CA    | 1882 | GET  | O11-C42-C52 | 2.57  | 114.13      | 107.28   |
| 79  | CA    | 1877 | GET  | O53-C13-C23 | 2.56  | 113.97      | 110.04   |
| 79  | CA    | 1877 | GET  | O61-C61-C51 | 2.56  | 113.73      | 108.72   |
| 79  | A     | 3485 | GET  | C93-N33-C33 | 2.55  | 118.10      | 114.38   |
| 79  | A     | 3487 | GET  | O61-C61-C51 | 2.55  | 113.70      | 108.72   |
| 79  | A     | 3491 | GET  | O11-C42-C52 | 2.55  | 114.05      | 107.28   |
| 79  | CA    | 1877 | GET  | C13-C23-C33 | 2.54  | 113.55      | 109.34   |
| 79  | C     | 203  | GET  | C93-N33-C33 | 2.54  | 118.09      | 114.38   |
| 79  | CA    | 1889 | GET  | C11-O51-C51 | 2.54  | 117.15      | 113.06   |
| 79  | CA    | 1888 | GET  | C11-O51-C51 | 2.53  | 117.14      | 113.06   |
| 79  | A     | 3301 | GET  | C93-N33-C33 | 2.53  | 118.06      | 114.38   |
| 79  | A     | 3484 | GET  | C41-C51-C61 | 2.52  | 118.08      | 113.15   |
| 79  | A     | 3495 | GET  | C11-O51-C51 | 2.52  | 117.13      | 113.06   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 79  | CA    | 1880 | GET  | C93-N33-C33 | 2.52  | 118.05      | 114.38   |
| 79  | C     | 203  | GET  | O61-C61-C51 | 2.51  | 113.63      | 108.72   |
| 79  | CA    | 1885 | GET  | C11-O51-C51 | 2.51  | 117.11      | 113.06   |
| 79  | A     | 3484 | GET  | C62-C52-C42 | 2.49  | 114.13      | 108.96   |
| 79  | A     | 3491 | GET  | C11-O11-C42 | 2.49  | 124.12      | 117.96   |
| 79  | A     | 3478 | GET  | C62-C52-C42 | 2.49  | 114.12      | 108.96   |
| 79  | CA    | 1883 | GET  | C62-C52-C42 | 2.48  | 114.11      | 108.96   |
| 79  | A     | 3478 | GET  | O11-C42-C32 | -2.46 | 103.30      | 109.18   |
| 79  | CA    | 1887 | GET  | O61-C61-C51 | 2.46  | 113.54      | 108.72   |
| 79  | A     | 3480 | GET  | C93-N33-C33 | 2.46  | 117.97      | 114.38   |
| 79  | A     | 3476 | GET  | O51-C51-C61 | -2.46 | 101.04      | 107.18   |
| 79  | A     | 3477 | GET  | C13-C23-C33 | 2.45  | 113.39      | 109.34   |
| 79  | CA    | 1886 | GET  | C93-N33-C33 | 2.44  | 117.94      | 114.38   |
| 79  | CA    | 1882 | GET  | C13-O62-C62 | 2.44  | 124.00      | 117.96   |
| 79  | C     | 206  | GET  | C93-N33-C33 | 2.44  | 117.94      | 114.38   |
| 79  | CA    | 1882 | GET  | C11-C21-C31 | 2.44  | 116.59      | 110.21   |
| 79  | T     | 301  | GET  | C71-C61-C51 | -2.44 | 109.16      | 112.02   |
| 79  | A     | 3479 | GET  | O61-C61-C51 | 2.43  | 113.48      | 108.72   |
| 79  | CA    | 1874 | GET  | C11-O51-C51 | 2.42  | 116.96      | 113.06   |
| 79  | CA    | 1874 | GET  | O61-C61-C51 | 2.40  | 113.42      | 108.72   |
| 79  | A     | 3478 | GET  | O61-C61-C51 | 2.40  | 113.42      | 108.72   |
| 79  | CA    | 1880 | GET  | O51-C51-C61 | -2.39 | 101.21      | 107.18   |
| 79  | A     | 3490 | GET  | O51-C51-C41 | 2.39  | 111.23      | 107.87   |
| 79  | A     | 3490 | GET  | C11-O11-C42 | 2.39  | 123.87      | 117.96   |
| 79  | CA    | 1887 | GET  | O11-C42-C52 | 2.37  | 113.59      | 107.28   |
| 79  | A     | 3494 | GET  | C41-C51-C61 | 2.37  | 117.78      | 113.15   |
| 79  | A     | 3473 | GET  | O61-C61-C51 | 2.37  | 113.35      | 108.72   |
| 79  | A     | 3494 | GET  | C71-C61-C51 | -2.36 | 109.25      | 112.02   |
| 79  | A     | 3480 | GET  | O51-C51-C41 | 2.35  | 111.17      | 107.87   |
| 79  | CA    | 1876 | GET  | O62-C62-C12 | 2.35  | 114.78      | 109.18   |
| 79  | CA    | 1886 | GET  | O53-C13-C23 | 2.35  | 113.64      | 110.04   |
| 79  | A     | 3485 | GET  | O51-C51-C61 | -2.34 | 101.33      | 107.18   |
| 79  | CA    | 1888 | GET  | O61-C61-C51 | 2.34  | 113.30      | 108.72   |
| 79  | A     | 3496 | GET  | O61-C61-C51 | 2.33  | 113.28      | 108.72   |
| 79  | C     | 205  | GET  | O53-C13-C23 | 2.31  | 113.59      | 110.04   |
| 79  | CA    | 1879 | GET  | O51-C51-C41 | 2.30  | 111.11      | 107.87   |
| 79  | CA    | 1890 | GET  | O53-C13-C23 | 2.29  | 113.56      | 110.04   |
| 79  | CA    | 1887 | GET  | O53-C13-C23 | 2.29  | 113.55      | 110.04   |
| 79  | CA    | 1886 | GET  | O61-C61-C51 | 2.29  | 113.19      | 108.72   |
| 79  | CA    | 1884 | GET  | O51-C51-C41 | 2.28  | 111.08      | 107.87   |
| 79  | A     | 3500 | GET  | C11-O51-C51 | 2.28  | 116.74      | 113.06   |
| 79  | A     | 3497 | GET  | O61-C61-C51 | 2.28  | 113.18      | 108.72   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 79  | CA    | 1893 | GET  | O51-C51-C41 | 2.28  | 111.07      | 107.87   |
| 79  | CA    | 1879 | GET  | O61-C61-C51 | 2.27  | 113.17      | 108.72   |
| 79  | CA    | 1882 | GET  | O61-C61-C51 | 2.27  | 113.15      | 108.72   |
| 79  | CA    | 1891 | GET  | C53-O53-C13 | 2.27  | 115.18      | 111.53   |
| 79  | CA    | 1887 | GET  | O11-C42-C32 | -2.26 | 103.78      | 109.18   |
| 79  | A     | 3496 | GET  | O51-C51-C61 | -2.26 | 101.53      | 107.18   |
| 79  | CA    | 1886 | GET  | O11-C11-O51 | 2.26  | 116.99      | 110.67   |
| 79  | CA    | 1893 | GET  | O62-C62-C12 | -2.26 | 103.79      | 109.18   |
| 79  | CA    | 1876 | GET  | O61-C61-C51 | 2.26  | 113.14      | 108.72   |
| 79  | A     | 3485 | GET  | O51-C51-C41 | 2.26  | 111.04      | 107.87   |
| 79  | B     | 203  | GET  | O61-C61-C51 | 2.25  | 113.12      | 108.72   |
| 79  | CA    | 1886 | GET  | C13-C23-C33 | 2.25  | 113.06      | 109.34   |
| 79  | CA    | 1875 | GET  | O11-C42-C52 | 2.24  | 113.25      | 107.28   |
| 79  | A     | 3490 | GET  | O51-C51-C61 | -2.24 | 101.59      | 107.18   |
| 79  | A     | 3484 | GET  | O61-C61-C51 | 2.24  | 113.10      | 108.72   |
| 79  | CA    | 1886 | GET  | O11-C42-C32 | -2.23 | 103.86      | 109.18   |
| 79  | CA    | 1887 | GET  | O51-C51-C61 | -2.23 | 101.62      | 107.18   |
| 79  | CA    | 1876 | GET  | C13-C23-C33 | 2.23  | 113.03      | 109.34   |
| 79  | A     | 3494 | GET  | O61-C61-C51 | 2.23  | 113.07      | 108.72   |
| 79  | A     | 3499 | GET  | O51-C51-C41 | 2.22  | 110.99      | 107.87   |
| 79  | A     | 3473 | GET  | O11-C42-C52 | 2.22  | 113.19      | 107.28   |
| 79  | CA    | 1886 | GET  | C53-O53-C13 | 2.22  | 115.10      | 111.53   |
| 79  | CA    | 1893 | GET  | O62-C62-C52 | 2.21  | 113.17      | 107.28   |
| 79  | A     | 3495 | GET  | C53-O53-C13 | 2.21  | 115.09      | 111.53   |
| 79  | A     | 3479 | GET  | C11-O51-C51 | 2.21  | 116.61      | 113.06   |
| 79  | CA    | 1883 | GET  | C11-O11-C42 | 2.20  | 123.42      | 117.96   |
| 79  | CA    | 1879 | GET  | O11-C42-C52 | 2.20  | 113.12      | 107.28   |
| 79  | A     | 3493 | GET  | C53-O53-C13 | 2.19  | 115.06      | 111.53   |
| 79  | CA    | 1875 | GET  | C41-C51-C61 | 2.19  | 117.43      | 113.15   |
| 79  | CA    | 1882 | GET  | O62-C62-C52 | 2.19  | 113.10      | 107.28   |
| 79  | CA    | 1884 | GET  | O61-C61-C51 | 2.18  | 112.98      | 108.72   |
| 79  | A     | 3471 | GET  | C71-C61-C51 | -2.18 | 109.47      | 112.02   |
| 79  | CA    | 1886 | GET  | C11-O11-C42 | 2.18  | 123.35      | 117.96   |
| 79  | CA    | 1882 | GET  | C71-C61-C51 | -2.17 | 109.48      | 112.02   |
| 79  | A     | 3486 | GET  | O61-C61-C51 | 2.17  | 112.96      | 108.72   |
| 79  | A     | 3492 | GET  | C11-O51-C51 | 2.16  | 116.55      | 113.06   |
| 79  | CA    | 1882 | GET  | C31-C41-C51 | -2.16 | 104.75      | 109.68   |
| 79  | CA    | 1878 | GET  | C53-O53-C13 | 2.16  | 115.01      | 111.53   |
| 79  | A     | 3489 | GET  | O61-C61-C51 | 2.15  | 112.93      | 108.72   |
| 79  | CA    | 1880 | GET  | O61-C61-C51 | 2.15  | 112.93      | 108.72   |
| 79  | A     | 3491 | GET  | C53-O53-C13 | 2.15  | 115.00      | 111.53   |
| 79  | A     | 3471 | GET  | C41-C51-C61 | 2.15  | 117.34      | 113.15   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 79  | A     | 3498 | GET  | O11-C42-C52 | 2.14  | 112.98      | 107.28   |
| 79  | CA    | 1883 | GET  | C71-C61-C51 | 2.14  | 114.53      | 112.02   |
| 79  | A     | 3498 | GET  | C41-C51-C61 | 2.13  | 117.32      | 113.15   |
| 79  | A     | 3491 | GET  | O51-C51-C41 | 2.13  | 110.86      | 107.87   |
| 79  | CA    | 1882 | GET  | C53-O53-C13 | 2.13  | 114.96      | 111.53   |
| 79  | A     | 3499 | GET  | O61-C61-C51 | 2.12  | 112.87      | 108.72   |
| 79  | A     | 3476 | GET  | C41-C51-C61 | 2.12  | 117.30      | 113.15   |
| 79  | CA    | 1883 | GET  | O51-C11-C21 | 2.12  | 114.83      | 110.06   |
| 79  | A     | 3487 | GET  | O51-C51-C41 | 2.12  | 110.85      | 107.87   |
| 79  | CA    | 1878 | GET  | O61-C61-C51 | 2.12  | 112.86      | 108.72   |
| 79  | CA    | 1885 | GET  | O61-C61-C51 | 2.11  | 112.85      | 108.72   |
| 79  | A     | 3301 | GET  | O61-C61-C51 | 2.11  | 112.85      | 108.72   |
| 79  | A     | 3484 | GET  | C13-C23-C33 | 2.11  | 112.83      | 109.34   |
| 79  | CA    | 1892 | GET  | O61-C61-C51 | 2.10  | 112.82      | 108.72   |
| 79  | CA    | 1874 | GET  | O51-C51-C41 | 2.09  | 110.80      | 107.87   |
| 79  | A     | 3481 | GET  | C41-C51-C61 | 2.08  | 117.21      | 113.15   |
| 79  | A     | 3495 | GET  | O61-C61-C51 | 2.07  | 112.77      | 108.72   |
| 79  | A     | 3500 | GET  | C41-C51-C61 | 2.06  | 117.18      | 113.15   |
| 79  | A     | 3489 | GET  | O51-C51-C41 | 2.06  | 110.77      | 107.87   |
| 79  | A     | 3485 | GET  | O31-C31-C41 | -2.06 | 105.58      | 110.35   |
| 79  | CA    | 1884 | GET  | O11-C42-C52 | 2.06  | 112.76      | 107.28   |
| 79  | A     | 3486 | GET  | C71-C61-C51 | -2.05 | 109.61      | 112.02   |
| 79  | CA    | 1877 | GET  | C53-O53-C13 | 2.05  | 114.84      | 111.53   |
| 79  | A     | 3482 | GET  | C71-C61-C51 | -2.04 | 109.62      | 112.02   |
| 79  | C     | 204  | GET  | O61-C61-C51 | 2.04  | 112.71      | 108.72   |
| 79  | A     | 3301 | GET  | O11-C11-C21 | 2.04  | 111.73      | 108.22   |
| 79  | A     | 3484 | GET  | C53-O53-C13 | 2.04  | 114.81      | 111.53   |
| 79  | CA    | 1883 | GET  | C41-C31-C21 | -2.04 | 107.57      | 111.07   |
| 79  | A     | 3483 | GET  | O61-C61-C51 | 2.03  | 112.70      | 108.72   |
| 79  | A     | 3498 | GET  | C13-C23-C33 | 2.03  | 112.70      | 109.34   |
| 79  | A     | 3499 | GET  | O11-C42-C52 | 2.03  | 112.67      | 107.28   |
| 79  | A     | 3483 | GET  | C53-O53-C13 | 2.02  | 114.79      | 111.53   |
| 79  | CA    | 1890 | GET  | C13-C23-C33 | 2.02  | 112.69      | 109.34   |
| 79  | E     | 402  | GET  | C53-O53-C13 | 2.01  | 114.78      | 111.53   |
| 79  | A     | 3473 | GET  | C93-N33-C33 | 2.01  | 117.31      | 114.38   |
| 79  | A     | 3490 | GET  | O11-C11-O51 | 2.00  | 116.27      | 110.67   |

There are no chirality outliers.

All (163) torsion outliers are listed below:

| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 79  | A     | 3301 | GET  | C23-C33-N33-C93 |

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| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 79  | A     | 3471 | GET  | C41-C51-C61-O61 |
| 79  | A     | 3471 | GET  | C41-C51-C61-C71 |
| 79  | A     | 3471 | GET  | C23-C33-N33-C93 |
| 79  | A     | 3472 | GET  | C23-C33-N33-C93 |
| 79  | A     | 3473 | GET  | C23-C33-N33-C93 |
| 79  | A     | 3474 | GET  | C23-C33-N33-C93 |
| 79  | A     | 3475 | GET  | C41-C51-C61-O61 |
| 79  | A     | 3475 | GET  | C41-C51-C61-C71 |
| 79  | A     | 3475 | GET  | O51-C51-C61-O61 |
| 79  | A     | 3475 | GET  | C23-C33-N33-C93 |
| 79  | A     | 3476 | GET  | C23-C33-N33-C93 |
| 79  | A     | 3477 | GET  | C41-C51-C61-O61 |
| 79  | A     | 3477 | GET  | C41-C51-C61-C71 |
| 79  | A     | 3477 | GET  | O51-C51-C61-O61 |
| 79  | A     | 3478 | GET  | C23-C33-N33-C93 |
| 79  | A     | 3479 | GET  | C23-C33-N33-C93 |
| 79  | A     | 3480 | GET  | C41-C51-C61-O61 |
| 79  | A     | 3480 | GET  | C41-C51-C61-C71 |
| 79  | A     | 3480 | GET  | O51-C51-C61-O61 |
| 79  | A     | 3480 | GET  | O51-C51-C61-C71 |
| 79  | A     | 3480 | GET  | C23-C33-N33-C93 |
| 79  | A     | 3482 | GET  | C21-C11-O11-C42 |
| 79  | A     | 3482 | GET  | C23-C33-N33-C93 |
| 79  | A     | 3483 | GET  | C23-C33-N33-C93 |
| 79  | A     | 3484 | GET  | C41-C51-C61-O61 |
| 79  | A     | 3484 | GET  | O51-C51-C61-O61 |
| 79  | A     | 3484 | GET  | C23-C33-N33-C93 |
| 79  | A     | 3485 | GET  | C23-C33-N33-C93 |
| 79  | A     | 3486 | GET  | C23-C33-N33-C93 |
| 79  | A     | 3487 | GET  | C41-C51-C61-O61 |
| 79  | A     | 3487 | GET  | C41-C51-C61-C71 |
| 79  | A     | 3487 | GET  | O51-C51-C61-O61 |
| 79  | A     | 3487 | GET  | C23-C33-N33-C93 |
| 79  | A     | 3488 | GET  | C23-C33-N33-C93 |
| 79  | A     | 3489 | GET  | C23-C33-N33-C93 |
| 79  | A     | 3490 | GET  | C23-C33-N33-C93 |
| 79  | A     | 3491 | GET  | C23-C33-N33-C93 |
| 79  | A     | 3492 | GET  | C23-C33-N33-C93 |
| 79  | A     | 3493 | GET  | C23-C33-N33-C93 |
| 79  | A     | 3494 | GET  | C23-C33-N33-C93 |
| 79  | A     | 3495 | GET  | C23-C33-N33-C93 |
| 79  | A     | 3497 | GET  | O51-C51-C61-O61 |

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| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 79  | A     | 3497 | GET  | C23-C33-N33-C93 |
| 79  | A     | 3498 | GET  | O51-C51-C61-C71 |
| 79  | A     | 3499 | GET  | C23-C33-N33-C93 |
| 79  | A     | 3500 | GET  | C23-C33-N33-C93 |
| 79  | B     | 203  | GET  | O51-C51-C61-O61 |
| 79  | B     | 203  | GET  | C23-C33-N33-C93 |
| 79  | C     | 203  | GET  | C23-C33-N33-C93 |
| 79  | C     | 204  | GET  | C23-C33-N33-C93 |
| 79  | C     | 205  | GET  | C23-C33-N33-C93 |
| 79  | CA    | 1874 | GET  | C23-C33-N33-C93 |
| 79  | CA    | 1875 | GET  | C23-C33-N33-C93 |
| 79  | CA    | 1876 | GET  | C12-C62-O62-C13 |
| 79  | CA    | 1876 | GET  | C23-C33-N33-C93 |
| 79  | CA    | 1877 | GET  | C23-C33-N33-C93 |
| 79  | CA    | 1878 | GET  | C23-C33-N33-C93 |
| 79  | CA    | 1879 | GET  | C23-C33-N33-C93 |
| 79  | CA    | 1880 | GET  | C23-C33-N33-C93 |
| 79  | CA    | 1882 | GET  | C41-C51-C61-O61 |
| 79  | CA    | 1882 | GET  | C41-C51-C61-C71 |
| 79  | CA    | 1882 | GET  | O51-C51-C61-O61 |
| 79  | CA    | 1882 | GET  | O51-C51-C61-C71 |
| 79  | CA    | 1882 | GET  | C23-C33-N33-C93 |
| 79  | CA    | 1883 | GET  | C21-C11-O11-C42 |
| 79  | CA    | 1883 | GET  | C41-C51-C61-O61 |
| 79  | CA    | 1883 | GET  | C41-C51-C61-C71 |
| 79  | CA    | 1883 | GET  | C23-C33-N33-C93 |
| 79  | CA    | 1884 | GET  | C23-C33-N33-C93 |
| 79  | CA    | 1885 | GET  | C23-C33-N33-C93 |
| 79  | CA    | 1886 | GET  | C23-C33-N33-C93 |
| 79  | CA    | 1887 | GET  | C41-C51-C61-O61 |
| 79  | CA    | 1887 | GET  | C41-C51-C61-C71 |
| 79  | CA    | 1887 | GET  | O51-C51-C61-O61 |
| 79  | CA    | 1887 | GET  | O51-C51-C61-C71 |
| 79  | CA    | 1887 | GET  | C23-C33-N33-C93 |
| 79  | CA    | 1888 | GET  | O51-C51-C61-O61 |
| 79  | CA    | 1888 | GET  | C23-C33-N33-C93 |
| 79  | CA    | 1889 | GET  | C41-C51-C61-O61 |
| 79  | CA    | 1889 | GET  | C41-C51-C61-C71 |
| 79  | CA    | 1889 | GET  | O51-C51-C61-O61 |
| 79  | CA    | 1889 | GET  | C23-C33-N33-C93 |
| 79  | CA    | 1891 | GET  | C23-C33-N33-C93 |
| 79  | CA    | 1892 | GET  | C41-C51-C61-O61 |

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| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 79  | CA    | 1892 | GET  | C23-C33-N33-C93 |
| 79  | CA    | 1893 | GET  | C21-C11-O11-C42 |
| 79  | CA    | 1893 | GET  | C41-C51-C61-O61 |
| 79  | CA    | 1893 | GET  | C41-C51-C61-C71 |
| 79  | CA    | 1893 | GET  | O51-C51-C61-O61 |
| 79  | T     | 301  | GET  | C41-C51-C61-O61 |
| 79  | T     | 301  | GET  | C41-C51-C61-C71 |
| 79  | T     | 301  | GET  | O51-C51-C61-O61 |
| 79  | T     | 301  | GET  | O51-C51-C61-C71 |
| 79  | T     | 301  | GET  | C23-C33-N33-C93 |
| 79  | CA    | 1886 | GET  | O51-C11-O11-C42 |
| 79  | CA    | 1882 | GET  | C52-C62-O62-C13 |
| 79  | A     | 3494 | GET  | C52-C42-O11-C11 |
| 79  | A     | 3490 | GET  | O51-C11-O11-C42 |
| 79  | CA    | 1891 | GET  | C52-C42-O11-C11 |
| 79  | A     | 3478 | GET  | C52-C42-O11-C11 |
| 79  | CA    | 1893 | GET  | O51-C11-O11-C42 |
| 79  | CA    | 1887 | GET  | O51-C11-O11-C42 |
| 79  | CA    | 1892 | GET  | C52-C62-O62-C13 |
| 79  | A     | 3491 | GET  | O51-C11-O11-C42 |
| 79  | C     | 205  | GET  | C52-C62-O62-C13 |
| 79  | A     | 3478 | GET  | O51-C11-O11-C42 |
| 79  | A     | 3488 | GET  | O51-C11-O11-C42 |
| 79  | A     | 3471 | GET  | O51-C51-C61-C71 |
| 79  | C     | 203  | GET  | O51-C51-C61-C71 |
| 79  | CA    | 1893 | GET  | O51-C51-C61-C71 |
| 79  | A     | 3482 | GET  | O51-C11-O11-C42 |
| 79  | CA    | 1882 | GET  | C52-C42-O11-C11 |
| 79  | CA    | 1875 | GET  | O51-C11-O11-C42 |
| 79  | CA    | 1875 | GET  | C52-C42-O11-C11 |
| 79  | A     | 3475 | GET  | O51-C51-C61-C71 |
| 79  | A     | 3487 | GET  | O51-C51-C61-C71 |
| 79  | CA    | 1880 | GET  | O51-C11-O11-C42 |
| 79  | CA    | 1886 | GET  | C52-C42-O11-C11 |
| 79  | A     | 3491 | GET  | C52-C42-O11-C11 |
| 79  | A     | 3491 | GET  | O53-C13-O62-C62 |
| 79  | A     | 3491 | GET  | C23-C13-O62-C62 |
| 79  | CA    | 1892 | GET  | C52-C42-O11-C11 |
| 79  | CA    | 1893 | GET  | C52-C62-O62-C13 |
| 79  | A     | 3494 | GET  | C21-C11-O11-C42 |
| 79  | CA    | 1882 | GET  | O51-C11-O11-C42 |
| 79  | A     | 3490 | GET  | C52-C42-O11-C11 |

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| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 79  | CA    | 1883 | GET  | O51-C11-O11-C42 |
| 79  | A     | 3477 | GET  | O51-C51-C61-C71 |
| 79  | CA    | 1883 | GET  | O51-C51-C61-C71 |
| 79  | A     | 3471 | GET  | O51-C51-C61-O61 |
| 79  | CA    | 1887 | GET  | C52-C42-O11-C11 |
| 79  | A     | 3488 | GET  | C52-C42-O11-C11 |
| 79  | CA    | 1875 | GET  | C32-C42-O11-C11 |
| 79  | CA    | 1882 | GET  | C32-C42-O11-C11 |
| 79  | A     | 3497 | GET  | C41-C51-C61-O61 |
| 79  | A     | 3498 | GET  | C41-C51-C61-C71 |
| 79  | C     | 203  | GET  | C41-C51-C61-C71 |
| 79  | CA    | 1888 | GET  | C41-C51-C61-O61 |
| 79  | CA    | 1889 | GET  | O51-C51-C61-C71 |
| 79  | CA    | 1893 | GET  | O53-C13-O62-C62 |
| 79  | A     | 3498 | GET  | C52-C42-O11-C11 |
| 79  | CA    | 1893 | GET  | C23-C13-O62-C62 |
| 79  | CA    | 1877 | GET  | C21-C11-O11-C42 |
| 79  | CA    | 1879 | GET  | C21-C11-O11-C42 |
| 79  | A     | 3472 | GET  | C52-C42-O11-C11 |
| 79  | CA    | 1883 | GET  | O53-C13-O62-C62 |
| 79  | E     | 402  | GET  | C52-C62-O62-C13 |
| 79  | A     | 3497 | GET  | O51-C51-C61-C71 |
| 79  | CA    | 1888 | GET  | O51-C51-C61-C71 |
| 79  | CA    | 1879 | GET  | C52-C42-O11-C11 |
| 79  | A     | 3481 | GET  | C23-C33-N33-C93 |
| 79  | A     | 3496 | GET  | C23-C33-N33-C93 |
| 79  | A     | 3498 | GET  | C23-C33-N33-C93 |
| 79  | C     | 206  | GET  | C23-C33-N33-C93 |
| 79  | A     | 3492 | GET  | C52-C62-O62-C13 |
| 79  | C     | 205  | GET  | C12-C62-O62-C13 |
| 79  | CA    | 1886 | GET  | C32-C42-O11-C11 |
| 79  | A     | 3474 | GET  | C21-C11-O11-C42 |
| 79  | A     | 3484 | GET  | C41-C51-C61-C71 |
| 79  | A     | 3498 | GET  | C41-C51-C61-O61 |
| 79  | B     | 203  | GET  | C41-C51-C61-O61 |
| 79  | C     | 203  | GET  | C41-C51-C61-O61 |

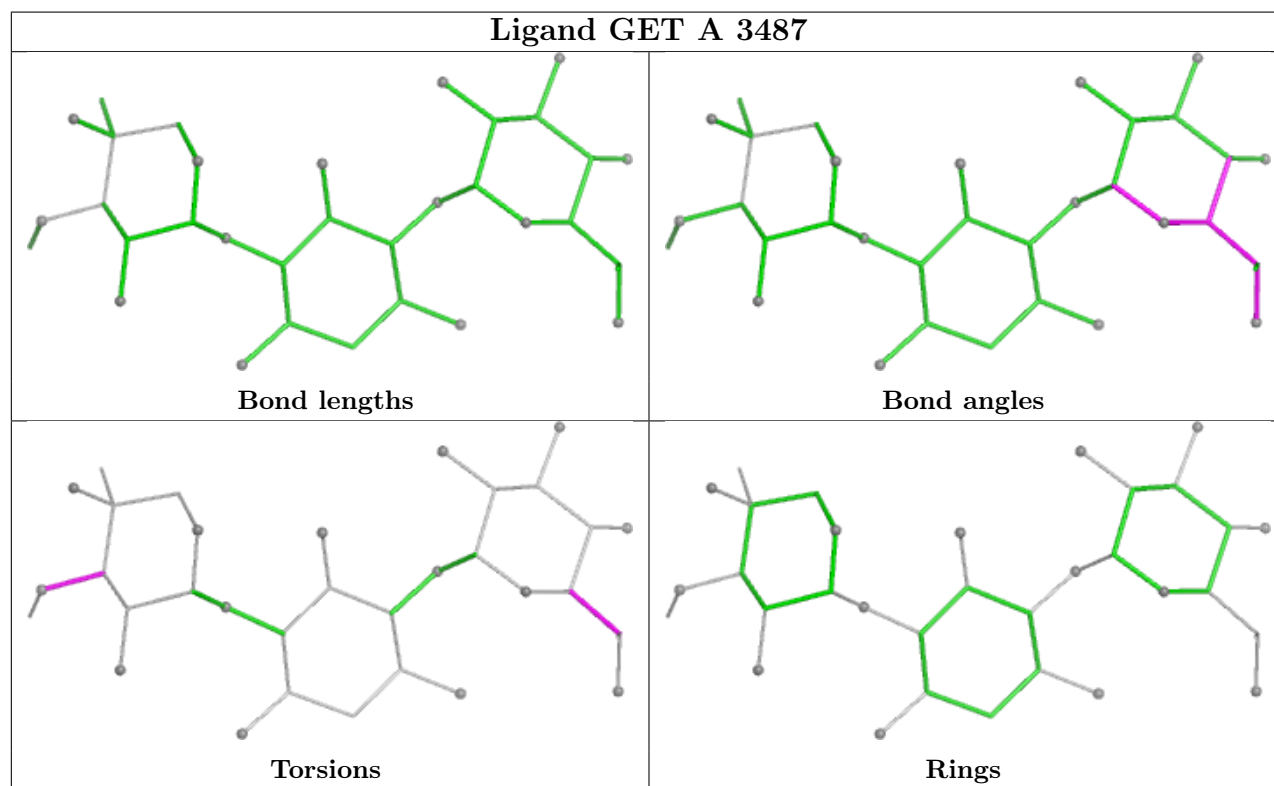
All (2) ring outliers are listed below:

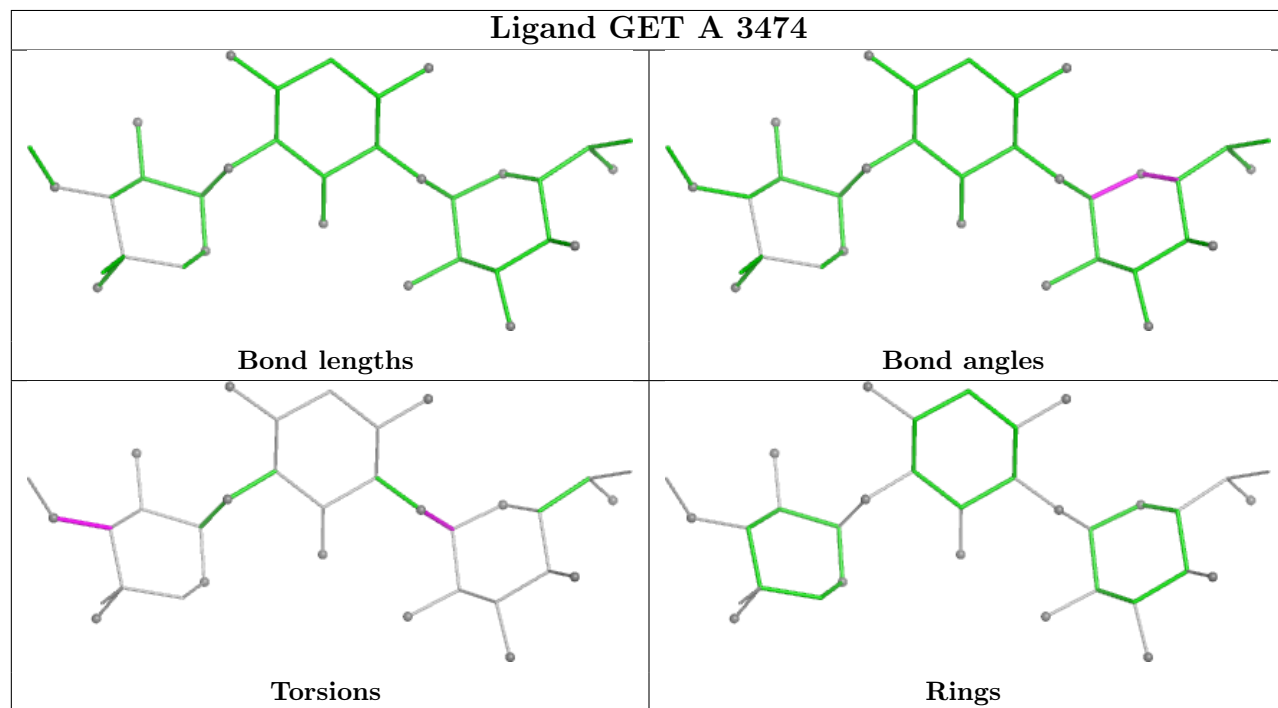
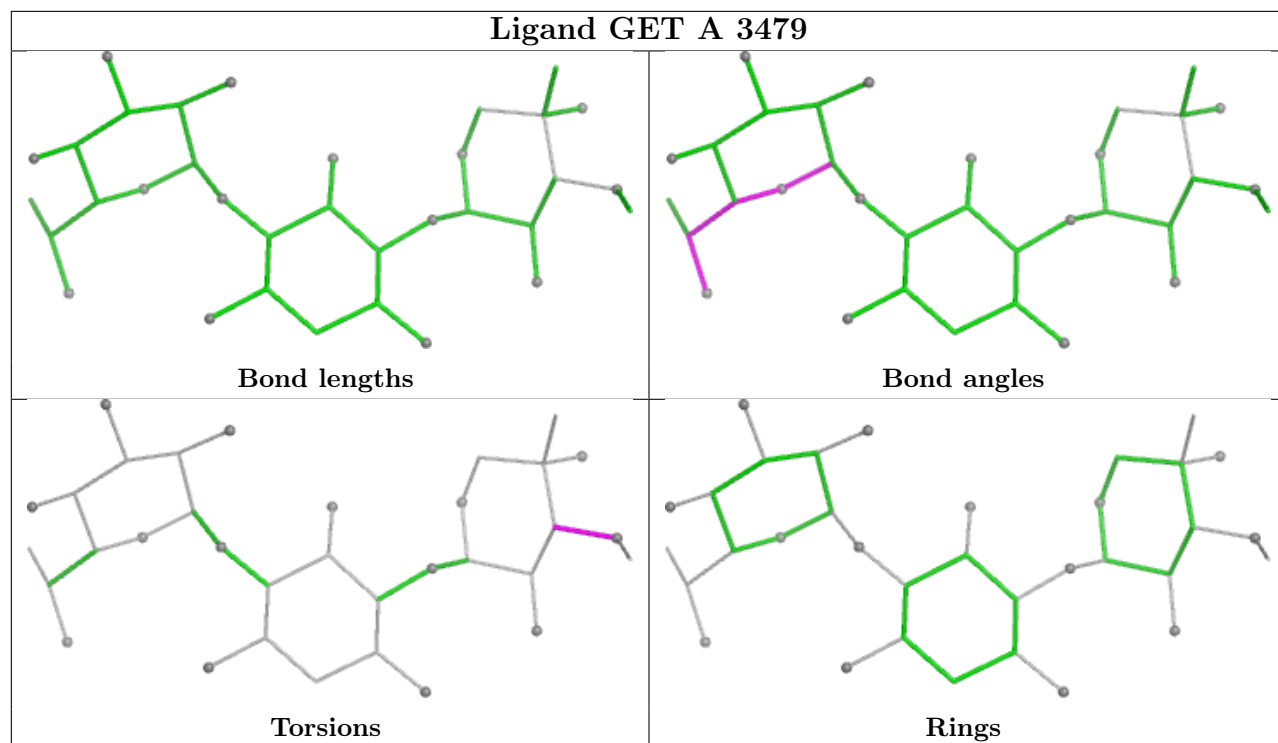
| Mol | Chain | Res  | Type | Atoms                   |
|-----|-------|------|------|-------------------------|
| 79  | CA    | 1893 | GET  | C11-C21-C31-C41-C51-O51 |
| 79  | A     | 3490 | GET  | C11-C21-C31-C41-C51-O51 |

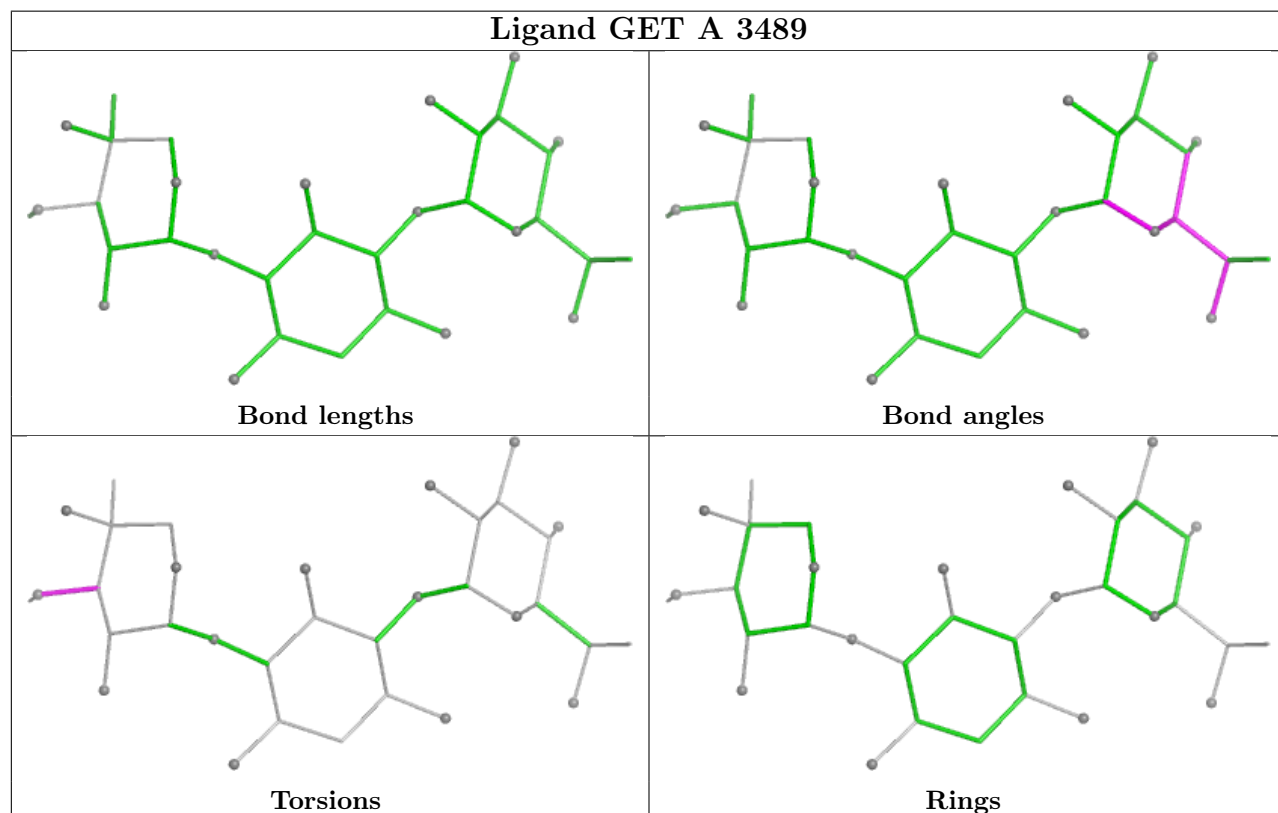
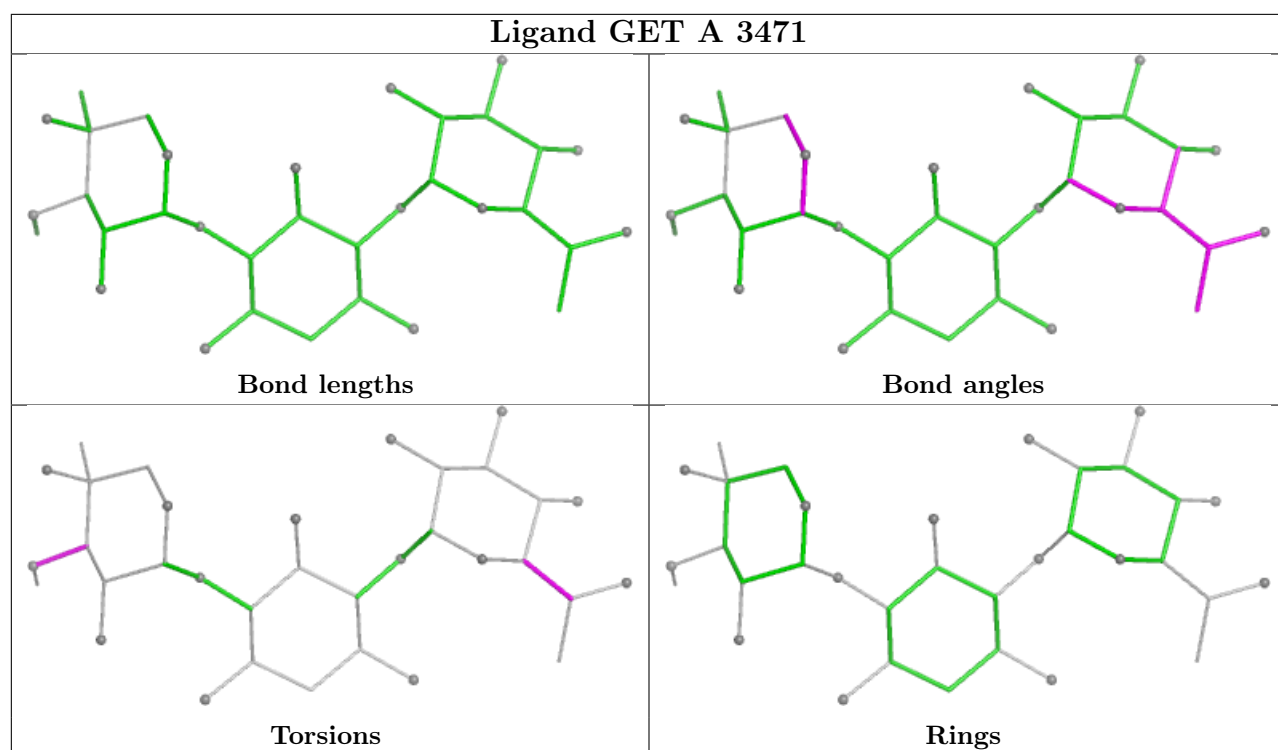
42 monomers are involved in 71 short contacts:

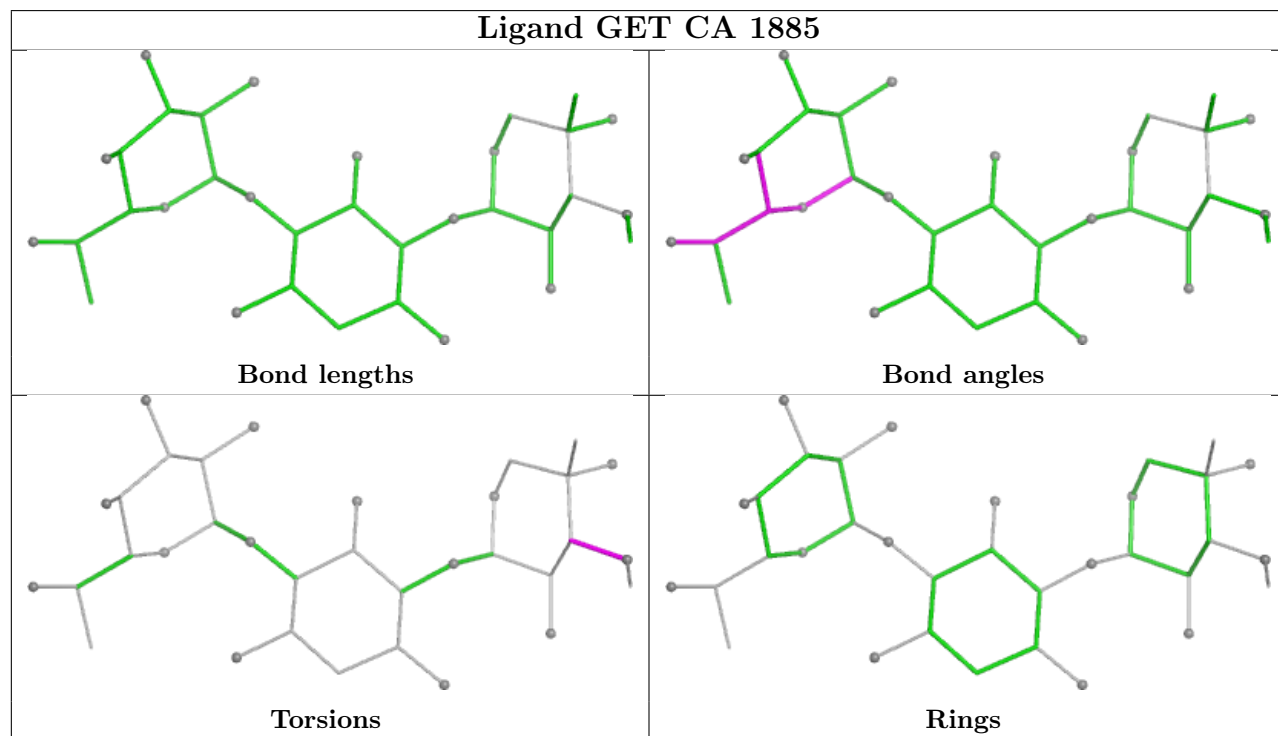
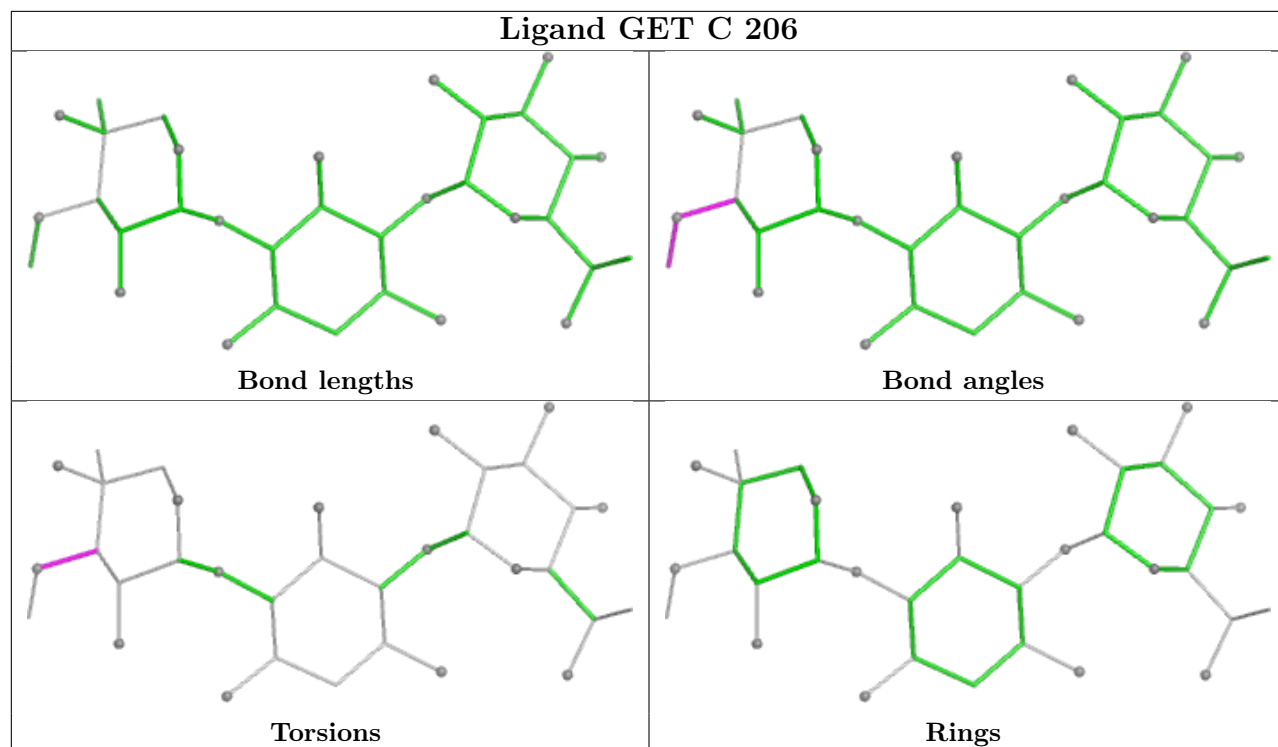
| Mol | Chain | Res  | Type | Clashes | Symm-Clashes |
|-----|-------|------|------|---------|--------------|
| 79  | A     | 3479 | GET  | 1       | 0            |
| 79  | A     | 3471 | GET  | 1       | 0            |
| 79  | A     | 3489 | GET  | 1       | 0            |
| 79  | C     | 206  | GET  | 1       | 0            |
| 79  | CA    | 1887 | GET  | 1       | 0            |
| 79  | A     | 3486 | GET  | 3       | 0            |
| 79  | B     | 203  | GET  | 1       | 0            |
| 79  | CA    | 1886 | GET  | 1       | 0            |
| 79  | CA    | 1892 | GET  | 2       | 0            |
| 79  | A     | 3484 | GET  | 2       | 0            |
| 79  | CA    | 1880 | GET  | 1       | 0            |
| 79  | A     | 3493 | GET  | 3       | 0            |
| 79  | T     | 301  | GET  | 5       | 0            |
| 79  | A     | 3488 | GET  | 1       | 0            |
| 79  | A     | 3497 | GET  | 1       | 0            |
| 79  | A     | 3492 | GET  | 1       | 0            |
| 79  | CA    | 1888 | GET  | 1       | 0            |
| 79  | A     | 3490 | GET  | 1       | 0            |
| 79  | A     | 3481 | GET  | 2       | 0            |
| 79  | CA    | 1889 | GET  | 1       | 0            |
| 79  | A     | 3495 | GET  | 1       | 0            |
| 79  | CA    | 1876 | GET  | 2       | 0            |
| 79  | A     | 3482 | GET  | 2       | 0            |
| 79  | CA    | 1878 | GET  | 2       | 0            |
| 79  | E     | 402  | GET  | 1       | 0            |
| 79  | A     | 3496 | GET  | 1       | 0            |
| 79  | A     | 3475 | GET  | 1       | 0            |
| 79  | A     | 3478 | GET  | 2       | 0            |
| 79  | A     | 3480 | GET  | 5       | 0            |
| 79  | A     | 3491 | GET  | 1       | 0            |
| 79  | CA    | 1883 | GET  | 2       | 0            |
| 79  | CA    | 1891 | GET  | 1       | 0            |
| 79  | A     | 3473 | GET  | 1       | 0            |
| 79  | CA    | 1884 | GET  | 1       | 0            |
| 79  | CA    | 1893 | GET  | 3       | 0            |
| 81  | A     | 3470 | SPD  | 1       | 0            |
| 79  | CA    | 1875 | GET  | 2       | 0            |
| 79  | C     | 204  | GET  | 3       | 0            |
| 79  | CA    | 1882 | GET  | 4       | 0            |
| 79  | A     | 3498 | GET  | 1       | 0            |
| 79  | C     | 205  | GET  | 2       | 0            |
| 79  | CA    | 1879 | GET  | 1       | 0            |

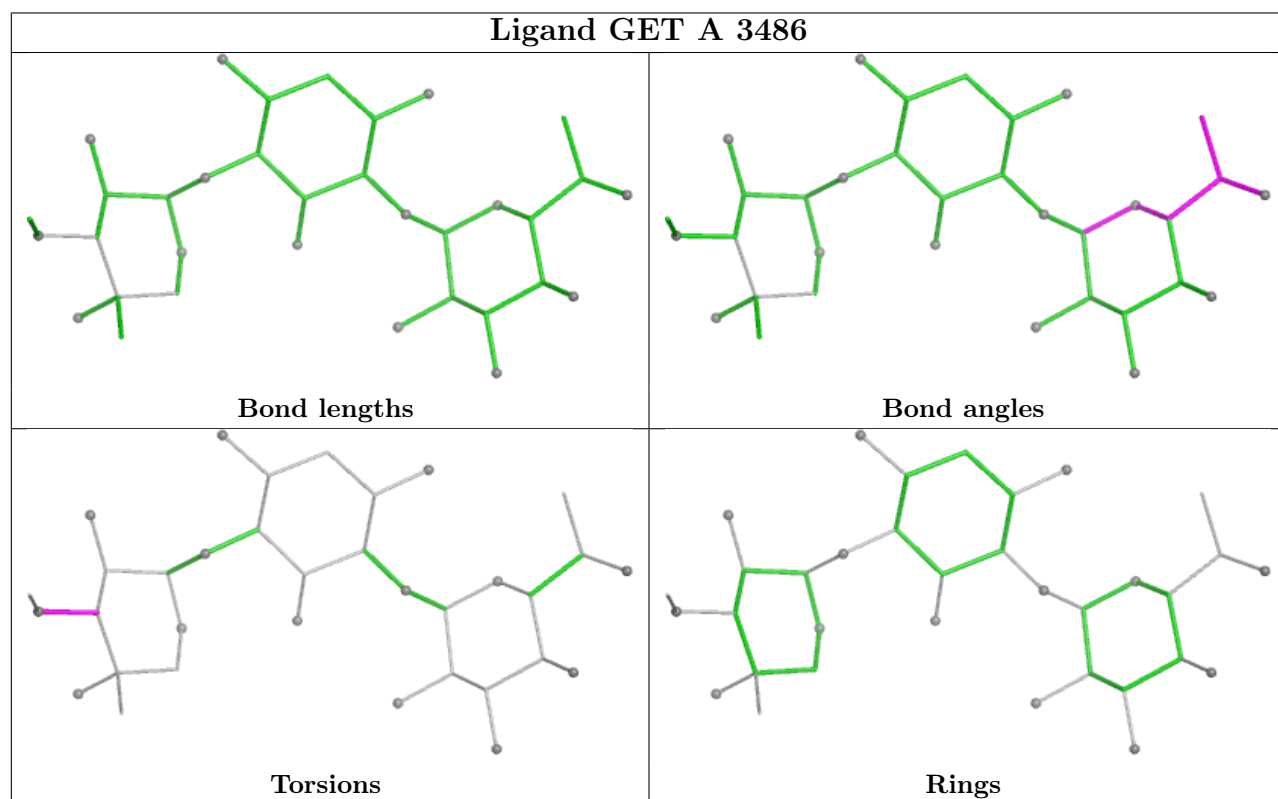
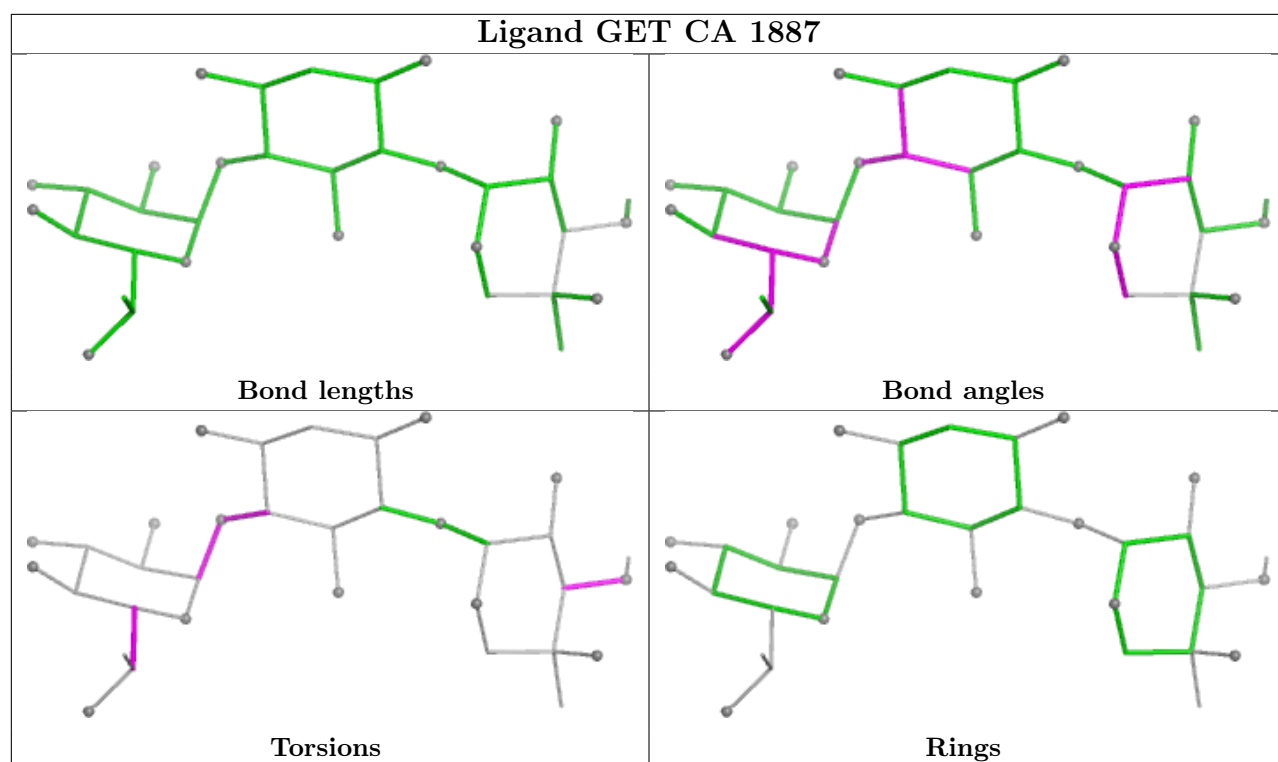
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

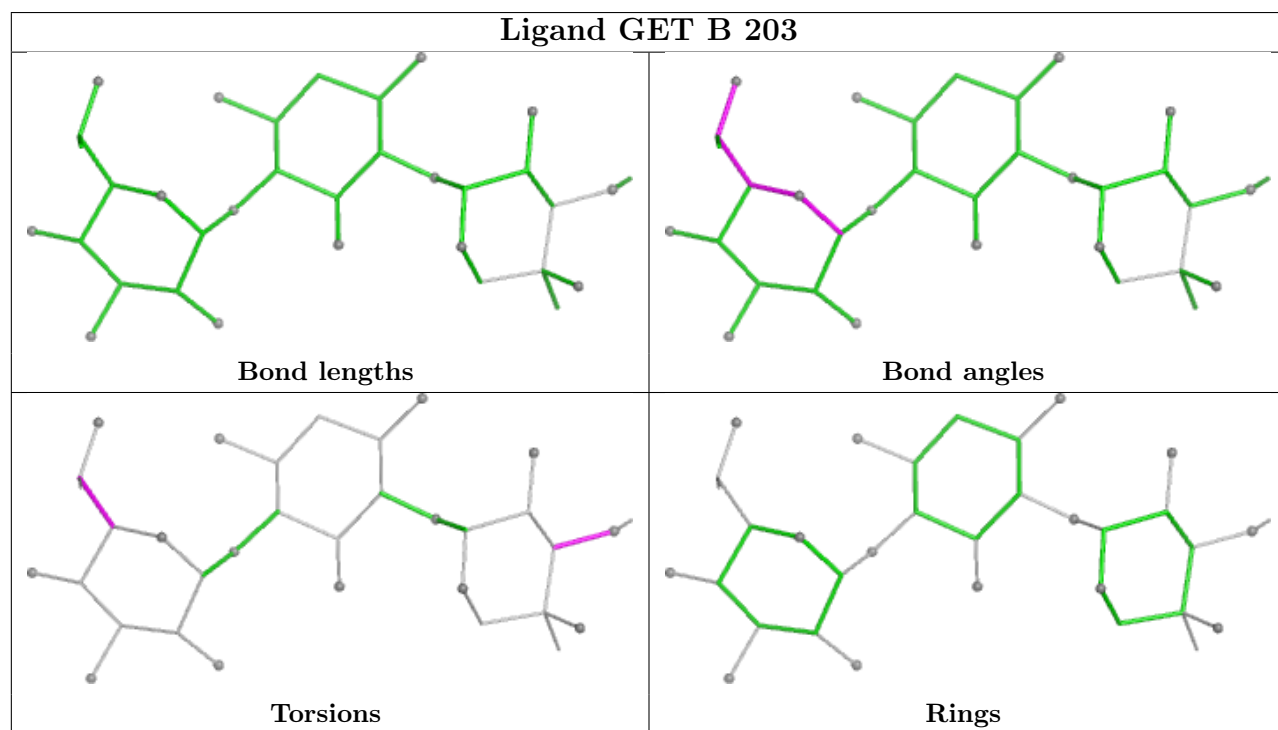
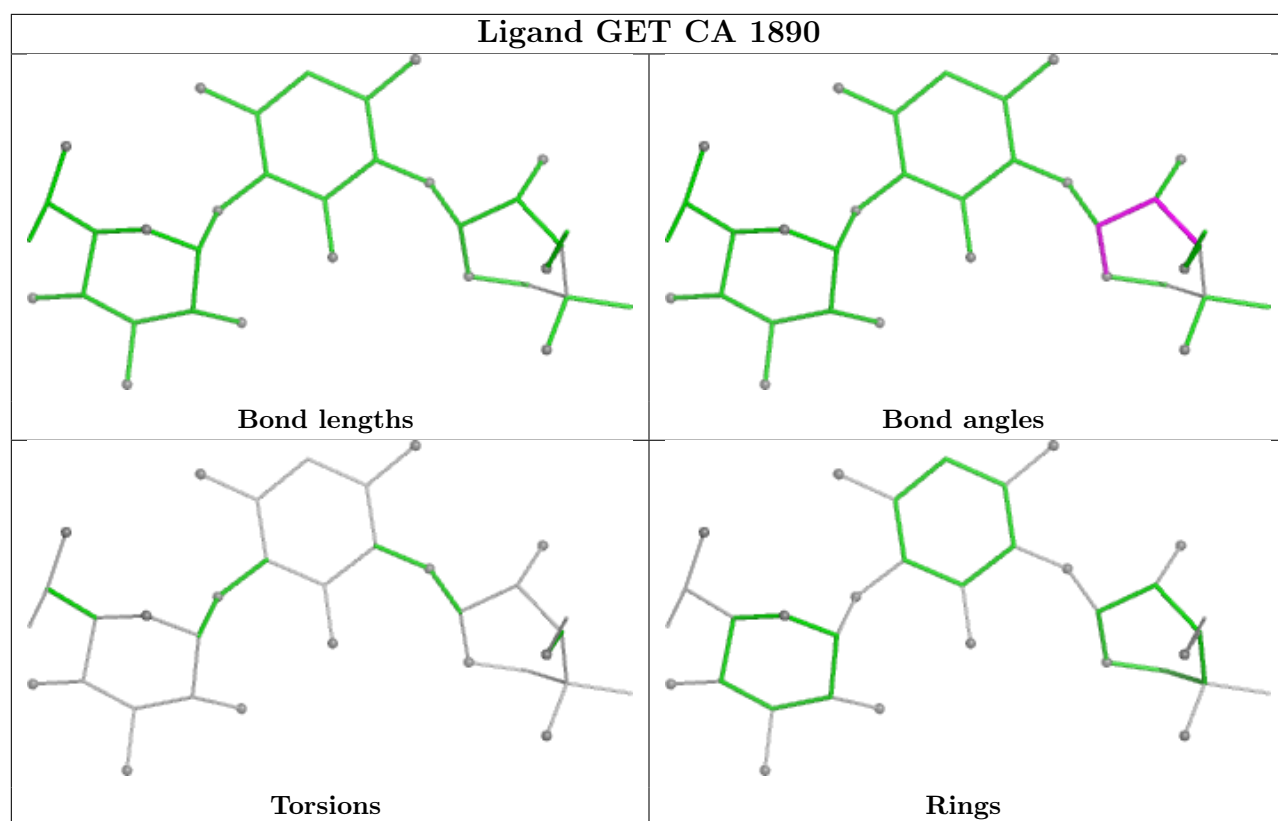


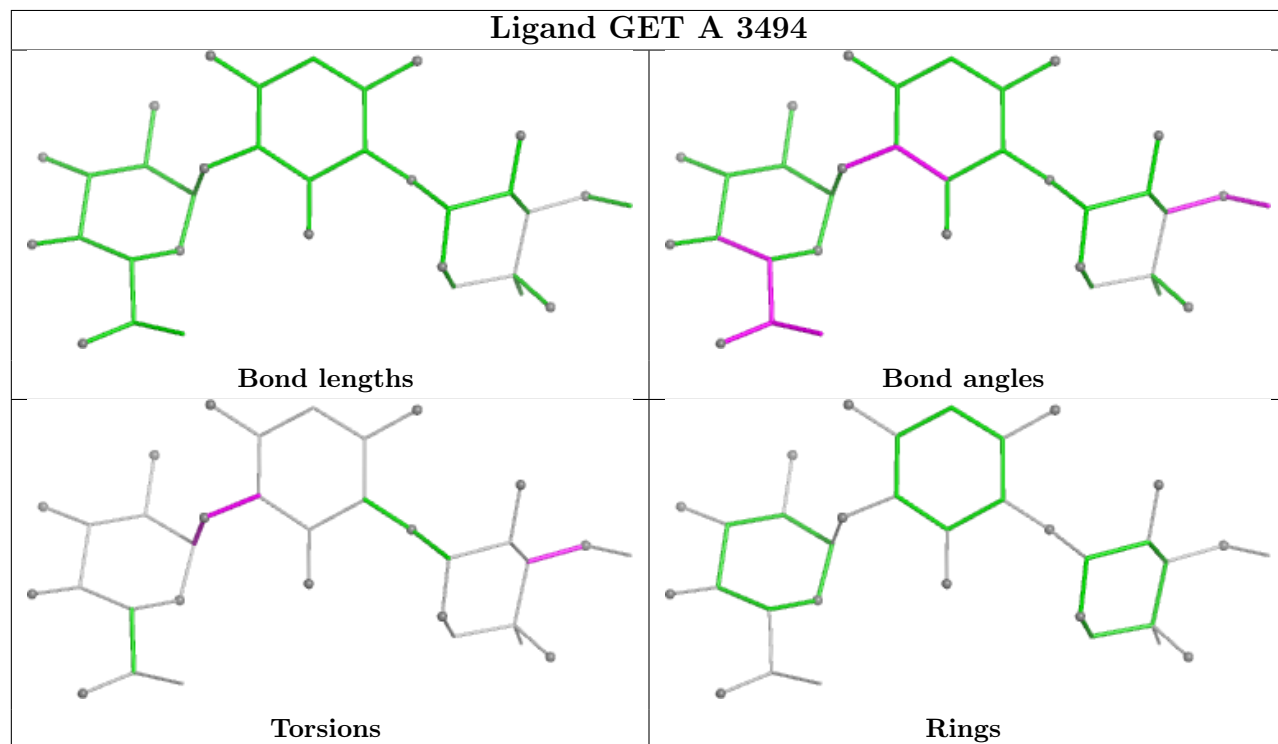
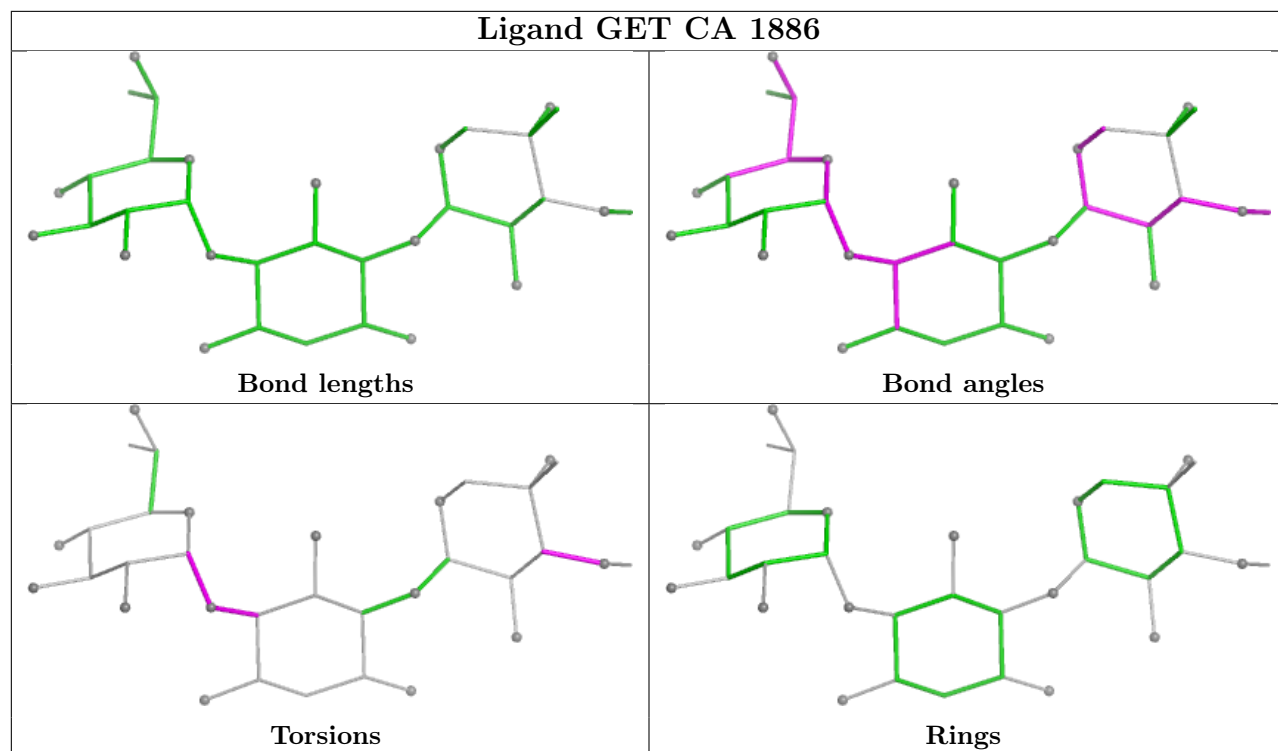


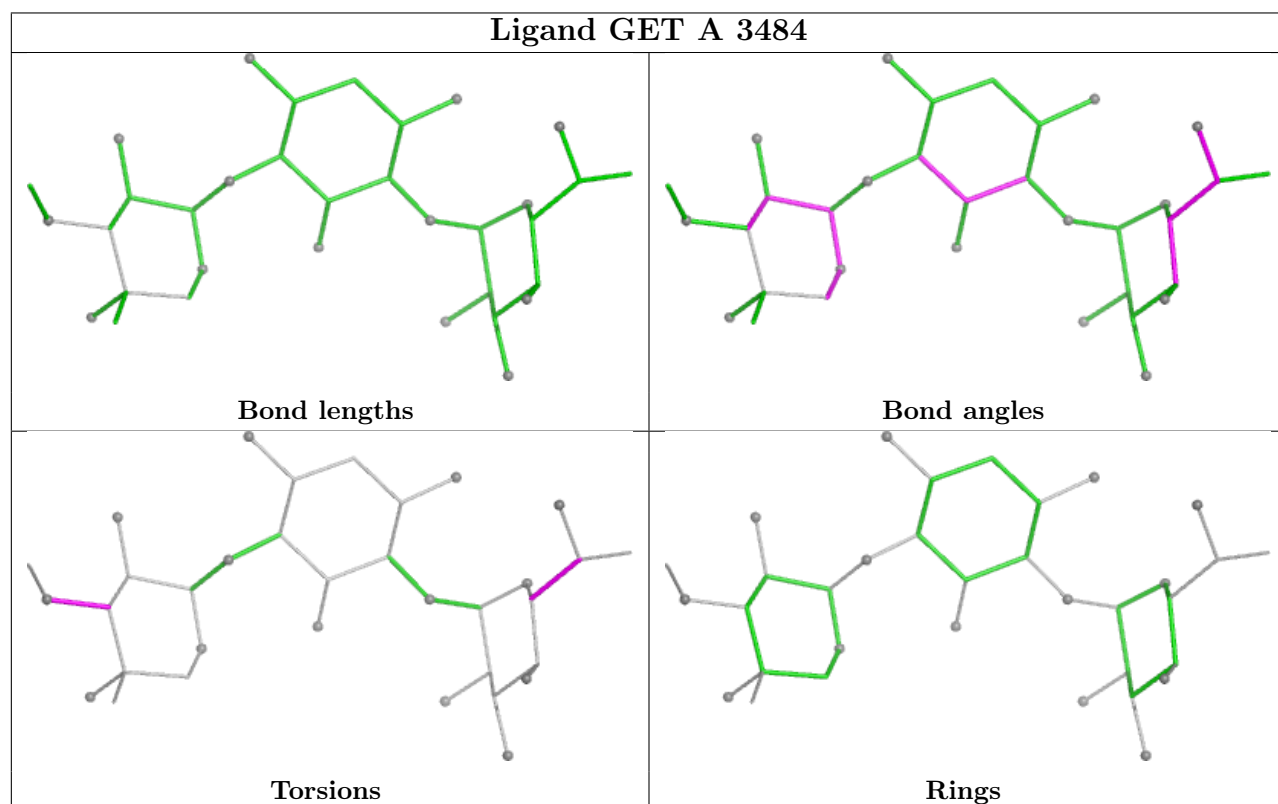
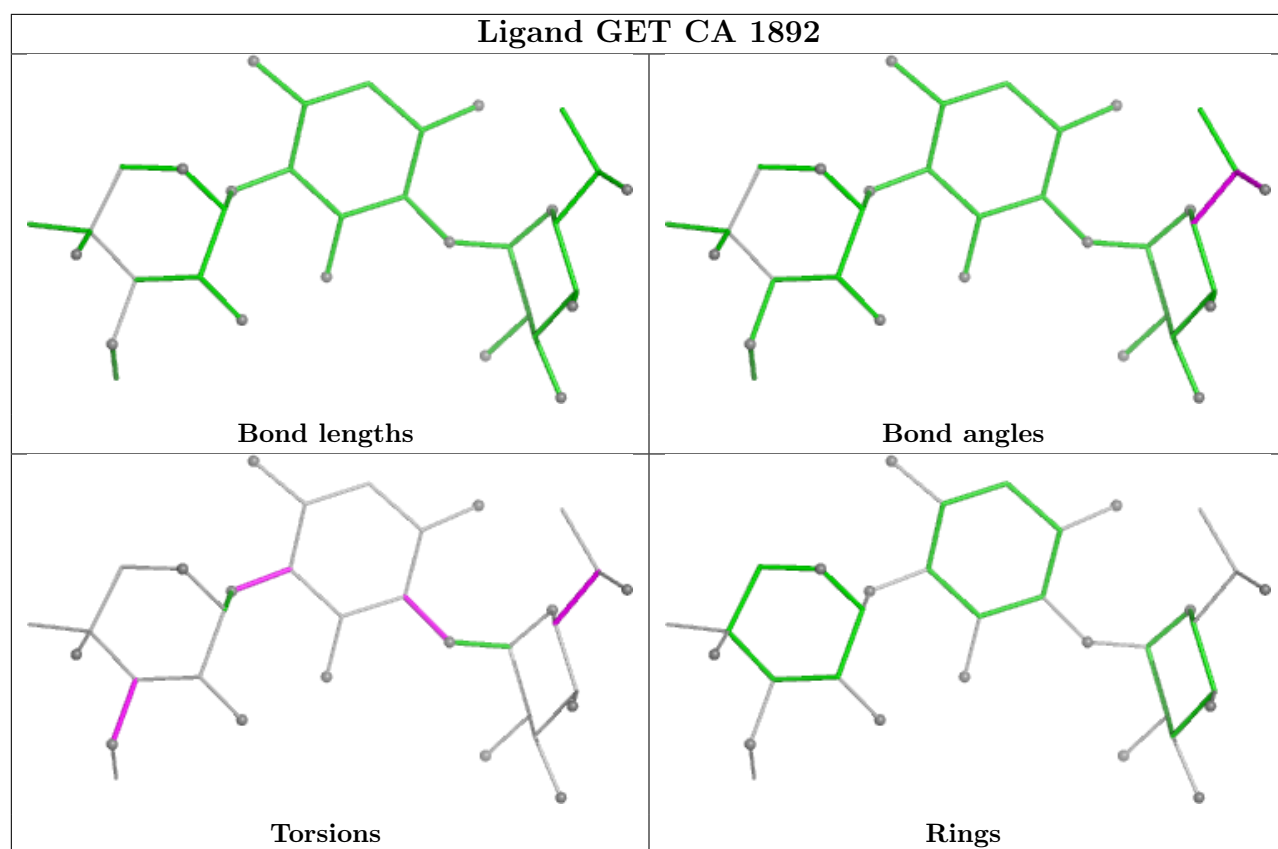


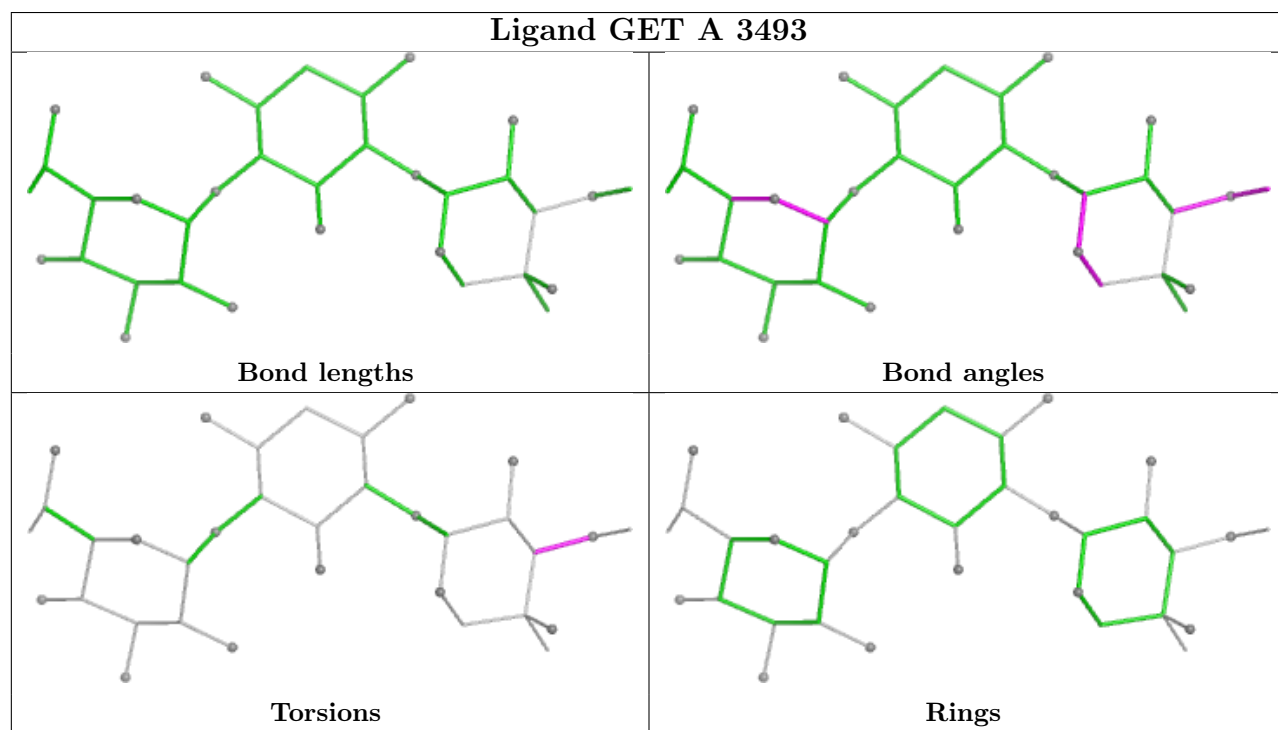
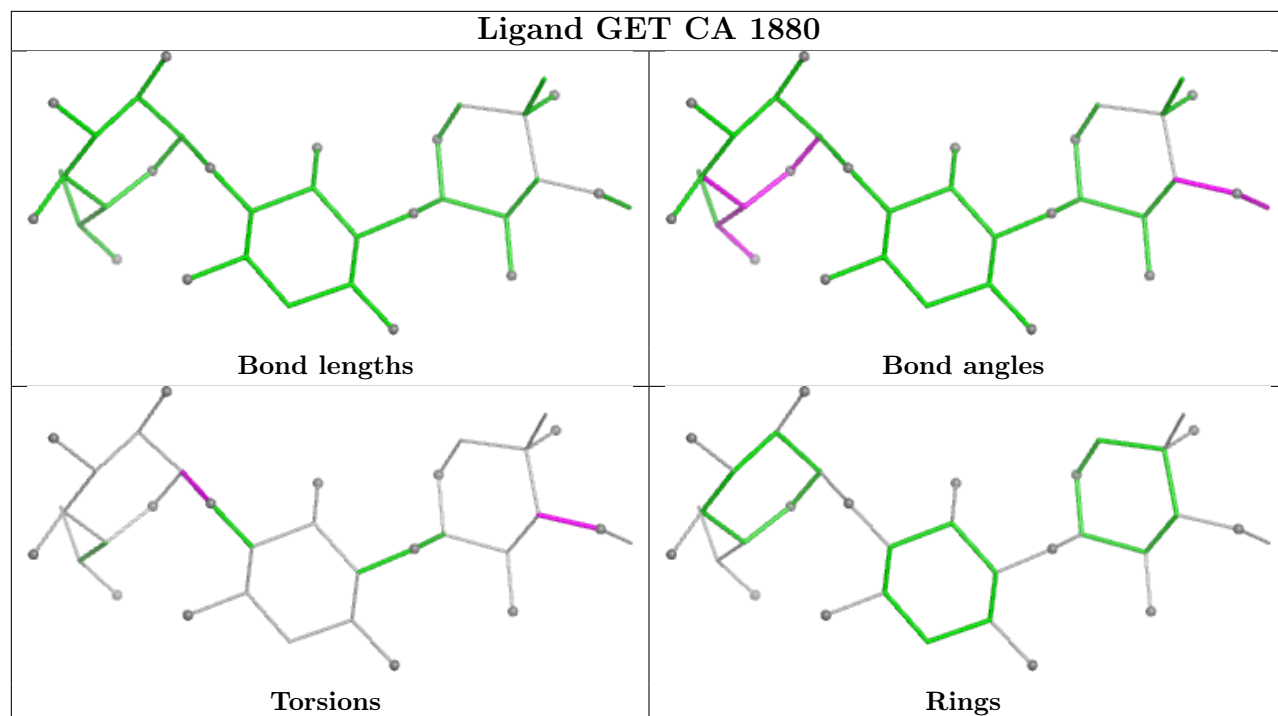


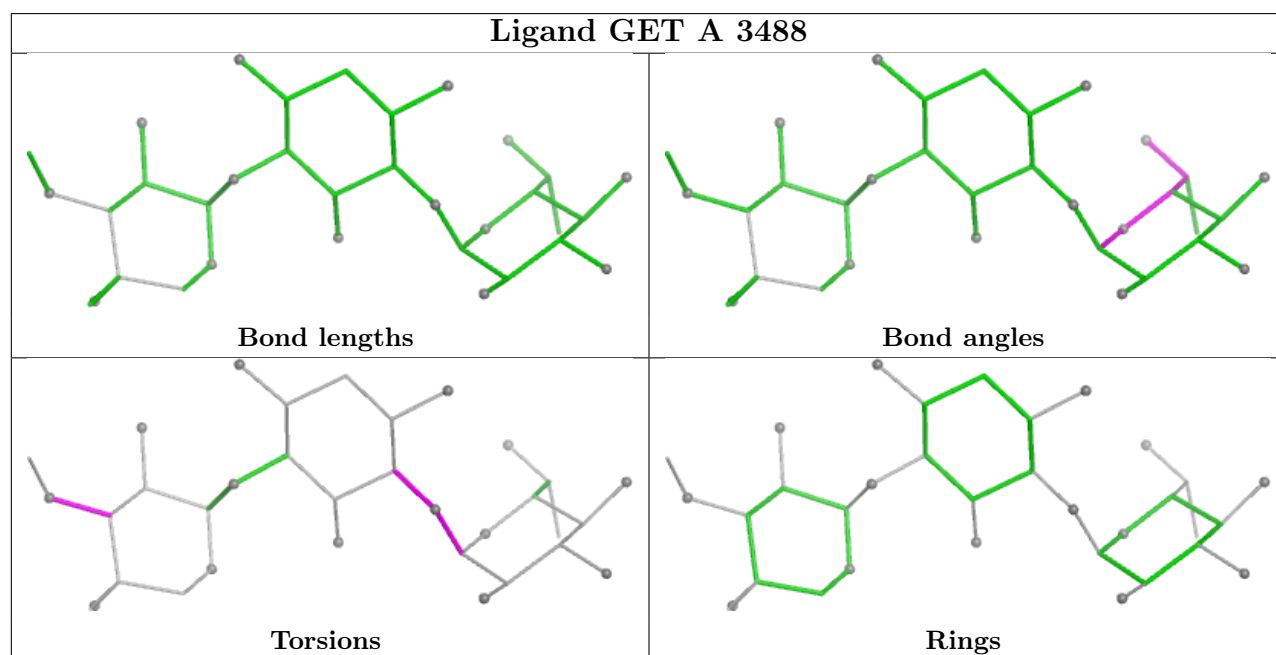
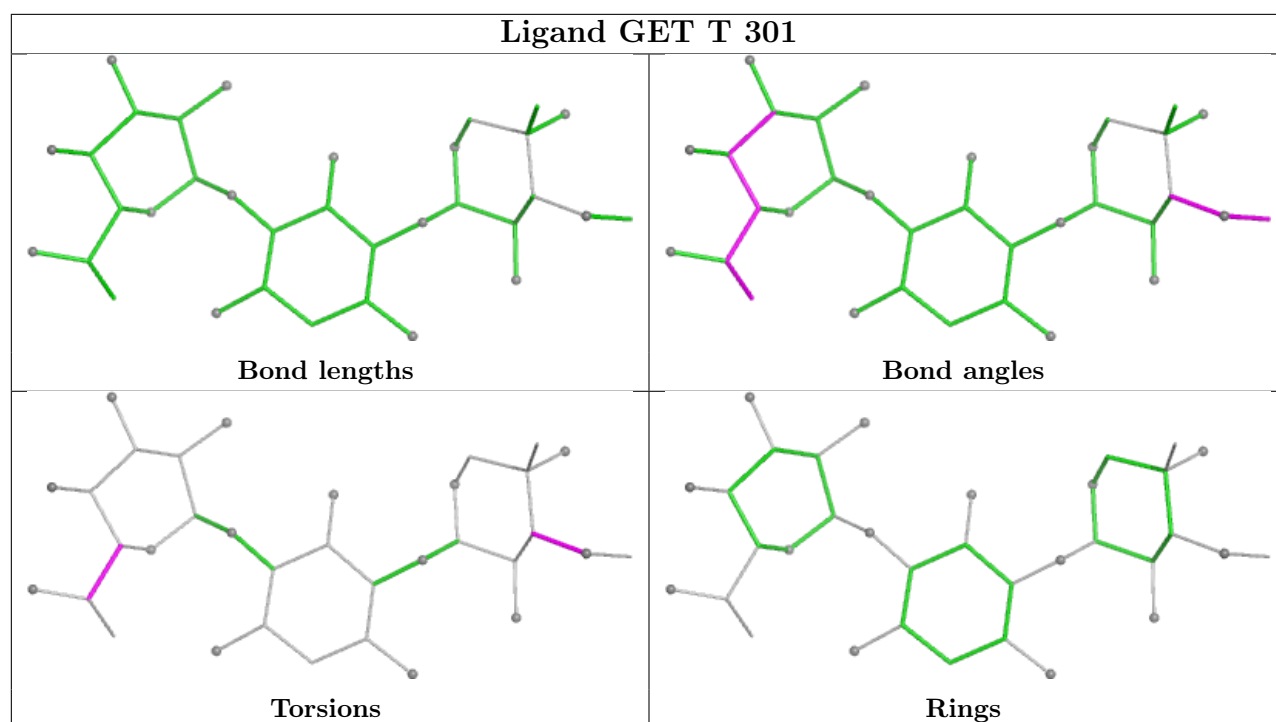


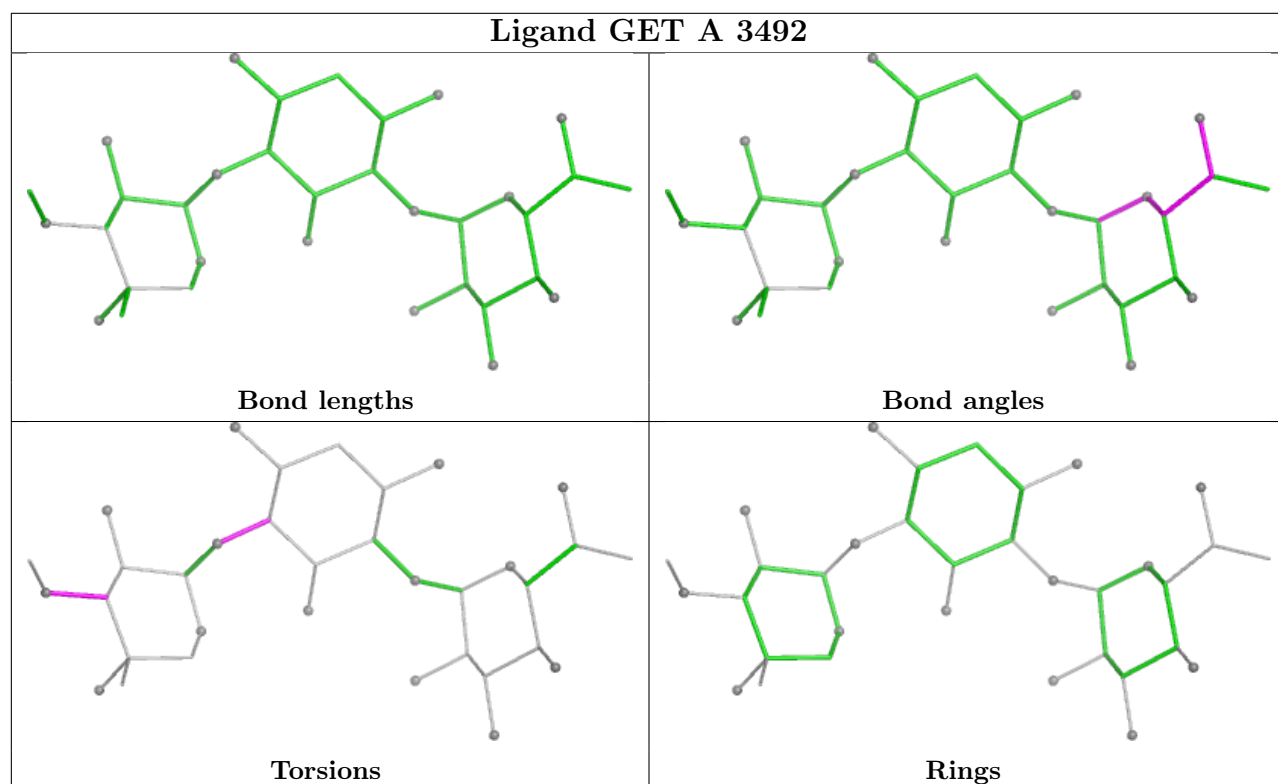
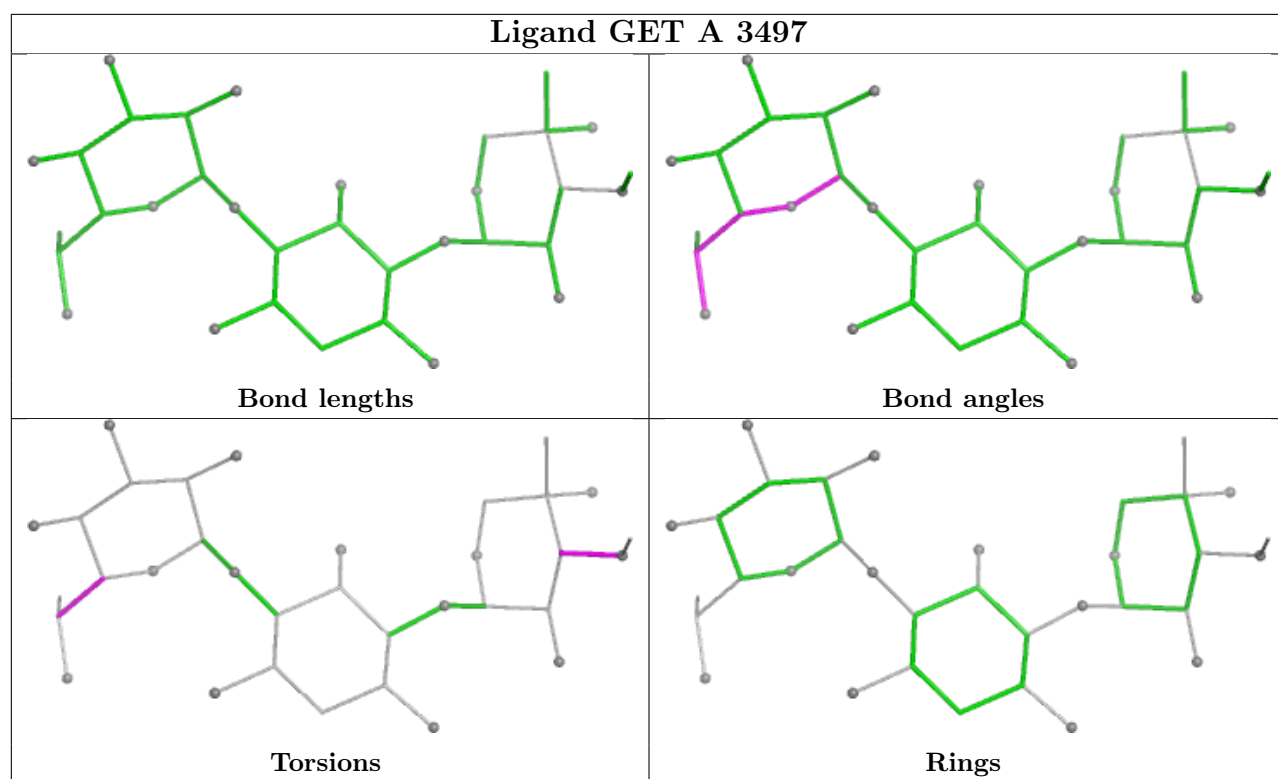


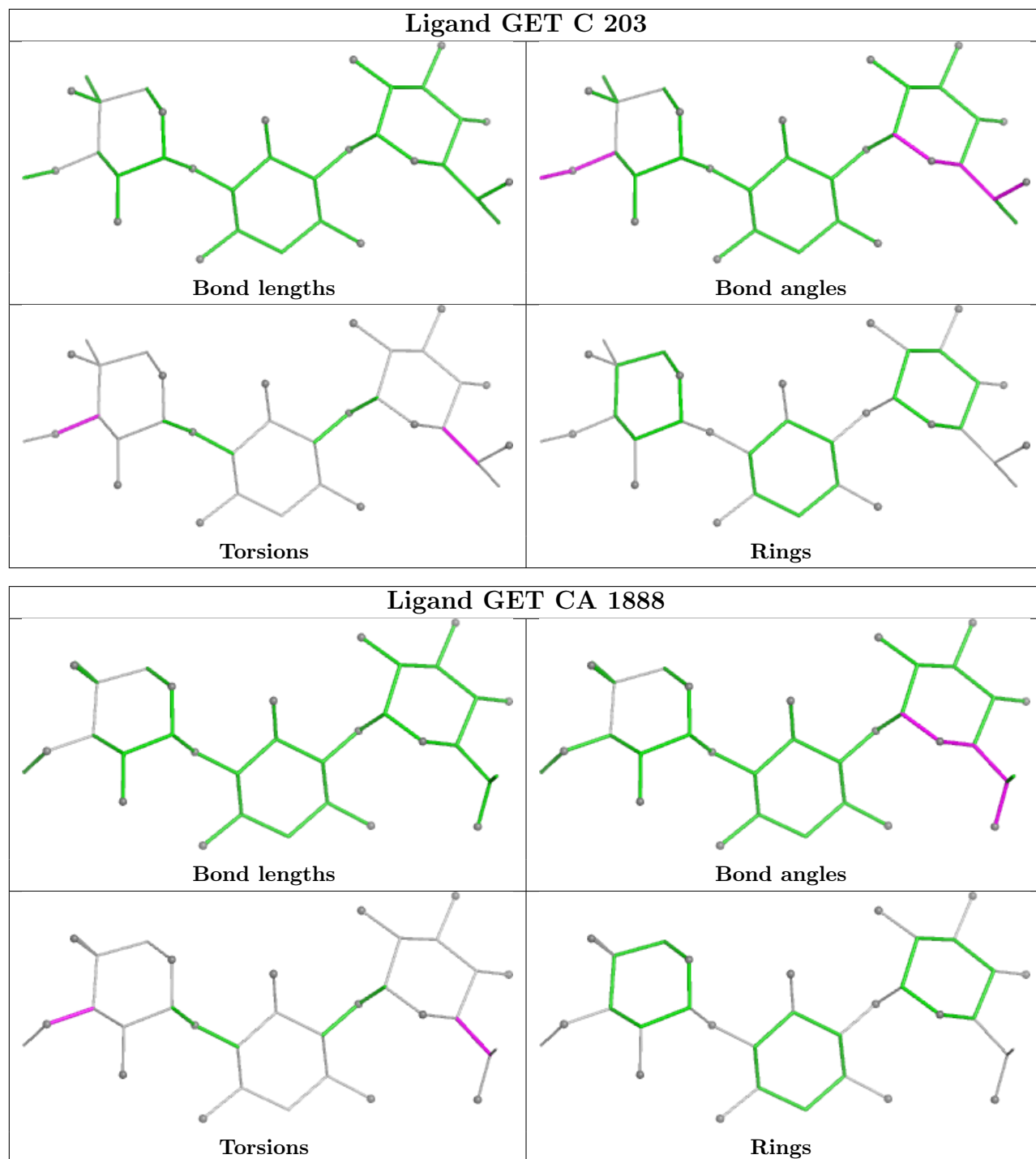


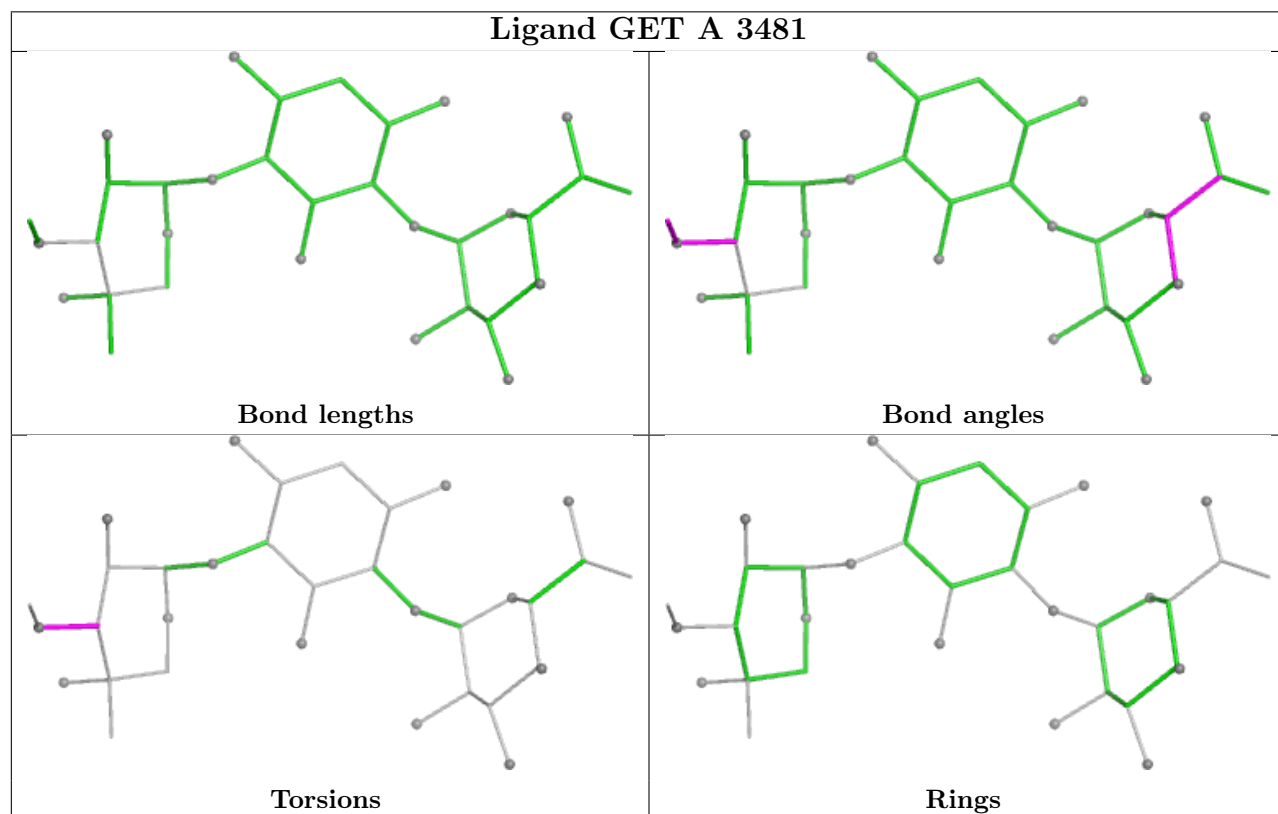
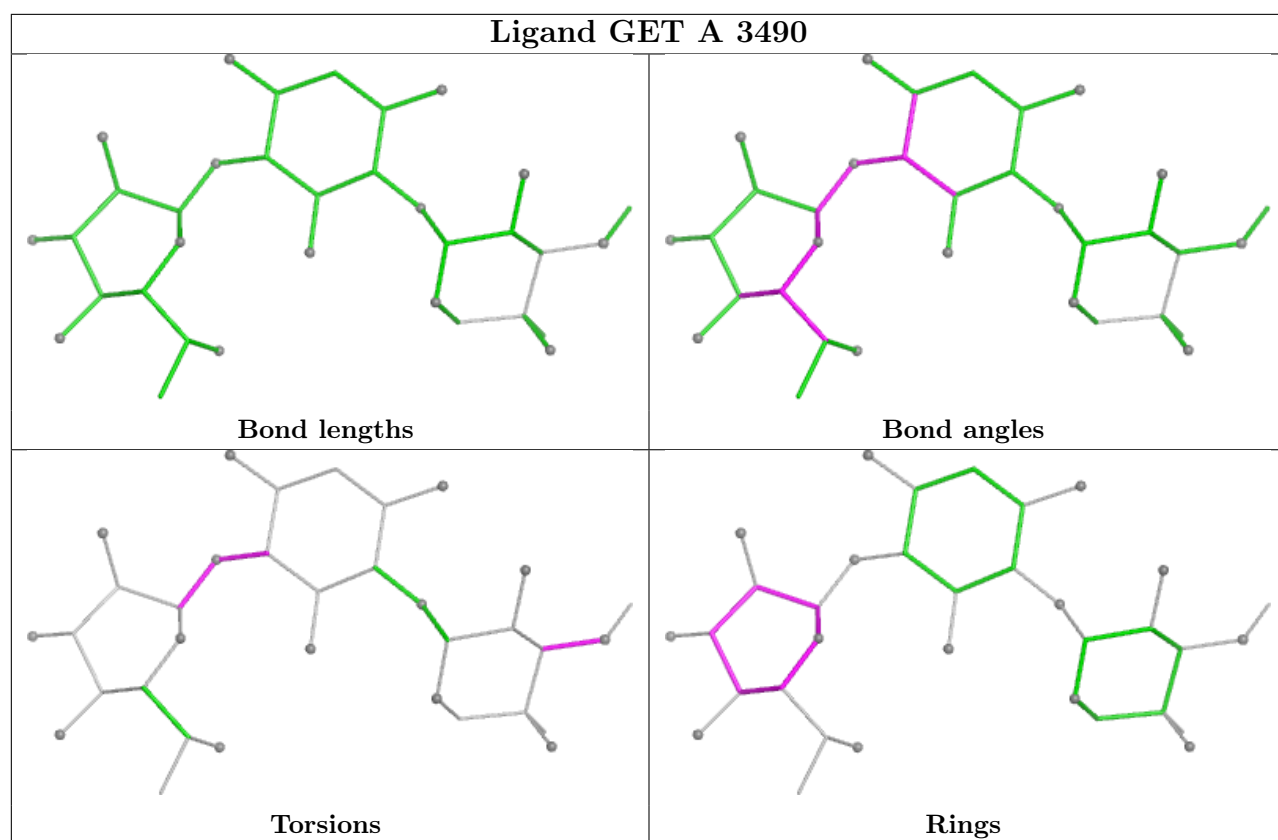




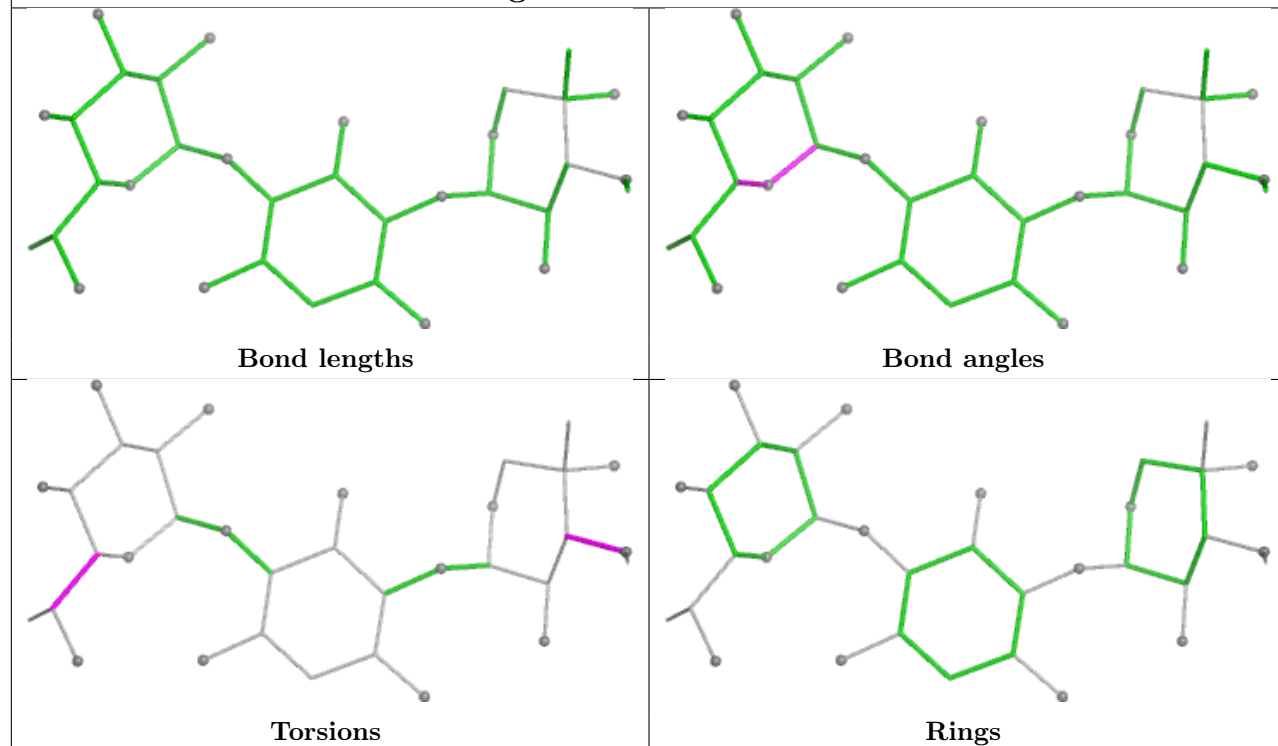




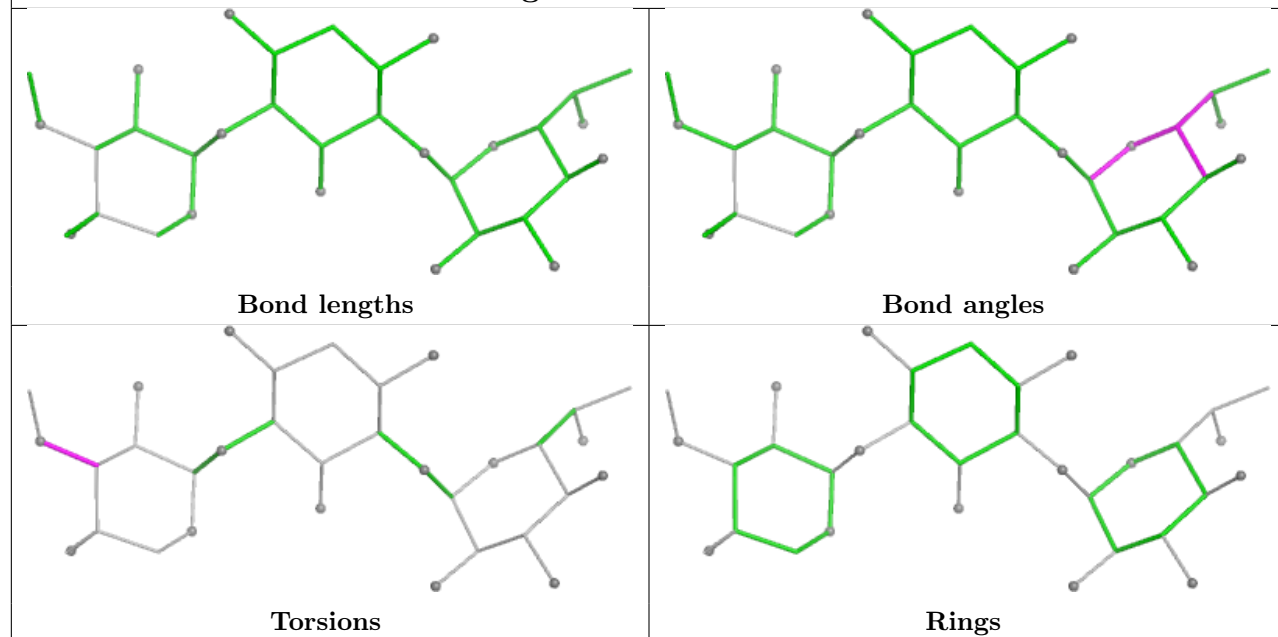


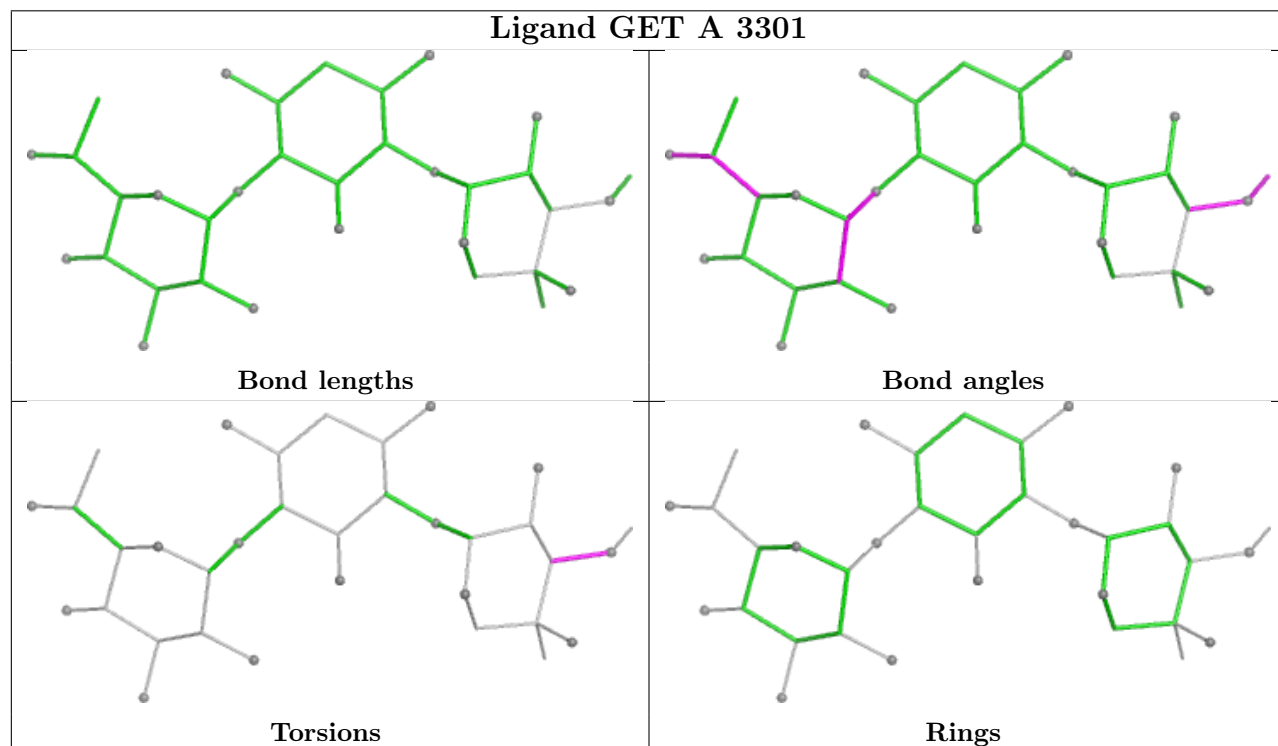
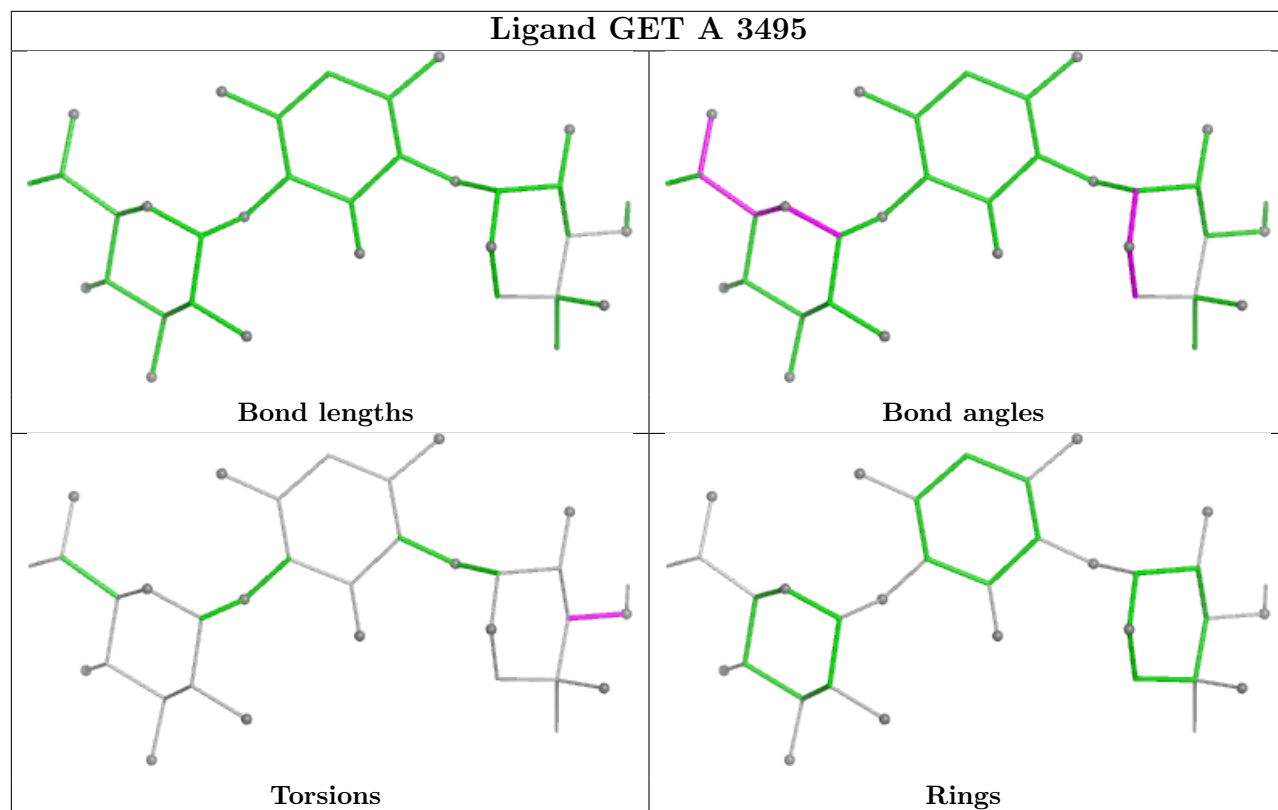


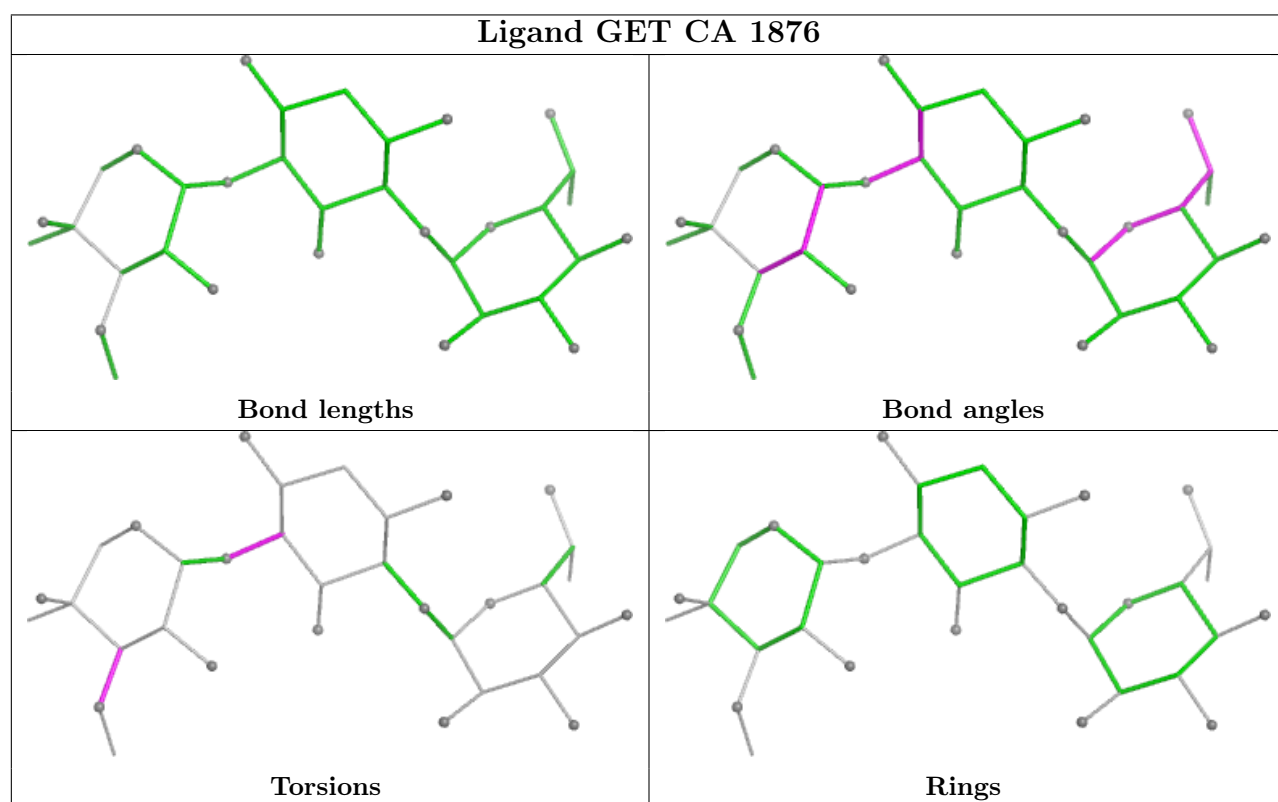
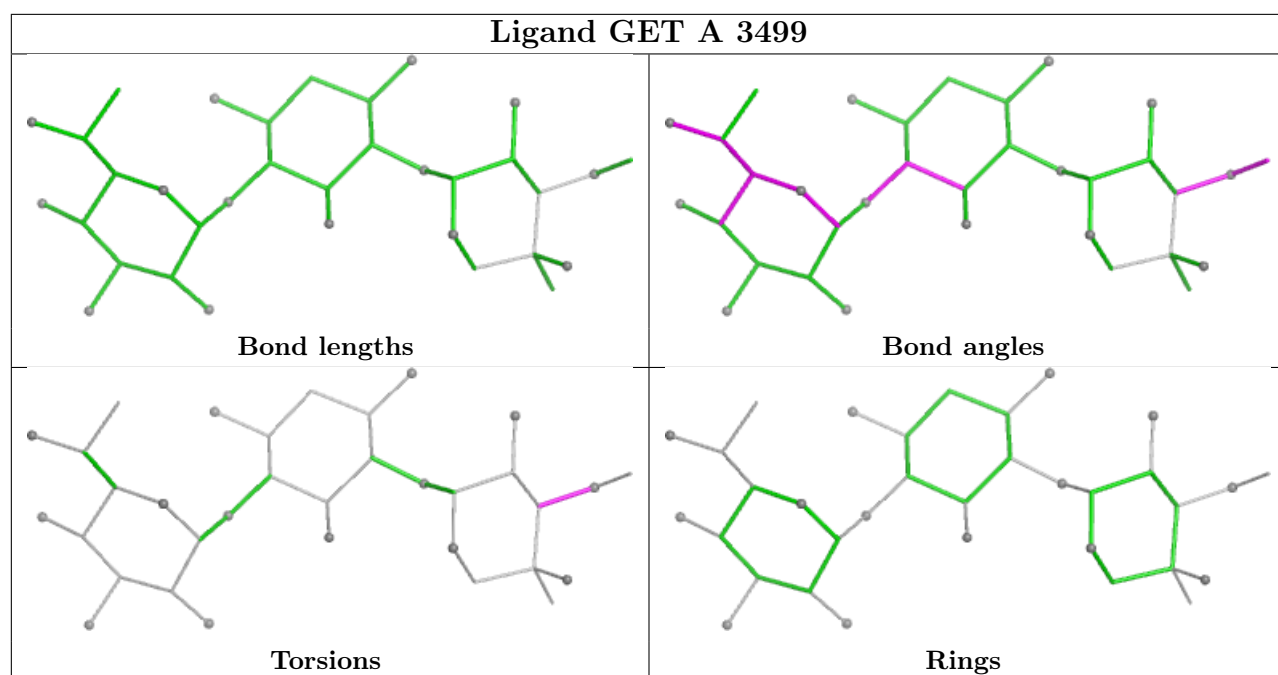
## Ligand GET CA 1889



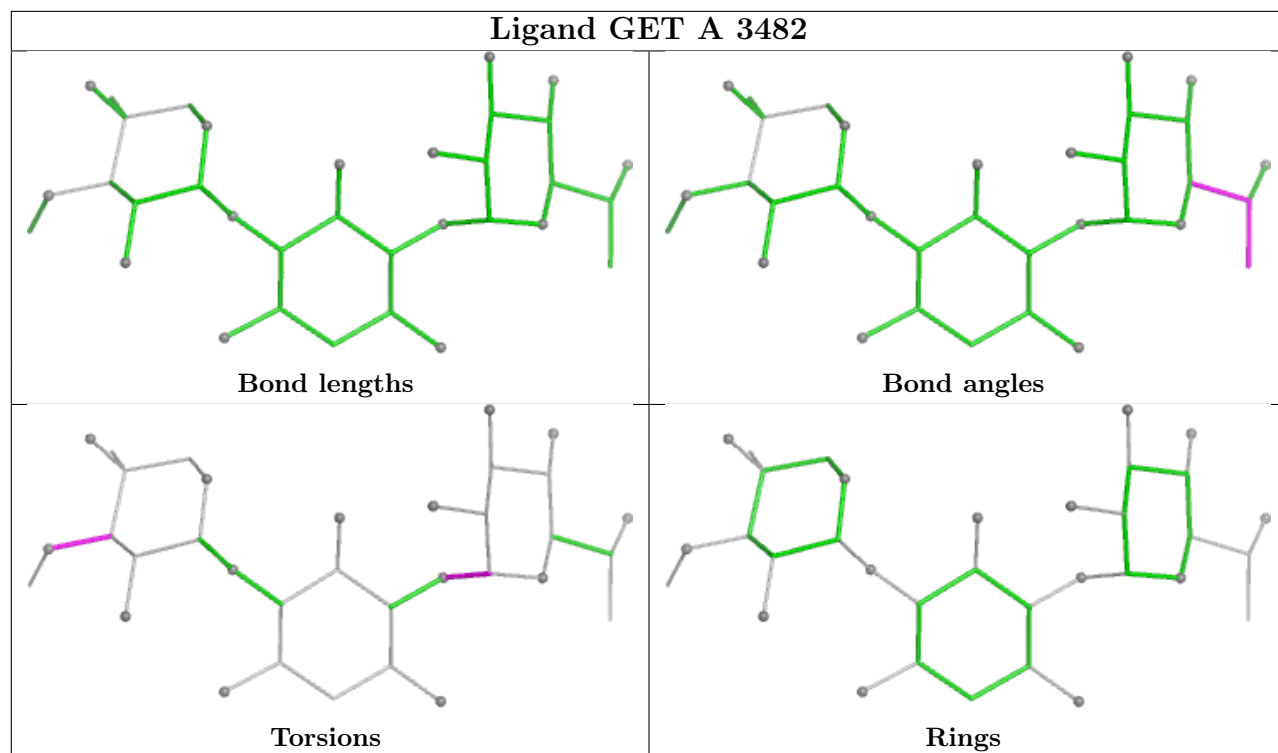
## Ligand GET A 3476



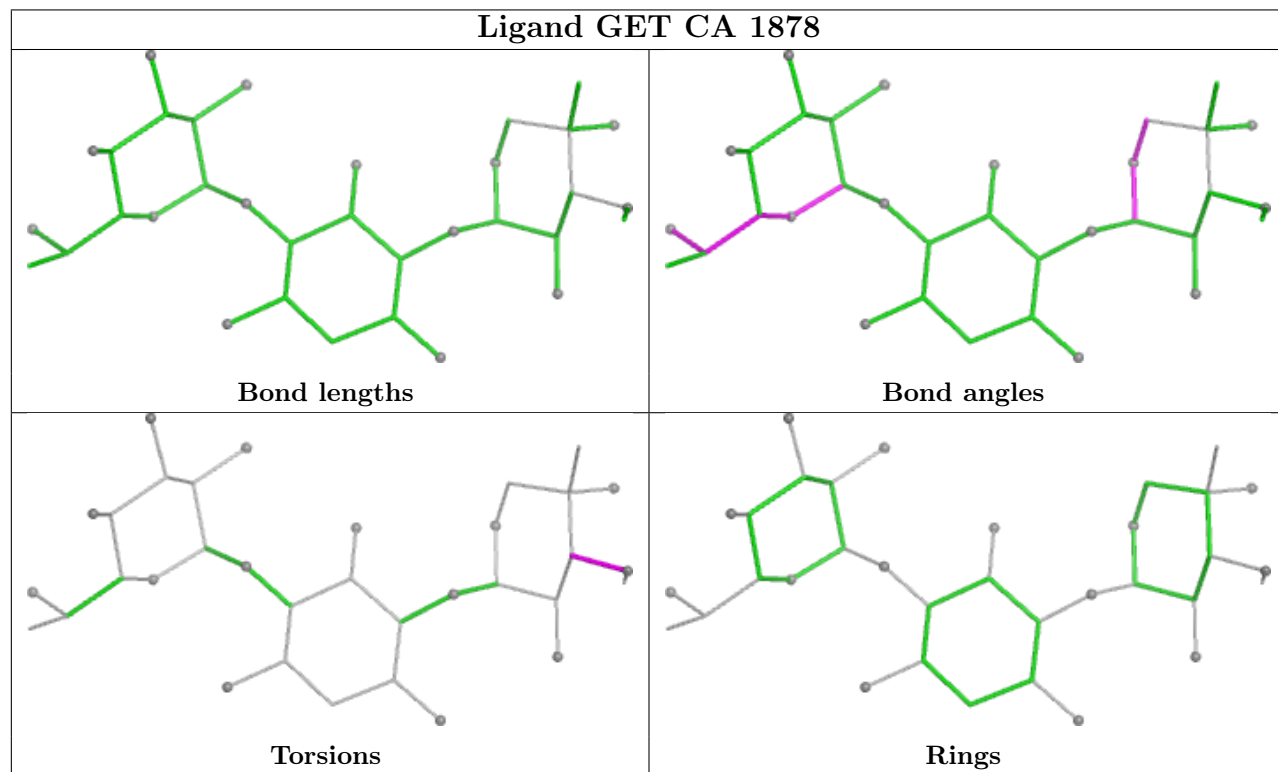


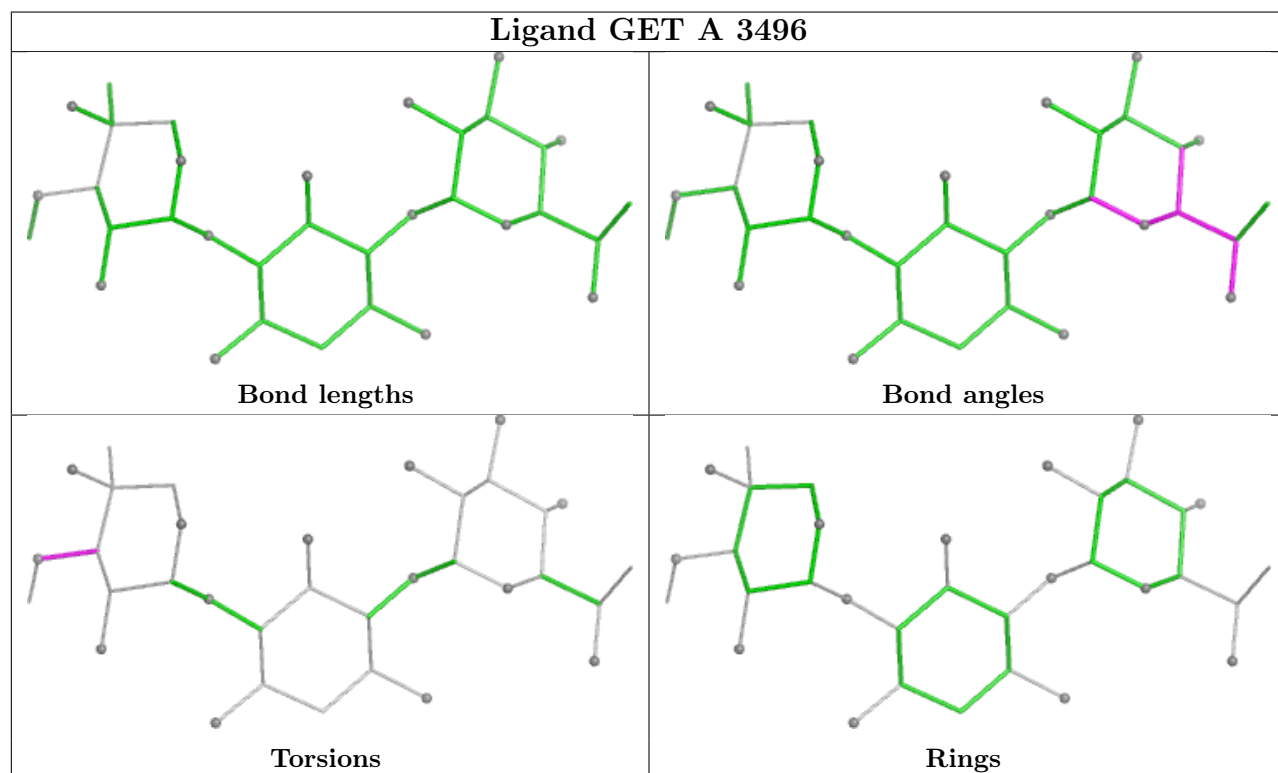
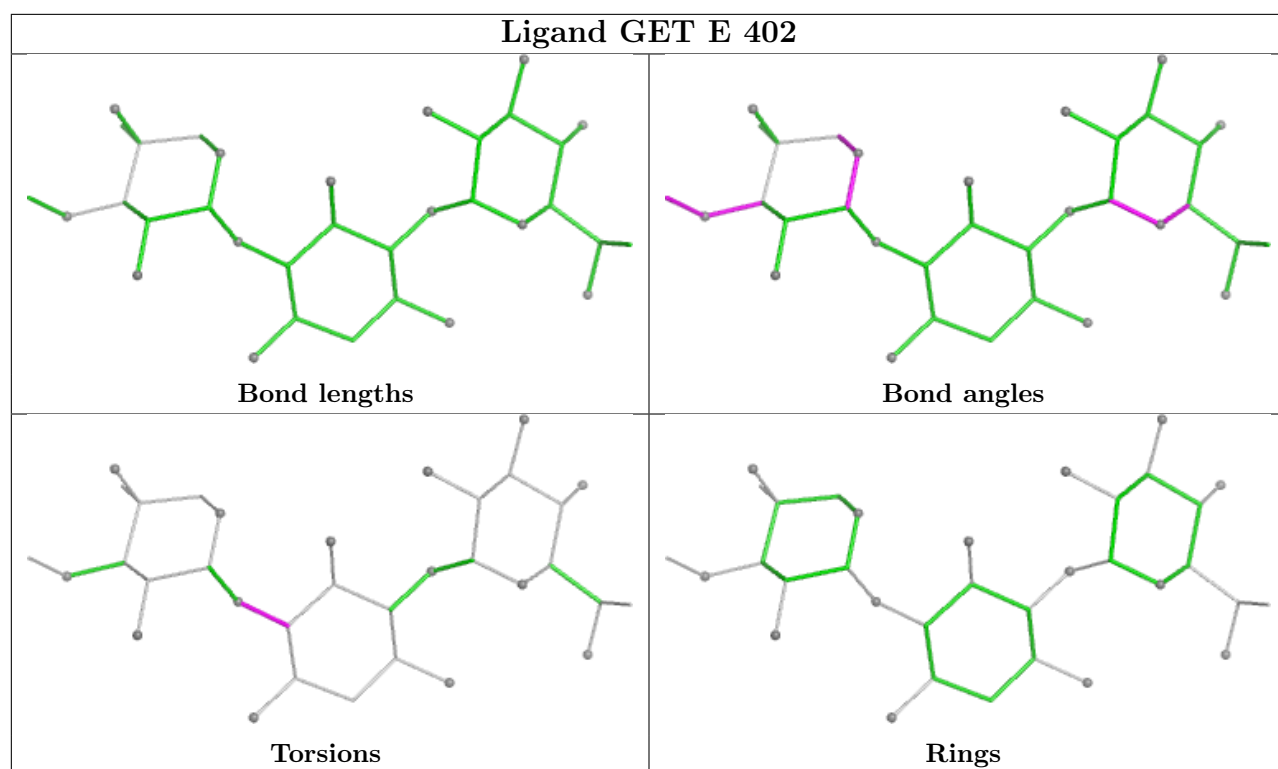


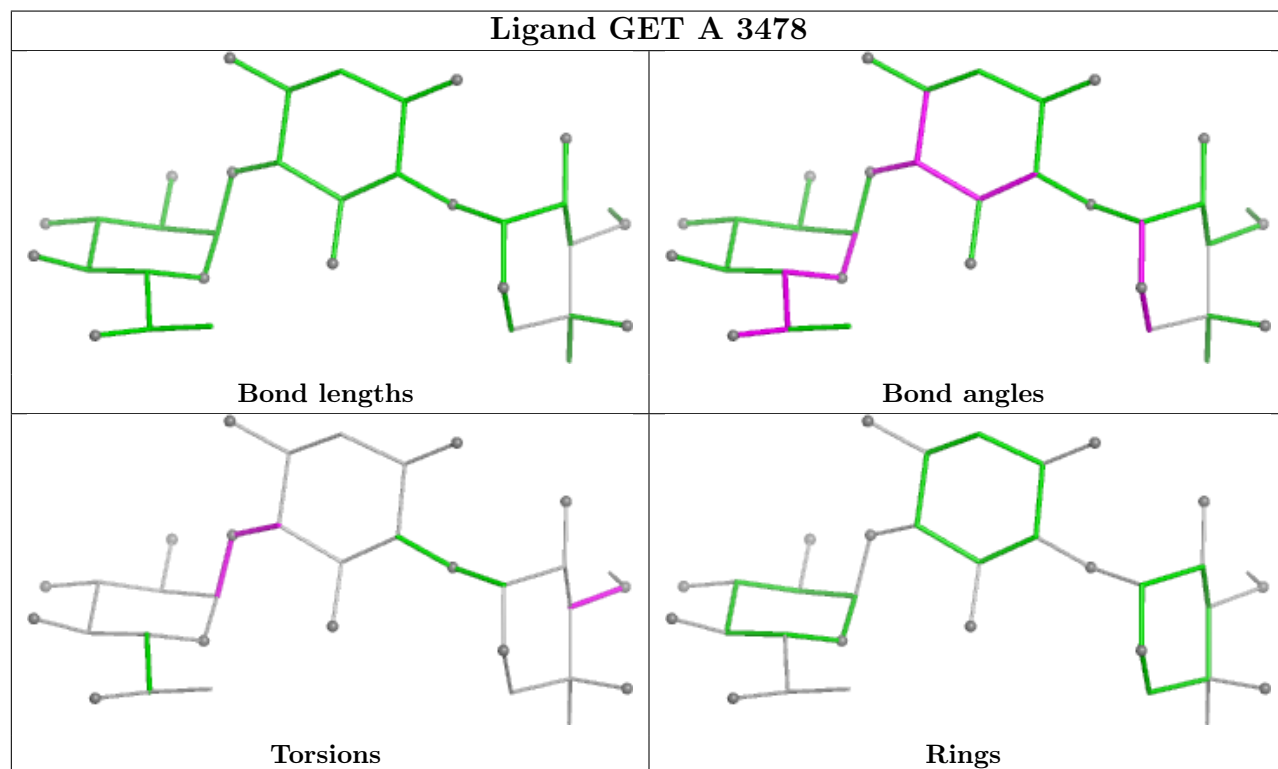
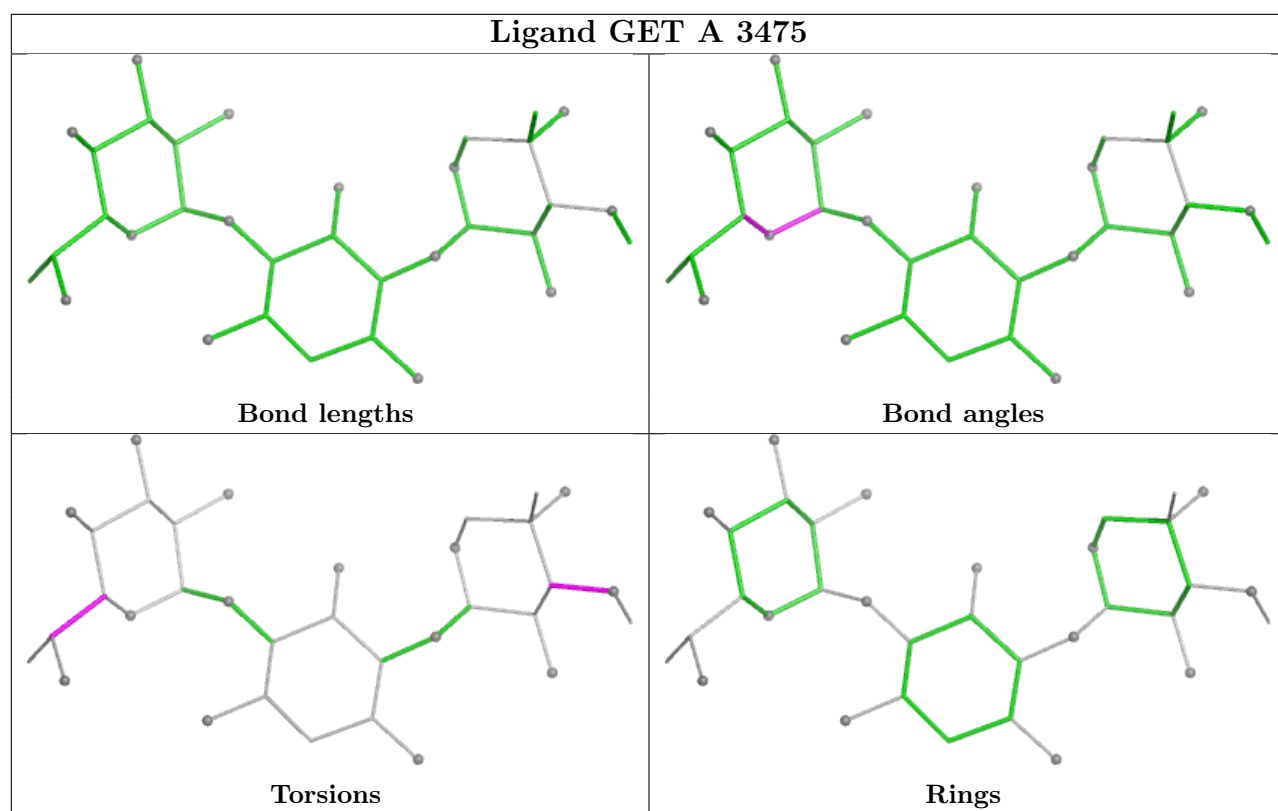
## Ligand GET A 3482

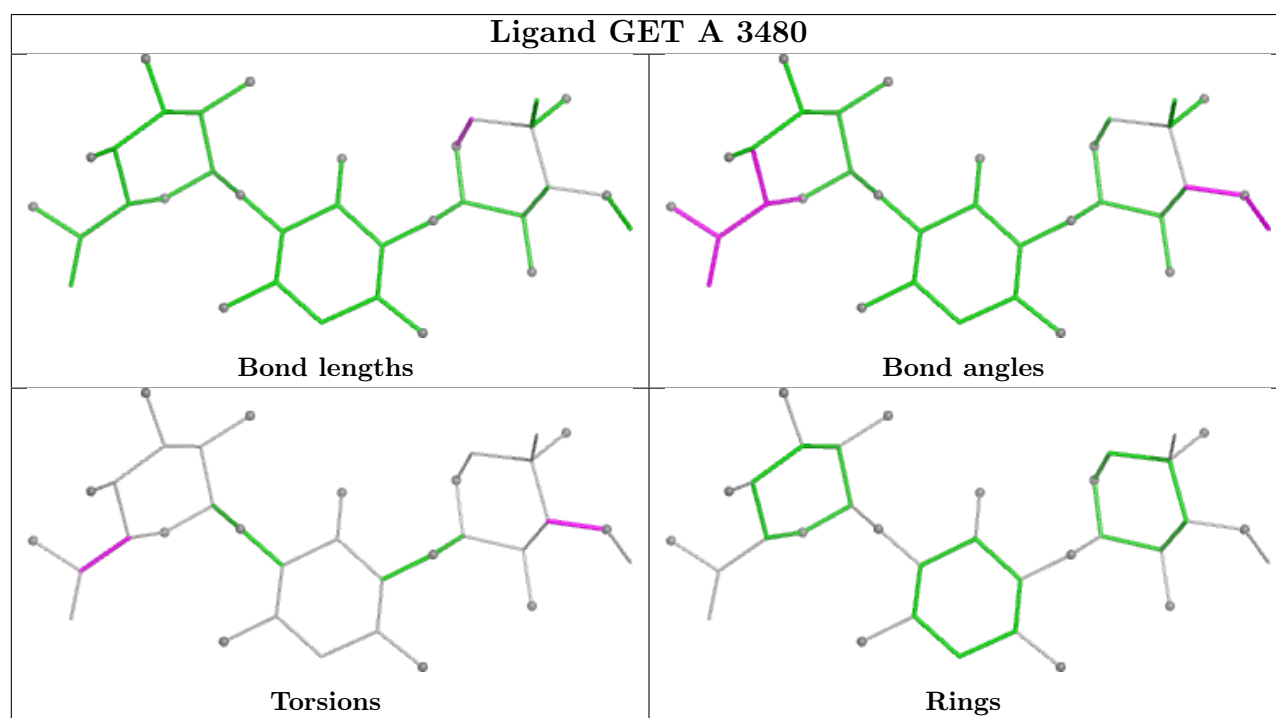
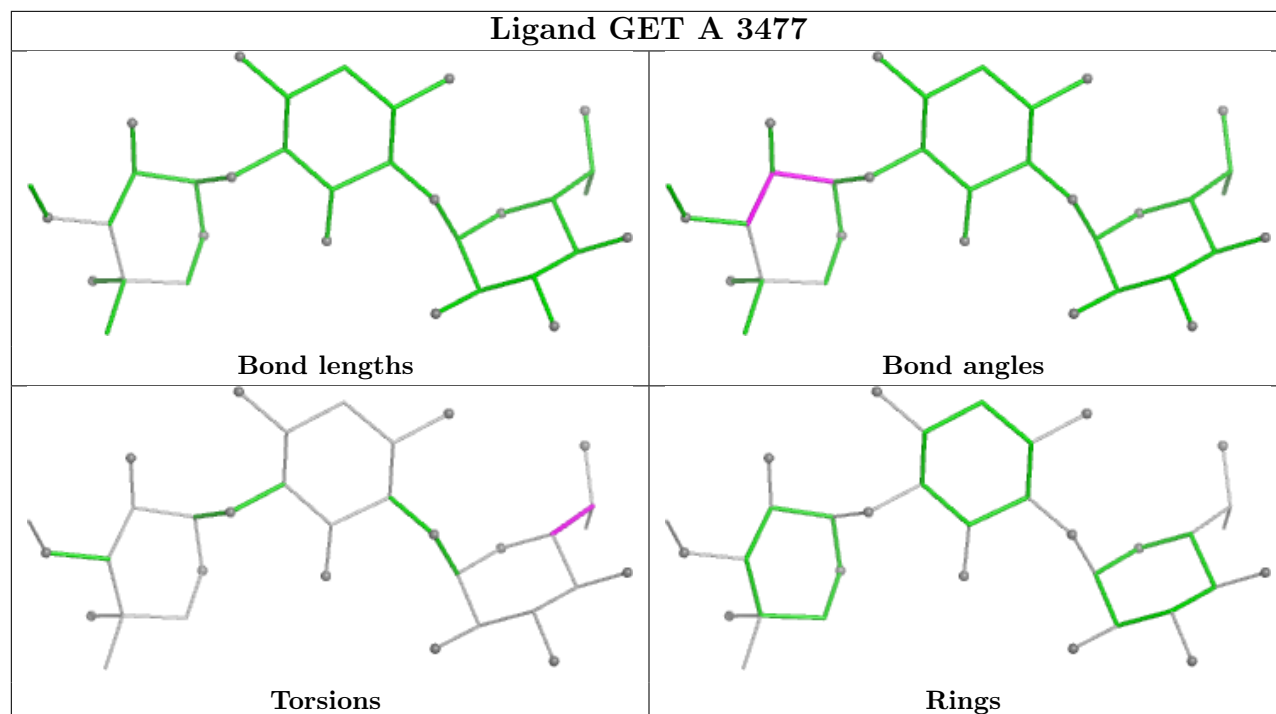


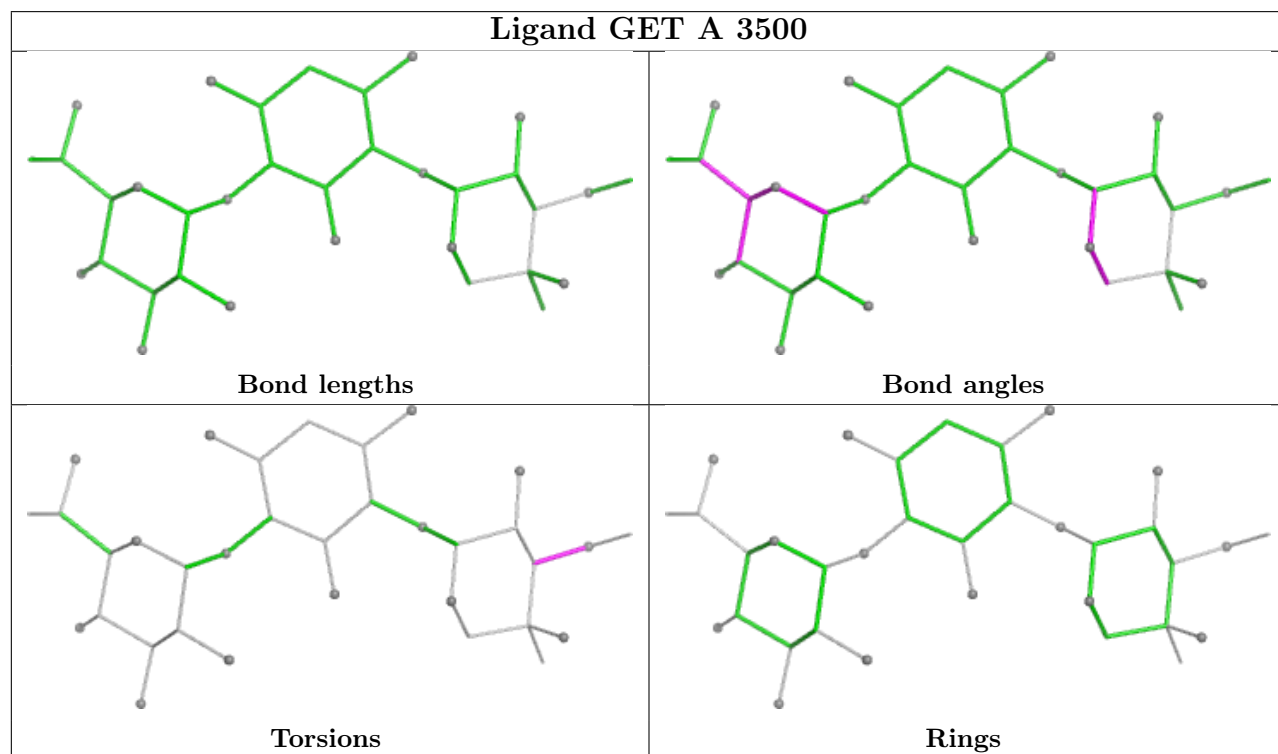
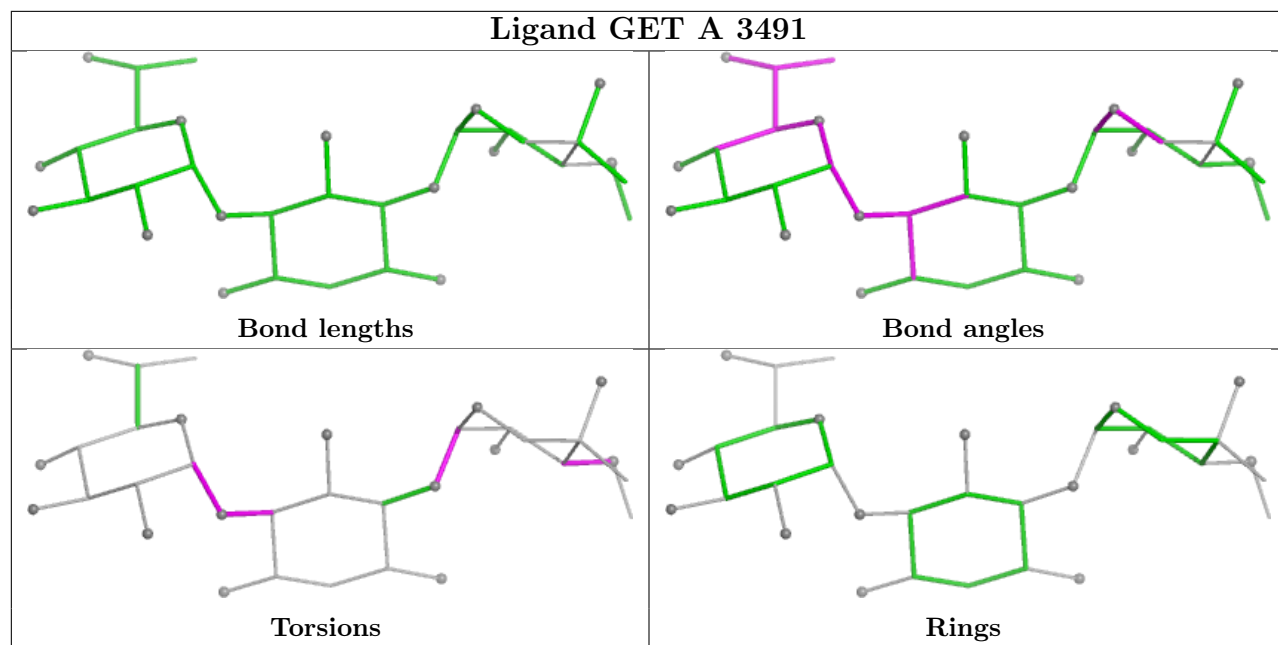
## Ligand GET CA 1878



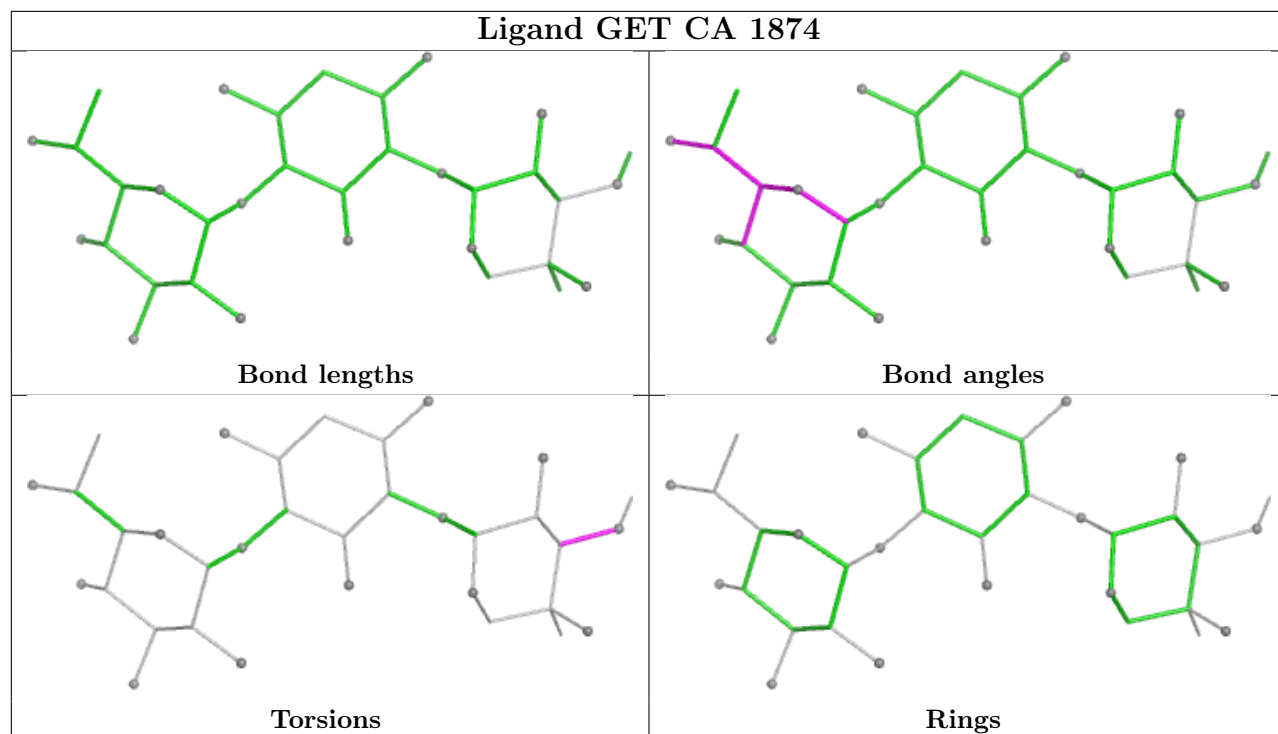




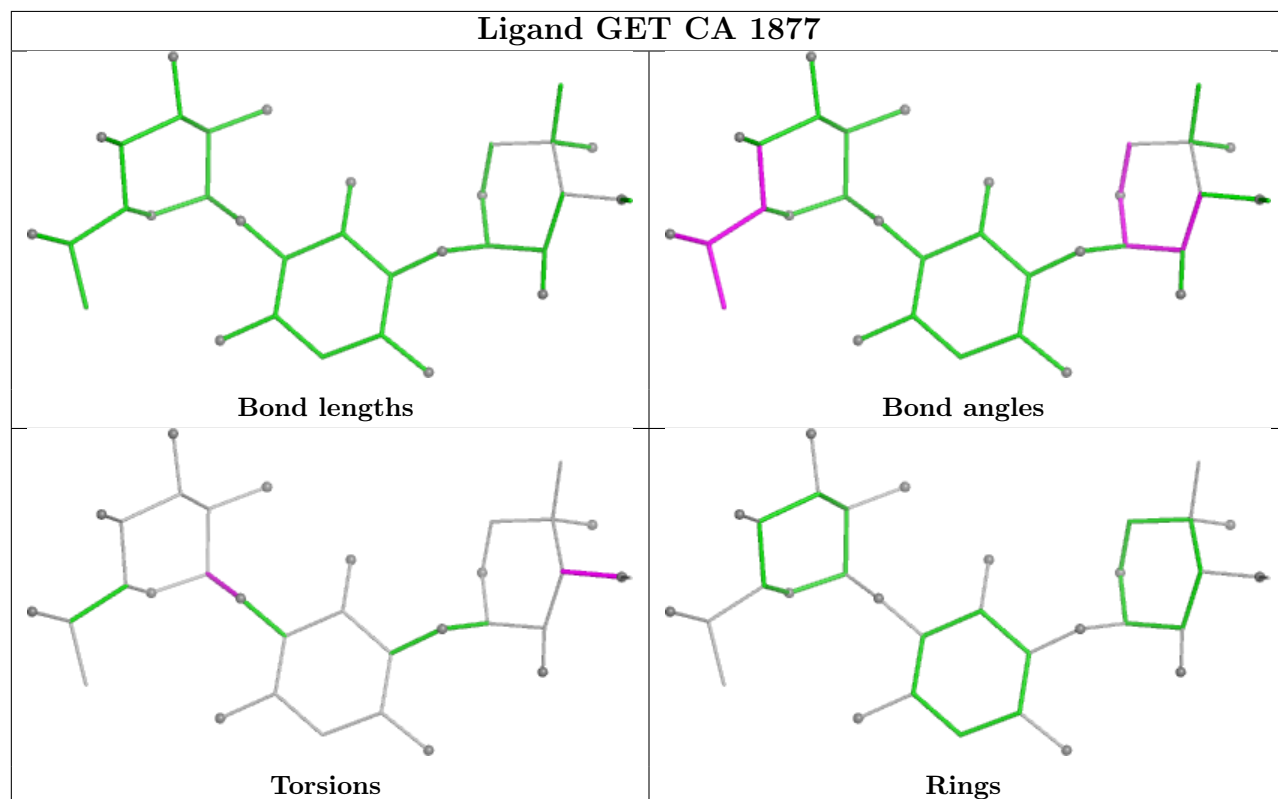


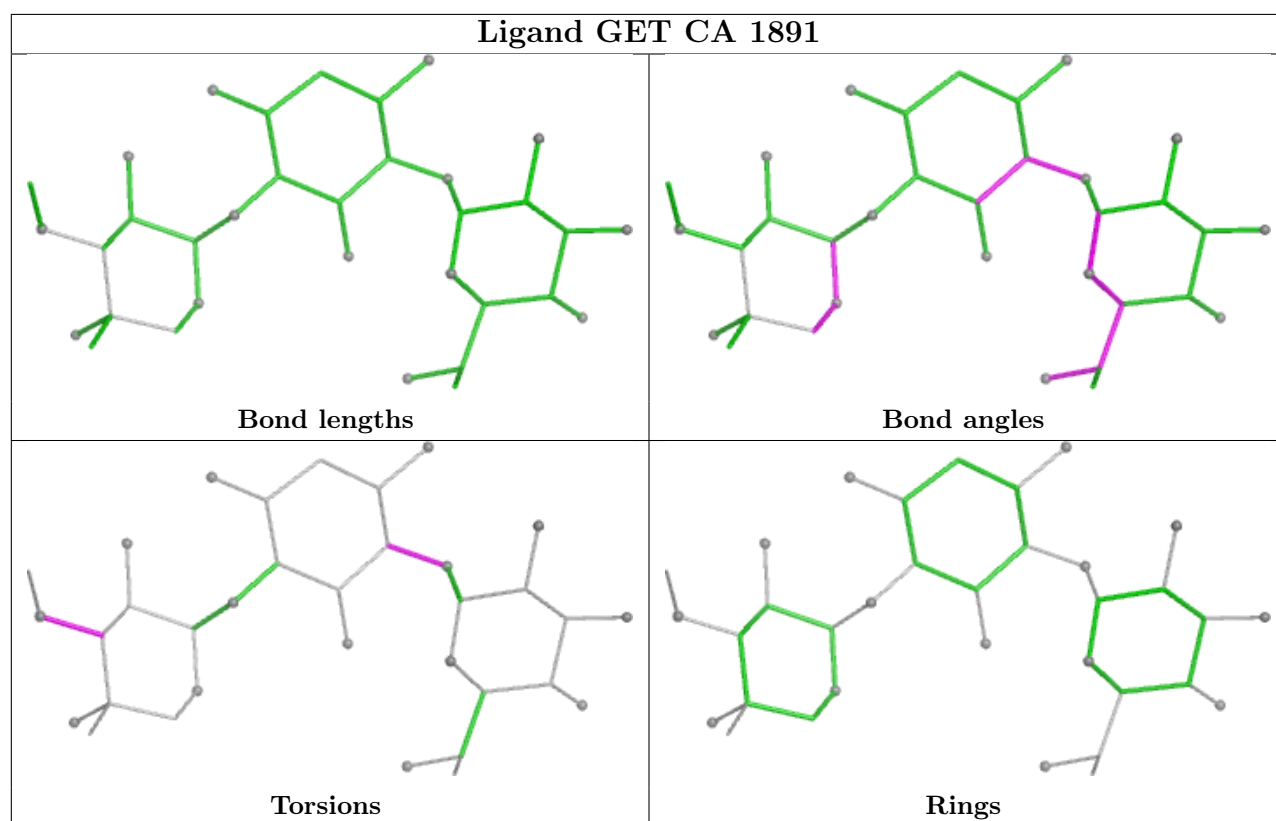
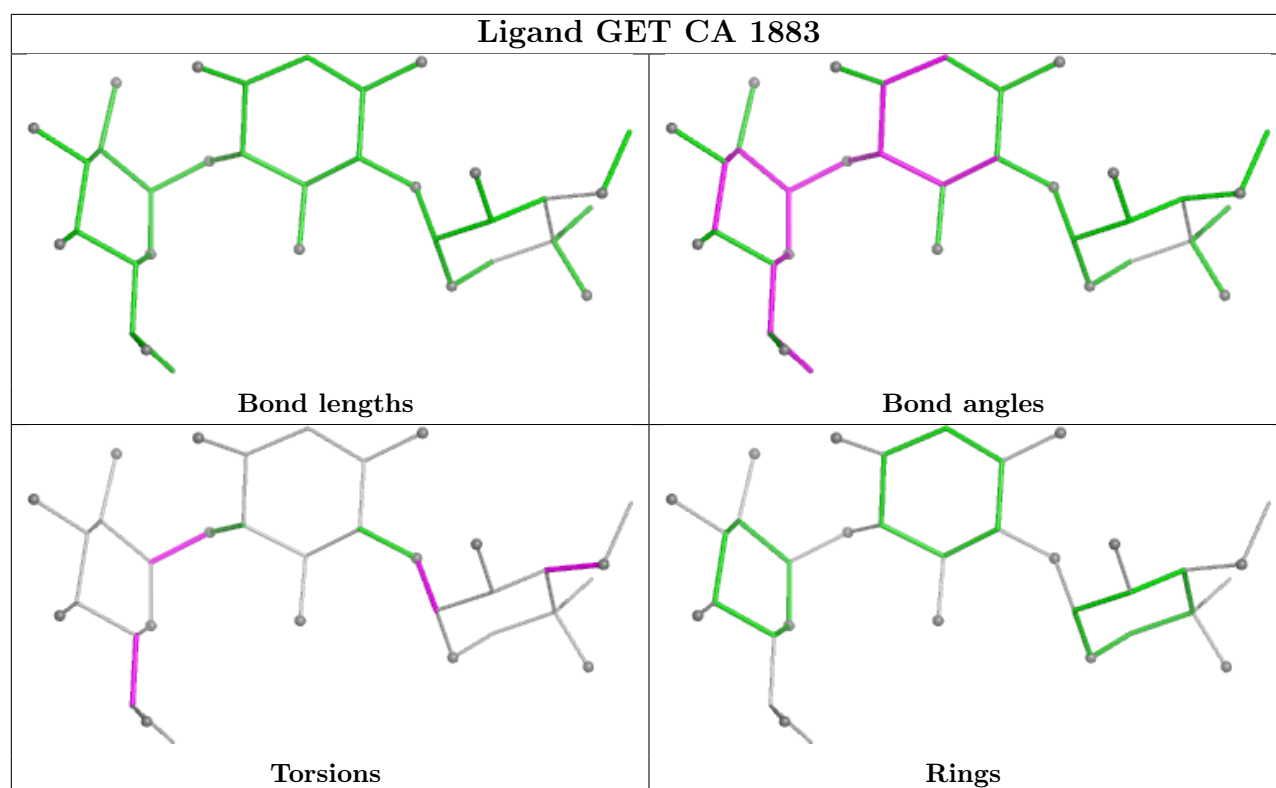


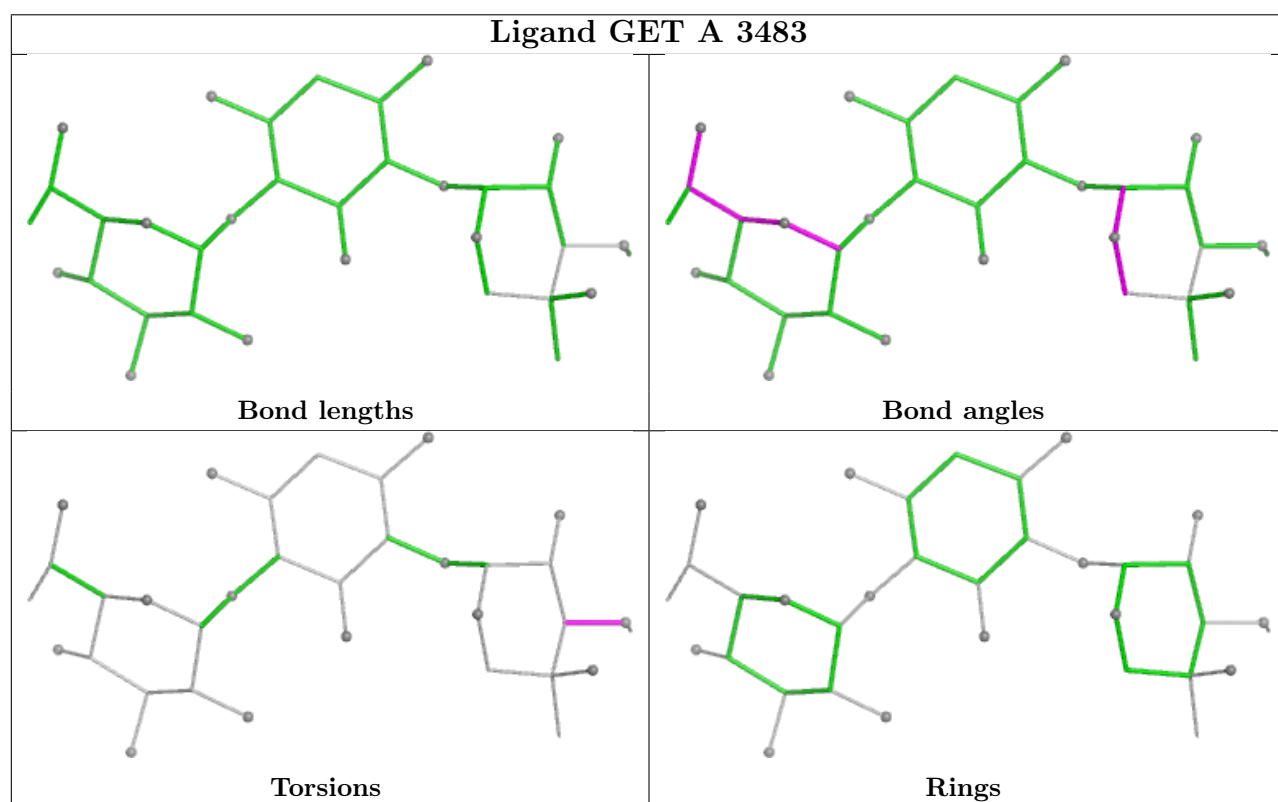
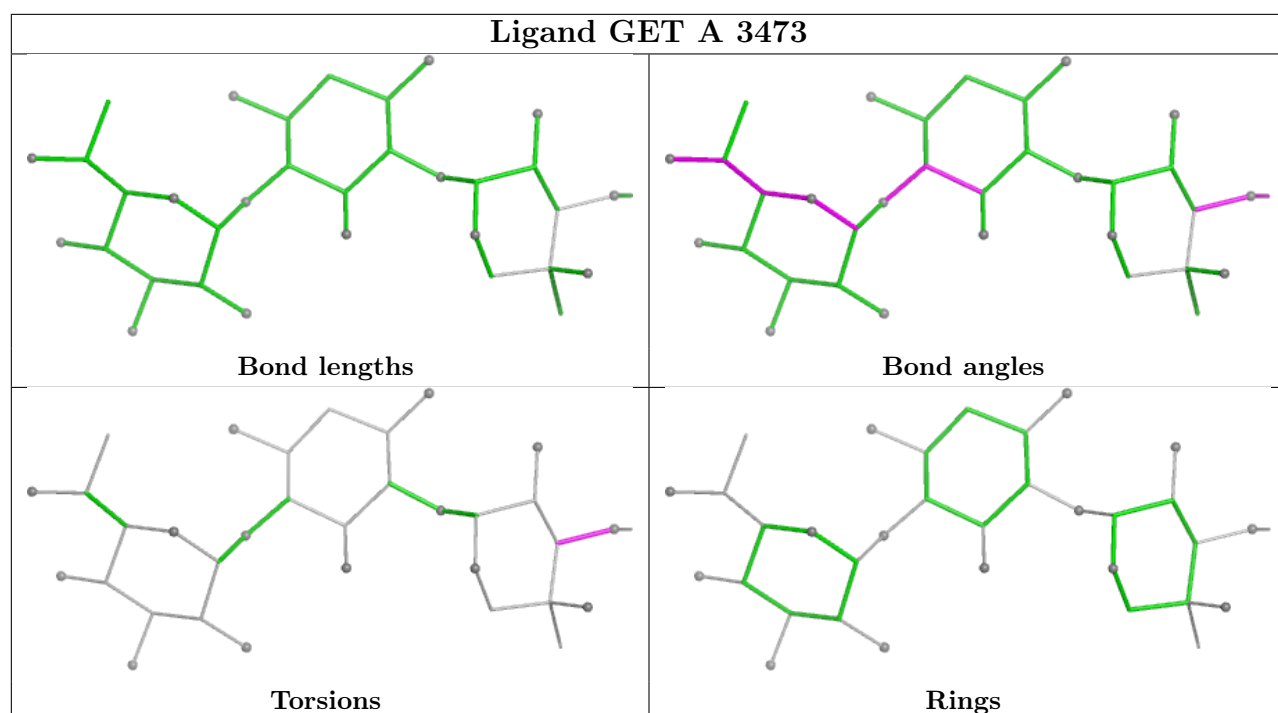
## Ligand GET CA 1874

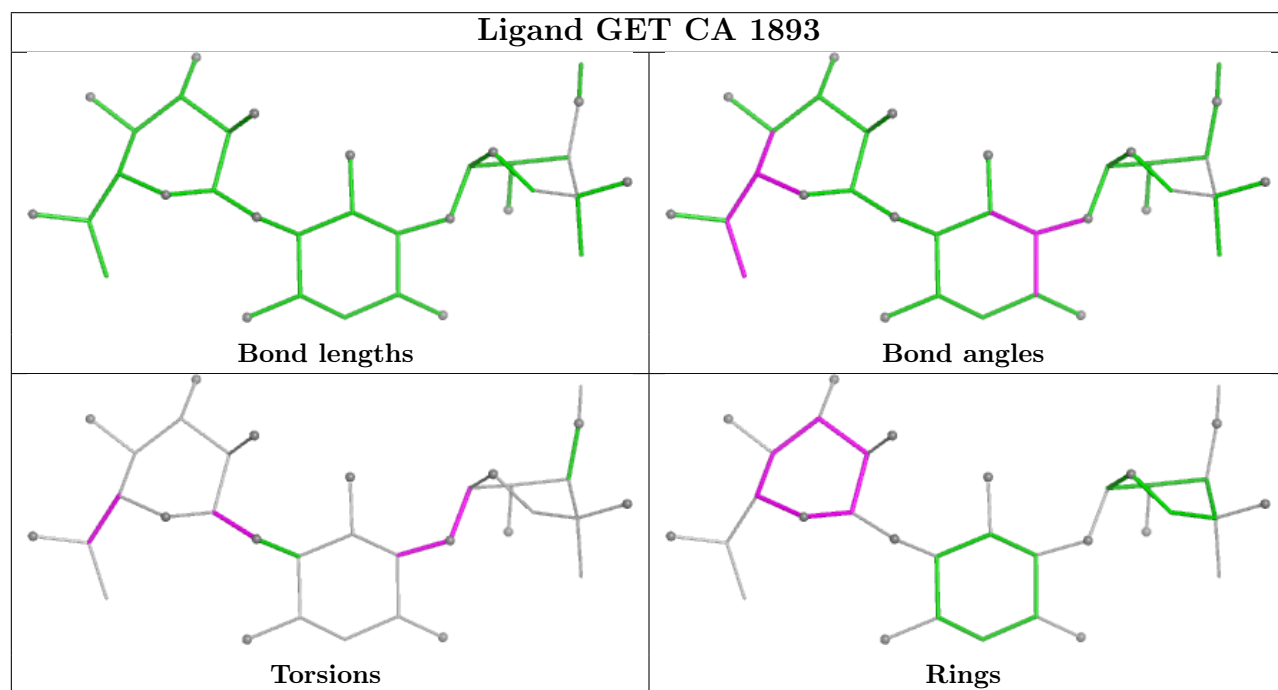
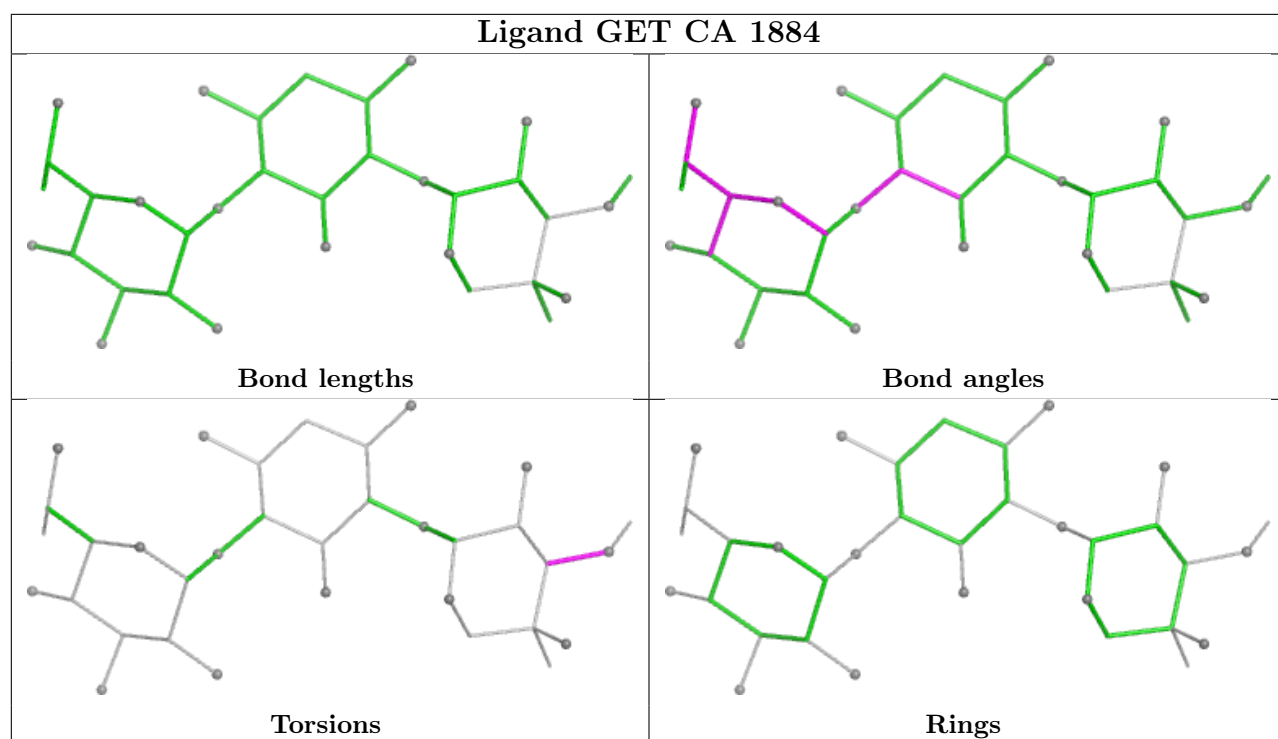


## Ligand GET CA 1877

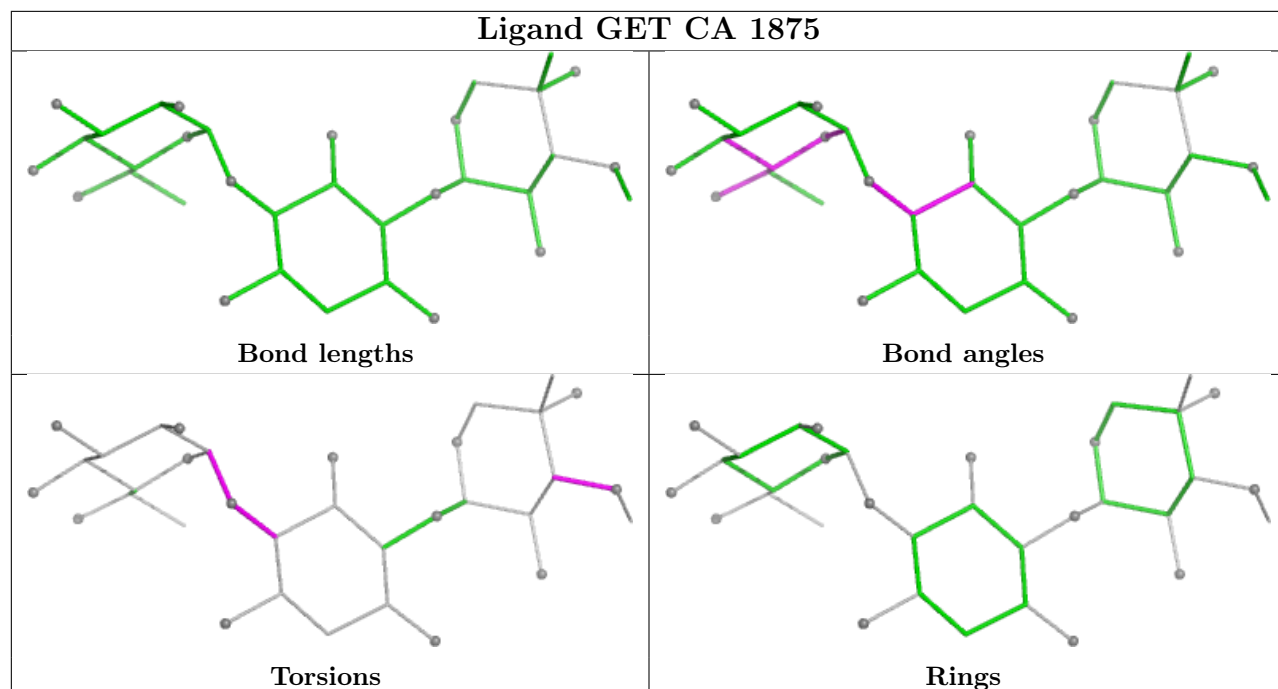




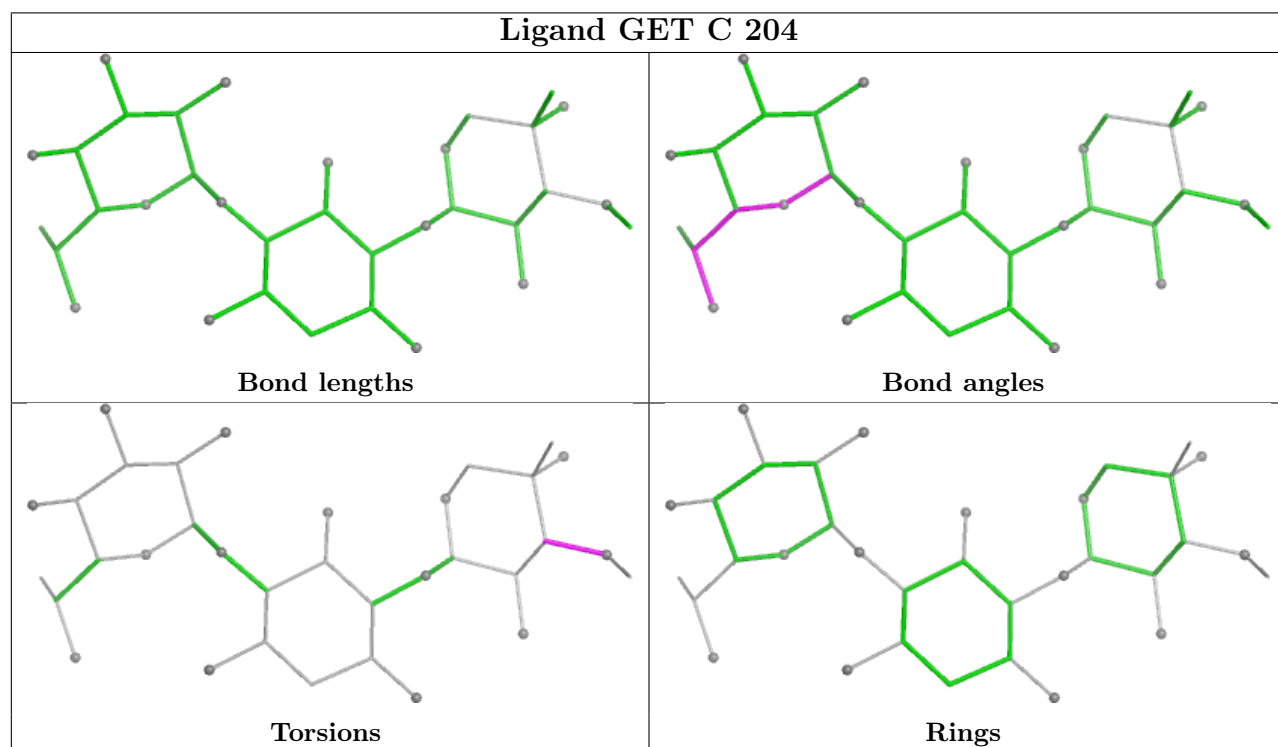


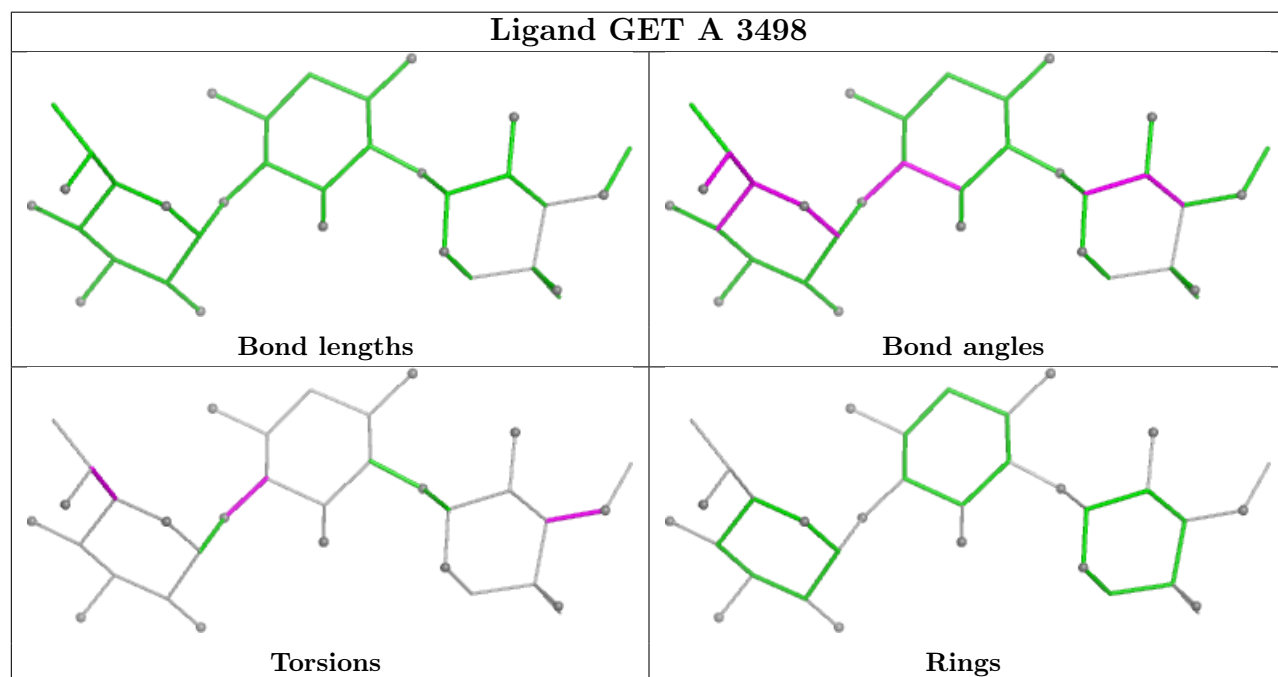
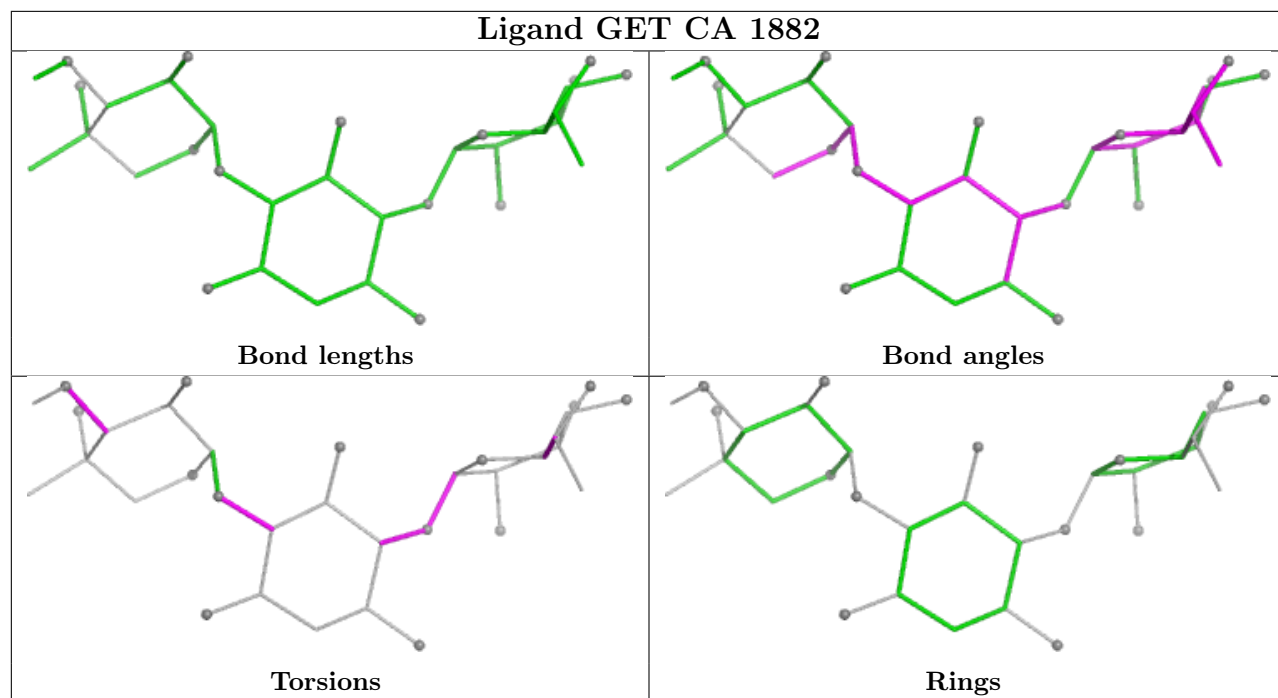


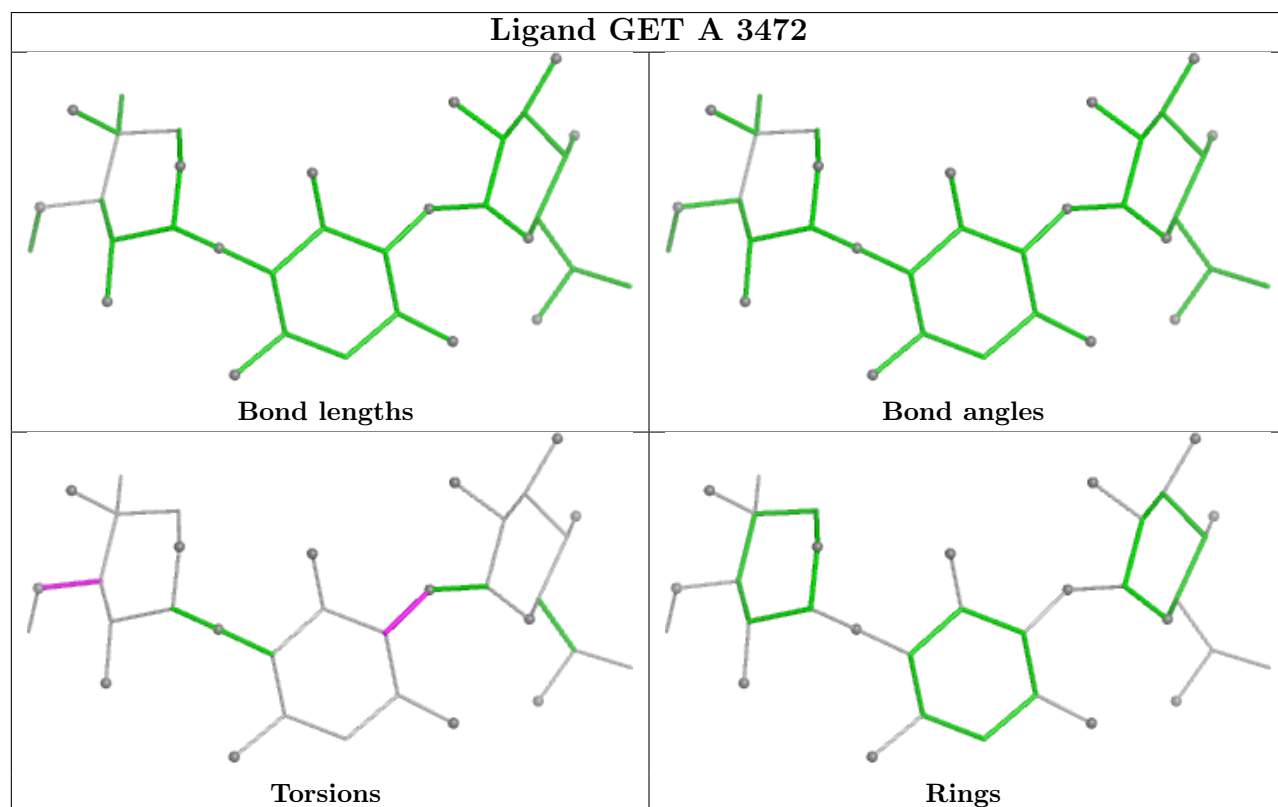
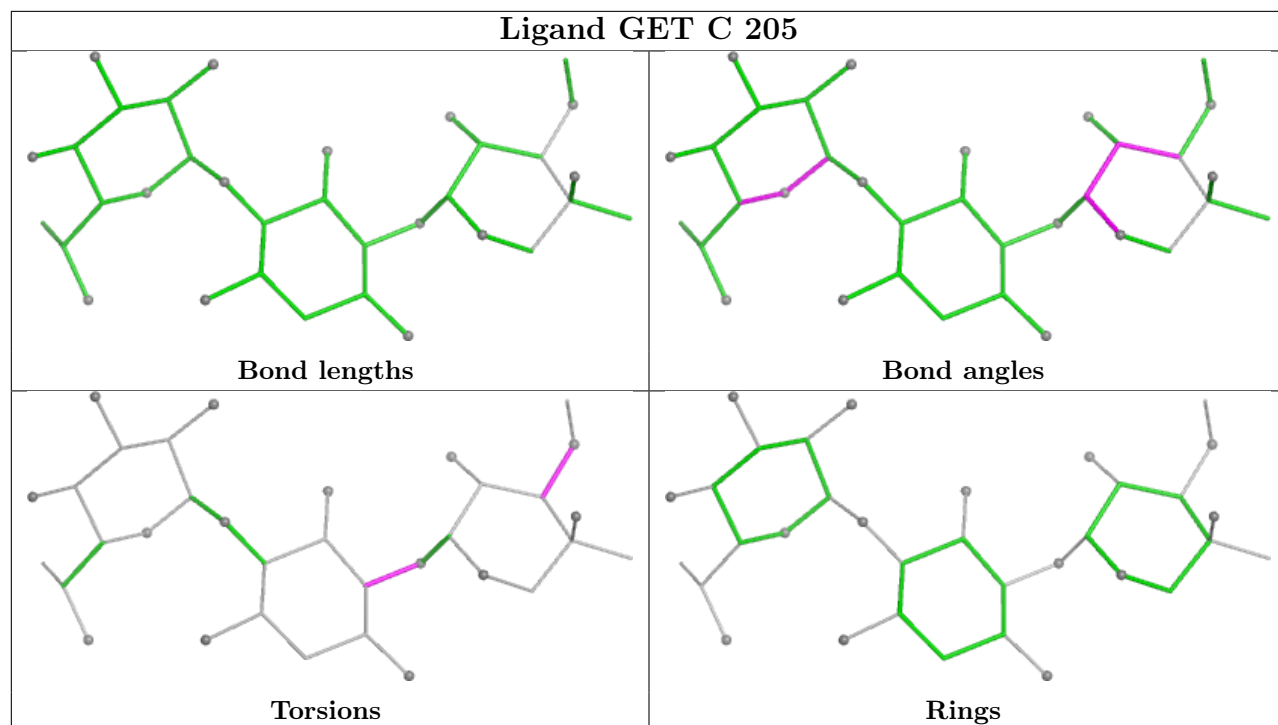
## Ligand GET CA 1875

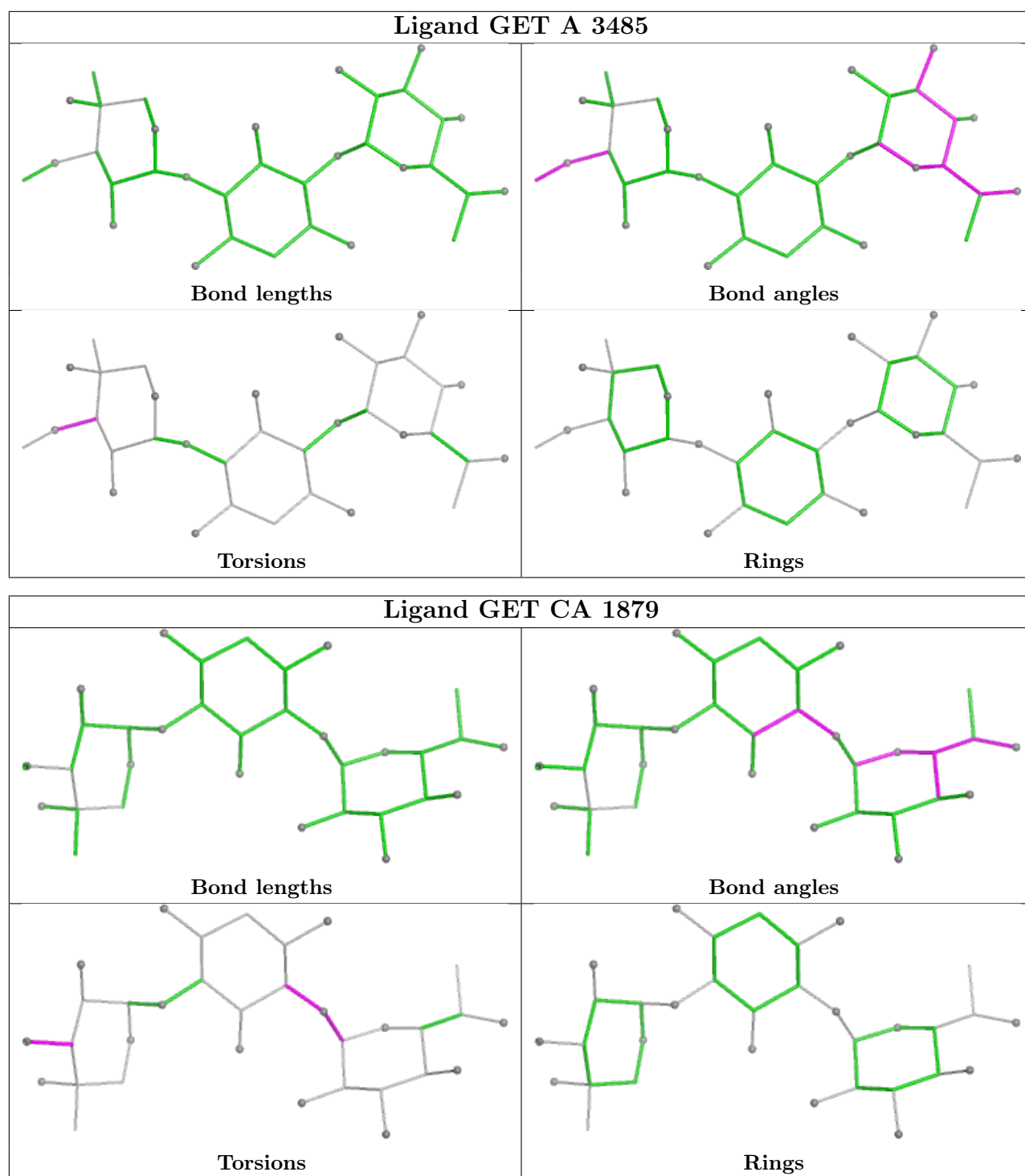


## Ligand GET C 204









## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

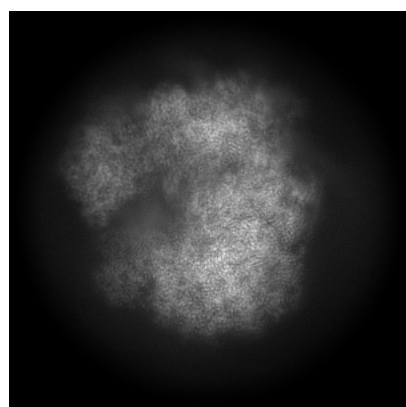
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-55225. These allow visual inspection of the internal detail of the map and identification of artifacts.

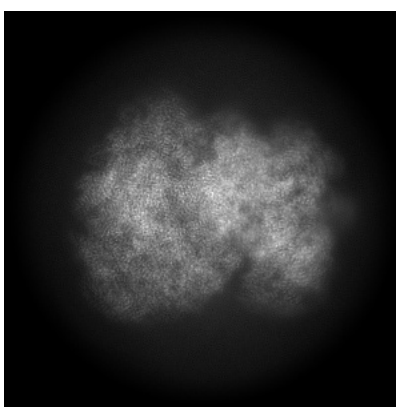
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

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

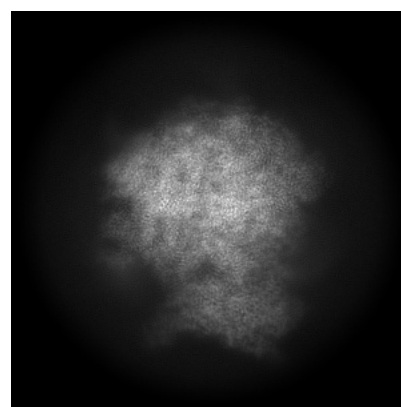
#### 6.1.1 Primary map



X



Y

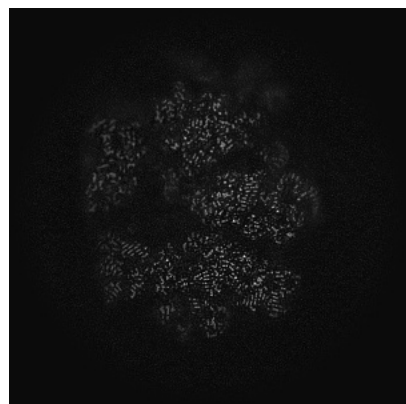


Z

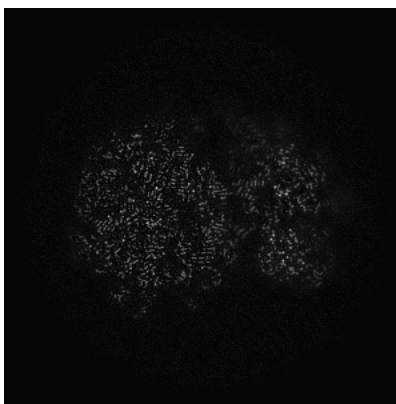
The images above show the map projected in three orthogonal directions.

### 6.2 Central slices [i](#)

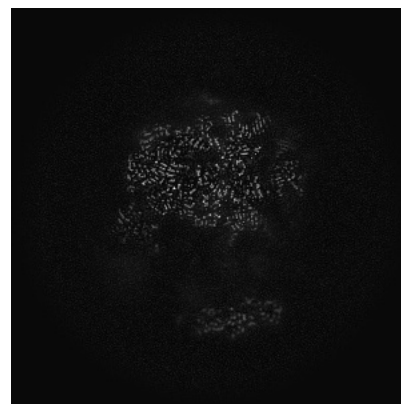
#### 6.2.1 Primary map



X Index: 225



Y Index: 225

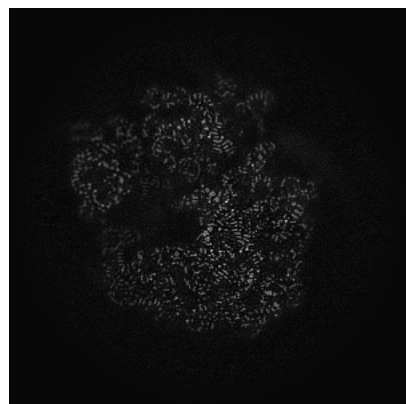


Z Index: 225

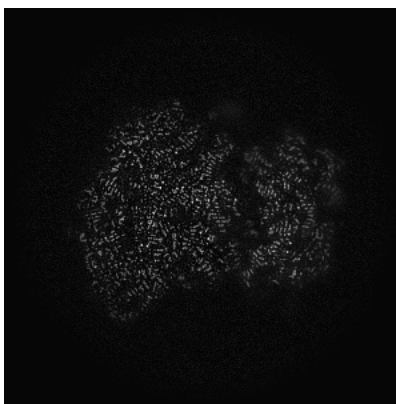
The images above show central slices of the map in three orthogonal directions.

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

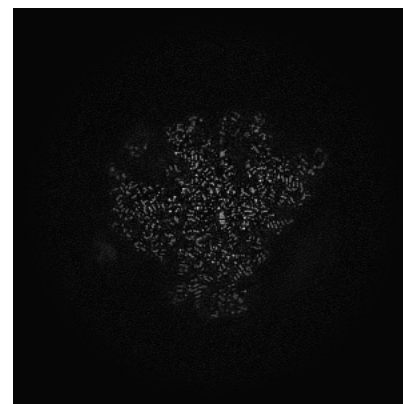
### 6.3.1 Primary map



X Index: 248



Y Index: 237

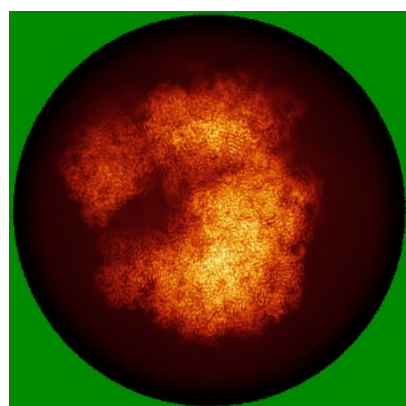


Z Index: 161

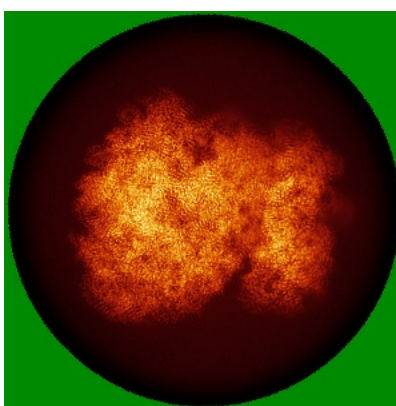
The images above show the largest variance slices of the map in three orthogonal directions.

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

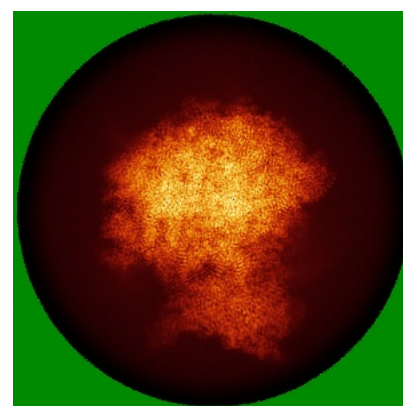
### 6.4.1 Primary map



X



Y

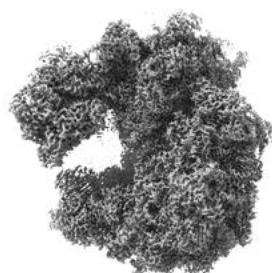


Z

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

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

### 6.5.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.39. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

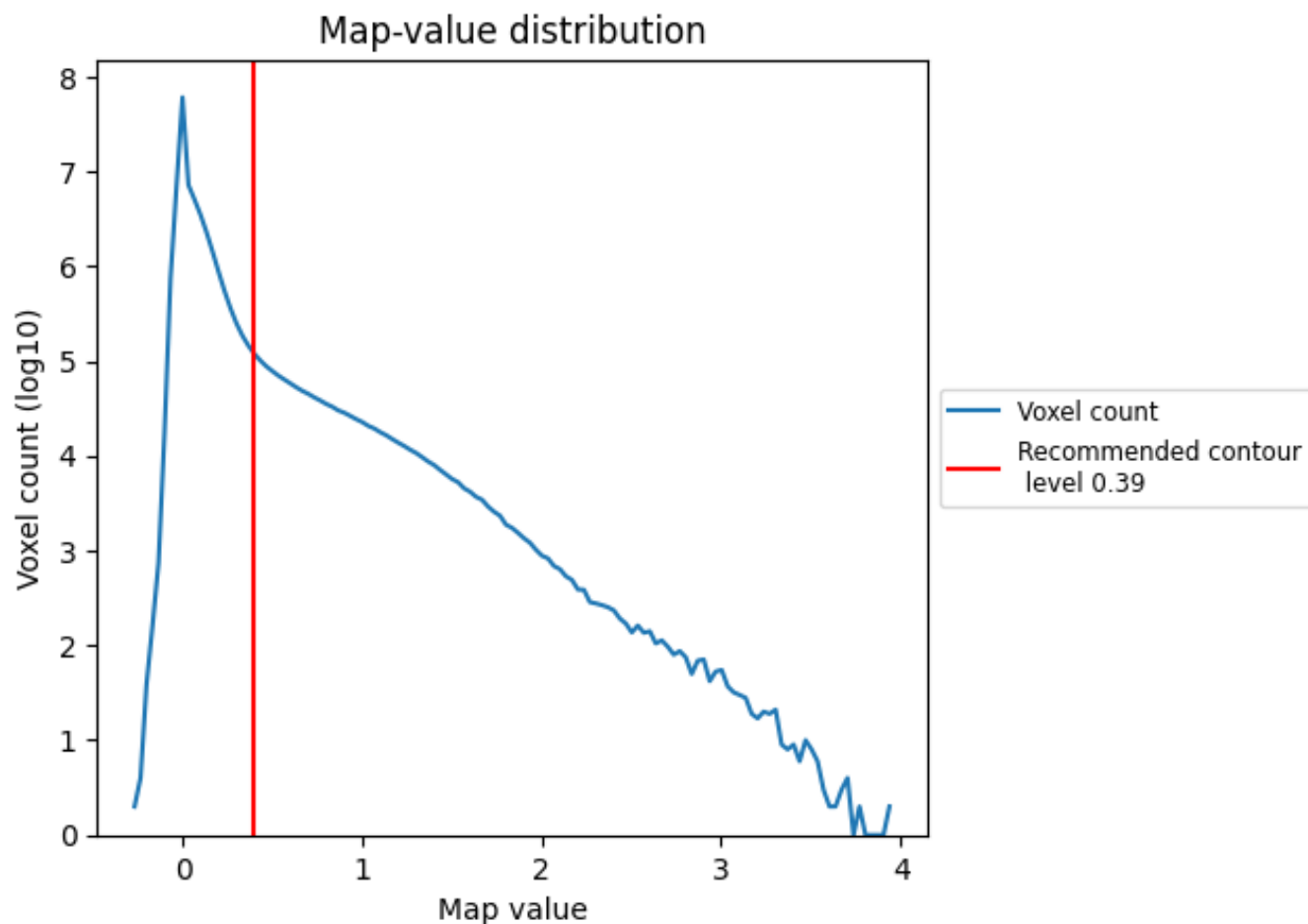
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

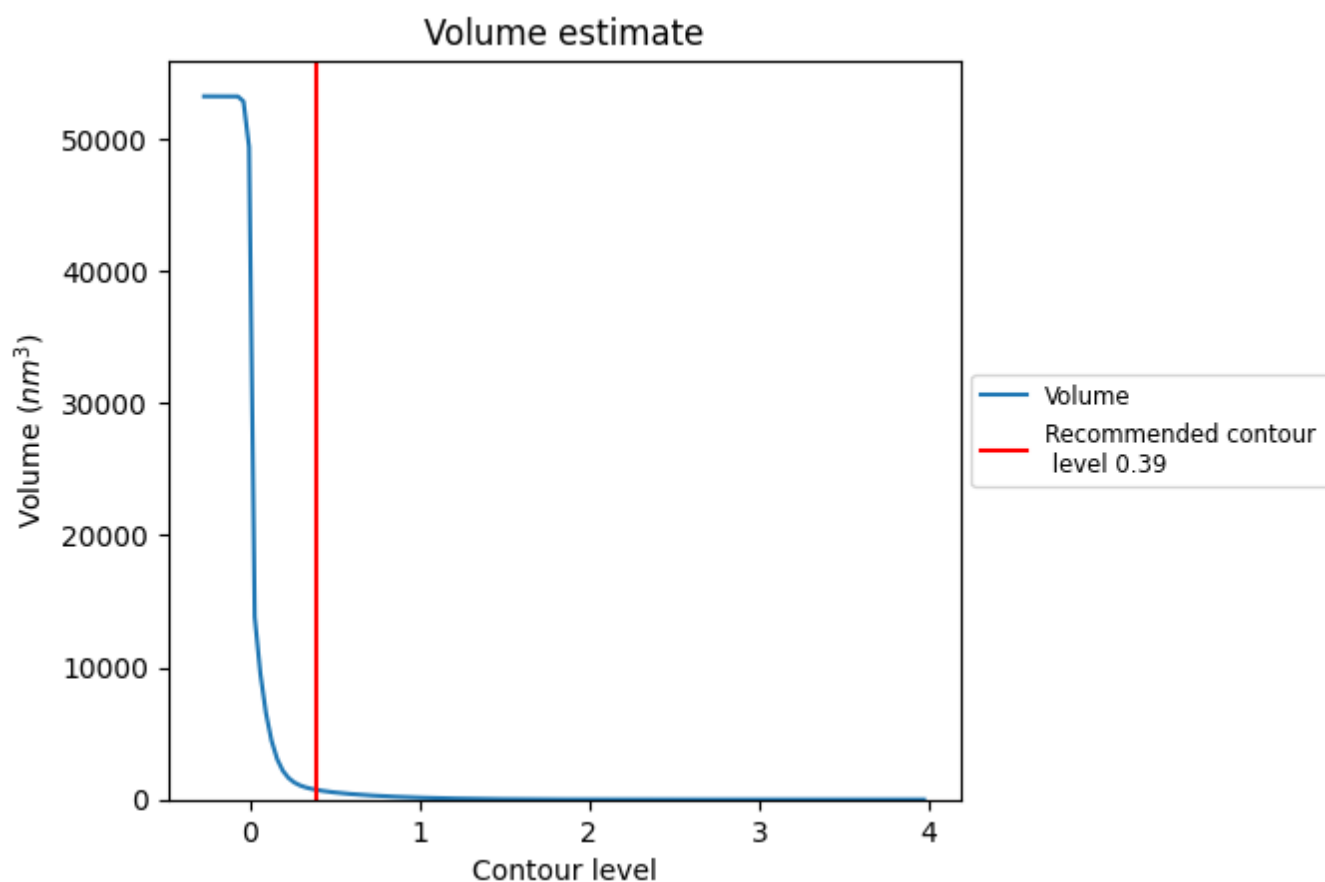
This section contains the results of statistical analysis of the map.

### 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.

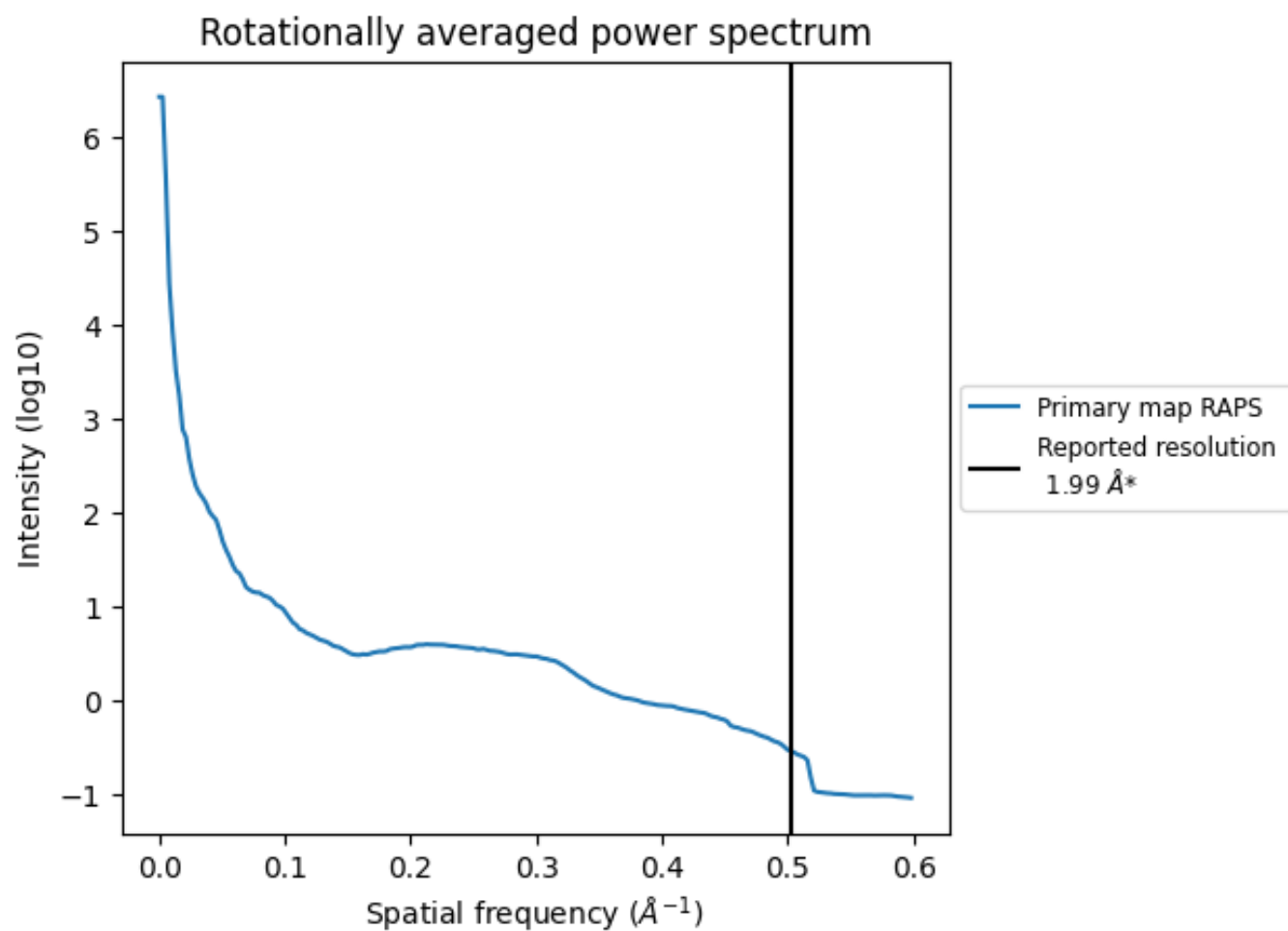
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 745 nm<sup>3</sup>; this corresponds to an approximate mass of 673 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 0.503 Å<sup>-1</sup>

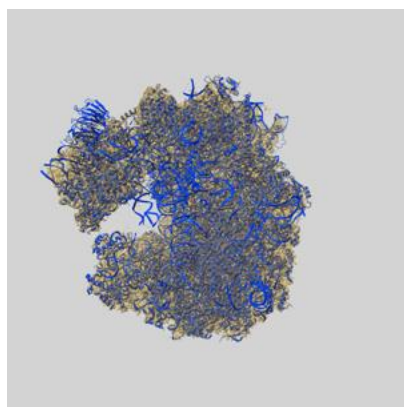
## 8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

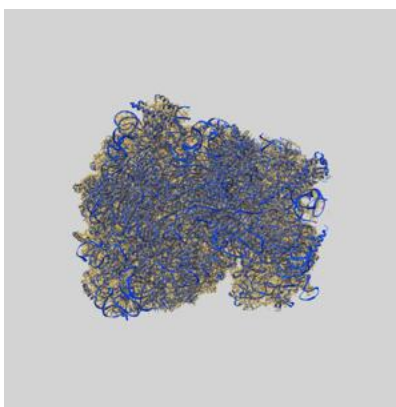
## 9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-55225 and PDB model 9SUM. Per-residue inclusion information can be found in section [3](#) on page [26](#).

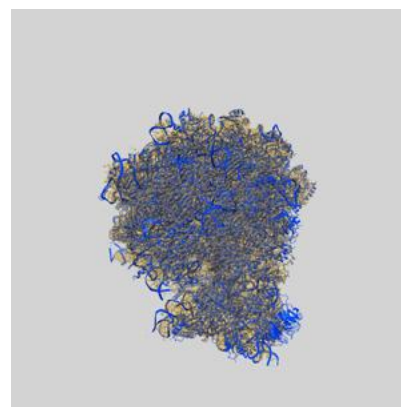
### 9.1 Map-model overlay [i](#)



X



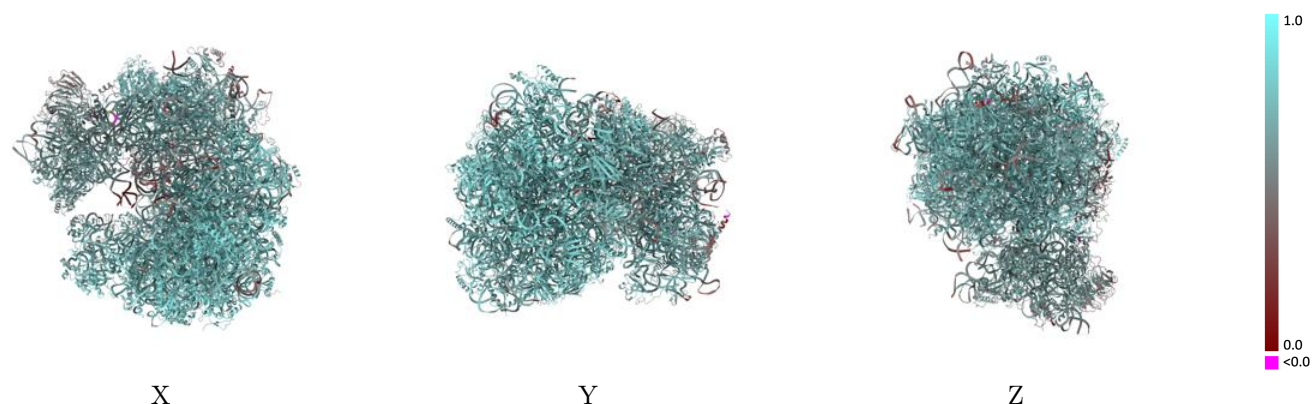
Y



Z

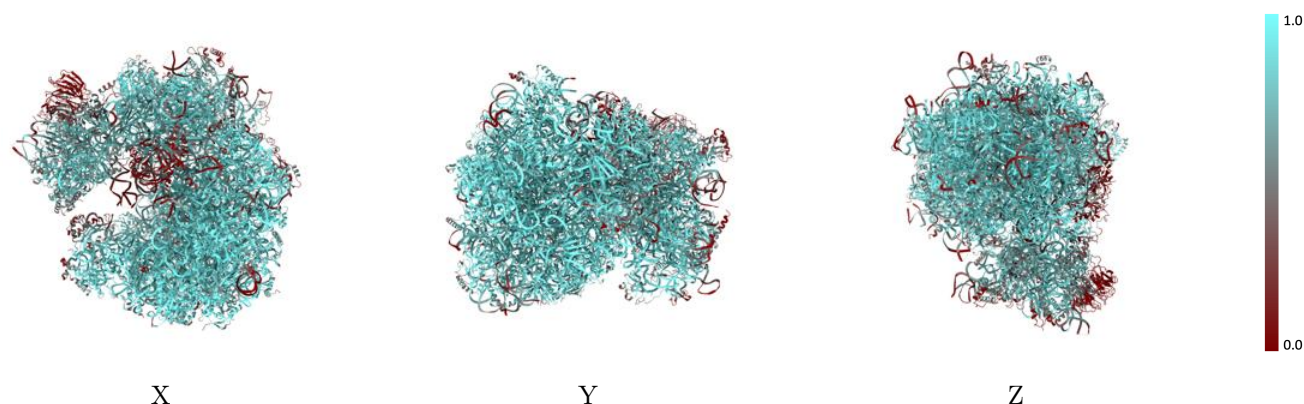
The images above show the 3D surface view of the map at the recommended contour level 0.39 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



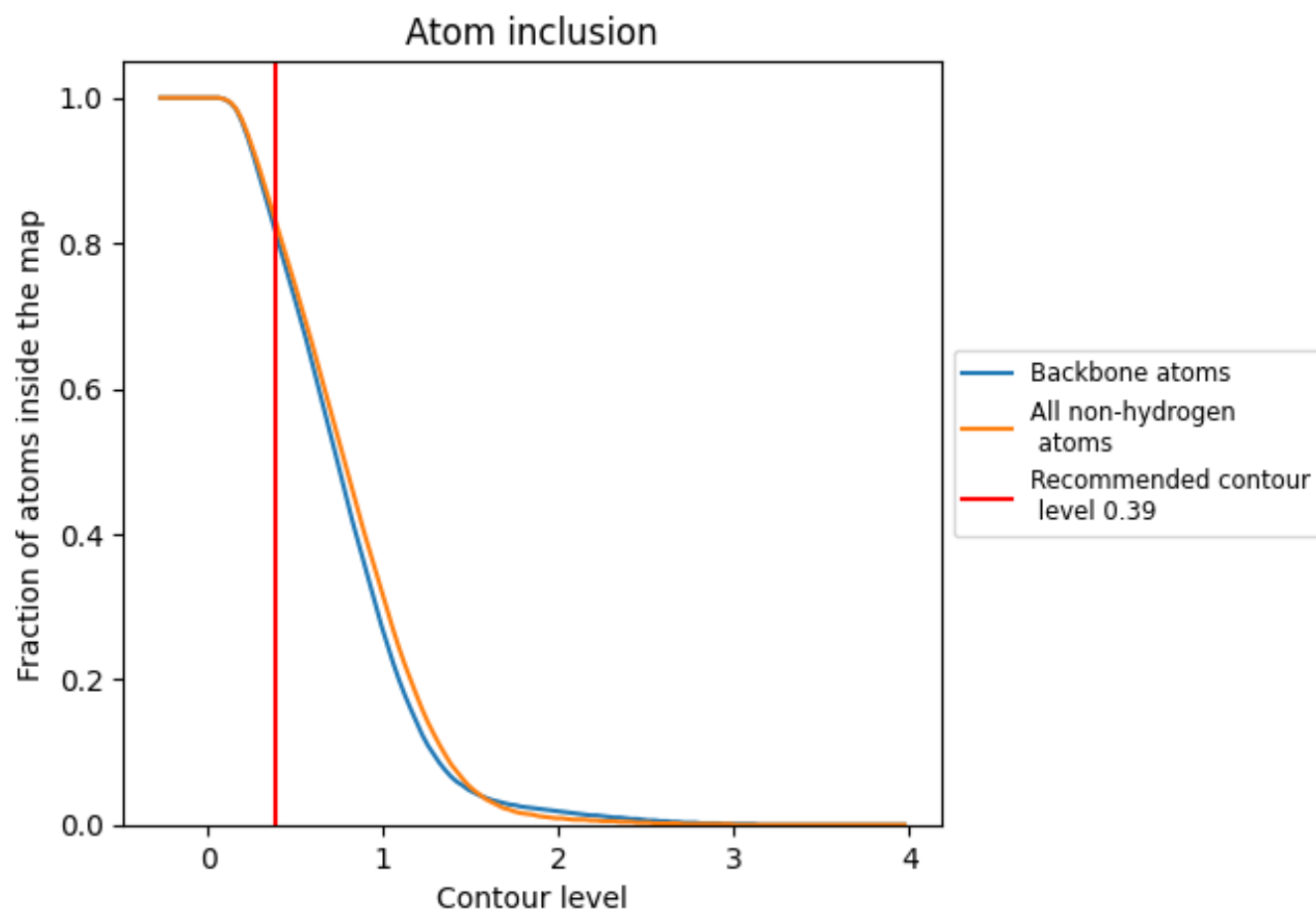
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.39).

## 9.4 Atom inclusion [i](#)



At the recommended contour level, 81% of all backbone atoms, 83% of all non-hydrogen atoms, are inside the map.

## 9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.39) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion                                                                             | Q-score                                                                                    |
|-------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| All   |  0.8290   |  0.7140   |
| 1     |  0.0840   |  0.3820   |
| 2     |  0.2000   |  0.5380   |
| A     |  0.9170   |  0.7510   |
| B     |  0.8890   |  0.7210   |
| C     |  0.9300   |  0.7570   |
| CA    |  0.8190   |  0.6410   |
| D     |  0.9640   |  0.8190   |
| E     |  0.9400   |  0.8030   |
| F     |  0.9250   |  0.8020   |
| G     |  0.7420   |  0.7300   |
| H     |  0.8160   |  0.7590   |
| I     |  0.8920   |  0.7930   |
| J     |  0.8090   |  0.7540   |
| K     |  0.8690  |  0.7660  |
| L     |  0.8300 |  0.7590 |
| M     |  0.4980 |  0.6450 |
| N     |  0.8800 |  0.7780 |
| O     |  0.8970 |  0.7850 |
| P     |  0.9900 |  0.8300 |
| Q     |  0.9360 |  0.8080 |
| R     |  0.9330 |  0.8020 |
| S     |  0.9650 |  0.8140 |
| T     |  0.8310 |  0.7310 |
| U     |  0.9210 |  0.7900 |
| V     |  0.8740 |  0.7800 |
| W     |  0.4540 |  0.5990 |
| X     |  0.9340 |  0.7980 |
| Y     |  0.9420 |  0.7980 |
| Z     |  0.9370 |  0.7970 |
| ZA    |  0.8180 |  0.6920 |
| ZB    |  0.7070 |  0.6660 |
| ZC    |  0.4860 |  0.5890 |
| ZD    |  0.8850 |  0.7390 |
| ZE    |  0.8250 |  0.6970 |



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| Chain | Atom inclusion                                                                             | Q-score                                                                                    |
|-------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| ZF    |  0.1750   |  0.5160   |
| ZG    |  0.5900   |  0.6020   |
| ZH    |  0.6810   |  0.6330   |
| ZI    |  0.4740   |  0.5670   |
| ZJ    |  0.5840   |  0.6060   |
| ZK    |  0.7120   |  0.6270   |
| ZL    |  0.4860   |  0.5530   |
| ZM    |  0.8480   |  0.7170   |
| ZO    |  0.9620   |  0.7560   |
| ZP    |  0.8370   |  0.7190   |
| ZQ    |  0.7100   |  0.6650   |
| ZR    |  0.5930   |  0.6060   |
| ZS    |  0.3260   |  0.6130   |
| ZT    |  0.7190   |  0.6650   |
| ZU    |  0.5610   |  0.5970   |
| ZV    |  0.7900   |  0.6370   |
| ZW    |  0.5070   |  0.6100   |
| ZY    |  0.1630  |  0.5100  |
| a     |  0.8820 |  0.7780 |
| b     |  0.7810 |  0.7370 |
| c     |  0.9580 |  0.8180 |
| d     |  0.9030 |  0.7870 |
| e     |  0.7980 |  0.7440 |
| f     |  0.8580 |  0.7690 |
| g     |  0.9410 |  0.8130 |
| h     |  0.9650 |  0.8200 |
| i     |  0.9110 |  0.7870 |
| j     |  0.8780 |  0.7820 |
| k     |  0.8400 |  0.7590 |
| l     |  0.9710 |  0.8200 |
| m     |  0.6520 |  0.7030 |
| n     |  0.8930 |  0.7720 |
| o     |  0.8670 |  0.7760 |
| p     |  0.3840 |  0.6770 |
| q     |  0.8670 |  0.7820 |
| r     |  0.9080 |  0.7900 |
| s     |  0.8410 |  0.6940 |
| t     |  0.2020 |  0.5030 |
| u     |  0.8880 |  0.7200 |
| v     |  0.5470 |  0.5880 |
| w     |  0.8130 |  0.7000 |
| x     |  0.6670 |  0.6140 |

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| Chain | Atom inclusion                                                                           | Q-score                                                                                  |
|-------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| y     |  0.7180 |  0.6560 |
| z     |  0.5670 |  0.6120 |