



## Full wwPDB EM Validation Report ⓘ

Feb 25, 2026 – 02:42 PM JST

PDB ID : 7WYX / pdb\_00007wyx  
EMDB ID : EMD-32897  
Title : Cryo-EM structure of Na<sup>+</sup>,K<sup>+</sup>-ATPase in the E2P state formed by ATP with istaroxime  
Authors : Kanai, R.; Cornelius, F.; Vilsen, B.; Toyoshima, C.  
Deposited on : 2022-02-16  
Resolution : 3.40 Å (reported)  
Based on initial model : 7D91

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

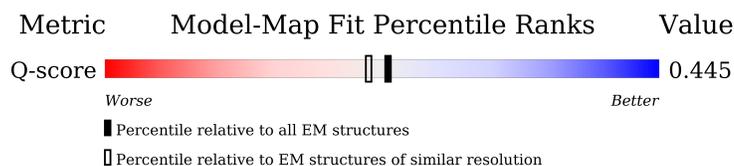
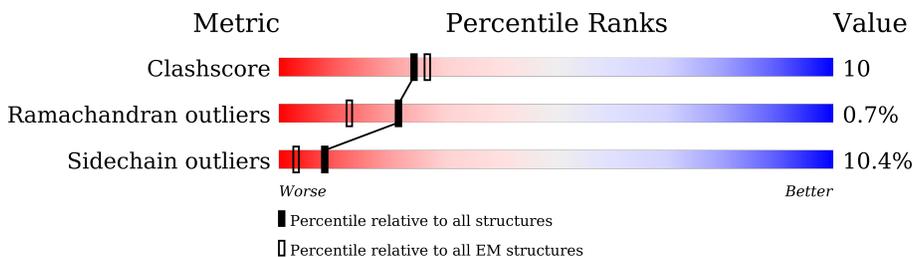
EMDB validation analysis : 0.0.1.dev132  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
MolProbity : 4-5-2 with Phenix2.0  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)  
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.48.1

# 1 Overall quality at a glance i

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

The reported resolution of this entry is 3.40 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.



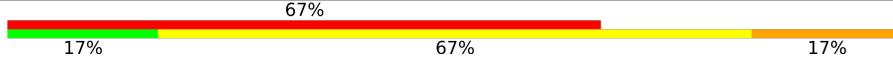
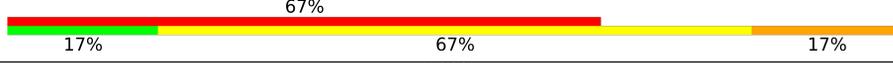
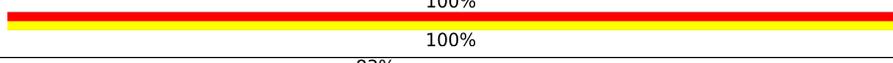
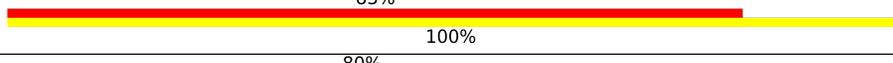
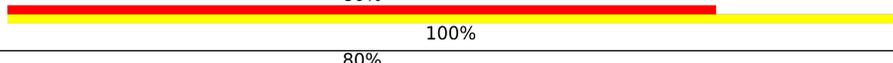
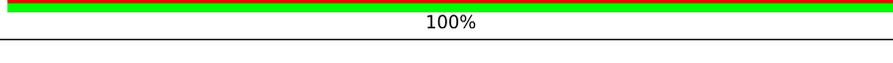
| Metric                | Whole archive (#Entries) | EM structures (#Entries) | Similar EM resolution (#Entries, resolution range(Å)) |
|-----------------------|--------------------------|--------------------------|---|
| Clashscore            | 210492                   | 15764                    | -   |
| Ramachandran outliers | 207382                   | 16835                    | -   |
| Sidechain outliers    | 206894                   | 16415                    | -   |
| Q-score               | -                        | 25397                    | 14717 ( 2.90 - 3.90 )                                 |

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   | A     | 1028   | <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">21%</div> <div style="width: 100%; height: 15px; background: linear-gradient(to right, red, orange, yellow, green, grey);"></div> <div style="text-align: center;">71%</div> <div style="text-align: center;">23%</div> <div style="text-align: right;">• •</div> </div>  |
| 1   | C     | 1028   | <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">21%</div> <div style="width: 100%; height: 15px; background: linear-gradient(to right, red, orange, yellow, green, grey);"></div> <div style="text-align: center;">71%</div> <div style="text-align: center;">23%</div> <div style="text-align: right;">• •</div> </div>  |
| 2   | B     | 305    | <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">6%</div> <div style="width: 100%; height: 15px; background: linear-gradient(to right, red, orange, yellow, green, grey);"></div> <div style="text-align: center;">60%</div> <div style="text-align: center;">30%</div> <div style="text-align: center;">6%</div> <div style="text-align: right;">•</div> </div> |
| 2   | D     | 305    | <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">6%</div> <div style="width: 100%; height: 15px; background: linear-gradient(to right, red, orange, yellow, green, grey);"></div> <div style="text-align: center;">59%</div> <div style="text-align: center;">30%</div> <div style="text-align: center;">7%</div> <div style="text-align: right;">•</div> </div> |
| 3   | E     | 94     | <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">5%</div> <div style="width: 100%; height: 15px; background: linear-gradient(to right, red, orange, yellow, green, grey);"></div> <div style="text-align: center;">31%</div> <div style="text-align: center;">12%</div> <div style="text-align: center;">57%</div> </div>  |

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| Mol | Chain | Length | Quality of chain   |
|-----|-------|--------|--|
| 3   | G     | 94     |  |
| 4   | F     | 6      |  |
| 4   | K     | 6      |  |
| 5   | H     | 6      |  |
| 5   | L     | 6      |  |
| 6   | I     | 5      |  |
| 6   | M     | 5      |  |
| 7   | J     | 2      |  |
| 7   | N     | 2      |  |

## 2 Entry composition [i](#)

There are 14 unique types of molecules in this entry. The entry contains 22714 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called Sodium/potassium-transporting ATPase subunit alpha.

| Mol | Chain | Residues | Atoms |      |      |      |   | AltConf | Trace |   |
|-----|-------|----------|-------|------|------|------|---|---------|-------|---|
|     |       |          | Total | C    | N    | O    | P |         |       | S |
| 1   | A     | 993      | Total | C    | N    | O    | P | S       | 0     | 0 |
|     |       |          | 7687  | 4890 | 1291 | 1459 | 1 | 46      |       |   |
| 1   | C     | 993      | Total | C    | N    | O    | P | S       | 0     | 0 |
|     |       |          | 7687  | 4890 | 1291 | 1459 | 1 | 46      |       |   |

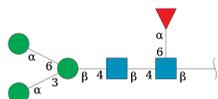
- Molecule 2 is a protein called Na<sup>+</sup>,K<sup>+</sup>-ATPase beta subunit.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
|     |       |          | Total | C    | N   | O   | S  |         |       |
| 2   | B     | 294      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 2399  | 1551 | 394 | 443 | 11 |         |       |
| 2   | D     | 294      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 2399  | 1551 | 394 | 443 | 11 |         |       |

- Molecule 3 is a protein called FXYD domain-containing ion transport regulator.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
|     |       |          | Total | C   | N  | O  | S |         |       |
| 3   | G     | 40       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 311   | 203 | 51 | 55 | 2 |         |       |
| 3   | E     | 40       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 311   | 203 | 51 | 55 | 2 |         |       |

- Molecule 4 is an oligosaccharide called alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-6)]2-acetamido-2-deoxy-beta-D-glucopyranose.



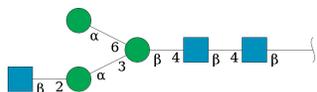
| Mol | Chain | Residues | Atoms |    |   |    | AltConf | Trace |
|-----|-------|----------|-------|----|---|----|---------|-------|
|     |       |          | Total | C  | N | O  |         |       |
| 4   | F     | 6        | Total | C  | N | O  | 0       | 0     |
|     |       |          | 71    | 40 | 2 | 29 |         |       |

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| Mol | Chain | Residues | Atoms |    |   |    | AltConf | Trace |
|-----|-------|----------|-------|----|---|----|---------|-------|
|     |       |          | Total | C  | N | O  |         |       |
| 4   | K     | 6        | 71    | 40 | 2 | 29 | 0       | 0     |

- Molecule 5 is an oligosaccharide called 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



| Mol | Chain | Residues | Atoms |    |   |    | AltConf | Trace |
|-----|-------|----------|-------|----|---|----|---------|-------|
|     |       |          | Total | C  | N | O  |         |       |
| 5   | H     | 6        | 75    | 42 | 3 | 30 | 0       | 0     |
| 5   | L     | 6        | 75    | 42 | 3 | 30 | 0       | 0     |

- Molecule 6 is an oligosaccharide called alpha-D-mannopyranose-(1-3)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-6)]2-acetamido-2-deoxy-beta-D-glucopyranose.



| Mol | Chain | Residues | Atoms |    |   |    | AltConf | Trace |
|-----|-------|----------|-------|----|---|----|---------|-------|
|     |       |          | Total | C  | N | O  |         |       |
| 6   | I     | 5        | 60    | 34 | 2 | 24 | 0       | 0     |
| 6   | M     | 5        | 60    | 34 | 2 | 24 | 0       | 0     |

- Molecule 7 is an oligosaccharide called 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



| Mol | Chain | Residues | Atoms |    |   |    | AltConf | Trace |
|-----|-------|----------|-------|----|---|----|---------|-------|
|     |       |          | Total | C  | N | O  |         |       |
| 7   | J     | 2        | 28    | 16 | 2 | 10 | 0       | 0     |

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| Mol | Chain | Residues | Atoms |    |   |    | AltConf | Trace |
|-----|-------|----------|-------|----|---|----|---------|-------|
|     |       |          | Total | C  | N | O  |         |       |
| 7   | N     | 2        | 28    | 16 | 2 | 10 | 0       | 0     |

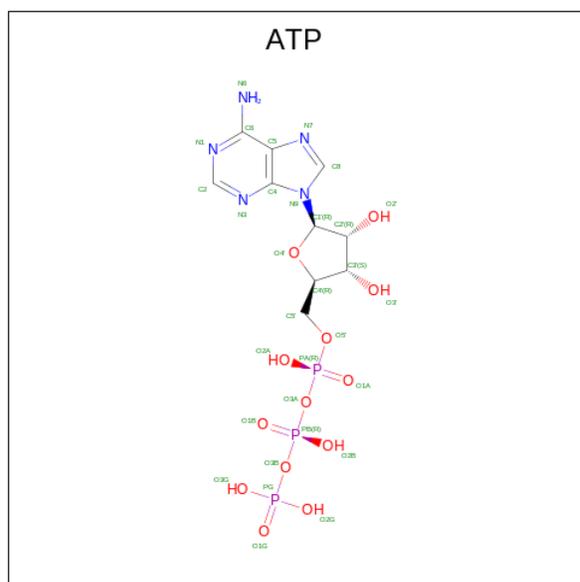
- Molecule 8 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

| Mol | Chain | Residues | Atoms |    | AltConf |
|-----|-------|----------|-------|----|---------|
|     |       |          | Total | Mg |         |
| 8   | A     | 1        | 1     | 1  | 0       |
| 8   | C     | 1        | 1     | 1  | 0       |

- Molecule 9 is SODIUM ION (CCD ID: NA) (formula: Na).

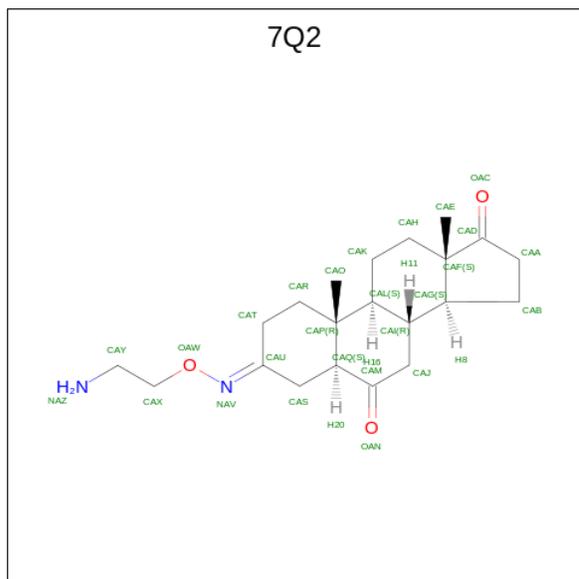
| Mol | Chain | Residues | Atoms |    | AltConf |
|-----|-------|----------|-------|----|---------|
|     |       |          | Total | Na |         |
| 9   | A     | 1        | 1     | 1  | 0       |
| 9   | C     | 1        | 1     | 1  | 0       |

- Molecule 10 is ADENOSINE-5'-TRIPHOSPHATE (CCD ID: ATP) (formula: C<sub>10</sub>H<sub>16</sub>N<sub>5</sub>O<sub>13</sub>P<sub>3</sub>).



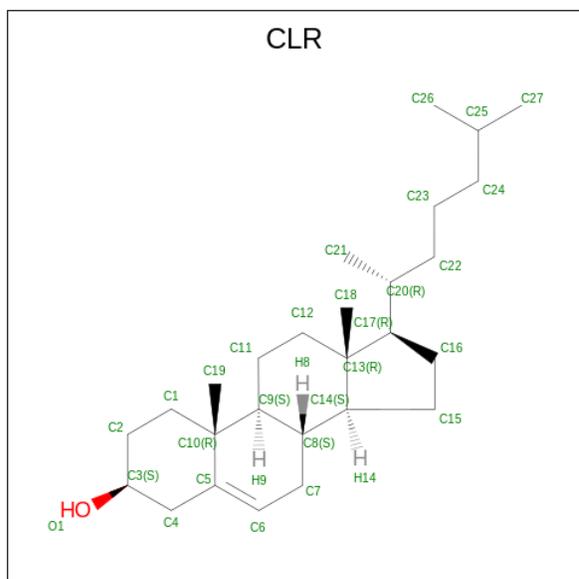
| Mol | Chain | Residues | Atoms |    |   |    |   | AltConf |
|-----|-------|----------|-------|----|---|----|---|---------|
|     |       |          | Total | C  | N | O  | P |         |
| 10  | A     | 1        | 31    | 10 | 5 | 13 | 3 | 0       |
| 10  | C     | 1        | 31    | 10 | 5 | 13 | 3 | 0       |

- Molecule 11 is (3E,5S,8R,9S,10R,13S,14S)-3-(2-azanylethoxyimino)-10,13-dimethyl-1,2,4,5,7,8,9,11,12,14,15,16-dodecahydrocyclopenta[a]phenanthrene-6,17-dione (CCD ID: 7Q2) (formula:  $C_{21}H_{32}N_2O_3$ ) (labeled as "Ligand of Interest" by depositor).



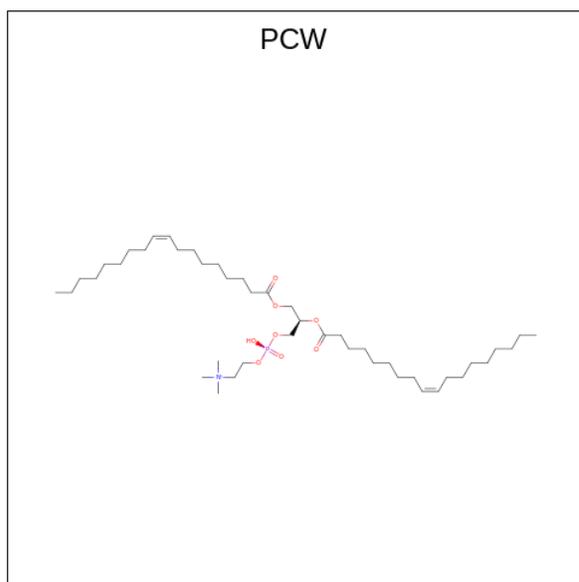
| Mol | Chain | Residues | Atoms |    |   |   | AltConf |
|-----|-------|----------|-------|----|---|---|---------|
|     |       |          | Total | C  | N | O |         |
| 11  | A     | 1        | Total | C  | N | O | 0       |
|     |       |          | 26    | 21 | 2 | 3 |         |
| 11  | C     | 1        | Total | C  | N | O | 0       |
|     |       |          | 26    | 21 | 2 | 3 |         |

- Molecule 12 is CHOLESTEROL (CCD ID: CLR) (formula:  $C_{27}H_{46}O$ ).



| Mol | Chain | Residues | Atoms |    |   | AltConf |
|-----|-------|----------|-------|----|---|---------|
| 12  | A     | 1        | Total | C  | O | 0       |
|     |       |          | 28    | 27 | 1 |         |
| 12  | B     | 1        | Total | C  | O | 0       |
|     |       |          | 28    | 27 | 1 |         |
| 12  | B     | 1        | Total | C  | O | 0       |
|     |       |          | 28    | 27 | 1 |         |
| 12  | G     | 1        | Total | C  | O | 0       |
|     |       |          | 28    | 27 | 1 |         |
| 12  | C     | 1        | Total | C  | O | 0       |
|     |       |          | 28    | 27 | 1 |         |
| 12  | D     | 1        | Total | C  | O | 0       |
|     |       |          | 28    | 27 | 1 |         |
| 12  | D     | 1        | Total | C  | O | 0       |
|     |       |          | 28    | 27 | 1 |         |
| 12  | E     | 1        | Total | C  | O | 0       |
|     |       |          | 28    | 27 | 1 |         |

- Molecule 13 is 1,2-DIOLEOYL-SN-GLYCERO-3-PHOSPHOCHOLINE (CCD ID: PCW) (formula:  $C_{44}H_{85}NO_8P$ ).



| Mol | Chain | Residues | Atoms |    |   |   |   | AltConf |
|-----|-------|----------|-------|----|---|---|---|---------|
| 13  | A     | 1        | Total | C  | N | O | P | 0       |
|     |       |          | 22    | 12 | 1 | 8 | 1 |         |
| 13  | A     | 1        | Total | C  | N | O | P | 0       |
|     |       |          | 22    | 12 | 1 | 8 | 1 |         |
| 13  | A     | 1        | Total | C  | N | O | P | 0       |
|     |       |          | 54    | 44 | 1 | 8 | 1 |         |

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| Mol | Chain | Residues | Atoms       |         |        |        |        | AltConf |
|-----|-------|----------|-------------|---------|--------|--------|--------|---------|
|     |       |          | Total       | C       | N      | O      | P      |         |
| 13  | A     | 1        | Total<br>54 | C<br>44 | N<br>1 | O<br>8 | P<br>1 | 0       |
| 13  | A     | 1        | Total<br>54 | C<br>44 | N<br>1 | O<br>8 | P<br>1 | 0       |
| 13  | A     | 1        | Total<br>54 | C<br>44 | N<br>1 | O<br>8 | P<br>1 | 0       |
| 13  | A     | 1        | Total<br>54 | C<br>44 | N<br>1 | O<br>8 | P<br>1 | 0       |
| 13  | A     | 1        | Total<br>22 | C<br>12 | N<br>1 | O<br>8 | P<br>1 | 0       |
| 13  | A     | 1        | Total<br>54 | C<br>44 | N<br>1 | O<br>8 | P<br>1 | 0       |
| 13  | G     | 1        | Total<br>54 | C<br>44 | N<br>1 | O<br>8 | P<br>1 | 0       |
| 13  | G     | 1        | Total<br>54 | C<br>44 | N<br>1 | O<br>8 | P<br>1 | 0       |
| 13  | G     | 1        | Total<br>54 | C<br>44 | N<br>1 | O<br>8 | P<br>1 | 0       |
| 13  | C     | 1        | Total<br>22 | C<br>12 | N<br>1 | O<br>8 | P<br>1 | 0       |
| 13  | C     | 1        | Total<br>22 | C<br>12 | N<br>1 | O<br>8 | P<br>1 | 0       |
| 13  | C     | 1        | Total<br>54 | C<br>44 | N<br>1 | O<br>8 | P<br>1 | 0       |
| 13  | C     | 1        | Total<br>54 | C<br>44 | N<br>1 | O<br>8 | P<br>1 | 0       |
| 13  | C     | 1        | Total<br>54 | C<br>44 | N<br>1 | O<br>8 | P<br>1 | 0       |
| 13  | C     | 1        | Total<br>54 | C<br>44 | N<br>1 | O<br>8 | P<br>1 | 0       |
| 13  | C     | 1        | Total<br>22 | C<br>12 | N<br>1 | O<br>8 | P<br>1 | 0       |
| 13  | C     | 1        | Total<br>54 | C<br>44 | N<br>1 | O<br>8 | P<br>1 | 0       |
| 13  | E     | 1        | Total<br>54 | C<br>44 | N<br>1 | O<br>8 | P<br>1 | 0       |
| 13  | E     | 1        | Total<br>54 | C<br>44 | N<br>1 | O<br>8 | P<br>1 | 0       |
| 13  | E     | 1        | Total<br>54 | C<br>44 | N<br>1 | O<br>8 | P<br>1 | 0       |

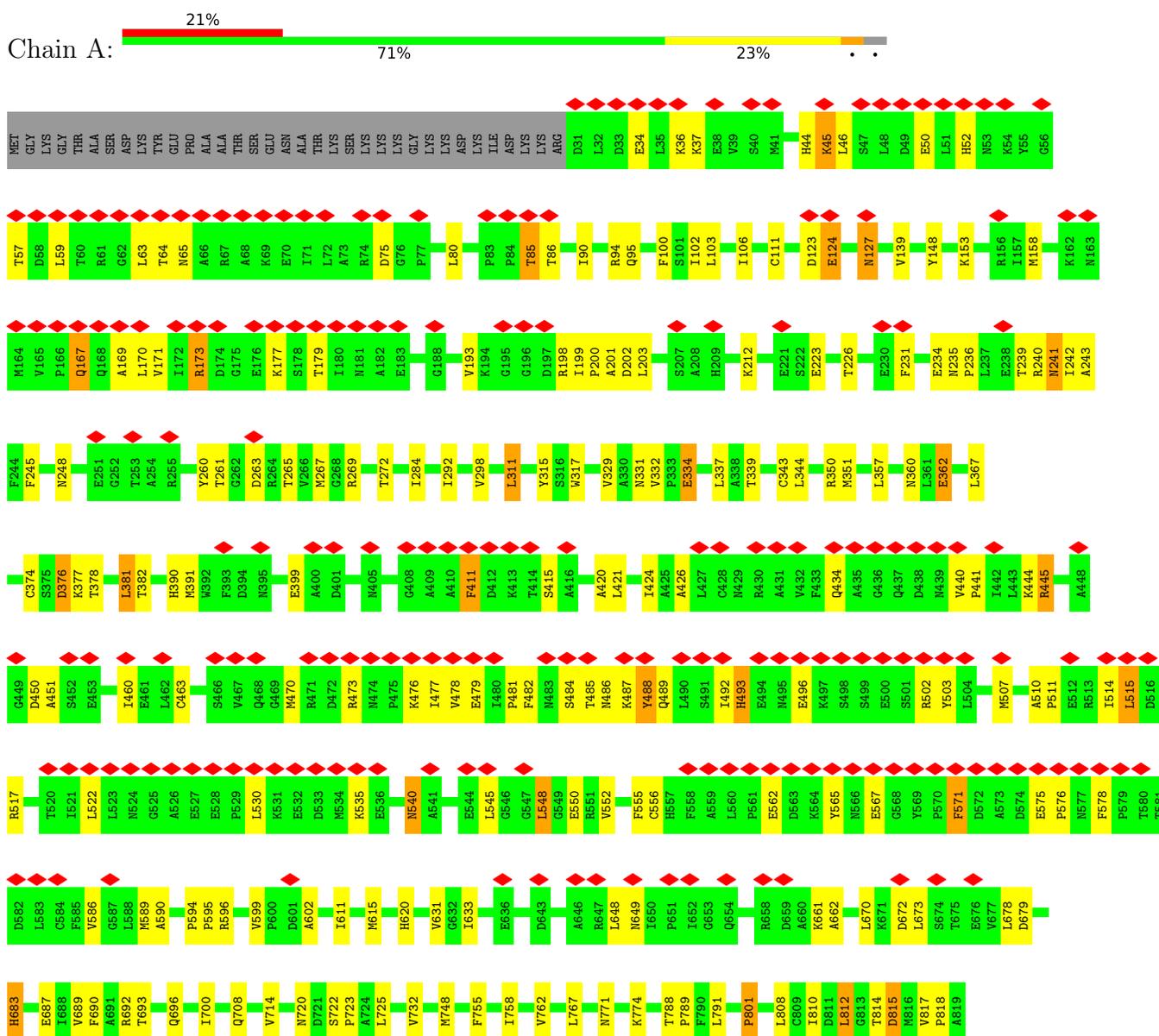
- Molecule 14 is water.

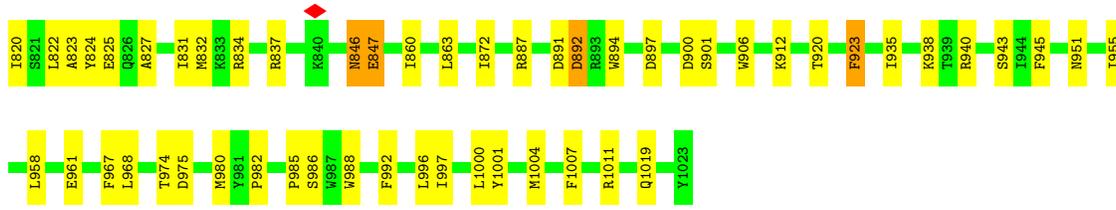
| Mol | Chain | Residues | Atoms      |        | AltConf |
|-----|-------|----------|------------|--------|---------|
| 14  | A     | 3        | Total<br>3 | O<br>3 | 0       |
| 14  | C     | 3        | Total<br>3 | O<br>3 | 0       |

### 3 Residue-property plots

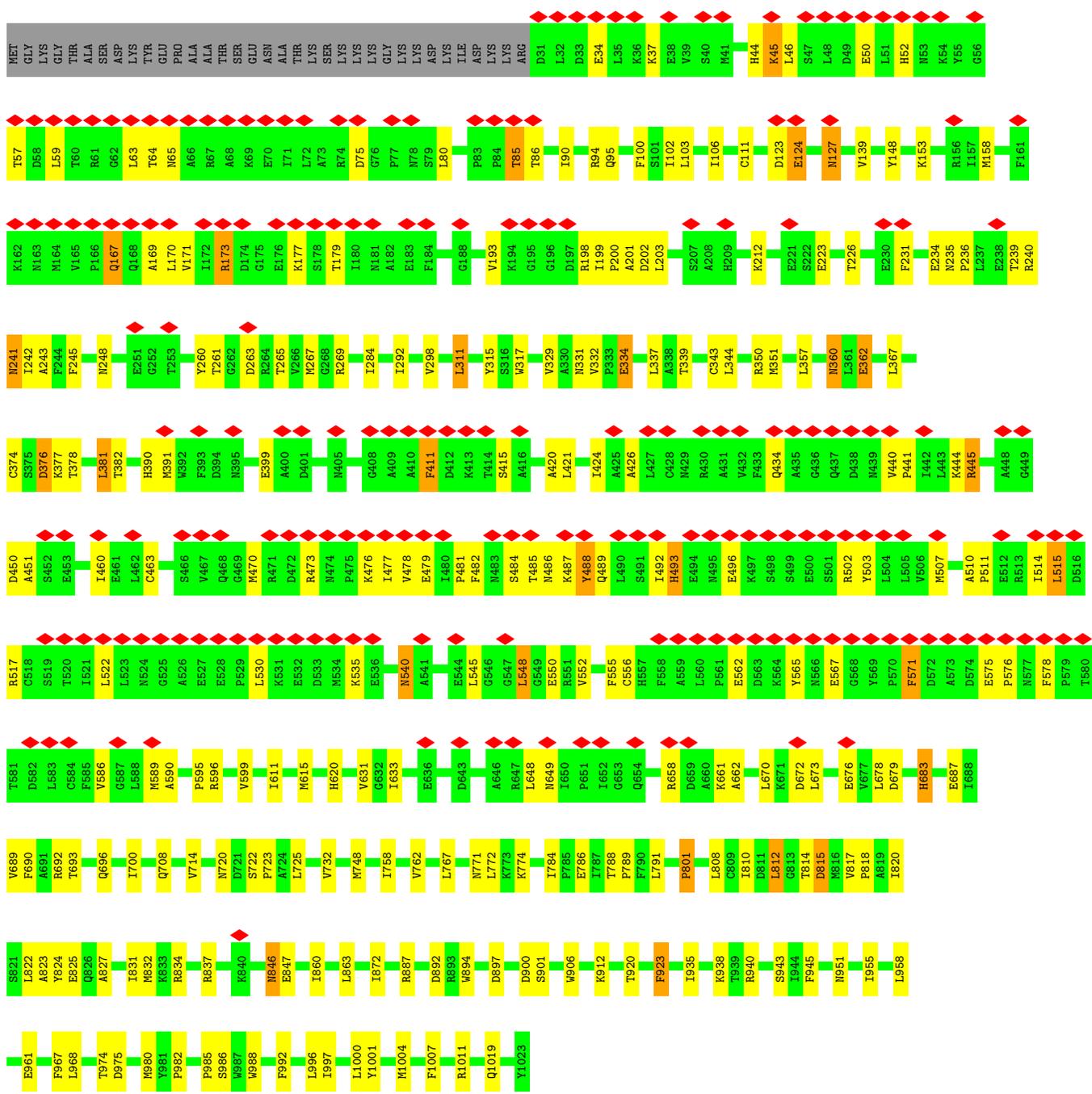
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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: Sodium/potassium-transporting ATPase subunit alpha

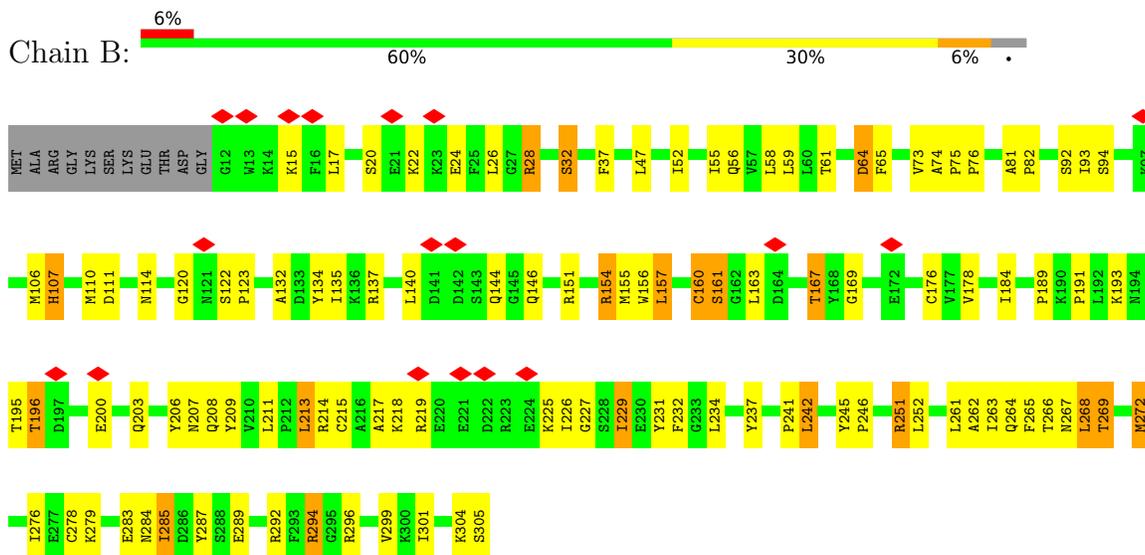




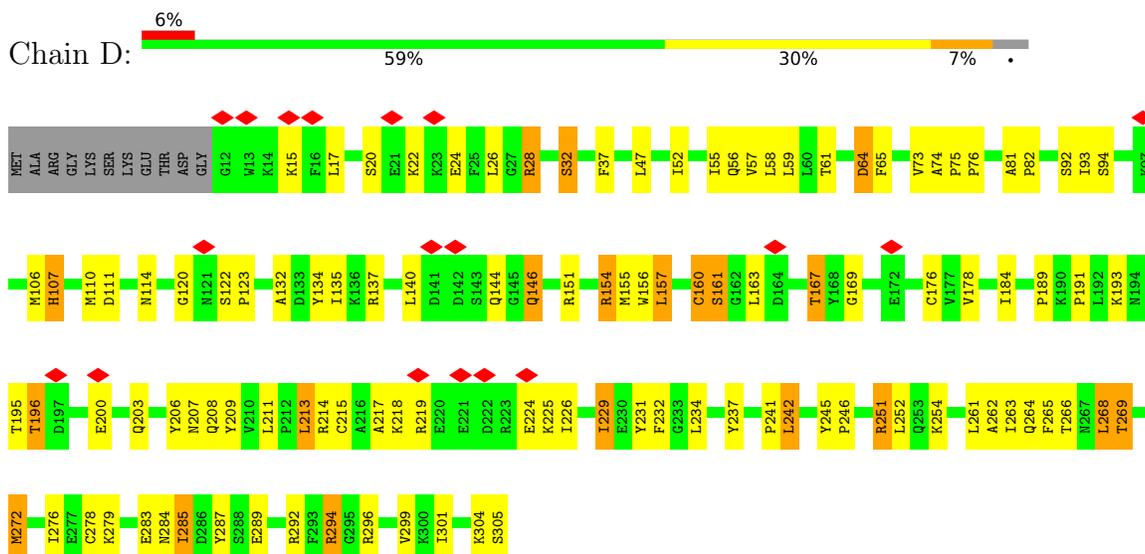
• Molecule 1: Sodium/potassium-transporting ATPase subunit alpha



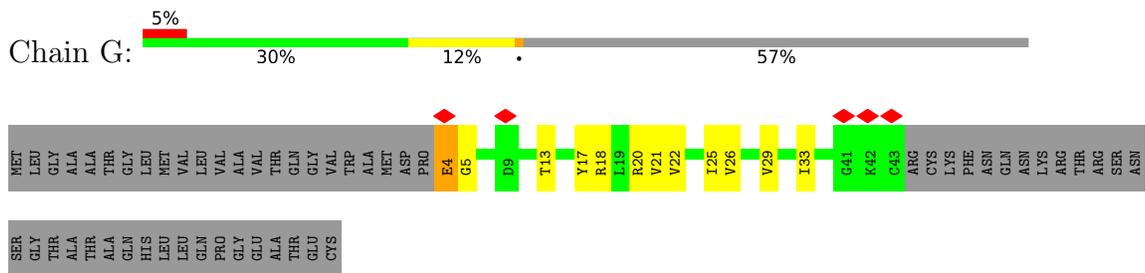
• Molecule 2: Na<sup>+</sup>,K<sup>+</sup>-ATPase beta subunit



• Molecule 2: Na<sup>+</sup>,K<sup>+</sup>-ATPase beta subunit

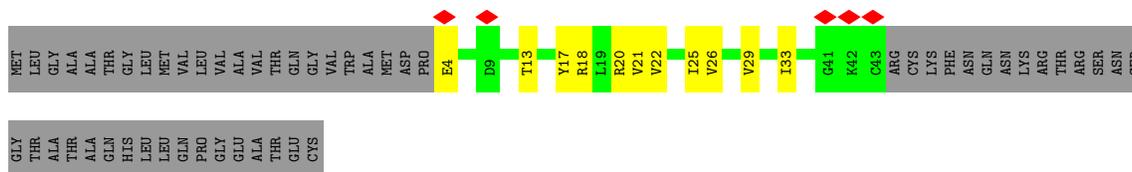


• Molecule 3: FXFYD domain-containing ion transport regulator



• Molecule 3: FXFYD domain-containing ion transport regulator





- Molecule 4: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-6)]2-acetamido-2-deoxy-beta-D-glucopyranose



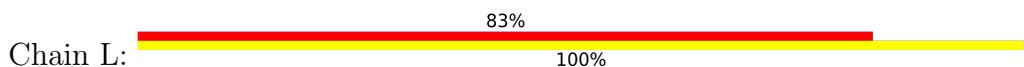
- Molecule 4: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-6)]2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

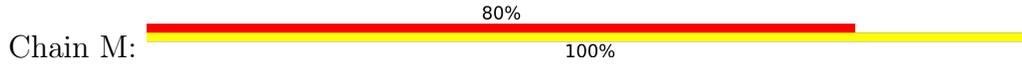


- Molecule 6: alpha-D-mannopyranose-(1-3)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-6)]2-acetamido-2-deoxy-beta-D-glucopyranose





- Molecule 6: alpha-D-mannopyranose-(1-3)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-6)]2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



## 4 Experimental information

| Property                             | Value                                   | Source    |
|--------------------------------------|---|-----------|
| EM reconstruction method             | SINGLE PARTICLE                         | Depositor |
| Imposed symmetry                     | POINT, C2                               | Depositor |
| Number of particles used             | 137433                                  | Depositor |
| Resolution determination method      | FSC 0.143 CUT-OFF                       | Depositor |
| CTF correction method                | PHASE FLIPPING AND AMPLITUDE CORRECTION | Depositor |
| Microscope                           | FEI TITAN KRIOS                         | Depositor |
| Voltage (kV)                         | 300                                     | Depositor |
| Electron dose ( $e^-/\text{\AA}^2$ ) | 60                                      | Depositor |
| Minimum defocus (nm)                 | 1000                                    | Depositor |
| Maximum defocus (nm)                 | 2500                                    | Depositor |
| Magnification                        | Not provided                            |           |
| Image detector                       | GATAN K3 (6k x 4k)                      | Depositor |
| Maximum map value                    | 0.095                                   | Depositor |
| Minimum map value                    | -0.046                                  | Depositor |
| Average map value                    | 0.000                                   | Depositor |
| Map value standard deviation         | 0.004                                   | Depositor |
| Recommended contour level            | 0.019                                   | Depositor |
| Map size (Å)                         | 258.24, 258.24, 258.24                  | wwPDB     |
| Map dimensions                       | 240, 240, 240                           | wwPDB     |
| Map angles (°)                       | 90.0, 90.0, 90.0                        | wwPDB     |
| Pixel spacing (Å)                    | 1.076, 1.076, 1.076                     | Depositor |

## 5 Model quality i

### 5.1 Standard geometry i

Bond lengths and bond angles in the following residue types are not validated in this section: MAN, NA, NAG, 7Q2, FUC, PHD, CLR, BMA, PCW, ATP, MG

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 5$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mol | Chain | Bond lengths |         | Bond angles |         |
|-----|-------|--------------|---------|-------------|---------|
|     |       | RMSZ         | # Z  >5 | RMSZ        | # Z  >5 |
| 1   | A     | 0.20         | 0/7824  | 0.62        | 0/10613 |
| 1   | C     | 0.20         | 0/7824  | 0.62        | 0/10613 |
| 2   | B     | 0.20         | 0/2462  | 0.71        | 0/3317  |
| 2   | D     | 0.20         | 0/2462  | 0.71        | 0/3317  |
| 3   | E     | 0.16         | 0/315   | 0.45        | 0/427   |
| 3   | G     | 0.16         | 0/315   | 0.45        | 0/427   |
| All | All   | 0.20         | 0/21202 | 0.64        | 0/28714 |

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

### 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   | A     | 7687  | 0        | 7703     | 153     | 0            |
| 1   | C     | 7687  | 0        | 7703     | 149     | 0            |
| 2   | B     | 2399  | 0        | 2354     | 61      | 0            |
| 2   | D     | 2399  | 0        | 2354     | 62      | 0            |
| 3   | E     | 311   | 0        | 323      | 6       | 0            |
| 3   | G     | 311   | 0        | 323      | 7       | 0            |
| 4   | F     | 71    | 0        | 61       | 1       | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 4   | K     | 71    | 0        | 61       | 1       | 0            |
| 5   | H     | 75    | 0        | 64       | 0       | 0            |
| 5   | L     | 75    | 0        | 64       | 0       | 0            |
| 6   | I     | 60    | 0        | 52       | 0       | 0            |
| 6   | M     | 60    | 0        | 52       | 0       | 0            |
| 7   | J     | 28    | 0        | 25       | 0       | 0            |
| 7   | N     | 28    | 0        | 25       | 0       | 0            |
| 8   | A     | 1     | 0        | 0        | 0       | 0            |
| 8   | C     | 1     | 0        | 0        | 0       | 0            |
| 9   | A     | 1     | 0        | 0        | 0       | 0            |
| 9   | C     | 1     | 0        | 0        | 0       | 0            |
| 10  | A     | 31    | 0        | 12       | 1       | 0            |
| 10  | C     | 31    | 0        | 12       | 1       | 0            |
| 11  | A     | 26    | 0        | 0        | 0       | 0            |
| 11  | C     | 26    | 0        | 0        | 0       | 0            |
| 12  | A     | 28    | 0        | 46       | 3       | 0            |
| 12  | B     | 56    | 0        | 92       | 2       | 0            |
| 12  | C     | 28    | 0        | 46       | 0       | 0            |
| 12  | D     | 56    | 0        | 92       | 1       | 0            |
| 12  | E     | 28    | 0        | 46       | 7       | 0            |
| 12  | G     | 28    | 0        | 46       | 7       | 0            |
| 13  | A     | 390   | 0        | 558      | 29      | 0            |
| 13  | C     | 390   | 0        | 558      | 30      | 0            |
| 13  | E     | 162   | 0        | 252      | 21      | 0            |
| 13  | G     | 162   | 0        | 252      | 21      | 0            |
| 14  | A     | 3     | 0        | 0        | 0       | 0            |
| 14  | C     | 3     | 0        | 0        | 0       | 0            |
| All | All   | 22714 | 0        | 23176    | 480     | 0            |

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 10.

All (480) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:C:1000:LEU:HD21 | 13:C:1110:PCW:H39 | 1.55                     | 0.87              |
| 1:A:1000:LEU:HD21 | 13:A:1110:PCW:H39 | 1.55                     | 0.85              |
| 1:C:421:LEU:HG    | 1:C:589:MET:HE2   | 1.61                     | 0.82              |
| 1:A:814:THR:HB    | 1:A:961:GLU:HG3   | 1.62                     | 0.82              |
| 1:A:421:LEU:HG    | 1:A:589:MET:HE2   | 1.61                     | 0.81              |
| 1:C:814:THR:HB    | 1:C:961:GLU:HG3   | 1.62                     | 0.80              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 3:G:29:VAL:HG11    | 13:G:1303:PCW:H261 | 1.62                     | 0.80              |
| 3:E:29:VAL:HG11    | 13:E:1303:PCW:H261 | 1.62                     | 0.79              |
| 1:A:202:ASP:HB2    | 1:A:260:TYR:HB2    | 1.68                     | 0.76              |
| 1:C:52:HIS:HE1     | 1:C:59:LEU:HD12    | 1.52                     | 0.75              |
| 13:G:1304:PCW:H412 | 13:E:1304:PCW:H461 | 1.68                     | 0.75              |
| 1:C:202:ASP:HB2    | 1:C:260:TYR:HB2    | 1.68                     | 0.74              |
| 1:A:52:HIS:HE1     | 1:A:59:LEU:HD12    | 1.52                     | 0.74              |
| 13:C:1109:PCW:H442 | 12:E:1301:CLR:H273 | 1.70                     | 0.73              |
| 13:G:1304:PCW:H461 | 13:E:1304:PCW:H412 | 1.71                     | 0.72              |
| 13:A:1109:PCW:H442 | 12:G:1301:CLR:H273 | 1.70                     | 0.72              |
| 13:G:1304:PCW:H382 | 13:E:1304:PCW:H482 | 1.71                     | 0.72              |
| 2:D:161:SER:HB3    | 2:D:163:LEU:HD12   | 1.72                     | 0.72              |
| 2:B:74:ALA:HB3     | 2:B:75:PRO:HD3     | 1.72                     | 0.72              |
| 1:C:241:ASN:H      | 1:C:241:ASN:HD22   | 1.38                     | 0.71              |
| 2:B:176:CYS:SG     | 2:B:264:GLN:HG3    | 2.31                     | 0.71              |
| 2:D:74:ALA:HB3     | 2:D:75:PRO:HD3     | 1.72                     | 0.71              |
| 1:A:996:LEU:HD23   | 13:C:1110:PCW:H283 | 1.73                     | 0.71              |
| 2:D:176:CYS:SG     | 2:D:264:GLN:HG3    | 2.31                     | 0.71              |
| 2:B:161:SER:HB3    | 2:B:163:LEU:HD12   | 1.72                     | 0.70              |
| 13:A:1110:PCW:H283 | 1:C:996:LEU:HD23   | 1.72                     | 0.70              |
| 1:A:426:ALA:HB2    | 1:A:460:ILE:HG21   | 1.74                     | 0.70              |
| 13:G:1304:PCW:H482 | 13:E:1304:PCW:H382 | 1.75                     | 0.69              |
| 1:C:426:ALA:HB2    | 1:C:460:ILE:HG21   | 1.74                     | 0.69              |
| 1:C:789:PRO:HB3    | 1:C:801:PRO:HB2    | 1.75                     | 0.69              |
| 1:A:241:ASN:HD22   | 1:A:241:ASN:H      | 1.38                     | 0.69              |
| 1:A:411:PHE:HZ     | 1:A:463:CYS:HG     | 1.40                     | 0.69              |
| 3:G:26:VAL:HG11    | 12:G:1301:CLR:H71  | 1.75                     | 0.69              |
| 1:A:789:PRO:HB3    | 1:A:801:PRO:HB2    | 1.75                     | 0.69              |
| 1:C:982:PRO:HD3    | 3:E:20:ARG:HH21    | 1.58                     | 0.69              |
| 1:C:411:PHE:HZ     | 1:C:463:CYS:HG     | 1.39                     | 0.68              |
| 1:A:982:PRO:HD3    | 3:G:20:ARG:HH21    | 1.58                     | 0.68              |
| 3:E:26:VAL:HG11    | 12:E:1301:CLR:H71  | 1.75                     | 0.67              |
| 1:A:967:PHE:HZ     | 13:A:1112:PCW:H172 | 1.61                     | 0.66              |
| 1:C:575:GLU:HB3    | 1:C:576:PRO:HD2    | 1.78                     | 0.65              |
| 13:G:1304:PCW:H451 | 13:E:1304:PCW:H261 | 1.78                     | 0.65              |
| 1:A:575:GLU:HB3    | 1:A:576:PRO:HD2    | 1.78                     | 0.65              |
| 1:C:967:PHE:HZ     | 13:C:1112:PCW:H172 | 1.61                     | 0.65              |
| 1:A:441:PRO:O      | 1:A:445:ARG:HG2    | 1.97                     | 0.64              |
| 1:C:441:PRO:O      | 1:C:445:ARG:HG2    | 1.97                     | 0.64              |
| 2:B:213:LEU:HD23   | 2:B:261:LEU:HD13   | 1.78                     | 0.64              |
| 2:D:213:LEU:HD23   | 2:D:261:LEU:HD13   | 1.79                     | 0.64              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:B:209:TYR:HA     | 2:B:242:LEU:HD22   | 1.80                     | 0.63              |
| 1:C:103:LEU:HD22   | 1:C:292:ILE:HG23   | 1.79                     | 0.63              |
| 2:D:209:TYR:HA     | 2:D:242:LEU:HD22   | 1.80                     | 0.63              |
| 1:A:1001:TYR:HD1   | 13:A:1108:PCW:H40  | 1.64                     | 0.63              |
| 1:A:103:LEU:HD22   | 1:A:292:ILE:HG23   | 1.79                     | 0.62              |
| 1:A:46:LEU:HD22    | 1:A:50:GLU:HG2     | 1.82                     | 0.62              |
| 1:A:503:TYR:CE2    | 1:A:567:GLU:HA     | 2.35                     | 0.61              |
| 1:C:44:HIS:HB3     | 1:C:242:ILE:HD11   | 1.83                     | 0.61              |
| 1:C:503:TYR:CE2    | 1:C:567:GLU:HA     | 2.35                     | 0.61              |
| 1:A:239:THR:OG1    | 1:A:241:ASN:ND2    | 2.34                     | 0.61              |
| 1:C:127:ASN:OD1    | 1:C:127:ASN:N      | 2.30                     | 0.61              |
| 1:C:239:THR:OG1    | 1:C:241:ASN:ND2    | 2.34                     | 0.61              |
| 1:C:1001:TYR:HD1   | 13:C:1108:PCW:H40  | 1.64                     | 0.61              |
| 2:D:231:TYR:HD1    | 2:D:263:ILE:HG12   | 1.66                     | 0.61              |
| 1:C:46:LEU:HD22    | 1:C:50:GLU:HG2     | 1.82                     | 0.61              |
| 1:A:44:HIS:HB3     | 1:A:242:ILE:HD11   | 1.83                     | 0.61              |
| 1:C:503:TYR:HE2    | 1:C:567:GLU:HA     | 1.66                     | 0.61              |
| 1:A:503:TYR:HE2    | 1:A:567:GLU:HA     | 1.66                     | 0.60              |
| 2:B:206:TYR:O      | 2:B:206:TYR:CD1    | 2.54                     | 0.60              |
| 3:G:18:ARG:O       | 3:G:22:VAL:HG23    | 2.01                     | 0.60              |
| 1:C:334:GLU:HG3    | 1:C:812:LEU:HD22   | 1.84                     | 0.60              |
| 2:B:28:ARG:HD3     | 2:B:32:SER:HB3     | 1.82                     | 0.60              |
| 2:B:231:TYR:HD1    | 2:B:263:ILE:HG12   | 1.66                     | 0.60              |
| 2:D:206:TYR:O      | 2:D:206:TYR:CD1    | 2.54                     | 0.60              |
| 3:E:18:ARG:O       | 3:E:22:VAL:HG23    | 2.01                     | 0.59              |
| 2:D:28:ARG:HD3     | 2:D:32:SER:HB3     | 1.82                     | 0.59              |
| 2:D:76:PRO:HG3     | 2:D:184:ILE:HD12   | 1.84                     | 0.59              |
| 3:G:21:VAL:O       | 3:G:25:ILE:HG12    | 2.03                     | 0.59              |
| 1:C:690:PHE:HB3    | 1:C:693:THR:HG21   | 1.85                     | 0.59              |
| 12:G:1301:CLR:H241 | 13:E:1304:PCW:H462 | 1.83                     | 0.59              |
| 13:E:1303:PCW:H262 | 13:E:1304:PCW:H20  | 1.85                     | 0.59              |
| 1:A:265:THR:O      | 1:A:269:ARG:HG3    | 2.03                     | 0.58              |
| 1:A:1000:LEU:CD2   | 13:A:1110:PCW:H39  | 2.30                     | 0.58              |
| 13:G:1303:PCW:H262 | 13:G:1304:PCW:H20  | 1.85                     | 0.58              |
| 1:A:992:PHE:HD2    | 13:A:1109:PCW:H271 | 1.69                     | 0.58              |
| 1:A:171:VAL:HG11   | 1:A:173:ARG:HH11   | 1.69                     | 0.58              |
| 2:B:217:ALA:HB2    | 2:B:226:ILE:HD12   | 1.84                     | 0.58              |
| 2:D:217:ALA:HB2    | 2:D:226:ILE:HD12   | 1.84                     | 0.58              |
| 12:G:1301:CLR:H263 | 13:E:1304:PCW:H441 | 1.85                     | 0.58              |
| 13:G:1304:PCW:H261 | 13:E:1304:PCW:H451 | 1.85                     | 0.58              |
| 2:B:64:ASP:N       | 2:B:64:ASP:OD1     | 2.36                     | 0.58              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:B:76:PRO:HG3     | 2:B:184:ILE:HD12   | 1.84                     | 0.58              |
| 3:E:21:VAL:O       | 3:E:25:ILE:HG12    | 2.03                     | 0.58              |
| 1:A:334:GLU:HG3    | 1:A:812:LEU:HD22   | 1.84                     | 0.58              |
| 1:A:690:PHE:HB3    | 1:A:693:THR:HG21   | 1.85                     | 0.58              |
| 1:A:241:ASN:HD22   | 1:A:241:ASN:N      | 1.99                     | 0.58              |
| 13:G:1304:PCW:H432 | 13:E:1304:PCW:H432 | 1.85                     | 0.57              |
| 1:C:241:ASN:HD22   | 1:C:241:ASN:N      | 1.99                     | 0.57              |
| 13:G:1304:PCW:H462 | 12:E:1301:CLR:H241 | 1.85                     | 0.57              |
| 1:C:488:TYR:HD1    | 1:C:488:TYR:O      | 1.87                     | 0.57              |
| 1:C:722:SER:HB2    | 1:C:723:PRO:HD3    | 1.87                     | 0.57              |
| 1:C:992:PHE:CD2    | 13:C:1109:PCW:H271 | 2.39                     | 0.57              |
| 2:D:64:ASP:N       | 2:D:64:ASP:OD1     | 2.36                     | 0.57              |
| 1:C:193:VAL:HG11   | 1:C:199:ILE:HD13   | 1.86                     | 0.57              |
| 1:C:265:THR:O      | 1:C:269:ARG:HG3    | 2.03                     | 0.57              |
| 1:C:992:PHE:HD2    | 13:C:1109:PCW:H271 | 1.68                     | 0.57              |
| 12:E:1301:CLR:H272 | 13:E:1304:PCW:H272 | 1.87                     | 0.57              |
| 1:C:1000:LEU:CD2   | 13:C:1110:PCW:H39  | 2.31                     | 0.57              |
| 1:A:153:LYS:NZ     | 13:A:1113:PCW:O2P  | 2.39                     | 0.56              |
| 1:A:722:SER:HB2    | 1:A:723:PRO:HD3    | 1.87                     | 0.56              |
| 1:C:171:VAL:HG11   | 1:C:173:ARG:HH11   | 1.69                     | 0.56              |
| 1:C:80:LEU:HD11    | 1:C:267:MET:SD     | 2.46                     | 0.56              |
| 1:A:488:TYR:HD1    | 1:A:488:TYR:O      | 1.87                     | 0.56              |
| 1:A:992:PHE:CD2    | 13:A:1109:PCW:H271 | 2.40                     | 0.56              |
| 1:C:153:LYS:NZ     | 13:C:1113:PCW:O2P  | 2.39                     | 0.56              |
| 1:C:450:ASP:OD1    | 1:C:451:ALA:N      | 2.39                     | 0.56              |
| 1:A:860:ILE:HG12   | 2:B:47:LEU:HD21    | 1.88                     | 0.56              |
| 2:B:75:PRO:HB2     | 2:B:294:ARG:HD3    | 1.87                     | 0.56              |
| 1:C:860:ILE:HG12   | 2:D:47:LEU:HD21    | 1.88                     | 0.56              |
| 1:A:530:LEU:HD22   | 1:A:535:LYS:HE3    | 1.88                     | 0.55              |
| 1:A:377:LYS:HA     | 1:A:381:LEU:HB2    | 1.88                     | 0.55              |
| 2:D:75:PRO:HB2     | 2:D:294:ARG:HD3    | 1.87                     | 0.55              |
| 1:A:441:PRO:HG2    | 1:A:444:LYS:HE3    | 1.88                     | 0.55              |
| 1:A:80:LEU:HD11    | 1:A:267:MET:SD     | 2.46                     | 0.55              |
| 1:A:193:VAL:HG11   | 1:A:199:ILE:HD13   | 1.86                     | 0.55              |
| 12:G:1301:CLR:H272 | 13:G:1304:PCW:H272 | 1.87                     | 0.55              |
| 1:C:486:ASN:HB3    | 1:C:488:TYR:CD1    | 2.42                     | 0.55              |
| 1:C:771:ASN:ND2    | 1:C:823:ALA:O      | 2.40                     | 0.55              |
| 13:A:1111:PCW:H241 | 13:A:1112:PCW:H441 | 1.88                     | 0.55              |
| 1:C:377:LYS:HA     | 1:C:381:LEU:HB2    | 1.88                     | 0.55              |
| 13:C:1111:PCW:H241 | 13:C:1112:PCW:H441 | 1.89                     | 0.55              |
| 1:A:382:THR:HA     | 1:A:595:PRO:HA     | 1.88                     | 0.55              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A:771:ASN:ND2    | 1:A:823:ALA:O      | 2.40                     | 0.55              |
| 1:C:382:THR:HA     | 1:C:595:PRO:HA     | 1.88                     | 0.55              |
| 1:A:477:ILE:HG22   | 1:A:478:VAL:HG23   | 1.88                     | 0.55              |
| 1:A:510:ALA:O      | 1:A:514:ILE:HG12   | 2.07                     | 0.55              |
| 1:C:487:LYS:HE2    | 1:C:510:ALA:HB2    | 1.88                     | 0.55              |
| 1:A:450:ASP:OD1    | 1:A:451:ALA:N      | 2.39                     | 0.55              |
| 2:D:65:PHE:HE1     | 2:D:251:ARG:HH11   | 1.55                     | 0.54              |
| 1:C:245:PHE:HD2    | 1:C:265:THR:HG21   | 1.73                     | 0.54              |
| 1:A:486:ASN:HB3    | 1:A:488:TYR:CD1    | 2.42                     | 0.54              |
| 1:C:339:THR:HA     | 1:C:820:ILE:HD11   | 1.90                     | 0.54              |
| 1:C:441:PRO:HG2    | 1:C:444:LYS:HE3    | 1.88                     | 0.54              |
| 1:A:245:PHE:HD2    | 1:A:265:THR:HG21   | 1.73                     | 0.54              |
| 1:A:123:ASP:O      | 1:A:124:GLU:HG2    | 2.08                     | 0.53              |
| 2:B:65:PHE:HE1     | 2:B:251:ARG:HH11   | 1.55                     | 0.53              |
| 1:C:477:ILE:HG22   | 1:C:478:VAL:HG23   | 1.88                     | 0.53              |
| 1:C:510:ALA:O      | 1:C:514:ILE:HG12   | 2.07                     | 0.53              |
| 1:C:530:LEU:HD22   | 1:C:535:LYS:HE3    | 1.88                     | 0.53              |
| 1:A:339:THR:HA     | 1:A:820:ILE:HD11   | 1.90                     | 0.53              |
| 1:A:487:LYS:HE2    | 1:A:510:ALA:HB2    | 1.88                     | 0.53              |
| 1:C:863:LEU:HD12   | 2:D:47:LEU:HD22    | 1.90                     | 0.53              |
| 1:A:863:LEU:HD12   | 2:B:47:LEU:HD22    | 1.90                     | 0.53              |
| 1:C:241:ASN:H      | 1:C:241:ASN:ND2    | 2.06                     | 0.53              |
| 1:C:411:PHE:HZ     | 1:C:463:CYS:SG     | 2.32                     | 0.53              |
| 1:C:123:ASP:O      | 1:C:124:GLU:HG2    | 2.08                     | 0.53              |
| 3:G:17:TYR:O       | 3:G:21:VAL:HG23    | 2.08                     | 0.53              |
| 2:D:92:SER:HA      | 2:D:304:LYS:O      | 2.09                     | 0.53              |
| 2:B:279:LYS:HG3    | 2:B:296:ARG:HB3    | 1.91                     | 0.52              |
| 3:E:17:TYR:O       | 3:E:21:VAL:HG23    | 2.08                     | 0.52              |
| 2:B:92:SER:HA      | 2:B:304:LYS:O      | 2.10                     | 0.52              |
| 13:G:1304:PCW:H441 | 12:E:1301:CLR:H263 | 1.91                     | 0.52              |
| 2:D:58:LEU:O       | 2:D:61:THR:OG1     | 2.25                     | 0.51              |
| 1:C:825:GLU:OE2    | 1:C:938:LYS:NZ     | 2.43                     | 0.51              |
| 2:B:58:LEU:O       | 2:B:61:THR:OG1     | 2.26                     | 0.51              |
| 2:D:191:PRO:HG3    | 2:D:208:GLN:O      | 2.11                     | 0.51              |
| 2:D:279:LYS:HG3    | 2:D:296:ARG:HB3    | 1.92                     | 0.51              |
| 1:A:411:PHE:HZ     | 1:A:463:CYS:SG     | 2.32                     | 0.51              |
| 12:G:1301:CLR:H221 | 13:E:1304:PCW:H483 | 1.92                     | 0.51              |
| 13:C:1108:PCW:H271 | 2:D:47:LEU:CD2     | 2.41                     | 0.51              |
| 1:A:517:ARG:HG2    | 1:A:517:ARG:HH11   | 1.76                     | 0.51              |
| 1:A:968:LEU:O      | 1:A:974:THR:HG21   | 2.11                     | 0.51              |
| 1:A:212:LYS:HG2    | 1:A:226:THR:HG22   | 1.93                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A:825:GLU:OE2    | 1:A:938:LYS:NZ     | 2.43                     | 0.51              |
| 1:C:298:VAL:HG12   | 13:C:1114:PCW:H162 | 1.94                     | 0.51              |
| 1:C:596:ARG:HB2    | 1:C:599:VAL:HG23   | 1.93                     | 0.51              |
| 1:C:997:ILE:HG21   | 13:C:1108:PCW:H272 | 1.92                     | 0.51              |
| 2:B:191:PRO:HG3    | 2:B:208:GLN:O      | 2.11                     | 0.50              |
| 1:C:212:LYS:HG2    | 1:C:226:THR:HG22   | 1.93                     | 0.50              |
| 1:A:997:ILE:HG21   | 13:A:1108:PCW:H272 | 1.92                     | 0.50              |
| 1:C:762:VAL:HG13   | 1:C:832:MET:HE1    | 1.93                     | 0.50              |
| 1:C:517:ARG:HG2    | 1:C:517:ARG:HH11   | 1.76                     | 0.50              |
| 1:A:52:HIS:CE1     | 1:A:59:LEU:HD12    | 2.41                     | 0.50              |
| 1:A:298:VAL:HG12   | 13:A:1114:PCW:H162 | 1.93                     | 0.50              |
| 13:A:1108:PCW:H271 | 2:B:47:LEU:CD2     | 2.41                     | 0.50              |
| 1:A:846:ASN:OD1    | 1:A:846:ASN:N      | 2.42                     | 0.50              |
| 2:B:225:LYS:O      | 2:B:269:THR:OG1    | 2.30                     | 0.50              |
| 1:A:565:TYR:HB3    | 1:A:571:PHE:HE2    | 1.77                     | 0.50              |
| 1:C:565:TYR:HB3    | 1:C:571:PHE:HE2    | 1.77                     | 0.50              |
| 1:C:897:ASP:OD1    | 1:C:897:ASP:N      | 2.45                     | 0.50              |
| 1:A:920:THR:HG23   | 1:A:980:MET:HE2    | 1.93                     | 0.50              |
| 1:C:424:ILE:HG21   | 1:C:555:PHE:HB3    | 1.94                     | 0.50              |
| 1:C:515:LEU:HD11   | 1:C:535:LYS:HE2    | 1.94                     | 0.50              |
| 13:C:1112:PCW:H19  | 13:E:1302:PCW:H40  | 1.94                     | 0.50              |
| 1:C:968:LEU:O      | 1:C:974:THR:HG21   | 2.11                     | 0.49              |
| 13:C:1114:PCW:H19  | 12:D:501:CLR:H151  | 1.93                     | 0.49              |
| 1:A:241:ASN:H      | 1:A:241:ASN:ND2    | 2.06                     | 0.49              |
| 1:A:391:MET:HE1    | 1:A:411:PHE:CD2    | 2.48                     | 0.49              |
| 1:A:424:ILE:HG21   | 1:A:555:PHE:HB3    | 1.94                     | 0.49              |
| 1:C:920:THR:HG23   | 1:C:980:MET:HE2    | 1.93                     | 0.49              |
| 1:A:762:VAL:HG13   | 1:A:832:MET:HE1    | 1.93                     | 0.49              |
| 13:A:1114:PCW:H19  | 12:B:501:CLR:H151  | 1.93                     | 0.49              |
| 1:C:492:ILE:HD12   | 1:C:578:PHE:CE1    | 2.47                     | 0.49              |
| 13:A:1112:PCW:H19  | 13:G:1302:PCW:H40  | 1.94                     | 0.49              |
| 1:A:596:ARG:HB2    | 1:A:599:VAL:HG23   | 1.93                     | 0.49              |
| 1:C:411:PHE:CD1    | 1:C:411:PHE:N      | 2.81                     | 0.49              |
| 1:C:714:VAL:HG12   | 1:C:725:LEU:HD23   | 1.95                     | 0.49              |
| 2:D:56:GLN:HE22    | 2:D:59:LEU:HD12    | 1.78                     | 0.49              |
| 2:D:132:ALA:O      | 2:D:209:TYR:HB3    | 2.13                     | 0.49              |
| 1:A:897:ASP:OD1    | 1:A:897:ASP:N      | 2.45                     | 0.49              |
| 2:B:132:ALA:O      | 2:B:209:TYR:HB3    | 2.13                     | 0.49              |
| 1:C:391:MET:HE1    | 1:C:411:PHE:CD2    | 2.48                     | 0.49              |
| 1:C:52:HIS:CE1     | 1:C:59:LEU:HB2     | 2.48                     | 0.49              |
| 1:A:492:ILE:HD12   | 1:A:578:PHE:CE1    | 2.47                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:C:424:ILE:HG22   | 1:C:555:PHE:HD2    | 1.78                     | 0.48              |
| 1:C:167:GLN:HE22   | 1:C:198:ARG:NH2    | 2.11                     | 0.48              |
| 1:C:846:ASN:OD1    | 1:C:846:ASN:N      | 2.42                     | 0.48              |
| 1:A:52:HIS:CE1     | 1:A:59:LEU:HB2     | 2.48                     | 0.48              |
| 1:A:411:PHE:N      | 1:A:411:PHE:CD1    | 2.81                     | 0.48              |
| 1:A:714:VAL:HG12   | 1:A:725:LEU:HD23   | 1.95                     | 0.48              |
| 1:C:615:MET:HB3    | 1:C:689:VAL:HG22   | 1.96                     | 0.48              |
| 1:A:390:HIS:CD2    | 1:A:399:GLU:HG2    | 2.49                     | 0.48              |
| 2:B:110:MET:HE1    | 2:B:157:LEU:HD13   | 1.96                     | 0.48              |
| 2:D:81:ALA:HB3     | 2:D:82:PRO:HD3     | 1.96                     | 0.48              |
| 2:D:163:LEU:HD23   | 4:K:6:FUC:H61      | 1.95                     | 0.48              |
| 1:A:170:LEU:HD11   | 1:A:177:LYS:HB3    | 1.96                     | 0.48              |
| 1:A:515:LEU:HD11   | 1:A:535:LYS:HE2    | 1.94                     | 0.48              |
| 1:C:52:HIS:CE1     | 1:C:59:LEU:HD12    | 2.41                     | 0.48              |
| 1:A:167:GLN:HE22   | 1:A:198:ARG:NH2    | 2.11                     | 0.48              |
| 2:B:81:ALA:HB3     | 2:B:82:PRO:HD3     | 1.96                     | 0.48              |
| 2:D:225:LYS:O      | 2:D:269:THR:OG1    | 2.30                     | 0.48              |
| 1:A:102:ILE:O      | 1:A:106:ILE:HG23   | 2.14                     | 0.48              |
| 1:A:615:MET:HB2    | 1:A:633:ILE:HD13   | 1.96                     | 0.48              |
| 1:C:390:HIS:CD2    | 1:C:399:GLU:HG2    | 2.49                     | 0.48              |
| 1:C:540:ASN:N      | 1:C:540:ASN:HD22   | 2.12                     | 0.48              |
| 2:D:110:MET:HE1    | 2:D:157:LEU:HD13   | 1.96                     | 0.48              |
| 1:A:424:ILE:HG22   | 1:A:555:PHE:HD2    | 1.78                     | 0.48              |
| 1:C:170:LEU:HD11   | 1:C:177:LYS:HB3    | 1.96                     | 0.48              |
| 1:C:615:MET:HB2    | 1:C:633:ILE:HD13   | 1.96                     | 0.48              |
| 2:B:56:GLN:HE22    | 2:B:59:LEU:HD12    | 1.78                     | 0.47              |
| 1:C:827:ALA:HB2    | 1:C:831:ILE:HD11   | 1.96                     | 0.47              |
| 1:A:827:ALA:HB2    | 1:A:831:ILE:HD11   | 1.96                     | 0.47              |
| 1:C:102:ILE:O      | 1:C:106:ILE:HG23   | 2.14                     | 0.47              |
| 1:C:203:LEU:HB2    | 1:C:243:ALA:HB3    | 1.97                     | 0.47              |
| 2:B:134:TYR:HE1    | 2:B:242:LEU:HG     | 1.80                     | 0.47              |
| 13:G:1304:PCW:H471 | 13:E:1304:PCW:H241 | 1.96                     | 0.47              |
| 13:A:1108:PCW:H72  | 13:A:1108:PCW:H41  | 1.69                     | 0.47              |
| 2:D:134:TYR:HE1    | 2:D:242:LEU:HG     | 1.80                     | 0.47              |
| 2:B:163:LEU:HD23   | 4:F:6:FUC:H61      | 1.96                     | 0.47              |
| 13:G:1304:PCW:H483 | 12:E:1301:CLR:H221 | 1.95                     | 0.47              |
| 1:A:203:LEU:HB2    | 1:A:243:ALA:HB3    | 1.97                     | 0.47              |
| 13:A:1110:PCW:H282 | 13:C:1110:PCW:H282 | 1.97                     | 0.47              |
| 1:A:111:CYS:SG     | 1:A:329:VAL:HG11   | 2.55                     | 0.46              |
| 1:A:615:MET:HB3    | 1:A:689:VAL:HG22   | 1.96                     | 0.46              |
| 1:A:900:ASP:OD2    | 1:A:906:TRP:NE1    | 2.48                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A:810:ILE:HG12   | 1:A:923:PHE:HD2    | 1.81                     | 0.46              |
| 1:C:997:ILE:HG12   | 13:C:1108:PCW:H472 | 1.98                     | 0.46              |
| 1:A:36:LYS:HZ1     | 1:A:272:THR:HB     | 1.81                     | 0.46              |
| 2:B:229:ILE:H      | 2:B:229:ILE:HG13   | 1.56                     | 0.46              |
| 1:C:482:PHE:CE1    | 1:C:487:LYS:HA     | 2.50                     | 0.46              |
| 1:C:955:ILE:HA     | 1:C:958:LEU:HD12   | 1.98                     | 0.46              |
| 1:A:540:ASN:N      | 1:A:540:ASN:HD22   | 2.12                     | 0.46              |
| 13:G:1302:PCW:H382 | 13:G:1302:PCW:H411 | 1.80                     | 0.46              |
| 1:A:482:PHE:CE1    | 1:A:487:LYS:HA     | 2.50                     | 0.46              |
| 1:A:696:GLN:O      | 1:A:700:ILE:HG12   | 2.16                     | 0.46              |
| 2:B:122:SER:HA     | 2:B:123:PRO:HA     | 1.57                     | 0.46              |
| 1:C:517:ARG:HH11   | 1:C:517:ARG:CG     | 2.29                     | 0.46              |
| 2:B:107:HIS:O      | 2:B:111:ASP:HB2    | 2.15                     | 0.46              |
| 1:A:477:ILE:CD1    | 1:A:503:TYR:HE1    | 2.29                     | 0.46              |
| 1:A:517:ARG:HH11   | 1:A:517:ARG:CG     | 2.29                     | 0.46              |
| 1:C:810:ILE:HG12   | 1:C:923:PHE:HD2    | 1.80                     | 0.46              |
| 1:C:900:ASP:OD2    | 1:C:906:TRP:NE1    | 2.48                     | 0.46              |
| 2:D:120:GLY:O      | 2:D:151:ARG:NH2    | 2.49                     | 0.46              |
| 2:D:215:CYS:SG     | 2:D:263:ILE:HD13   | 2.56                     | 0.46              |
| 1:A:955:ILE:HA     | 1:A:958:LEU:HD12   | 1.98                     | 0.45              |
| 1:C:376:PHD:OD2    | 1:C:378:THR:O      | 2.34                     | 0.45              |
| 2:D:140:LEU:HD23   | 2:D:252:LEU:HD12   | 1.98                     | 0.45              |
| 1:A:376:PHD:OD2    | 1:A:378:THR:O      | 2.34                     | 0.45              |
| 1:A:679:ASP:O      | 1:A:683:HIS:HB2    | 2.16                     | 0.45              |
| 2:D:15:LYS:C       | 2:D:17:LEU:H       | 2.25                     | 0.45              |
| 1:A:997:ILE:HG12   | 13:A:1108:PCW:H472 | 1.98                     | 0.45              |
| 2:B:65:PHE:HE1     | 2:B:251:ARG:NH1    | 2.14                     | 0.45              |
| 1:C:696:GLN:O      | 1:C:700:ILE:HG12   | 2.16                     | 0.45              |
| 1:A:127:ASN:OD1    | 1:A:127:ASN:N      | 2.30                     | 0.45              |
| 2:D:107:HIS:O      | 2:D:111:ASP:HB2    | 2.15                     | 0.45              |
| 2:D:229:ILE:HD12   | 2:D:229:ILE:O      | 2.16                     | 0.45              |
| 2:B:120:GLY:O      | 2:B:151:ARG:NH2    | 2.49                     | 0.45              |
| 2:B:215:CYS:SG     | 2:B:263:ILE:HD13   | 2.56                     | 0.45              |
| 2:B:229:ILE:HD12   | 2:B:229:ILE:O      | 2.16                     | 0.45              |
| 1:A:45:LYS:NZ      | 1:A:234:GLU:OE1    | 2.40                     | 0.45              |
| 1:C:235:ASN:OD1    | 1:C:236:PRO:HD2    | 2.17                     | 0.45              |
| 1:C:732:VAL:HG13   | 1:C:748:MET:HE3    | 1.97                     | 0.45              |
| 1:A:421:LEU:HD13   | 1:A:586:VAL:HG12   | 1.99                     | 0.45              |
| 1:C:477:ILE:CD1    | 1:C:503:TYR:HE1    | 2.29                     | 0.45              |
| 1:C:648:LEU:O      | 1:C:649:ASN:HB2    | 2.16                     | 0.45              |
| 1:C:679:ASP:O      | 1:C:683:HIS:HB2    | 2.16                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A:85:THR:OG1     | 1:A:86:THR:N       | 2.49                     | 0.45              |
| 1:A:420:ALA:O      | 1:A:424:ILE:HG13   | 2.16                     | 0.45              |
| 2:B:140:LEU:HD23   | 2:B:252:LEU:HD12   | 1.98                     | 0.45              |
| 1:C:52:HIS:CD2     | 1:C:57:THR:HG23    | 2.52                     | 0.45              |
| 1:C:85:THR:OG1     | 1:C:86:THR:N       | 2.49                     | 0.45              |
| 2:D:215:CYS:HA     | 2:D:278:CYS:HA     | 1.98                     | 0.45              |
| 1:A:52:HIS:CD2     | 1:A:57:THR:HG23    | 2.52                     | 0.45              |
| 1:A:810:ILE:O      | 1:A:815:ASP:HB2    | 2.17                     | 0.45              |
| 1:C:111:CYS:SG     | 1:C:329:VAL:HG11   | 2.55                     | 0.45              |
| 1:A:235:ASN:OD1    | 1:A:236:PRO:HD2    | 2.17                     | 0.45              |
| 1:A:648:LEU:O      | 1:A:649:ASN:HB2    | 2.17                     | 0.45              |
| 1:A:732:VAL:HG13   | 1:A:748:MET:HE3    | 1.97                     | 0.45              |
| 1:A:1004:MET:SD    | 13:A:1108:PCW:H422 | 2.57                     | 0.45              |
| 2:B:15:LYS:C       | 2:B:17:LEU:H       | 2.25                     | 0.45              |
| 2:B:225:LYS:HD2    | 2:B:272:MET:SD     | 2.57                     | 0.44              |
| 2:B:265:PHE:HB3    | 2:B:268:LEU:HD12   | 1.99                     | 0.44              |
| 1:C:420:ALA:O      | 1:C:424:ILE:HG13   | 2.16                     | 0.44              |
| 1:C:1004:MET:SD    | 13:C:1108:PCW:H422 | 2.57                     | 0.44              |
| 2:D:122:SER:HA     | 2:D:123:PRO:HA     | 1.57                     | 0.44              |
| 1:A:594:PRO:HA     | 1:A:595:PRO:HD3    | 1.85                     | 0.44              |
| 1:A:1004:MET:HE3   | 2:D:57:VAL:HG22    | 1.99                     | 0.44              |
| 13:A:1108:PCW:H271 | 2:B:47:LEU:HD23    | 1.99                     | 0.44              |
| 1:C:284:ILE:HG21   | 1:C:362:GLU:HB3    | 1.99                     | 0.44              |
| 1:C:511:PRO:O      | 1:C:515:LEU:HB2    | 2.18                     | 0.44              |
| 2:D:65:PHE:HE1     | 2:D:251:ARG:NH1    | 2.14                     | 0.44              |
| 2:D:225:LYS:HD2    | 2:D:272:MET:SD     | 2.57                     | 0.44              |
| 2:D:265:PHE:CZ     | 2:D:276:ILE:HD12   | 2.52                     | 0.44              |
| 2:B:215:CYS:HA     | 2:B:278:CYS:HA     | 1.98                     | 0.44              |
| 1:A:100:PHE:HB3    | 1:A:337:LEU:HD13   | 1.99                     | 0.44              |
| 2:B:265:PHE:CZ     | 2:B:276:ILE:HD12   | 2.52                     | 0.44              |
| 1:A:476:LYS:HD3    | 1:A:479:GLU:HB3    | 1.99                     | 0.44              |
| 1:A:774:LYS:HE2    | 1:A:940:ARG:HG3    | 1.99                     | 0.44              |
| 1:C:45:LYS:NZ      | 1:C:234:GLU:OE1    | 2.40                     | 0.44              |
| 1:C:476:LYS:HD3    | 1:C:479:GLU:HB3    | 1.99                     | 0.44              |
| 2:D:114:ASN:OD1    | 2:D:154:ARG:NH1    | 2.51                     | 0.44              |
| 1:A:311:LEU:HD11   | 1:A:317:TRP:CZ3    | 2.53                     | 0.44              |
| 1:A:545:LEU:HB2    | 1:A:552:VAL:HG21   | 2.00                     | 0.44              |
| 1:A:672:ASP:O      | 1:A:673:LEU:HD23   | 2.18                     | 0.44              |
| 1:C:339:THR:HG23   | 1:C:820:ILE:HD13   | 2.00                     | 0.44              |
| 1:A:945:PHE:HD1    | 13:A:1109:PCW:H121 | 1.83                     | 0.44              |
| 3:G:4:GLU:HB2      | 3:G:5:GLY:H        | 1.60                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:C:810:ILE:O      | 1:C:815:ASP:HB2    | 2.17                     | 0.44              |
| 2:B:114:ASN:OD1    | 2:B:154:ARG:NH1    | 2.51                     | 0.44              |
| 1:C:374:CYS:HB2    | 1:C:714:VAL:HG22   | 2.00                     | 0.44              |
| 1:C:421:LEU:HD13   | 1:C:586:VAL:HG12   | 1.99                     | 0.44              |
| 13:E:1303:PCW:H283 | 13:E:1304:PCW:H222 | 2.00                     | 0.44              |
| 1:A:817:VAL:HB     | 1:A:818:PRO:HD3    | 2.00                     | 0.44              |
| 1:C:774:LYS:HE2    | 1:C:940:ARG:HG3    | 1.99                     | 0.44              |
| 1:A:339:THR:HG23   | 1:A:820:ILE:HD13   | 2.00                     | 0.43              |
| 2:B:81:ALA:HB2     | 2:B:178:VAL:HB     | 1.99                     | 0.43              |
| 1:C:90:ILE:O       | 1:C:94:ARG:HG2     | 2.18                     | 0.43              |
| 1:C:548:LEU:HB3    | 1:C:550:GLU:HG3    | 2.00                     | 0.43              |
| 1:C:817:VAL:HB     | 1:C:818:PRO:HD3    | 2.00                     | 0.43              |
| 1:A:95:GLN:HG3     | 1:A:148:TYR:HB2    | 2.00                     | 0.43              |
| 1:A:284:ILE:HG21   | 1:A:362:GLU:HB3    | 2.00                     | 0.43              |
| 1:A:507:MET:HG2    | 1:A:556:CYS:SG     | 2.59                     | 0.43              |
| 13:G:1303:PCW:H283 | 13:G:1304:PCW:H222 | 2.00                     | 0.43              |
| 1:A:139:VAL:HG21   | 1:A:812:LEU:HD21   | 2.00                     | 0.43              |
| 2:D:81:ALA:HB2     | 2:D:178:VAL:HB     | 1.99                     | 0.43              |
| 2:D:234:LEU:HG     | 2:D:241:PRO:HG3    | 2.01                     | 0.43              |
| 1:C:808:LEU:HD23   | 1:C:808:LEU:HA     | 1.84                     | 0.43              |
| 2:D:265:PHE:HB3    | 2:D:268:LEU:HD12   | 1.99                     | 0.43              |
| 1:A:631:VAL:HG23   | 1:A:633:ILE:HG13   | 2.01                     | 0.43              |
| 2:B:299:VAL:HG12   | 2:B:301:ILE:HG13   | 2.00                     | 0.43              |
| 1:C:100:PHE:HB3    | 1:C:337:LEU:HD13   | 1.99                     | 0.43              |
| 1:C:545:LEU:HB2    | 1:C:552:VAL:HG21   | 2.00                     | 0.43              |
| 1:C:732:VAL:HG11   | 1:C:758:ILE:HD11   | 2.01                     | 0.43              |
| 13:C:1108:PCW:H271 | 2:D:47:LEU:HD23    | 1.99                     | 0.43              |
| 2:D:232:PHE:HB2    | 2:D:262:ALA:HB3    | 2.01                     | 0.43              |
| 1:A:374:CYS:HB2    | 1:A:714:VAL:HG22   | 2.00                     | 0.43              |
| 2:B:167:THR:HG22   | 2:B:169:GLY:H      | 1.84                     | 0.43              |
| 1:C:912:LYS:HD3    | 1:C:912:LYS:HA     | 1.87                     | 0.43              |
| 13:E:1303:PCW:H262 | 13:E:1304:PCW:C20  | 2.48                     | 0.43              |
| 1:C:486:ASN:HB3    | 1:C:488:TYR:CE1    | 2.54                     | 0.43              |
| 1:C:945:PHE:HD1    | 13:C:1109:PCW:H121 | 1.83                     | 0.43              |
| 13:E:1302:PCW:H411 | 13:E:1302:PCW:H382 | 1.80                     | 0.43              |
| 1:A:201:ALA:HB1    | 1:A:260:TYR:O      | 2.19                     | 0.43              |
| 1:A:511:PRO:O      | 1:A:515:LEU:HB2    | 2.17                     | 0.43              |
| 1:C:311:LEU:HD11   | 1:C:317:TRP:CZ3    | 2.53                     | 0.43              |
| 1:C:507:MET:HG2    | 1:C:556:CYS:SG     | 2.59                     | 0.43              |
| 1:A:996:LEU:CD2    | 13:C:1110:PCW:H283 | 2.47                     | 0.43              |
| 12:A:1105:CLR:H161 | 12:A:1105:CLR:H222 | 1.97                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 13:A:1110:PCW:H283 | 1:C:996:LEU:CD2    | 2.43                     | 0.43              |
| 13:A:1111:PCW:H221 | 13:A:1111:PCW:H471 | 2.01                     | 0.43              |
| 13:G:1303:PCW:H262 | 13:G:1304:PCW:C20  | 2.48                     | 0.43              |
| 1:C:139:VAL:HG21   | 1:C:812:LEU:HD21   | 2.00                     | 0.43              |
| 1:A:997:ILE:HG21   | 13:A:1108:PCW:C27  | 2.49                     | 0.42              |
| 2:B:206:TYR:O      | 2:B:206:TYR:HD1    | 2.02                     | 0.42              |
| 2:B:232:PHE:HB2    | 2:B:262:ALA:HB3    | 2.01                     | 0.42              |
| 1:C:672:ASP:O      | 1:C:673:LEU:HD23   | 2.18                     | 0.42              |
| 13:C:1111:PCW:H221 | 13:C:1111:PCW:H471 | 2.01                     | 0.42              |
| 2:D:299:VAL:HG12   | 2:D:301:ILE:HG13   | 2.00                     | 0.42              |
| 1:A:732:VAL:HG11   | 1:A:758:ILE:HD11   | 2.01                     | 0.42              |
| 1:A:90:ILE:O       | 1:A:94:ARG:HG2     | 2.18                     | 0.42              |
| 2:D:52:ILE:O       | 2:D:55:ILE:HG22    | 2.20                     | 0.42              |
| 2:D:206:TYR:O      | 2:D:206:TYR:HD1    | 2.02                     | 0.42              |
| 13:A:1108:PCW:C40  | 13:A:1108:PCW:H20  | 2.50                     | 0.42              |
| 1:C:476:LYS:HE2    | 1:C:493:HIS:CE1    | 2.55                     | 0.42              |
| 1:C:720:ASN:OD1    | 1:C:720:ASN:N      | 2.53                     | 0.42              |
| 2:D:207:ASN:ND2    | 2:D:237:TYR:CZ     | 2.88                     | 0.42              |
| 2:D:224:GLU:H      | 2:D:224:GLU:HG3    | 1.46                     | 0.42              |
| 1:A:486:ASN:HB3    | 1:A:488:TYR:CE1    | 2.54                     | 0.42              |
| 1:A:548:LEU:HB3    | 1:A:550:GLU:HG3    | 2.00                     | 0.42              |
| 1:C:95:GLN:HG3     | 1:C:148:TYR:HB2    | 2.00                     | 0.42              |
| 1:C:169:ALA:O      | 1:C:179:THR:HA     | 2.20                     | 0.42              |
| 1:C:502:ARG:HG2    | 1:C:562:GLU:HB3    | 2.02                     | 0.42              |
| 1:C:676:GLU:OE1    | 1:C:676:GLU:N      | 2.46                     | 0.42              |
| 12:A:1105:CLR:H273 | 13:C:1110:PCW:H281 | 2.02                     | 0.42              |
| 1:A:847:GLU:H      | 1:A:847:GLU:HG3    | 1.49                     | 0.42              |
| 2:B:207:ASN:ND2    | 2:B:237:TYR:CZ     | 2.88                     | 0.42              |
| 2:B:234:LEU:HG     | 2:B:241:PRO:HG3    | 2.01                     | 0.42              |
| 13:C:1108:PCW:C40  | 13:C:1108:PCW:H20  | 2.50                     | 0.42              |
| 1:A:169:ALA:O      | 1:A:179:THR:HA     | 2.20                     | 0.42              |
| 1:A:502:ARG:HG2    | 1:A:562:GLU:HB3    | 2.02                     | 0.42              |
| 13:G:1304:PCW:C41  | 13:E:1304:PCW:H461 | 2.45                     | 0.42              |
| 1:A:997:ILE:HG21   | 13:A:1108:PCW:C26  | 2.50                     | 0.42              |
| 2:B:189:PRO:HG2    | 2:B:245:TYR:CD2    | 2.55                     | 0.42              |
| 13:G:1304:PCW:H451 | 13:E:1304:PCW:C26  | 2.47                     | 0.42              |
| 1:A:476:LYS:HE2    | 1:A:493:HIS:CE1    | 2.55                     | 0.41              |
| 1:C:791:LEU:HB3    | 13:C:1114:PCW:H282 | 2.02                     | 0.41              |
| 2:D:160:CYS:SG     | 2:D:262:ALA:HB1    | 2.60                     | 0.41              |
| 2:D:167:THR:HG22   | 2:D:169:GLY:H      | 1.84                     | 0.41              |
| 2:D:265:PHE:HB3    | 2:D:268:LEU:CD1    | 2.50                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A:662:ALA:HB2    | 1:A:687:GLU:HB2    | 2.02                     | 0.41              |
| 2:B:52:ILE:O       | 2:B:55:ILE:HG22    | 2.20                     | 0.41              |
| 2:B:245:TYR:HB3    | 2:B:246:PRO:HA     | 2.02                     | 0.41              |
| 1:C:201:ALA:HB1    | 1:C:260:TYR:O      | 2.19                     | 0.41              |
| 1:A:482:PHE:HD2    | 1:A:489:GLN:HB2    | 1.85                     | 0.41              |
| 1:A:548:LEU:HD12   | 1:A:548:LEU:HA     | 1.89                     | 0.41              |
| 1:A:997:ILE:HG21   | 13:A:1108:PCW:H261 | 2.02                     | 0.41              |
| 12:A:1105:CLR:H273 | 13:C:1110:PCW:C27  | 2.51                     | 0.41              |
| 13:A:1112:PCW:H381 | 13:A:1112:PCW:H411 | 1.87                     | 0.41              |
| 1:C:552:VAL:HA     | 1:C:590:ALA:HA     | 2.03                     | 0.41              |
| 1:C:631:VAL:HG23   | 1:C:633:ILE:HG13   | 2.01                     | 0.41              |
| 10:C:1103:ATP:H5'1 | 10:C:1103:ATP:O1B  | 2.20                     | 0.41              |
| 2:D:193:LYS:HA     | 2:D:206:TYR:OH     | 2.21                     | 0.41              |
| 1:A:791:LEU:HB3    | 13:A:1114:PCW:H282 | 2.02                     | 0.41              |
| 1:A:992:PHE:HZ     | 12:G:1301:CLR:H20  | 1.85                     | 0.41              |
| 2:B:265:PHE:HB3    | 2:B:268:LEU:CD1    | 2.50                     | 0.41              |
| 1:C:473:ARG:HD3    | 1:C:496:GLU:OE1    | 2.21                     | 0.41              |
| 1:C:611:ILE:HD11   | 1:C:762:VAL:HG21   | 2.03                     | 0.41              |
| 1:A:488:TYR:CD1    | 1:A:488:TYR:C      | 2.99                     | 0.41              |
| 13:G:1304:PCW:H241 | 13:E:1304:PCW:H471 | 2.02                     | 0.41              |
| 2:D:189:PRO:HG2    | 2:D:245:TYR:CD2    | 2.55                     | 0.41              |
| 10:A:1103:ATP:H5'1 | 10:A:1103:ATP:O1B  | 2.20                     | 0.41              |
| 1:C:997:ILE:HG21   | 13:C:1108:PCW:C27  | 2.49                     | 0.41              |
| 2:D:93:ILE:HB      | 2:D:305:SER:OG     | 2.20                     | 0.41              |
| 2:D:106:MET:O      | 2:D:110:MET:HG2    | 2.21                     | 0.41              |
| 1:A:552:VAL:HA     | 1:A:590:ALA:HA     | 2.02                     | 0.41              |
| 2:B:106:MET:O      | 2:B:110:MET:HG2    | 2.21                     | 0.41              |
| 1:C:488:TYR:CD1    | 1:C:488:TYR:C      | 2.99                     | 0.41              |
| 1:C:997:ILE:HG21   | 13:C:1108:PCW:C26  | 2.50                     | 0.41              |
| 2:B:93:ILE:HB      | 2:B:305:SER:OG     | 2.20                     | 0.41              |
| 2:B:193:LYS:HA     | 2:B:206:TYR:OH     | 2.21                     | 0.41              |
| 1:C:658:ARG:HA     | 1:C:658:ARG:HD3    | 1.90                     | 0.41              |
| 13:C:1108:PCW:H72  | 13:C:1108:PCW:H41  | 1.69                     | 0.41              |
| 1:A:473:ARG:HD3    | 1:A:496:GLU:OE1    | 2.21                     | 0.41              |
| 1:A:602:ALA:HB3    | 1:A:755:PHE:HD2    | 1.86                     | 0.41              |
| 1:A:720:ASN:N      | 1:A:720:ASN:OD1    | 2.53                     | 0.41              |
| 1:A:808:LEU:HD23   | 1:A:808:LEU:HA     | 1.84                     | 0.41              |
| 1:A:812:LEU:HD13   | 1:A:812:LEU:HA     | 1.92                     | 0.41              |
| 1:A:912:LYS:HD3    | 1:A:912:LYS:HA     | 1.87                     | 0.41              |
| 2:B:160:CYS:SG     | 2:B:262:ALA:HB1    | 2.60                     | 0.41              |
| 2:B:195:THR:HG22   | 2:B:196:THR:N      | 2.36                     | 0.41              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 12:B:502:CLR:H161 | 12:B:502:CLR:H222  | 1.96                     | 0.41              |
| 2:D:22:LYS:HB2    | 2:D:24:GLU:HG3     | 2.03                     | 0.41              |
| 2:D:195:THR:HG22  | 2:D:196:THR:N      | 2.36                     | 0.41              |
| 2:B:22:LYS:HB2    | 2:B:24:GLU:HG3     | 2.03                     | 0.40              |
| 1:A:611:ILE:HD11  | 1:A:762:VAL:HG21   | 2.03                     | 0.40              |
| 1:C:360:ASN:HD22  | 1:C:360:ASN:HA     | 1.47                     | 0.40              |
| 1:A:575:GLU:HB3   | 1:A:576:PRO:CD     | 2.50                     | 0.40              |
| 1:C:696:GLN:OE1   | 1:C:696:GLN:N      | 2.47                     | 0.40              |
| 2:D:283:GLU:C     | 2:D:285:ILE:H      | 2.30                     | 0.40              |
| 1:A:540:ASN:HD22  | 1:A:540:ASN:H      | 1.70                     | 0.40              |
| 1:A:891:ASP:O     | 1:A:892:ASP:C      | 2.64                     | 0.40              |
| 2:B:227:GLY:HA3   | 2:B:267:ASN:HB3    | 2.04                     | 0.40              |
| 1:C:482:PHE:HD2   | 1:C:489:GLN:HB2    | 1.85                     | 0.40              |
| 1:C:772:LEU:HD23  | 1:C:772:LEU:HA     | 1.97                     | 0.40              |
| 1:C:784:ILE:C     | 1:C:786:GLU:H      | 2.30                     | 0.40              |
| 1:C:992:PHE:HZ    | 12:E:1301:CLR:H20  | 1.85                     | 0.40              |
| 1:C:997:ILE:HG21  | 13:C:1108:PCW:H261 | 2.02                     | 0.40              |
| 2:D:146:GLN:NE2   | 2:D:254:LYS:HG2    | 2.36                     | 0.40              |
| 2:D:245:TYR:HB3   | 2:D:246:PRO:HA     | 2.02                     | 0.40              |
| 1:A:824:TYR:HB2   | 1:A:951:ASN:HD21   | 1.86                     | 0.40              |
| 2:B:283:GLU:C     | 2:B:285:ILE:H      | 2.30                     | 0.40              |
| 1:C:662:ALA:HB2   | 1:C:687:GLU:HB2    | 2.02                     | 0.40              |
| 1:C:824:TYR:HB2   | 1:C:951:ASN:HD21   | 1.86                     | 0.40              |

There are no symmetry-related clashes.

## 5.3 Torsion angles [\(i\)](#)

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

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

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

| Mol | Chain | Analysed       | Favoured  | Allowed | Outliers | Percentiles |
|-----|-------|----------------|-----------|---------|----------|-------------|
| 1   | A     | 990/1028 (96%) | 911 (92%) | 71 (7%) | 8 (1%)   | 16 44       |
| 1   | C     | 990/1028 (96%) | 911 (92%) | 71 (7%) | 8 (1%)   | 16 44       |

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| Mol | Chain | Analysed        | Favoured   | Allowed  | Outliers | Percentiles |     |
|-----|-------|-----------------|------------|----------|----------|-------------|-----|
| 2   | B     | 292/305 (96%)   | 256 (88%)  | 35 (12%) | 1 (0%)   | 37          | 66  |
| 2   | D     | 292/305 (96%)   | 256 (88%)  | 35 (12%) | 1 (0%)   | 37          | 66  |
| 3   | E     | 38/94 (40%)     | 33 (87%)   | 5 (13%)  | 0        | 100         | 100 |
| 3   | G     | 38/94 (40%)     | 33 (87%)   | 5 (13%)  | 0        | 100         | 100 |
| All | All   | 2640/2854 (92%) | 2400 (91%) | 222 (8%) | 18 (1%)  | 21          | 47  |

All (18) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 85  | THR  |
| 1   | C     | 85  | THR  |
| 1   | A     | 315 | TYR  |
| 1   | C     | 315 | TYR  |
| 1   | A     | 481 | PRO  |
| 1   | A     | 988 | TRP  |
| 1   | C     | 481 | PRO  |
| 1   | C     | 988 | TRP  |
| 1   | A     | 200 | PRO  |
| 1   | A     | 985 | PRO  |
| 2   | B     | 155 | MET  |
| 1   | C     | 200 | PRO  |
| 1   | C     | 985 | PRO  |
| 2   | D     | 155 | MET  |
| 1   | A     | 124 | GLU  |
| 1   | C     | 124 | GLU  |
| 1   | A     | 801 | PRO  |
| 1   | C     | 801 | PRO  |

### 5.3.2 Protein sidechains [i](#)

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

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

| Mol | Chain | Analysed      | Rotameric | Outliers | Percentiles |    |
|-----|-------|---------------|-----------|----------|-------------|----|
| 1   | A     | 840/868 (97%) | 765 (91%) | 75 (9%)  | 8           | 27 |
| 1   | C     | 840/868 (97%) | 765 (91%) | 75 (9%)  | 8           | 27 |

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| Mol | Chain | Analysed        | Rotameric  | Outliers  | Percentiles |    |
|-----|-------|-----------------|------------|-----------|-------------|----|
| 2   | B     | 258/266 (97%)   | 218 (84%)  | 40 (16%)  | 2           | 9  |
| 2   | D     | 258/266 (97%)   | 218 (84%)  | 40 (16%)  | 2           | 9  |
| 3   | E     | 33/75 (44%)     | 30 (91%)   | 3 (9%)    | 7           | 26 |
| 3   | G     | 33/75 (44%)     | 30 (91%)   | 3 (9%)    | 7           | 26 |
| All | All   | 2262/2418 (94%) | 2026 (90%) | 236 (10%) | 8           | 21 |

All (236) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 34  | GLU  |
| 1   | A     | 37  | LYS  |
| 1   | A     | 45  | LYS  |
| 1   | A     | 63  | LEU  |
| 1   | A     | 64  | THR  |
| 1   | A     | 65  | ASN  |
| 1   | A     | 75  | ASP  |
| 1   | A     | 127 | ASN  |
| 1   | A     | 158 | MET  |
| 1   | A     | 167 | GLN  |
| 1   | A     | 173 | ARG  |
| 1   | A     | 223 | GLU  |
| 1   | A     | 231 | PHE  |
| 1   | A     | 240 | ARG  |
| 1   | A     | 241 | ASN  |
| 1   | A     | 248 | ASN  |
| 1   | A     | 261 | THR  |
| 1   | A     | 263 | ASP  |
| 1   | A     | 311 | LEU  |
| 1   | A     | 331 | ASN  |
| 1   | A     | 332 | VAL  |
| 1   | A     | 334 | GLU  |
| 1   | A     | 343 | CYS  |
| 1   | A     | 344 | LEU  |
| 1   | A     | 350 | ARG  |
| 1   | A     | 351 | MET  |
| 1   | A     | 357 | LEU  |
| 1   | A     | 360 | ASN  |
| 1   | A     | 362 | GLU  |
| 1   | A     | 367 | LEU  |
| 1   | A     | 381 | LEU  |
| 1   | A     | 411 | PHE  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | A            | 415        | SER         |
| 1          | A            | 434        | GLN         |
| 1          | A            | 440        | VAL         |
| 1          | A            | 445        | ARG         |
| 1          | A            | 470        | MET         |
| 1          | A            | 484        | SER         |
| 1          | A            | 485        | THR         |
| 1          | A            | 488        | TYR         |
| 1          | A            | 493        | HIS         |
| 1          | A            | 515        | LEU         |
| 1          | A            | 522        | LEU         |
| 1          | A            | 540        | ASN         |
| 1          | A            | 548        | LEU         |
| 1          | A            | 571        | PHE         |
| 1          | A            | 620        | HIS         |
| 1          | A            | 661        | LYS         |
| 1          | A            | 670        | LEU         |
| 1          | A            | 678        | LEU         |
| 1          | A            | 683        | HIS         |
| 1          | A            | 692        | ARG         |
| 1          | A            | 708        | GLN         |
| 1          | A            | 767        | LEU         |
| 1          | A            | 788        | THR         |
| 1          | A            | 812        | LEU         |
| 1          | A            | 815        | ASP         |
| 1          | A            | 822        | LEU         |
| 1          | A            | 834        | ARG         |
| 1          | A            | 837        | ARG         |
| 1          | A            | 846        | ASN         |
| 1          | A            | 847        | GLU         |
| 1          | A            | 872        | ILE         |
| 1          | A            | 887        | ARG         |
| 1          | A            | 892        | ASP         |
| 1          | A            | 894        | TRP         |
| 1          | A            | 901        | SER         |
| 1          | A            | 923        | PHE         |
| 1          | A            | 935        | ILE         |
| 1          | A            | 943        | SER         |
| 1          | A            | 975        | ASP         |
| 1          | A            | 986        | SER         |
| 1          | A            | 1007       | PHE         |
| 1          | A            | 1011       | ARG         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | A            | 1019       | GLN         |
| 2          | B            | 20         | SER         |
| 2          | B            | 26         | LEU         |
| 2          | B            | 28         | ARG         |
| 2          | B            | 32         | SER         |
| 2          | B            | 37         | PHE         |
| 2          | B            | 64         | ASP         |
| 2          | B            | 73         | VAL         |
| 2          | B            | 94         | SER         |
| 2          | B            | 107        | HIS         |
| 2          | B            | 135        | ILE         |
| 2          | B            | 137        | ARG         |
| 2          | B            | 144        | GLN         |
| 2          | B            | 146        | GLN         |
| 2          | B            | 154        | ARG         |
| 2          | B            | 156        | TRP         |
| 2          | B            | 157        | LEU         |
| 2          | B            | 160        | CYS         |
| 2          | B            | 161        | SER         |
| 2          | B            | 167        | THR         |
| 2          | B            | 196        | THR         |
| 2          | B            | 200        | GLU         |
| 2          | B            | 203        | GLN         |
| 2          | B            | 211        | LEU         |
| 2          | B            | 213        | LEU         |
| 2          | B            | 214        | ARG         |
| 2          | B            | 218        | LYS         |
| 2          | B            | 219        | ARG         |
| 2          | B            | 229        | ILE         |
| 2          | B            | 242        | LEU         |
| 2          | B            | 251        | ARG         |
| 2          | B            | 266        | THR         |
| 2          | B            | 268        | LEU         |
| 2          | B            | 269        | THR         |
| 2          | B            | 272        | MET         |
| 2          | B            | 284        | ASN         |
| 2          | B            | 285        | ILE         |
| 2          | B            | 287        | TYR         |
| 2          | B            | 289        | GLU         |
| 2          | B            | 292        | ARG         |
| 2          | B            | 294        | ARG         |
| 3          | G            | 4          | GLU         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 3          | G            | 13         | THR         |
| 3          | G            | 33         | ILE         |
| 1          | C            | 34         | GLU         |
| 1          | C            | 37         | LYS         |
| 1          | C            | 45         | LYS         |
| 1          | C            | 63         | LEU         |
| 1          | C            | 64         | THR         |
| 1          | C            | 65         | ASN         |
| 1          | C            | 75         | ASP         |
| 1          | C            | 127        | ASN         |
| 1          | C            | 158        | MET         |
| 1          | C            | 167        | GLN         |
| 1          | C            | 173        | ARG         |
| 1          | C            | 223        | GLU         |
| 1          | C            | 231        | PHE         |
| 1          | C            | 240        | ARG         |
| 1          | C            | 241        | ASN         |
| 1          | C            | 248        | ASN         |
| 1          | C            | 261        | THR         |
| 1          | C            | 263        | ASP         |
| 1          | C            | 311        | LEU         |
| 1          | C            | 331        | ASN         |
| 1          | C            | 332        | VAL         |
| 1          | C            | 334        | GLU         |
| 1          | C            | 343        | CYS         |
| 1          | C            | 344        | LEU         |
| 1          | C            | 350        | ARG         |
| 1          | C            | 351        | MET         |
| 1          | C            | 357        | LEU         |
| 1          | C            | 360        | ASN         |
| 1          | C            | 362        | GLU         |
| 1          | C            | 367        | LEU         |
| 1          | C            | 381        | LEU         |
| 1          | C            | 411        | PHE         |
| 1          | C            | 415        | SER         |
| 1          | C            | 434        | GLN         |
| 1          | C            | 440        | VAL         |
| 1          | C            | 445        | ARG         |
| 1          | C            | 470        | MET         |
| 1          | C            | 484        | SER         |
| 1          | C            | 485        | THR         |
| 1          | C            | 488        | TYR         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | C            | 493        | HIS         |
| 1          | C            | 515        | LEU         |
| 1          | C            | 522        | LEU         |
| 1          | C            | 540        | ASN         |
| 1          | C            | 548        | LEU         |
| 1          | C            | 571        | PHE         |
| 1          | C            | 620        | HIS         |
| 1          | C            | 661        | LYS         |
| 1          | C            | 670        | LEU         |
| 1          | C            | 678        | LEU         |
| 1          | C            | 683        | HIS         |
| 1          | C            | 692        | ARG         |
| 1          | C            | 708        | GLN         |
| 1          | C            | 767        | LEU         |
| 1          | C            | 788        | THR         |
| 1          | C            | 812        | LEU         |
| 1          | C            | 815        | ASP         |
| 1          | C            | 822        | LEU         |
| 1          | C            | 834        | ARG         |
| 1          | C            | 837        | ARG         |
| 1          | C            | 846        | ASN         |
| 1          | C            | 847        | GLU         |
| 1          | C            | 872        | ILE         |
| 1          | C            | 887        | ARG         |
| 1          | C            | 892        | ASP         |
| 1          | C            | 894        | TRP         |
| 1          | C            | 901        | SER         |
| 1          | C            | 923        | PHE         |
| 1          | C            | 935        | ILE         |
| 1          | C            | 943        | SER         |
| 1          | C            | 975        | ASP         |
| 1          | C            | 986        | SER         |
| 1          | C            | 1007       | PHE         |
| 1          | C            | 1011       | ARG         |
| 1          | C            | 1019       | GLN         |
| 2          | D            | 20         | SER         |
| 2          | D            | 26         | LEU         |
| 2          | D            | 28         | ARG         |
| 2          | D            | 32         | SER         |
| 2          | D            | 37         | PHE         |
| 2          | D            | 64         | ASP         |
| 2          | D            | 73         | VAL         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 2          | D            | 94         | SER         |
| 2          | D            | 107        | HIS         |
| 2          | D            | 135        | ILE         |
| 2          | D            | 137        | ARG         |
| 2          | D            | 144        | GLN         |
| 2          | D            | 146        | GLN         |
| 2          | D            | 154        | ARG         |
| 2          | D            | 156        | TRP         |
| 2          | D            | 157        | LEU         |
| 2          | D            | 160        | CYS         |
| 2          | D            | 161        | SER         |
| 2          | D            | 167        | THR         |
| 2          | D            | 196        | THR         |
| 2          | D            | 200        | GLU         |
| 2          | D            | 203        | GLN         |
| 2          | D            | 211        | LEU         |
| 2          | D            | 213        | LEU         |
| 2          | D            | 214        | ARG         |
| 2          | D            | 218        | LYS         |
| 2          | D            | 219        | ARG         |
| 2          | D            | 229        | ILE         |
| 2          | D            | 242        | LEU         |
| 2          | D            | 251        | ARG         |
| 2          | D            | 266        | THR         |
| 2          | D            | 268        | LEU         |
| 2          | D            | 269        | THR         |
| 2          | D            | 272        | MET         |
| 2          | D            | 284        | ASN         |
| 2          | D            | 285        | ILE         |
| 2          | D            | 287        | TYR         |
| 2          | D            | 289        | GLU         |
| 2          | D            | 292        | ARG         |
| 2          | D            | 294        | ARG         |
| 3          | E            | 4          | GLU         |
| 3          | E            | 13         | THR         |
| 3          | E            | 33         | ILE         |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (22) such sidechains are listed below:

| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | A            | 52         | HIS         |
| 1          | A            | 241        | ASN         |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 360 | ASN  |
| 1   | A     | 434 | GLN  |
| 1   | A     | 474 | ASN  |
| 1   | A     | 539 | GLN  |
| 1   | A     | 540 | ASN  |
| 1   | A     | 904 | GLN  |
| 2   | B     | 56  | GLN  |
| 2   | B     | 80  | HIS  |
| 2   | B     | 203 | GLN  |
| 1   | C     | 52  | HIS  |
| 1   | C     | 241 | ASN  |
| 1   | C     | 360 | ASN  |
| 1   | C     | 434 | GLN  |
| 1   | C     | 474 | ASN  |
| 1   | C     | 540 | ASN  |
| 1   | C     | 649 | ASN  |
| 1   | C     | 904 | GLN  |
| 2   | D     | 56  | GLN  |
| 2   | D     | 80  | HIS  |
| 2   | D     | 203 | GLN  |

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

2 non-standard protein/DNA/RNA residues are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mol | Type | Chain | Res | Link | Bond lengths |      |          | Bond angles |      |          |
|-----|------|-------|-----|------|--------------|------|----------|-------------|------|----------|
|     |      |       |     |      | Counts       | RMSZ | # Z  > 2 | Counts      | RMSZ | # Z  > 2 |
| 1   | PHD  | A     | 376 | 1,8  | 9,11,12      | 1.97 | 1 (11%)  | 10,15,17    | 1.13 | 1 (10%)  |
| 1   | PHD  | C     | 376 | 1,8  | 9,11,12      | 1.98 | 1 (11%)  | 10,15,17    | 1.14 | 1 (10%)  |

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 |
|-----|------|-------|-----|------|---------|-----------|-------|
| 1   | PHD  | A     | 376 | 1,8  | -       | 2/8/11/13 | -     |
| 1   | PHD  | C     | 376 | 1,8  | -       | 2/8/11/13 | -     |

All (2) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|-------|-------|-------------|----------|
| 1   | C     | 376 | PHD  | P-OD1 | -5.25 | 1.51        | 1.59     |
| 1   | A     | 376 | PHD  | P-OD1 | -5.20 | 1.51        | 1.59     |

All (2) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms     | Z    | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-----------|------|-------------|----------|
| 1   | C     | 376 | PHD  | OD1-CG-CB | 2.11 | 116.91      | 111.11   |
| 1   | A     | 376 | PHD  | OD1-CG-CB | 2.11 | 116.91      | 111.11   |

There are no chirality outliers.

All (4) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms        |
|-----|-------|-----|------|--------------|
| 1   | A     | 376 | PHD  | CA-CB-CG-OD1 |
| 1   | C     | 376 | PHD  | CA-CB-CG-OD1 |
| 1   | A     | 376 | PHD  | CA-CB-CG-OD2 |
| 1   | C     | 376 | PHD  | CA-CB-CG-OD2 |

There are no ring outliers.

2 monomers are involved in 2 short contacts:

| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|-----|------|---------|--------------|
| 1   | A     | 376 | PHD  | 1       | 0            |
| 1   | C     | 376 | PHD  | 1       | 0            |

## 5.5 Carbohydrates

38 monosaccharides are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and

the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mol | Type | Chain | Res | Link | Bond lengths |      |          | Bond angles |      |          |
|-----|------|-------|-----|------|--------------|------|----------|-------------|------|----------|
|     |      |       |     |      | Counts       | RMSZ | # Z  > 2 | Counts      | RMSZ | # Z  > 2 |
| 4   | NAG  | F     | 1   | 4,2  | 14,14,15     | 1.14 | 1 (7%)   | 17,19,21    | 1.24 | 1 (5%)   |
| 4   | NAG  | F     | 2   | 4    | 14,14,15     | 0.20 | 0        | 17,19,21    | 0.56 | 0        |
| 4   | BMA  | F     | 3   | 4    | 11,11,12     | 0.78 | 0        | 15,15,17    | 1.36 | 2 (13%)  |
| 4   | MAN  | F     | 4   | 4    | 11,11,12     | 0.76 | 0        | 15,15,17    | 0.99 | 2 (13%)  |
| 4   | MAN  | F     | 5   | 4    | 11,11,12     | 0.71 | 0        | 15,15,17    | 0.93 | 1 (6%)   |
| 4   | FUC  | F     | 6   | 4    | 10,10,11     | 1.08 | 1 (10%)  | 14,14,16    | 0.72 | 0        |
| 5   | NAG  | H     | 1   | 5,2  | 14,14,15     | 0.59 | 0        | 17,19,21    | 1.15 | 2 (11%)  |
| 5   | NAG  | H     | 2   | 5    | 14,14,15     | 0.33 | 0        | 17,19,21    | 1.55 | 2 (11%)  |
| 5   | BMA  | H     | 3   | 5    | 11,11,12     | 1.24 | 1 (9%)   | 15,15,17    | 1.09 | 1 (6%)   |
| 5   | MAN  | H     | 4   | 5    | 11,11,12     | 1.43 | 3 (27%)  | 15,15,17    | 1.38 | 2 (13%)  |
| 5   | NAG  | H     | 5   | 5    | 14,14,15     | 0.67 | 0        | 17,19,21    | 0.81 | 1 (5%)   |
| 5   | MAN  | H     | 6   | 5    | 11,11,12     | 0.73 | 0        | 15,15,17    | 0.94 | 2 (13%)  |
| 6   | NAG  | I     | 1   | 6,2  | 14,14,15     | 0.78 | 1 (7%)   | 17,19,21    | 1.55 | 1 (5%)   |
| 6   | NAG  | I     | 2   | 6    | 14,14,15     | 0.19 | 0        | 17,19,21    | 0.61 | 1 (5%)   |
| 6   | BMA  | I     | 3   | 6    | 11,11,12     | 0.59 | 0        | 15,15,17    | 1.30 | 2 (13%)  |
| 6   | MAN  | I     | 4   | 6    | 11,11,12     | 0.68 | 0        | 15,15,17    | 0.97 | 2 (13%)  |
| 6   | FUC  | I     | 5   | 6    | 10,10,11     | 1.04 | 1 (10%)  | 14,14,16    | 0.73 | 0        |
| 7   | NAG  | J     | 1   | 7,2  | 14,14,15     | 0.51 | 0        | 17,19,21    | 0.63 | 0        |
| 7   | NAG  | J     | 2   | 7    | 14,14,15     | 0.19 | 0        | 17,19,21    | 0.38 | 0        |
| 4   | NAG  | K     | 1   | 4,2  | 14,14,15     | 1.14 | 1 (7%)   | 17,19,21    | 1.23 | 1 (5%)   |
| 4   | NAG  | K     | 2   | 4    | 14,14,15     | 0.20 | 0        | 17,19,21    | 0.58 | 0        |
| 4   | BMA  | K     | 3   | 4    | 11,11,12     | 0.79 | 0        | 15,15,17    | 1.35 | 2 (13%)  |
| 4   | MAN  | K     | 4   | 4    | 11,11,12     | 0.75 | 0        | 15,15,17    | 1.00 | 2 (13%)  |
| 4   | MAN  | K     | 5   | 4    | 11,11,12     | 0.71 | 0        | 15,15,17    | 0.93 | 1 (6%)   |
| 4   | FUC  | K     | 6   | 4    | 10,10,11     | 1.08 | 1 (10%)  | 14,14,16    | 0.72 | 0        |
| 5   | NAG  | L     | 1   | 5,2  | 14,14,15     | 0.58 | 0        | 17,19,21    | 1.15 | 2 (11%)  |
| 5   | NAG  | L     | 2   | 5    | 14,14,15     | 0.33 | 0        | 17,19,21    | 1.56 | 2 (11%)  |
| 5   | BMA  | L     | 3   | 5    | 11,11,12     | 1.24 | 1 (9%)   | 15,15,17    | 1.09 | 1 (6%)   |
| 5   | MAN  | L     | 4   | 5    | 11,11,12     | 1.43 | 3 (27%)  | 15,15,17    | 1.39 | 2 (13%)  |
| 5   | NAG  | L     | 5   | 5    | 14,14,15     | 0.69 | 0        | 17,19,21    | 0.81 | 1 (5%)   |
| 5   | MAN  | L     | 6   | 5    | 11,11,12     | 0.73 | 0        | 15,15,17    | 0.95 | 2 (13%)  |

| Mol | Type | Chain | Res | Link | Bond lengths |      |          | Bond angles |      |          |
|-----|------|-------|-----|------|--------------|------|----------|-------------|------|----------|
|     |      |       |     |      | Counts       | RMSZ | # Z  > 2 | Counts      | RMSZ | # Z  > 2 |
| 6   | NAG  | M     | 1   | 6,2  | 14,14,15     | 0.79 | 1 (7%)   | 17,19,21    | 1.56 | 1 (5%)   |
| 6   | NAG  | M     | 2   | 6    | 14,14,15     | 0.19 | 0        | 17,19,21    | 0.62 | 1 (5%)   |
| 6   | BMA  | M     | 3   | 6    | 11,11,12     | 0.58 | 0        | 15,15,17    | 1.31 | 2 (13%)  |
| 6   | MAN  | M     | 4   | 6    | 11,11,12     | 0.67 | 0        | 15,15,17    | 0.96 | 2 (13%)  |
| 6   | FUC  | M     | 5   | 6    | 10,10,11     | 1.03 | 1 (10%)  | 14,14,16    | 0.73 | 0        |
| 7   | NAG  | N     | 1   | 7,2  | 14,14,15     | 0.51 | 0        | 17,19,21    | 0.63 | 0        |
| 7   | NAG  | N     | 2   | 7    | 14,14,15     | 0.19 | 0        | 17,19,21    | 0.37 | 0        |

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   |
|-----|------|-------|-----|------|---------|-----------|---------|
| 4   | NAG  | F     | 1   | 4,2  | -       | 0/6/23/26 | 0/1/1/1 |
| 4   | NAG  | F     | 2   | 4    | -       | 0/6/23/26 | 0/1/1/1 |
| 4   | BMA  | F     | 3   | 4    | -       | 1/2/19/22 | 0/1/1/1 |
| 4   | MAN  | F     | 4   | 4    | -       | 0/2/19/22 | 0/1/1/1 |
| 4   | MAN  | F     | 5   | 4    | -       | 0/2/19/22 | 0/1/1/1 |
| 4   | FUC  | F     | 6   | 4    | -       | -         | 0/1/1/1 |
| 5   | NAG  | H     | 1   | 5,2  | -       | 0/6/23/26 | 0/1/1/1 |
| 5   | NAG  | H     | 2   | 5    | -       | 3/6/23/26 | 0/1/1/1 |
| 5   | BMA  | H     | 3   | 5    | -       | 2/2/19/22 | 0/1/1/1 |
| 5   | MAN  | H     | 4   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | NAG  | H     | 5   | 5    | -       | 4/6/23/26 | 0/1/1/1 |
| 5   | MAN  | H     | 6   | 5    | -       | 2/2/19/22 | 0/1/1/1 |
| 6   | NAG  | I     | 1   | 6,2  | -       | 0/6/23/26 | 0/1/1/1 |
| 6   | NAG  | I     | 2   | 6    | -       | 0/6/23/26 | 0/1/1/1 |
| 6   | BMA  | I     | 3   | 6    | -       | 1/2/19/22 | 0/1/1/1 |
| 6   | MAN  | I     | 4   | 6    | -       | 0/2/19/22 | 0/1/1/1 |
| 6   | FUC  | I     | 5   | 6    | -       | -         | 0/1/1/1 |
| 7   | NAG  | J     | 1   | 7,2  | -       | 0/6/23/26 | 0/1/1/1 |
| 7   | NAG  | J     | 2   | 7    | -       | 0/6/23/26 | 0/1/1/1 |
| 4   | NAG  | K     | 1   | 4,2  | -       | 0/6/23/26 | 0/1/1/1 |
| 4   | NAG  | K     | 2   | 4    | -       | 0/6/23/26 | 0/1/1/1 |
| 4   | BMA  | K     | 3   | 4    | -       | 1/2/19/22 | 0/1/1/1 |
| 4   | MAN  | K     | 4   | 4    | -       | 0/2/19/22 | 0/1/1/1 |
| 4   | MAN  | K     | 5   | 4    | -       | 0/2/19/22 | 0/1/1/1 |
| 4   | FUC  | K     | 6   | 4    | -       | -         | 0/1/1/1 |
| 5   | NAG  | L     | 1   | 5,2  | -       | 0/6/23/26 | 0/1/1/1 |

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| Mol | Type | Chain | Res | Link | Chirals | Torsions  | Rings   |
|-----|------|-------|-----|------|---------|-----------|---------|
| 5   | NAG  | L     | 2   | 5    | -       | 3/6/23/26 | 0/1/1/1 |
| 5   | BMA  | L     | 3   | 5    | -       | 2/2/19/22 | 0/1/1/1 |
| 5   | MAN  | L     | 4   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | NAG  | L     | 5   | 5    | -       | 4/6/23/26 | 0/1/1/1 |
| 5   | MAN  | L     | 6   | 5    | -       | 2/2/19/22 | 0/1/1/1 |
| 6   | NAG  | M     | 1   | 6,2  | -       | 0/6/23/26 | 0/1/1/1 |
| 6   | NAG  | M     | 2   | 6    | -       | 0/6/23/26 | 0/1/1/1 |
| 6   | BMA  | M     | 3   | 6    | -       | 1/2/19/22 | 0/1/1/1 |
| 6   | MAN  | M     | 4   | 6    | -       | 0/2/19/22 | 0/1/1/1 |
| 6   | FUC  | M     | 5   | 6    | -       | -         | 0/1/1/1 |
| 7   | NAG  | N     | 1   | 7,2  | -       | 0/6/23/26 | 0/1/1/1 |
| 7   | NAG  | N     | 2   | 7    | -       | 0/6/23/26 | 0/1/1/1 |

All (16) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|-------|-------|-------------|----------|
| 4   | F     | 1   | NAG  | O5-C1 | 3.82  | 1.49        | 1.43     |
| 4   | K     | 1   | NAG  | O5-C1 | 3.81  | 1.49        | 1.43     |
| 5   | H     | 4   | MAN  | O2-C2 | 3.03  | 1.49        | 1.43     |
| 5   | L     | 4   | MAN  | O2-C2 | 3.02  | 1.49        | 1.43     |
| 4   | K     | 6   | FUC  | O5-C1 | -2.89 | 1.39        | 1.43     |
| 4   | F     | 6   | FUC  | O5-C1 | -2.86 | 1.39        | 1.43     |
| 6   | I     | 5   | FUC  | O5-C1 | -2.46 | 1.39        | 1.43     |
| 6   | M     | 5   | FUC  | O5-C1 | -2.45 | 1.39        | 1.43     |
| 6   | M     | 1   | NAG  | O5-C1 | 2.42  | 1.47        | 1.43     |
| 6   | I     | 1   | NAG  | O5-C1 | 2.39  | 1.47        | 1.43     |
| 5   | L     | 4   | MAN  | C1-C2 | 2.26  | 1.57        | 1.52     |
| 5   | H     | 3   | BMA  | C2-C3 | 2.24  | 1.55        | 1.52     |
| 5   | L     | 3   | BMA  | C2-C3 | 2.23  | 1.55        | 1.52     |
| 5   | H     | 4   | MAN  | C1-C2 | 2.20  | 1.57        | 1.52     |
| 5   | H     | 4   | MAN  | C2-C3 | 2.09  | 1.55        | 1.52     |
| 5   | L     | 4   | MAN  | C2-C3 | 2.05  | 1.55        | 1.52     |

All (44) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms    | Z    | Observed(°) | Ideal(°) |
|-----|-------|-----|------|----------|------|-------------|----------|
| 6   | M     | 1   | NAG  | C1-O5-C5 | 5.91 | 120.20      | 112.19   |
| 6   | I     | 1   | NAG  | C1-O5-C5 | 5.89 | 120.18      | 112.19   |
| 4   | F     | 1   | NAG  | C1-O5-C5 | 4.66 | 118.51      | 112.19   |
| 4   | K     | 1   | NAG  | C1-O5-C5 | 4.65 | 118.49      | 112.19   |
| 5   | L     | 2   | NAG  | C1-O5-C5 | 4.65 | 118.49      | 112.19   |

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| Mol | Chain | Res | Type | Atoms    | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|----------|-------|-------------|----------|
| 5   | H     | 2   | NAG  | C1-O5-C5 | 4.63  | 118.47      | 112.19   |
| 5   | L     | 4   | MAN  | O2-C2-C1 | 4.20  | 117.74      | 109.15   |
| 5   | H     | 4   | MAN  | O2-C2-C1 | 4.19  | 117.73      | 109.15   |
| 5   | L     | 2   | NAG  | C2-N2-C7 | 3.81  | 128.34      | 122.90   |
| 5   | H     | 2   | NAG  | C2-N2-C7 | 3.81  | 128.32      | 122.90   |
| 5   | L     | 3   | BMA  | O3-C3-C2 | 3.25  | 116.22      | 109.99   |
| 5   | H     | 3   | BMA  | O3-C3-C2 | 3.23  | 116.17      | 109.99   |
| 5   | H     | 5   | NAG  | C1-O5-C5 | 3.15  | 116.46      | 112.19   |
| 5   | L     | 5   | NAG  | C1-O5-C5 | 3.15  | 116.46      | 112.19   |
| 5   | H     | 1   | NAG  | O4-C4-C5 | 3.07  | 116.92      | 109.30   |
| 5   | L     | 1   | NAG  | O4-C4-C5 | 3.06  | 116.90      | 109.30   |
| 4   | F     | 3   | BMA  | O5-C5-C6 | 2.84  | 111.65      | 107.20   |
| 4   | K     | 3   | BMA  | O5-C5-C6 | 2.81  | 111.60      | 107.20   |
| 5   | H     | 1   | NAG  | C1-O5-C5 | 2.79  | 115.97      | 112.19   |
| 5   | L     | 1   | NAG  | C1-O5-C5 | 2.78  | 115.96      | 112.19   |
| 5   | L     | 4   | MAN  | C1-O5-C5 | 2.69  | 115.84      | 112.19   |
| 5   | H     | 4   | MAN  | C1-O5-C5 | 2.69  | 115.84      | 112.19   |
| 6   | M     | 3   | BMA  | O5-C5-C6 | 2.44  | 111.02      | 107.20   |
| 6   | I     | 3   | BMA  | O5-C5-C6 | 2.42  | 110.99      | 107.20   |
| 6   | I     | 3   | BMA  | C3-C4-C5 | -2.33 | 106.08      | 110.24   |
| 6   | M     | 3   | BMA  | C3-C4-C5 | -2.33 | 106.08      | 110.24   |
| 4   | K     | 5   | MAN  | O2-C2-C3 | -2.33 | 105.48      | 110.14   |
| 4   | F     | 5   | MAN  | O2-C2-C3 | -2.32 | 105.49      | 110.14   |
| 4   | K     | 4   | MAN  | O2-C2-C3 | -2.25 | 105.63      | 110.14   |
| 4   | F     | 4   | MAN  | O2-C2-C3 | -2.24 | 105.64      | 110.14   |
| 5   | H     | 6   | MAN  | O2-C2-C3 | -2.23 | 105.67      | 110.14   |
| 4   | F     | 3   | BMA  | C3-C4-C5 | -2.22 | 106.28      | 110.24   |
| 5   | L     | 6   | MAN  | O2-C2-C3 | -2.21 | 105.71      | 110.14   |
| 4   | K     | 4   | MAN  | C1-O5-C5 | 2.19  | 115.16      | 112.19   |
| 5   | L     | 6   | MAN  | C1-O5-C5 | 2.18  | 115.15      | 112.19   |
| 4   | K     | 3   | BMA  | C3-C4-C5 | -2.18 | 106.35      | 110.24   |
| 4   | F     | 4   | MAN  | C1-O5-C5 | 2.18  | 115.14      | 112.19   |
| 6   | M     | 4   | MAN  | O2-C2-C3 | -2.17 | 105.79      | 110.14   |
| 5   | H     | 6   | MAN  | C1-O5-C5 | 2.17  | 115.13      | 112.19   |
| 6   | I     | 4   | MAN  | C1-O5-C5 | 2.16  | 115.12      | 112.19   |
| 6   | I     | 4   | MAN  | O2-C2-C3 | -2.16 | 105.81      | 110.14   |
| 6   | M     | 2   | NAG  | C1-O5-C5 | 2.15  | 115.11      | 112.19   |
| 6   | M     | 4   | MAN  | C1-O5-C5 | 2.13  | 115.08      | 112.19   |
| 6   | I     | 2   | NAG  | C1-O5-C5 | 2.12  | 115.06      | 112.19   |

There are no chirality outliers.

All (26) torsion outliers are listed below:

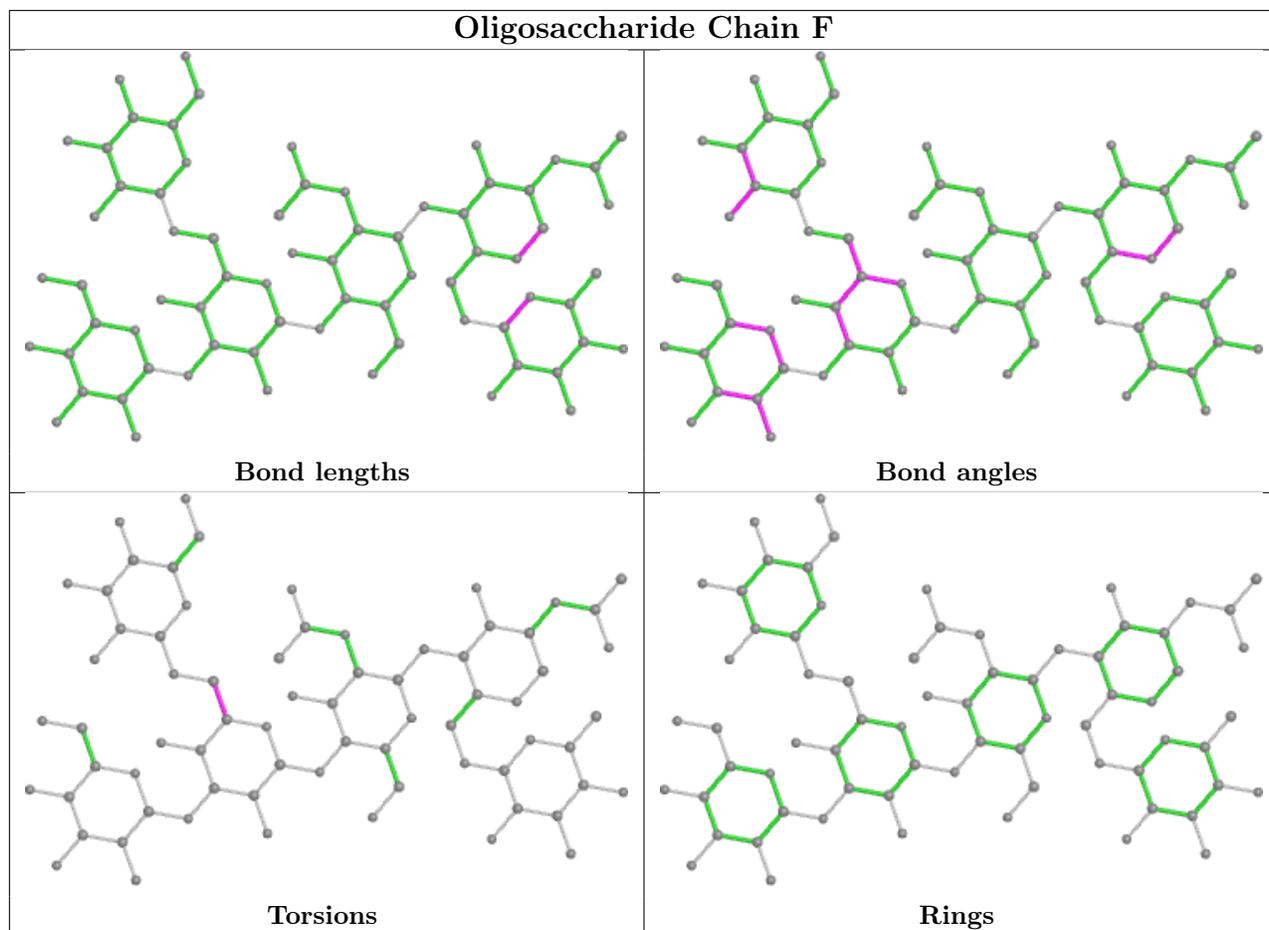
| Mol | Chain | Res | Type | Atoms       |
|-----|-------|-----|------|-------------|
| 5   | H     | 2   | NAG  | C3-C2-N2-C7 |
| 5   | L     | 2   | NAG  | C3-C2-N2-C7 |
| 5   | H     | 5   | NAG  | O5-C5-C6-O6 |
| 5   | H     | 6   | MAN  | O5-C5-C6-O6 |
| 5   | L     | 5   | NAG  | O5-C5-C6-O6 |
| 5   | L     | 6   | MAN  | O5-C5-C6-O6 |
| 5   | H     | 2   | NAG  | O5-C5-C6-O6 |
| 5   | H     | 3   | BMA  | O5-C5-C6-O6 |
| 5   | L     | 2   | NAG  | O5-C5-C6-O6 |
| 5   | L     | 3   | BMA  | O5-C5-C6-O6 |
| 5   | H     | 6   | MAN  | C4-C5-C6-O6 |
| 5   | L     | 6   | MAN  | C4-C5-C6-O6 |
| 5   | H     | 5   | NAG  | C4-C5-C6-O6 |
| 5   | L     | 5   | NAG  | C4-C5-C6-O6 |
| 5   | H     | 2   | NAG  | C4-C5-C6-O6 |
| 5   | L     | 2   | NAG  | C4-C5-C6-O6 |
| 5   | H     | 5   | NAG  | C8-C7-N2-C2 |
| 5   | H     | 5   | NAG  | O7-C7-N2-C2 |
| 5   | L     | 5   | NAG  | C8-C7-N2-C2 |
| 5   | L     | 5   | NAG  | O7-C7-N2-C2 |
| 5   | H     | 3   | BMA  | C4-C5-C6-O6 |
| 5   | L     | 3   | BMA  | C4-C5-C6-O6 |
| 6   | I     | 3   | BMA  | O5-C5-C6-O6 |
| 6   | M     | 3   | BMA  | O5-C5-C6-O6 |
| 4   | K     | 3   | BMA  | O5-C5-C6-O6 |
| 4   | F     | 3   | BMA  | O5-C5-C6-O6 |

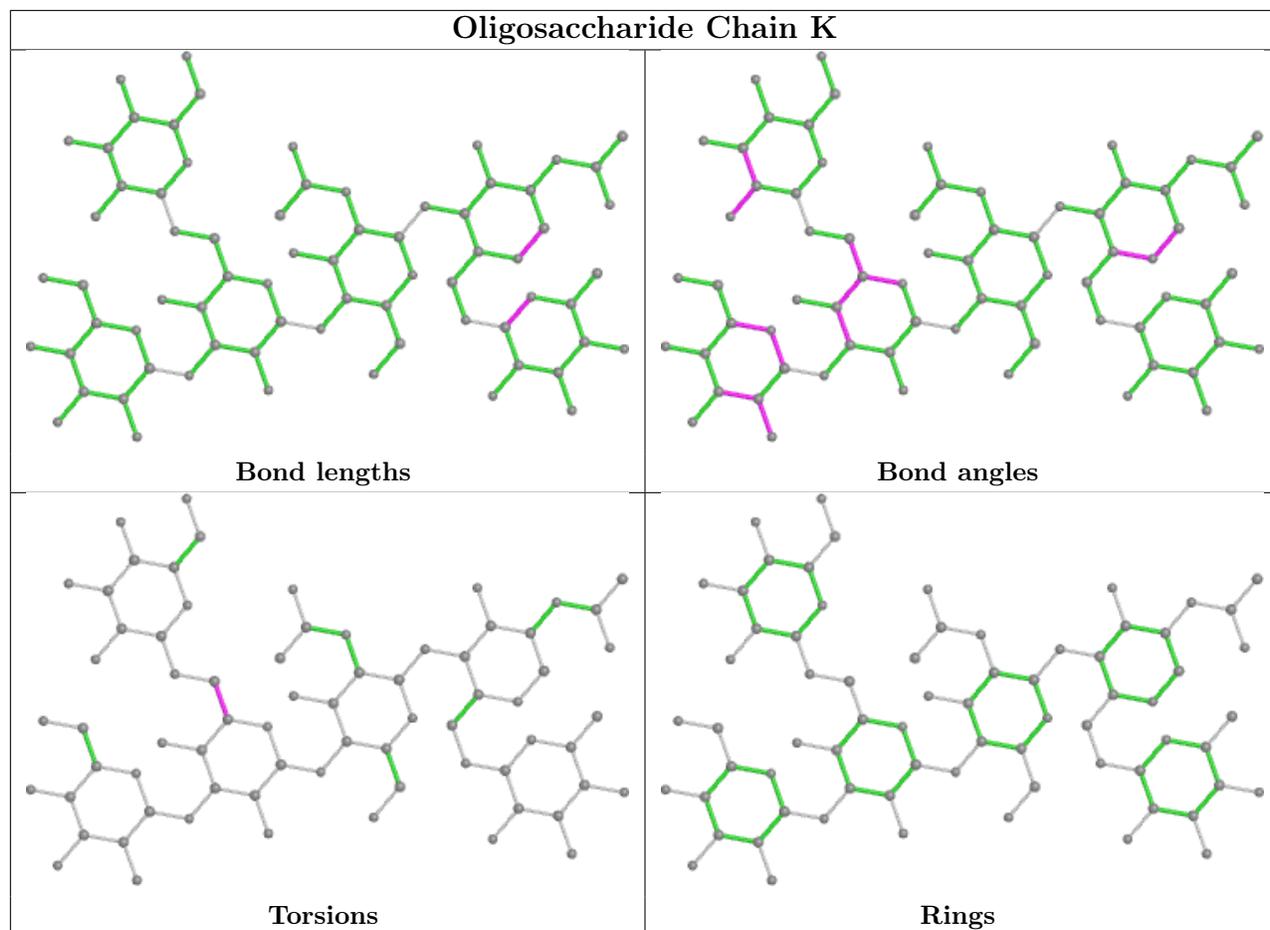
There are no ring outliers.

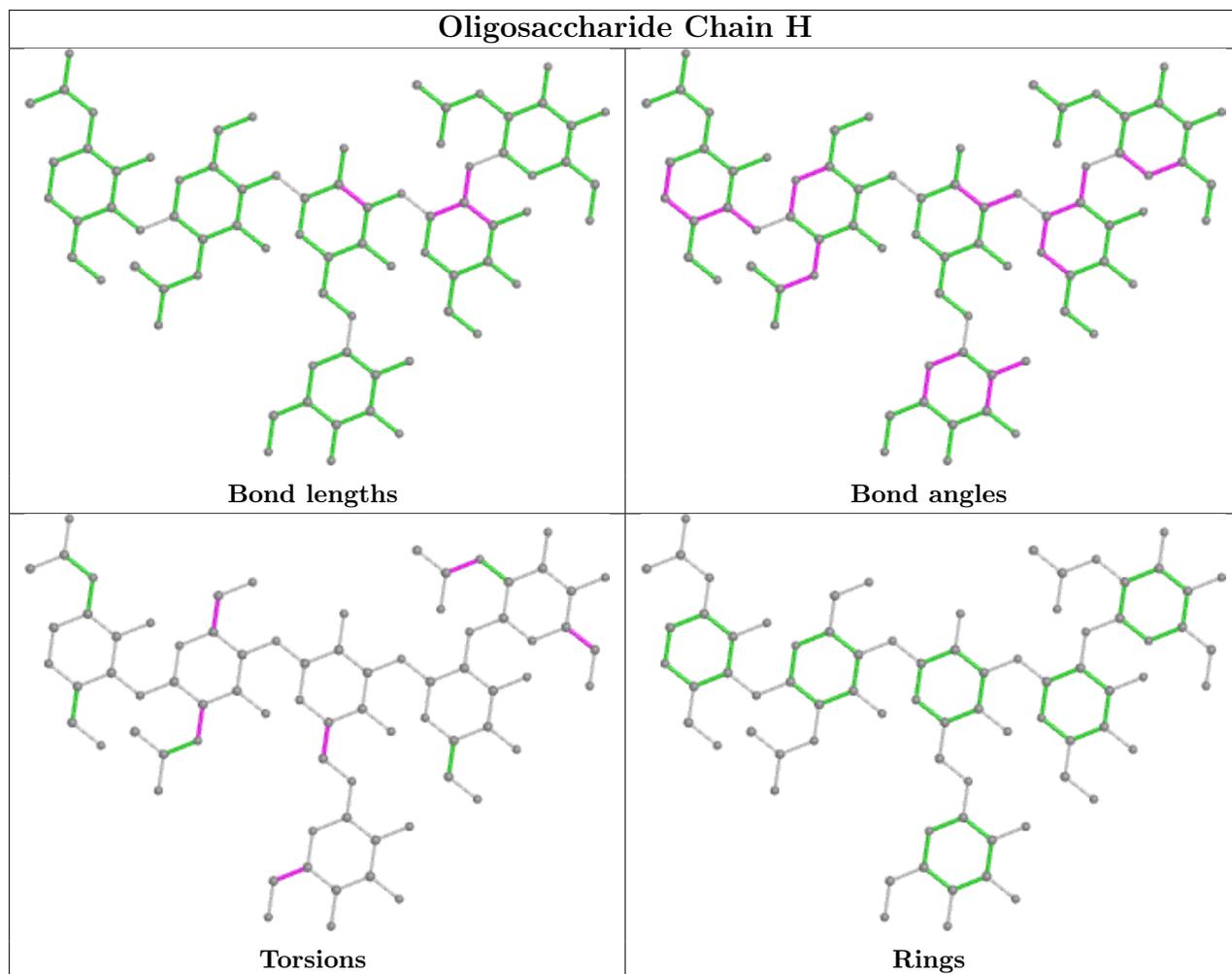
2 monomers are involved in 2 short contacts:

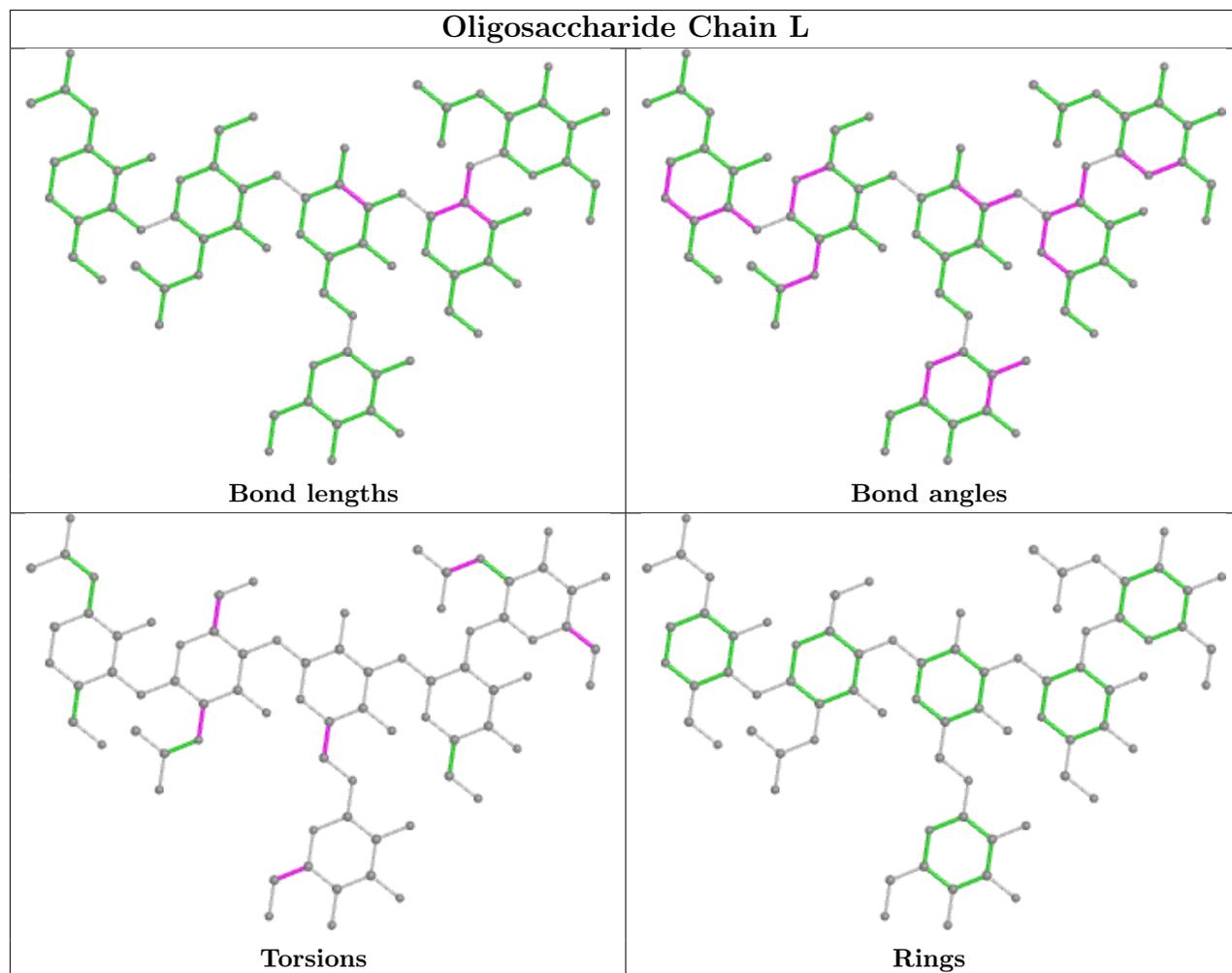
| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|-----|------|---------|--------------|
| 4   | K     | 6   | FUC  | 1       | 0            |
| 4   | F     | 6   | FUC  | 1       | 0            |

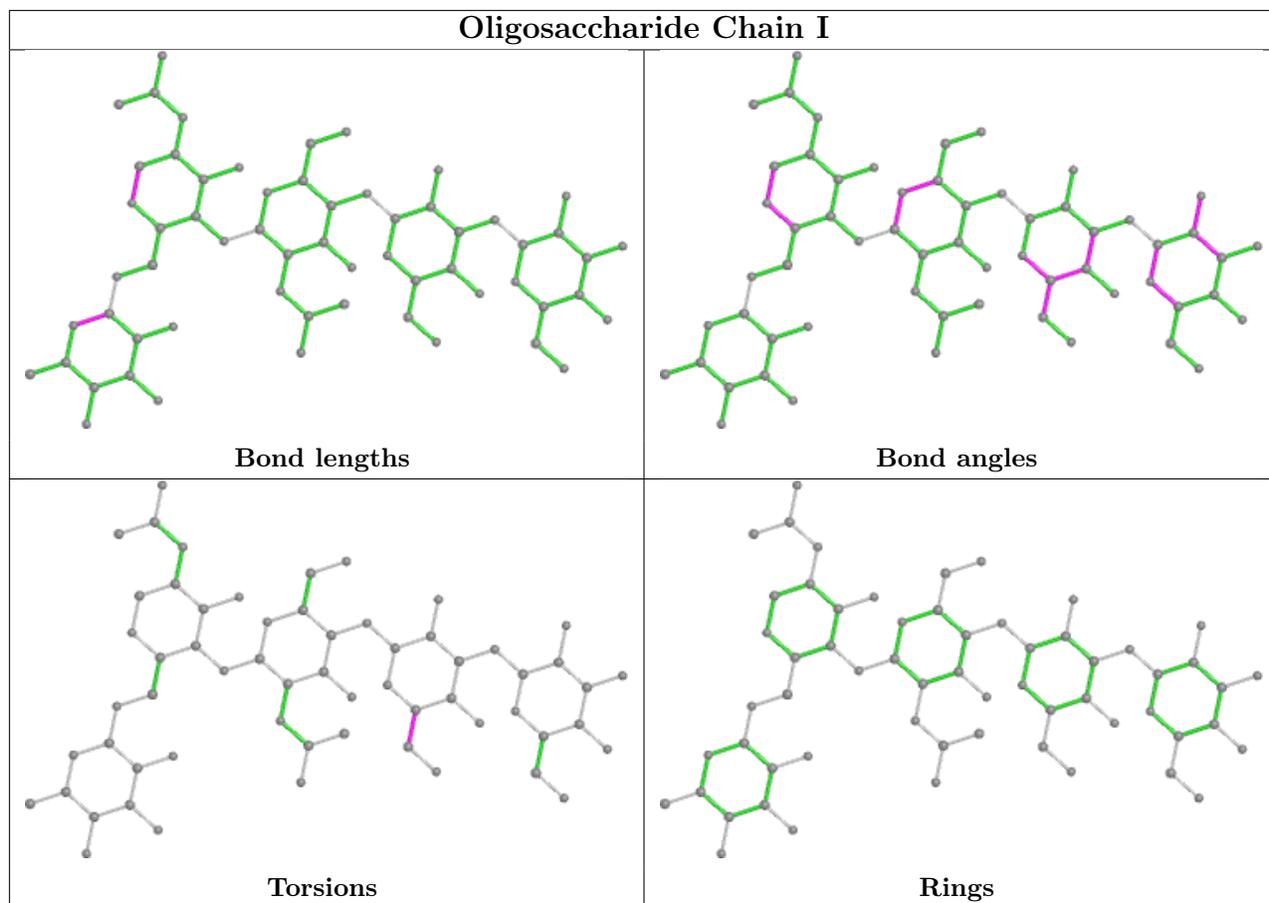
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.

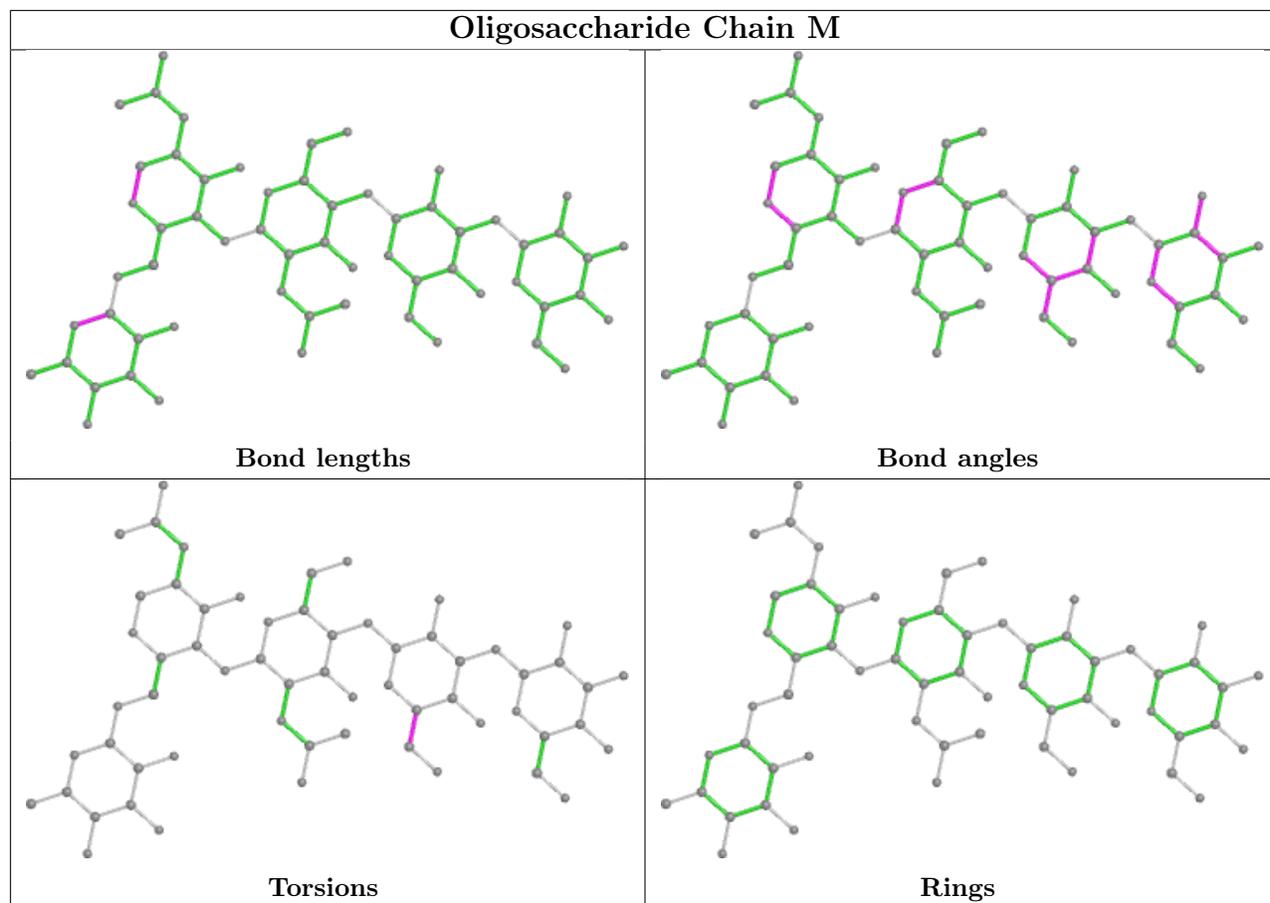


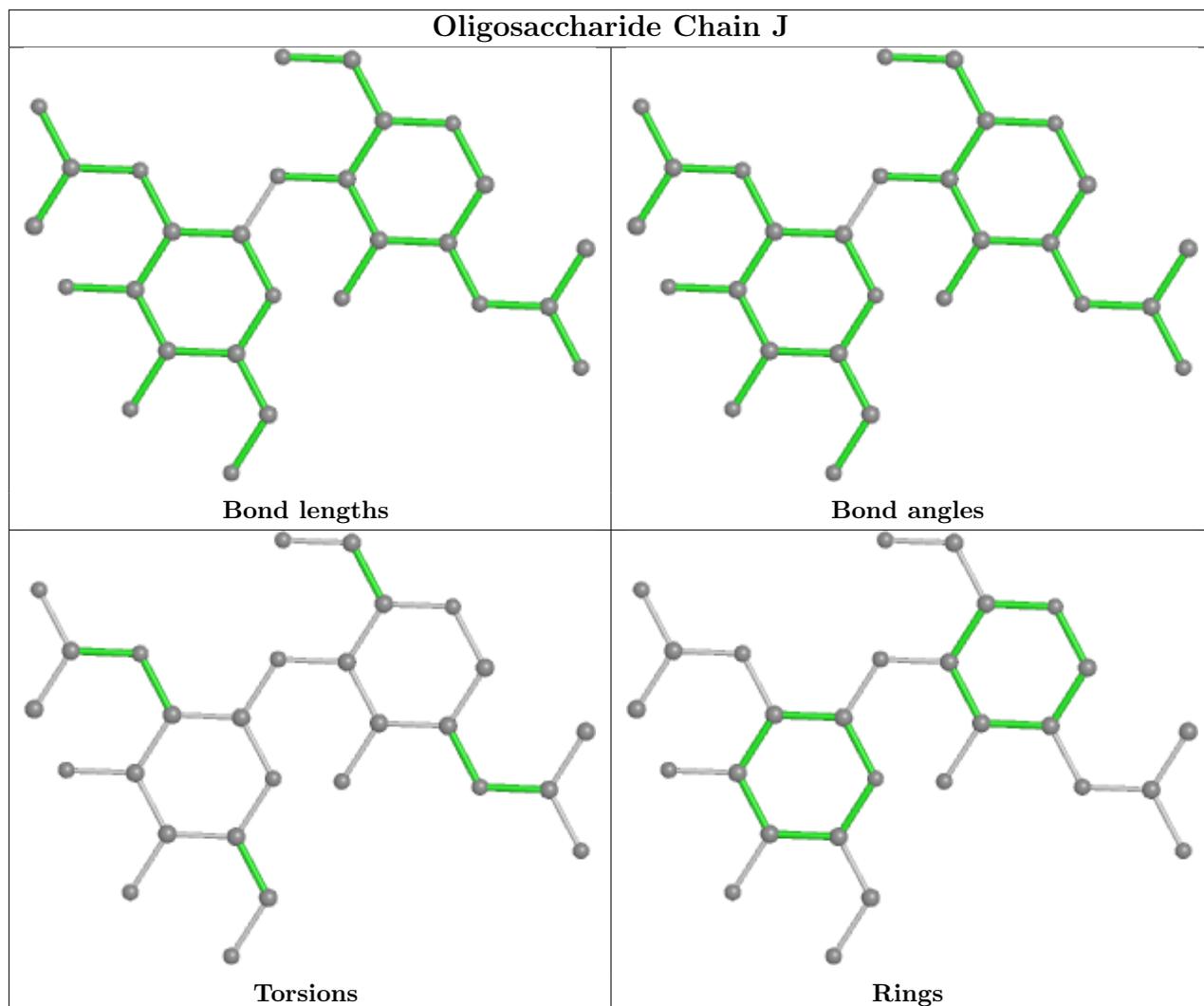


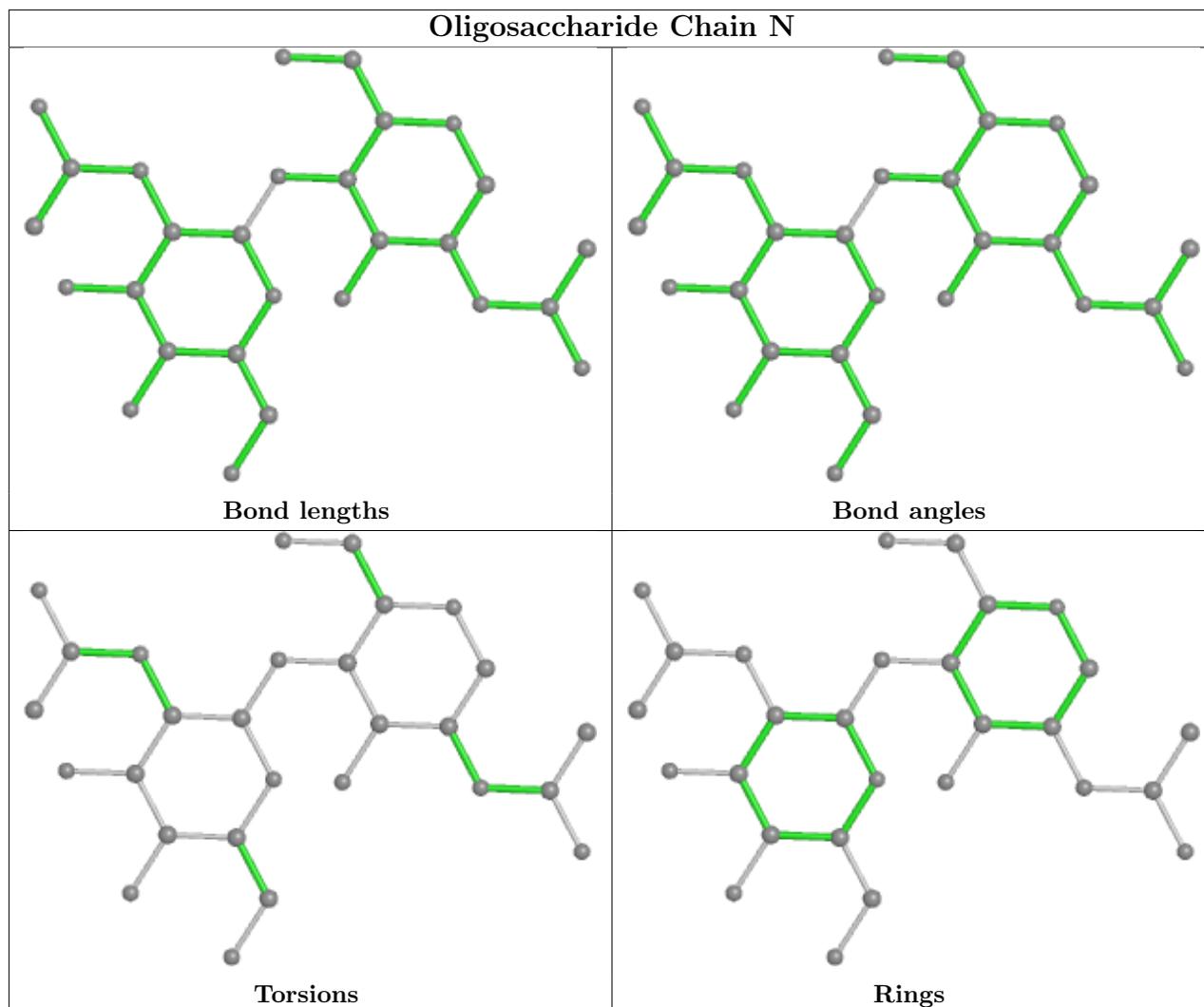












## 5.6 Ligand geometry [i](#)

Of 40 ligands modelled in this entry, 4 are monoatomic - leaving 36 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$ |
| 13  | PCW  | C     | 1112 | -    | 53,53,53     | 0.98 | 2 (3%)      | 59,61,61    | 0.72 | 0           |
| 13  | PCW  | C     | 1113 | -    | 21,21,53     | 0.86 | 0           | 27,29,61    | 1.30 | 3 (11%)     |
| 13  | PCW  | A     | 1112 | -    | 53,53,53     | 0.98 | 2 (3%)      | 59,61,61    | 0.72 | 0           |

| Mol | Type | Chain | Res  | Link | Bond lengths |      |          | Bond angles |      |          |
|-----|------|-------|------|------|--------------|------|----------|-------------|------|----------|
|     |      |       |      |      | Counts       | RMSZ | # Z  > 2 | Counts      | RMSZ | # Z  > 2 |
| 13  | PCW  | A     | 1107 | -    | 21,21,53     | 0.87 | 0        | 27,29,61    | 1.16 | 3 (11%)  |
| 13  | PCW  | A     | 1113 | -    | 21,21,53     | 0.86 | 0        | 27,29,61    | 1.29 | 3 (11%)  |
| 13  | PCW  | E     | 1303 | -    | 53,53,53     | 0.97 | 2 (3%)   | 59,61,61    | 0.78 | 0        |
| 12  | CLR  | G     | 1301 | -    | 31,31,31     | 1.09 | 2 (6%)   | 48,48,48    | 1.35 | 5 (10%)  |
| 13  | PCW  | C     | 1106 | -    | 21,21,53     | 0.86 | 0        | 27,29,61    | 1.19 | 3 (11%)  |
| 13  | PCW  | C     | 1108 | -    | 53,53,53     | 0.96 | 2 (3%)   | 59,61,61    | 0.73 | 0        |
| 10  | ATP  | C     | 1103 | -    | 26,33,33     | 0.60 | 0        | 31,52,52    | 0.73 | 1 (3%)   |
| 12  | CLR  | D     | 501  | -    | 31,31,31     | 1.09 | 1 (3%)   | 48,48,48    | 1.36 | 6 (12%)  |
| 13  | PCW  | A     | 1108 | -    | 53,53,53     | 0.96 | 2 (3%)   | 59,61,61    | 0.74 | 0        |
| 13  | PCW  | C     | 1114 | -    | 53,53,53     | 0.99 | 2 (3%)   | 59,61,61    | 0.68 | 0        |
| 13  | PCW  | G     | 1303 | -    | 53,53,53     | 0.97 | 2 (3%)   | 59,61,61    | 0.78 | 0        |
| 13  | PCW  | C     | 1111 | -    | 53,53,53     | 0.98 | 2 (3%)   | 59,61,61    | 0.70 | 0        |
| 12  | CLR  | D     | 502  | -    | 31,31,31     | 1.09 | 1 (3%)   | 48,48,48    | 1.36 | 5 (10%)  |
| 12  | CLR  | B     | 502  | -    | 31,31,31     | 1.09 | 1 (3%)   | 48,48,48    | 1.36 | 5 (10%)  |
| 13  | PCW  | A     | 1106 | -    | 21,21,53     | 0.86 | 0        | 27,29,61    | 1.19 | 3 (11%)  |
| 13  | PCW  | A     | 1110 | -    | 53,53,53     | 0.95 | 2 (3%)   | 59,61,61    | 0.80 | 0        |
| 13  | PCW  | C     | 1107 | -    | 21,21,53     | 0.87 | 0        | 27,29,61    | 1.16 | 3 (11%)  |
| 12  | CLR  | C     | 1105 | -    | 31,31,31     | 1.08 | 1 (3%)   | 48,48,48    | 1.36 | 6 (12%)  |
| 13  | PCW  | G     | 1302 | -    | 53,53,53     | 0.98 | 2 (3%)   | 59,61,61    | 0.74 | 0        |
| 13  | PCW  | C     | 1109 | -    | 53,53,53     | 0.98 | 2 (3%)   | 59,61,61    | 0.76 | 0        |
| 12  | CLR  | B     | 501  | -    | 31,31,31     | 1.09 | 1 (3%)   | 48,48,48    | 1.35 | 5 (10%)  |
| 13  | PCW  | A     | 1111 | -    | 53,53,53     | 0.99 | 2 (3%)   | 59,61,61    | 0.70 | 0        |
| 13  | PCW  | E     | 1304 | -    | 53,53,53     | 0.99 | 2 (3%)   | 59,61,61    | 0.69 | 0        |
| 11  | 7Q2  | C     | 1104 | -    | 29,29,29     | 3.88 | 15 (51%) | 43,45,45    | 1.99 | 13 (30%) |
| 11  | 7Q2  | A     | 1104 | -    | 29,29,29     | 3.87 | 15 (51%) | 43,45,45    | 1.99 | 13 (30%) |
| 12  | CLR  | E     | 1301 | -    | 31,31,31     | 1.09 | 2 (6%)   | 48,48,48    | 1.36 | 5 (10%)  |
| 13  | PCW  | C     | 1110 | -    | 53,53,53     | 0.95 | 2 (3%)   | 59,61,61    | 0.80 | 0        |
| 12  | CLR  | A     | 1105 | -    | 31,31,31     | 1.08 | 1 (3%)   | 48,48,48    | 1.35 | 5 (10%)  |
| 13  | PCW  | A     | 1114 | -    | 53,53,53     | 0.99 | 2 (3%)   | 59,61,61    | 0.68 | 0        |
| 13  | PCW  | E     | 1302 | -    | 53,53,53     | 0.98 | 2 (3%)   | 59,61,61    | 0.74 | 0        |
| 13  | PCW  | G     | 1304 | -    | 53,53,53     | 0.99 | 2 (3%)   | 59,61,61    | 0.69 | 0        |
| 13  | PCW  | A     | 1109 | -    | 53,53,53     | 0.98 | 2 (3%)   | 59,61,61    | 0.76 | 0        |
| 10  | ATP  | A     | 1103 | -    | 26,33,33     | 0.61 | 0        | 31,52,52    | 0.73 | 1 (3%)   |

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   |
|-----|------|-------|------|------|---------|-------------|---------|
| 13  | PCW  | C     | 1112 | -    | -       | 19/57/57/57 | -       |
| 13  | PCW  | C     | 1113 | -    | -       | 9/23/23/57  | -       |
| 13  | PCW  | A     | 1112 | -    | -       | 19/57/57/57 | -       |
| 13  | PCW  | A     | 1107 | -    | -       | 14/23/23/57 | -       |
| 13  | PCW  | A     | 1113 | -    | -       | 9/23/23/57  | -       |
| 13  | PCW  | E     | 1303 | -    | -       | 22/57/57/57 | -       |
| 12  | CLR  | G     | 1301 | -    | -       | 0/10/68/68  | 0/4/4/4 |
| 13  | PCW  | C     | 1106 | -    | -       | 6/23/23/57  | -       |
| 13  | PCW  | C     | 1108 | -    | -       | 21/57/57/57 | -       |
| 10  | ATP  | C     | 1103 | -    | -       | 4/18/38/38  | 0/3/3/3 |
| 12  | CLR  | D     | 501  | -    | -       | 1/10/68/68  | 0/4/4/4 |
| 13  | PCW  | A     | 1108 | -    | -       | 21/57/57/57 | -       |
| 13  | PCW  | C     | 1114 | -    | -       | 22/57/57/57 | -       |
| 13  | PCW  | G     | 1303 | -    | -       | 22/57/57/57 | -       |
| 13  | PCW  | C     | 1111 | -    | -       | 22/57/57/57 | -       |
| 12  | CLR  | D     | 502  | -    | -       | 0/10/68/68  | 0/4/4/4 |
| 12  | CLR  | B     | 502  | -    | -       | 0/10/68/68  | 0/4/4/4 |
| 13  | PCW  | A     | 1106 | -    | -       | 6/23/23/57  | -       |
| 13  | PCW  | A     | 1110 | -    | -       | 13/57/57/57 | -       |
| 13  | PCW  | C     | 1107 | -    | -       | 14/23/23/57 | -       |
| 12  | CLR  | C     | 1105 | -    | -       | 2/10/68/68  | 0/4/4/4 |
| 13  | PCW  | G     | 1302 | -    | -       | 19/57/57/57 | -       |
| 13  | PCW  | C     | 1109 | -    | -       | 18/57/57/57 | -       |
| 12  | CLR  | B     | 501  | -    | -       | 1/10/68/68  | 0/4/4/4 |
| 13  | PCW  | A     | 1111 | -    | -       | 22/57/57/57 | -       |
| 13  | PCW  | E     | 1304 | -    | -       | 18/57/57/57 | -       |
| 11  | 7Q2  | C     | 1104 | -    | -       | 2/5/66/66   | 0/4/4/4 |
| 11  | 7Q2  | A     | 1104 | -    | -       | 2/5/66/66   | 0/4/4/4 |
| 12  | CLR  | E     | 1301 | -    | -       | 0/10/68/68  | 0/4/4/4 |
| 13  | PCW  | C     | 1110 | -    | -       | 13/57/57/57 | -       |
| 12  | CLR  | A     | 1105 | -    | -       | 2/10/68/68  | 0/4/4/4 |
| 13  | PCW  | A     | 1114 | -    | -       | 22/57/57/57 | -       |
| 13  | PCW  | E     | 1302 | -    | -       | 19/57/57/57 | -       |

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| Mol | Type | Chain | Res  | Link | Chirals | Torsions    | Rings   |
|-----|------|-------|------|------|---------|-------------|---------|
| 13  | PCW  | G     | 1304 | -    | -       | 18/57/57/57 | -       |
| 13  | PCW  | A     | 1109 | -    | -       | 18/57/57/57 | -       |
| 10  | ATP  | A     | 1103 | -    | -       | 4/18/38/38  | 0/3/3/3 |

All (76) bond length outliers are listed below:

| Mol | Chain | Res  | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 11  | C     | 1104 | 7Q2  | CAS-CAU | -8.71 | 1.40        | 1.50     |
| 11  | A     | 1104 | 7Q2  | CAS-CAU | -8.64 | 1.40        | 1.50     |
| 11  | C     | 1104 | 7Q2  | CAT-CAU | -8.21 | 1.41        | 1.50     |
| 11  | A     | 1104 | 7Q2  | CAT-CAU | -8.16 | 1.41        | 1.50     |
| 11  | C     | 1104 | 7Q2  | CAF-CAD | -8.00 | 1.41        | 1.52     |
| 11  | A     | 1104 | 7Q2  | CAF-CAD | -7.97 | 1.41        | 1.52     |
| 11  | C     | 1104 | 7Q2  | CAU-NAV | 6.06  | 1.33        | 1.28     |
| 11  | A     | 1104 | 7Q2  | CAU-NAV | 6.03  | 1.33        | 1.28     |
| 11  | A     | 1104 | 7Q2  | CAF-CAG | -6.02 | 1.43        | 1.54     |
| 11  | C     | 1104 | 7Q2  | CAF-CAG | -5.98 | 1.43        | 1.54     |
| 11  | C     | 1104 | 7Q2  | CAB-CAG | -5.71 | 1.42        | 1.54     |
| 11  | A     | 1104 | 7Q2  | CAB-CAG | -5.69 | 1.42        | 1.54     |
| 11  | C     | 1104 | 7Q2  | CAQ-CAM | -4.75 | 1.42        | 1.51     |
| 11  | A     | 1104 | 7Q2  | CAQ-CAM | -4.70 | 1.43        | 1.51     |
| 11  | C     | 1104 | 7Q2  | CAP-CAL | -4.20 | 1.48        | 1.56     |
| 11  | A     | 1104 | 7Q2  | CAP-CAL | -4.19 | 1.48        | 1.56     |
| 11  | C     | 1104 | 7Q2  | CAJ-CAM | -4.15 | 1.43        | 1.50     |
| 11  | A     | 1104 | 7Q2  | CAJ-CAM | -4.14 | 1.43        | 1.50     |
| 11  | A     | 1104 | 7Q2  | CAI-CAG | -3.95 | 1.46        | 1.53     |
| 13  | G     | 1304 | PCW  | C40-C39 | 3.95  | 1.54        | 1.31     |
| 13  | E     | 1304 | PCW  | C40-C39 | 3.94  | 1.54        | 1.31     |
| 11  | C     | 1104 | 7Q2  | CAI-CAG | -3.91 | 1.46        | 1.53     |
| 13  | A     | 1109 | PCW  | C20-C19 | 3.89  | 1.54        | 1.31     |
| 13  | C     | 1114 | PCW  | C20-C19 | 3.88  | 1.54        | 1.31     |
| 13  | C     | 1109 | PCW  | C20-C19 | 3.88  | 1.54        | 1.31     |
| 13  | A     | 1114 | PCW  | C20-C19 | 3.88  | 1.54        | 1.31     |
| 13  | E     | 1302 | PCW  | C40-C39 | 3.88  | 1.54        | 1.31     |
| 13  | A     | 1112 | PCW  | C40-C39 | 3.87  | 1.54        | 1.31     |
| 13  | A     | 1112 | PCW  | C20-C19 | 3.87  | 1.54        | 1.31     |
| 13  | C     | 1112 | PCW  | C20-C19 | 3.86  | 1.54        | 1.31     |
| 13  | A     | 1111 | PCW  | C20-C19 | 3.86  | 1.54        | 1.31     |
| 13  | G     | 1302 | PCW  | C40-C39 | 3.86  | 1.54        | 1.31     |
| 13  | C     | 1112 | PCW  | C40-C39 | 3.86  | 1.54        | 1.31     |
| 13  | G     | 1303 | PCW  | C40-C39 | 3.86  | 1.54        | 1.31     |
| 13  | E     | 1302 | PCW  | C20-C19 | 3.86  | 1.54        | 1.31     |

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| Mol | Chain | Res  | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 13  | C     | 1111 | PCW  | C20-C19 | 3.85  | 1.54        | 1.31     |
| 13  | G     | 1302 | PCW  | C20-C19 | 3.85  | 1.54        | 1.31     |
| 13  | A     | 1111 | PCW  | C40-C39 | 3.84  | 1.54        | 1.31     |
| 13  | E     | 1303 | PCW  | C40-C39 | 3.84  | 1.54        | 1.31     |
| 13  | A     | 1114 | PCW  | C40-C39 | 3.84  | 1.54        | 1.31     |
| 13  | C     | 1111 | PCW  | C40-C39 | 3.83  | 1.54        | 1.31     |
| 13  | G     | 1304 | PCW  | C20-C19 | 3.83  | 1.54        | 1.31     |
| 13  | E     | 1304 | PCW  | C20-C19 | 3.82  | 1.53        | 1.31     |
| 13  | C     | 1114 | PCW  | C40-C39 | 3.82  | 1.53        | 1.31     |
| 13  | A     | 1109 | PCW  | C40-C39 | 3.82  | 1.53        | 1.31     |
| 13  | C     | 1109 | PCW  | C40-C39 | 3.81  | 1.53        | 1.31     |
| 13  | A     | 1108 | PCW  | C20-C19 | 3.80  | 1.53        | 1.31     |
| 13  | C     | 1108 | PCW  | C20-C19 | 3.79  | 1.53        | 1.31     |
| 13  | C     | 1110 | PCW  | C20-C19 | 3.77  | 1.53        | 1.31     |
| 13  | A     | 1110 | PCW  | C20-C19 | 3.76  | 1.53        | 1.31     |
| 13  | C     | 1108 | PCW  | C40-C39 | 3.76  | 1.53        | 1.31     |
| 13  | A     | 1108 | PCW  | C40-C39 | 3.75  | 1.53        | 1.31     |
| 13  | G     | 1303 | PCW  | C20-C19 | 3.73  | 1.53        | 1.31     |
| 13  | E     | 1303 | PCW  | C20-C19 | 3.73  | 1.53        | 1.31     |
| 13  | A     | 1110 | PCW  | C40-C39 | 3.70  | 1.53        | 1.31     |
| 13  | C     | 1110 | PCW  | C40-C39 | 3.69  | 1.53        | 1.31     |
| 11  | A     | 1104 | 7Q2  | CAH-CAF | -3.32 | 1.47        | 1.54     |
| 11  | C     | 1104 | 7Q2  | CAH-CAF | -3.32 | 1.47        | 1.54     |
| 12  | G     | 1301 | CLR  | C16-C17 | 3.25  | 1.61        | 1.54     |
| 12  | E     | 1301 | CLR  | C16-C17 | 3.24  | 1.61        | 1.54     |
| 12  | A     | 1105 | CLR  | C16-C17 | 3.23  | 1.61        | 1.54     |
| 12  | B     | 502  | CLR  | C16-C17 | 3.23  | 1.61        | 1.54     |
| 12  | D     | 502  | CLR  | C16-C17 | 3.23  | 1.61        | 1.54     |
| 12  | C     | 1105 | CLR  | C16-C17 | 3.21  | 1.61        | 1.54     |
| 12  | B     | 501  | CLR  | C16-C17 | 3.21  | 1.61        | 1.54     |
| 12  | D     | 501  | CLR  | C16-C17 | 3.20  | 1.61        | 1.54     |
| 11  | A     | 1104 | 7Q2  | CAP-CAQ | -2.89 | 1.51        | 1.56     |
| 11  | C     | 1104 | 7Q2  | CAP-CAQ | -2.87 | 1.51        | 1.56     |
| 11  | C     | 1104 | 7Q2  | CAK-CAL | 2.67  | 1.58        | 1.53     |
| 11  | A     | 1104 | 7Q2  | CAK-CAL | 2.63  | 1.58        | 1.53     |
| 11  | C     | 1104 | 7Q2  | OAW-NAV | 2.41  | 1.46        | 1.42     |
| 11  | A     | 1104 | 7Q2  | OAW-NAV | 2.40  | 1.46        | 1.42     |
| 11  | A     | 1104 | 7Q2  | CAH-CAK | 2.08  | 1.57        | 1.53     |
| 11  | C     | 1104 | 7Q2  | CAH-CAK | 2.07  | 1.57        | 1.53     |
| 12  | E     | 1301 | CLR  | C16-C15 | 2.03  | 1.59        | 1.54     |
| 12  | G     | 1301 | CLR  | C16-C15 | 2.01  | 1.59        | 1.54     |

All (88) bond angle outliers are listed below:

| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 11  | A     | 1104 | 7Q2  | OAW-NAV-CAU | 5.46  | 116.85      | 110.81   |
| 11  | C     | 1104 | 7Q2  | OAW-NAV-CAU | 5.43  | 116.82      | 110.81   |
| 13  | C     | 1113 | PCW  | C2-O2-C31   | -4.48 | 109.55      | 117.90   |
| 13  | A     | 1113 | PCW  | C2-O2-C31   | -4.46 | 109.58      | 117.90   |
| 13  | C     | 1107 | PCW  | C2-O2-C31   | -4.30 | 109.89      | 117.90   |
| 13  | A     | 1107 | PCW  | C2-O2-C31   | -4.28 | 109.91      | 117.90   |
| 11  | C     | 1104 | 7Q2  | CAB-CAG-CAI | -3.94 | 112.60      | 119.08   |
| 11  | A     | 1104 | 7Q2  | CAB-CAG-CAI | -3.93 | 112.61      | 119.08   |
| 13  | C     | 1106 | PCW  | C2-O2-C31   | -3.80 | 110.82      | 117.90   |
| 13  | A     | 1106 | PCW  | C2-O2-C31   | -3.77 | 110.88      | 117.90   |
| 11  | A     | 1104 | 7Q2  | CAT-CAR-CAP | -3.48 | 109.01      | 113.47   |
| 11  | C     | 1104 | 7Q2  | CAT-CAR-CAP | -3.45 | 109.04      | 113.47   |
| 11  | C     | 1104 | 7Q2  | CAB-CAA-CAD | -3.43 | 102.25      | 105.70   |
| 11  | A     | 1104 | 7Q2  | CAB-CAA-CAD | -3.42 | 102.26      | 105.70   |
| 11  | C     | 1104 | 7Q2  | CAF-CAG-CAI | -3.29 | 109.60      | 113.12   |
| 11  | A     | 1104 | 7Q2  | CAF-CAG-CAI | -3.28 | 109.61      | 113.12   |
| 13  | C     | 1113 | PCW  | C3-O3-C11   | -3.24 | 108.97      | 117.10   |
| 13  | A     | 1113 | PCW  | C3-O3-C11   | -3.23 | 108.99      | 117.10   |
| 11  | A     | 1104 | 7Q2  | CAP-CAL-CAI | -3.16 | 109.11      | 112.42   |
| 11  | C     | 1104 | 7Q2  | CAP-CAL-CAI | -3.13 | 109.13      | 112.42   |
| 13  | A     | 1106 | PCW  | C3-O3-C11   | -2.97 | 109.65      | 117.10   |
| 13  | C     | 1106 | PCW  | C3-O3-C11   | -2.95 | 109.69      | 117.10   |
| 11  | C     | 1104 | 7Q2  | CAK-CAL-CAP | -2.90 | 110.58      | 113.91   |
| 12  | D     | 502  | CLR  | C22-C20-C17 | -2.89 | 104.31      | 110.28   |
| 11  | A     | 1104 | 7Q2  | CAK-CAL-CAP | -2.89 | 110.59      | 113.91   |
| 12  | B     | 502  | CLR  | C22-C20-C17 | -2.86 | 104.38      | 110.28   |
| 12  | E     | 1301 | CLR  | C22-C20-C17 | -2.80 | 104.50      | 110.28   |
| 12  | D     | 501  | CLR  | C22-C20-C17 | -2.79 | 104.51      | 110.28   |
| 12  | G     | 1301 | CLR  | C22-C20-C17 | -2.79 | 104.52      | 110.28   |
| 12  | B     | 501  | CLR  | C22-C20-C17 | -2.79 | 104.53      | 110.28   |
| 12  | A     | 1105 | CLR  | C22-C20-C17 | -2.76 | 104.58      | 110.28   |
| 12  | C     | 1105 | CLR  | C22-C20-C17 | -2.75 | 104.60      | 110.28   |
| 11  | A     | 1104 | 7Q2  | CAE-CAF-CAD | 2.69  | 110.13      | 105.18   |
| 11  | C     | 1104 | 7Q2  | CAE-CAF-CAD | 2.68  | 110.11      | 105.18   |
| 12  | B     | 502  | CLR  | C7-C8-C14   | -2.52 | 107.26      | 110.91   |
| 12  | D     | 502  | CLR  | C7-C8-C14   | -2.51 | 107.26      | 110.91   |
| 12  | A     | 1105 | CLR  | C13-C17-C20 | -2.50 | 115.57      | 119.49   |
| 12  | D     | 501  | CLR  | C13-C17-C20 | -2.50 | 115.58      | 119.49   |
| 12  | C     | 1105 | CLR  | C13-C17-C20 | -2.49 | 115.58      | 119.49   |
| 12  | E     | 1301 | CLR  | C7-C8-C14   | -2.48 | 107.31      | 110.91   |
| 12  | B     | 501  | CLR  | C13-C17-C20 | -2.48 | 115.60      | 119.49   |
| 12  | G     | 1301 | CLR  | C7-C8-C14   | -2.47 | 107.32      | 110.91   |
| 11  | A     | 1104 | 7Q2  | CAH-CAF-CAD | -2.47 | 112.96      | 116.67   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 11  | C     | 1104 | 7Q2  | CAG-CAF-CAD | 2.46  | 103.41      | 100.59   |
| 13  | C     | 1107 | PCW  | C3-O3-C11   | -2.46 | 110.93      | 117.10   |
| 11  | A     | 1104 | 7Q2  | CAG-CAF-CAD | 2.45  | 103.40      | 100.59   |
| 12  | C     | 1105 | CLR  | C7-C8-C14   | -2.44 | 107.37      | 110.91   |
| 11  | C     | 1104 | 7Q2  | CAH-CAF-CAD | -2.44 | 113.01      | 116.67   |
| 12  | A     | 1105 | CLR  | C7-C8-C14   | -2.44 | 107.37      | 110.91   |
| 13  | A     | 1107 | PCW  | C3-O3-C11   | -2.44 | 110.98      | 117.10   |
| 12  | E     | 1301 | CLR  | C13-C17-C20 | -2.43 | 115.69      | 119.49   |
| 11  | C     | 1104 | 7Q2  | CAJ-CAM-CAQ | 2.42  | 119.02      | 115.35   |
| 12  | G     | 1301 | CLR  | C13-C17-C20 | -2.39 | 115.74      | 119.49   |
| 11  | A     | 1104 | 7Q2  | CAJ-CAM-CAQ | 2.37  | 118.93      | 115.35   |
| 12  | D     | 502  | CLR  | C13-C17-C20 | -2.36 | 115.79      | 119.49   |
| 12  | B     | 501  | CLR  | C7-C8-C14   | -2.35 | 107.50      | 110.91   |
| 12  | B     | 502  | CLR  | C13-C17-C20 | -2.34 | 115.82      | 119.49   |
| 12  | D     | 501  | CLR  | C7-C8-C14   | -2.33 | 107.53      | 110.91   |
| 10  | C     | 1103 | ATP  | C5-C6-N6    | 2.33  | 123.89      | 120.35   |
| 10  | A     | 1103 | ATP  | C5-C6-N6    | 2.29  | 123.83      | 120.35   |
| 11  | A     | 1104 | 7Q2  | CAK-CAH-CAF | -2.21 | 107.95      | 112.74   |
| 11  | C     | 1104 | 7Q2  | CAK-CAH-CAF | -2.18 | 108.01      | 112.74   |
| 11  | A     | 1104 | 7Q2  | CAH-CAK-CAL | -2.18 | 109.34      | 113.11   |
| 11  | C     | 1104 | 7Q2  | CAH-CAK-CAL | -2.16 | 109.36      | 113.11   |
| 13  | A     | 1107 | PCW  | O2-C31-C32  | 2.14  | 115.03      | 111.09   |
| 13  | C     | 1107 | PCW  | O2-C31-C32  | 2.12  | 114.99      | 111.09   |
| 13  | A     | 1113 | PCW  | O2-C31-C32  | 2.11  | 114.97      | 111.09   |
| 13  | C     | 1113 | PCW  | O2-C31-C32  | 2.10  | 114.95      | 111.09   |
| 12  | B     | 501  | CLR  | C24-C23-C22 | -2.10 | 103.60      | 113.24   |
| 12  | D     | 501  | CLR  | C24-C23-C22 | -2.09 | 103.64      | 113.24   |
| 12  | B     | 502  | CLR  | C24-C23-C22 | -2.09 | 103.64      | 113.24   |
| 12  | D     | 502  | CLR  | C24-C23-C22 | -2.09 | 103.65      | 113.24   |
| 12  | G     | 1301 | CLR  | C24-C23-C22 | -2.09 | 103.66      | 113.24   |
| 12  | E     | 1301 | CLR  | C24-C23-C22 | -2.07 | 103.70      | 113.24   |
| 13  | A     | 1106 | PCW  | O2-C31-C32  | 2.05  | 114.86      | 111.09   |
| 12  | C     | 1105 | CLR  | C24-C23-C22 | -2.05 | 103.83      | 113.24   |
| 12  | C     | 1105 | CLR  | C3-C4-C5    | 2.04  | 115.49      | 112.03   |
| 12  | A     | 1105 | CLR  | C24-C23-C22 | -2.04 | 103.86      | 113.24   |
| 13  | C     | 1106 | PCW  | O2-C31-C32  | 2.04  | 114.84      | 111.09   |
| 12  | B     | 502  | CLR  | C3-C4-C5    | 2.03  | 115.48      | 112.03   |
| 12  | A     | 1105 | CLR  | C3-C4-C5    | 2.03  | 115.46      | 112.03   |
| 12  | D     | 502  | CLR  | C3-C4-C5    | 2.03  | 115.46      | 112.03   |
| 12  | E     | 1301 | CLR  | C3-C4-C5    | 2.02  | 115.46      | 112.03   |
| 12  | D     | 501  | CLR  | C3-C4-C5    | 2.02  | 115.45      | 112.03   |
| 12  | D     | 501  | CLR  | C11-C12-C13 | -2.02 | 109.32      | 112.78   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 12  | C     | 1105 | CLR  | C19-C10-C9  | -2.01 | 109.28      | 111.68   |
| 12  | G     | 1301 | CLR  | C3-C4-C5    | 2.01  | 115.44      | 112.03   |
| 12  | B     | 501  | CLR  | C11-C12-C13 | -2.01 | 109.33      | 112.78   |

There are no chirality outliers.

All (424) torsion outliers are listed below:

| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 10  | A     | 1103 | ATP  | PB-O3A-PA-O5'   |
| 10  | C     | 1103 | ATP  | PB-O3A-PA-O5'   |
| 11  | A     | 1104 | 7Q2  | OAW-CAX-CAY-NAZ |
| 11  | C     | 1104 | 7Q2  | OAW-CAX-CAY-NAZ |
| 13  | A     | 1107 | PCW  | C4-O4P-P-O2P    |
| 13  | A     | 1108 | PCW  | O4P-C4-C5-N     |
| 13  | A     | 1108 | PCW  | C4-O4P-P-O1P    |
| 13  | A     | 1109 | PCW  | O3P-C1-C2-O2    |
| 13  | A     | 1109 | PCW  | C1-O3P-P-O2P    |
| 13  | A     | 1112 | PCW  | O2-C2-C3-O3     |
| 13  | A     | 1113 | PCW  | C1-O3P-P-O2P    |
| 13  | G     | 1302 | PCW  | O2-C2-C3-O3     |
| 13  | G     | 1302 | PCW  | C1-O3P-P-O1P    |
| 13  | G     | 1302 | PCW  | C1-O3P-P-O2P    |
| 13  | G     | 1302 | PCW  | C4-O4P-P-O2P    |
| 13  | G     | 1302 | PCW  | C4-O4P-P-O3P    |
| 13  | G     | 1303 | PCW  | C4-O4P-P-O3P    |
| 13  | C     | 1107 | PCW  | C4-O4P-P-O2P    |
| 13  | C     | 1108 | PCW  | O4P-C4-C5-N     |
| 13  | C     | 1108 | PCW  | C4-O4P-P-O1P    |
| 13  | C     | 1109 | PCW  | O3P-C1-C2-O2    |
| 13  | C     | 1109 | PCW  | C1-O3P-P-O2P    |
| 13  | C     | 1112 | PCW  | O2-C2-C3-O3     |
| 13  | C     | 1113 | PCW  | C1-O3P-P-O2P    |
| 13  | E     | 1302 | PCW  | O2-C2-C3-O3     |
| 13  | E     | 1302 | PCW  | C1-O3P-P-O1P    |
| 13  | E     | 1302 | PCW  | C1-O3P-P-O2P    |
| 13  | E     | 1302 | PCW  | C4-O4P-P-O2P    |
| 13  | E     | 1302 | PCW  | C4-O4P-P-O3P    |
| 13  | E     | 1303 | PCW  | C4-O4P-P-O3P    |
| 13  | A     | 1107 | PCW  | C32-C31-O2-C2   |
| 13  | C     | 1107 | PCW  | C32-C31-O2-C2   |
| 13  | A     | 1107 | PCW  | C12-C11-O3-C3   |
| 13  | C     | 1107 | PCW  | C12-C11-O3-C3   |

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| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 13  | A     | 1111 | PCW  | C4-C5-N-C8      |
| 13  | A     | 1112 | PCW  | C4-C5-N-C8      |
| 13  | A     | 1114 | PCW  | C4-C5-N-C8      |
| 13  | G     | 1302 | PCW  | C4-C5-N-C8      |
| 13  | G     | 1303 | PCW  | C4-C5-N-C8      |
| 13  | C     | 1111 | PCW  | C4-C5-N-C8      |
| 13  | C     | 1112 | PCW  | C4-C5-N-C8      |
| 13  | C     | 1114 | PCW  | C4-C5-N-C8      |
| 13  | E     | 1302 | PCW  | C4-C5-N-C8      |
| 13  | E     | 1303 | PCW  | C4-C5-N-C8      |
| 13  | A     | 1107 | PCW  | O31-C31-O2-C2   |
| 13  | C     | 1107 | PCW  | O31-C31-O2-C2   |
| 13  | A     | 1107 | PCW  | O11-C11-O3-C3   |
| 13  | C     | 1107 | PCW  | O11-C11-O3-C3   |
| 13  | A     | 1108 | PCW  | C11-C12-C13-C14 |
| 13  | A     | 1108 | PCW  | C31-C32-C33-C34 |
| 13  | A     | 1110 | PCW  | C31-C32-C33-C34 |
| 13  | A     | 1112 | PCW  | C31-C32-C33-C34 |
| 13  | A     | 1114 | PCW  | C11-C12-C13-C14 |
| 13  | C     | 1108 | PCW  | C11-C12-C13-C14 |
| 13  | C     | 1108 | PCW  | C31-C32-C33-C34 |
| 13  | C     | 1110 | PCW  | C31-C32-C33-C34 |
| 13  | C     | 1112 | PCW  | C31-C32-C33-C34 |
| 13  | C     | 1114 | PCW  | C11-C12-C13-C14 |
| 13  | G     | 1303 | PCW  | C11-C12-C13-C14 |
| 13  | E     | 1303 | PCW  | C11-C12-C13-C14 |
| 13  | A     | 1107 | PCW  | C1-O3P-P-O4P    |
| 13  | A     | 1107 | PCW  | C4-O4P-P-O3P    |
| 13  | A     | 1108 | PCW  | C4-O4P-P-O3P    |
| 13  | G     | 1302 | PCW  | C1-O3P-P-O4P    |
| 13  | C     | 1107 | PCW  | C1-O3P-P-O4P    |
| 13  | C     | 1107 | PCW  | C4-O4P-P-O3P    |
| 13  | C     | 1108 | PCW  | C4-O4P-P-O3P    |
| 13  | E     | 1302 | PCW  | C1-O3P-P-O4P    |
| 13  | A     | 1111 | PCW  | C4-C5-N-C6      |
| 13  | A     | 1111 | PCW  | C4-C5-N-C7      |
| 13  | A     | 1112 | PCW  | C4-C5-N-C6      |
| 13  | A     | 1112 | PCW  | C4-C5-N-C7      |
| 13  | A     | 1114 | PCW  | C4-C5-N-C6      |
| 13  | A     | 1114 | PCW  | C4-C5-N-C7      |
| 13  | G     | 1302 | PCW  | C4-C5-N-C6      |
| 13  | G     | 1302 | PCW  | C4-C5-N-C7      |

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| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 13  | G     | 1303 | PCW  | C4-C5-N-C6      |
| 13  | G     | 1303 | PCW  | C4-C5-N-C7      |
| 13  | G     | 1304 | PCW  | C4-C5-N-C6      |
| 13  | G     | 1304 | PCW  | C4-C5-N-C7      |
| 13  | G     | 1304 | PCW  | C4-C5-N-C8      |
| 13  | C     | 1111 | PCW  | C4-C5-N-C6      |
| 13  | C     | 1111 | PCW  | C4-C5-N-C7      |
| 13  | C     | 1112 | PCW  | C4-C5-N-C6      |
| 13  | C     | 1112 | PCW  | C4-C5-N-C7      |
| 13  | C     | 1114 | PCW  | C4-C5-N-C6      |
| 13  | C     | 1114 | PCW  | C4-C5-N-C7      |
| 13  | E     | 1302 | PCW  | C4-C5-N-C6      |
| 13  | E     | 1302 | PCW  | C4-C5-N-C7      |
| 13  | E     | 1303 | PCW  | C4-C5-N-C6      |
| 13  | E     | 1303 | PCW  | C4-C5-N-C7      |
| 13  | E     | 1304 | PCW  | C4-C5-N-C6      |
| 13  | E     | 1304 | PCW  | C4-C5-N-C7      |
| 13  | E     | 1304 | PCW  | C4-C5-N-C8      |
| 13  | A     | 1110 | PCW  | C34-C35-C36-C37 |
| 13  | A     | 1111 | PCW  | C22-C23-C24-C25 |
| 13  | C     | 1110 | PCW  | C34-C35-C36-C37 |
| 13  | E     | 1304 | PCW  | C21-C22-C23-C24 |
| 13  | E     | 1304 | PCW  | C43-C44-C45-C46 |
| 13  | G     | 1303 | PCW  | C13-C14-C15-C16 |
| 13  | G     | 1304 | PCW  | C21-C22-C23-C24 |
| 13  | G     | 1304 | PCW  | C43-C44-C45-C46 |
| 13  | C     | 1111 | PCW  | C22-C23-C24-C25 |
| 13  | E     | 1303 | PCW  | C13-C14-C15-C16 |
| 13  | A     | 1111 | PCW  | C43-C44-C45-C46 |
| 13  | G     | 1304 | PCW  | C34-C35-C36-C37 |
| 13  | C     | 1111 | PCW  | C43-C44-C45-C46 |
| 13  | E     | 1304 | PCW  | C34-C35-C36-C37 |
| 13  | A     | 1112 | PCW  | C42-C43-C44-C45 |
| 13  | C     | 1112 | PCW  | C42-C43-C44-C45 |
| 13  | A     | 1109 | PCW  | C44-C45-C46-C47 |
| 13  | C     | 1109 | PCW  | C44-C45-C46-C47 |
| 13  | A     | 1109 | PCW  | C20-C21-C22-C23 |
| 13  | A     | 1111 | PCW  | C16-C17-C18-C19 |
| 13  | A     | 1112 | PCW  | C40-C41-C42-C43 |
| 13  | C     | 1109 | PCW  | C20-C21-C22-C23 |
| 13  | C     | 1111 | PCW  | C16-C17-C18-C19 |
| 13  | C     | 1112 | PCW  | C40-C41-C42-C43 |

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| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 13  | A     | 1111 | PCW  | C21-C22-C23-C24 |
| 13  | A     | 1111 | PCW  | C23-C24-C25-C26 |
| 13  | A     | 1112 | PCW  | C35-C36-C37-C38 |
| 13  | C     | 1111 | PCW  | C21-C22-C23-C24 |
| 13  | C     | 1111 | PCW  | C23-C24-C25-C26 |
| 13  | C     | 1112 | PCW  | C35-C36-C37-C38 |
| 13  | A     | 1108 | PCW  | C33-C34-C35-C36 |
| 13  | C     | 1108 | PCW  | C33-C34-C35-C36 |
| 13  | A     | 1110 | PCW  | C15-C16-C17-C18 |
| 13  | C     | 1110 | PCW  | C15-C16-C17-C18 |
| 13  | G     | 1304 | PCW  | C33-C34-C35-C36 |
| 13  | E     | 1304 | PCW  | C33-C34-C35-C36 |
| 13  | A     | 1114 | PCW  | C20-C21-C22-C23 |
| 13  | A     | 1112 | PCW  | C33-C34-C35-C36 |
| 13  | C     | 1112 | PCW  | C33-C34-C35-C36 |
| 13  | A     | 1110 | PCW  | C41-C42-C43-C44 |
| 13  | C     | 1110 | PCW  | C41-C42-C43-C44 |
| 13  | G     | 1303 | PCW  | C34-C35-C36-C37 |
| 13  | E     | 1303 | PCW  | C34-C35-C36-C37 |
| 11  | A     | 1104 | 7Q2  | CAY-CAX-OAW-NAV |
| 11  | C     | 1104 | 7Q2  | CAY-CAX-OAW-NAV |
| 13  | A     | 1108 | PCW  | C16-C17-C18-C19 |
| 13  | A     | 1108 | PCW  | C40-C41-C42-C43 |
| 13  | C     | 1108 | PCW  | C16-C17-C18-C19 |
| 13  | C     | 1108 | PCW  | C40-C41-C42-C43 |
| 13  | C     | 1114 | PCW  | C20-C21-C22-C23 |
| 13  | A     | 1113 | PCW  | O3P-C1-C2-O2    |
| 13  | C     | 1113 | PCW  | O3P-C1-C2-O2    |
| 13  | A     | 1108 | PCW  | C20-C21-C22-C23 |
| 13  | A     | 1109 | PCW  | C40-C41-C42-C43 |
| 13  | A     | 1110 | PCW  | C40-C41-C42-C43 |
| 13  | A     | 1112 | PCW  | C36-C37-C38-C39 |
| 13  | G     | 1302 | PCW  | C40-C41-C42-C43 |
| 13  | C     | 1108 | PCW  | C20-C21-C22-C23 |
| 13  | C     | 1109 | PCW  | C40-C41-C42-C43 |
| 13  | C     | 1110 | PCW  | C40-C41-C42-C43 |
| 13  | C     | 1112 | PCW  | C36-C37-C38-C39 |
| 13  | E     | 1302 | PCW  | C40-C41-C42-C43 |
| 13  | G     | 1304 | PCW  | C11-C12-C13-C14 |
| 13  | A     | 1114 | PCW  | C31-C32-C33-C34 |
| 13  | E     | 1304 | PCW  | C11-C12-C13-C14 |
| 13  | A     | 1109 | PCW  | O3P-C1-C2-C3    |

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| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 13  | A     | 1111 | PCW  | O3P-C1-C2-C3    |
| 13  | A     | 1112 | PCW  | O3P-C1-C2-C3    |
| 13  | A     | 1114 | PCW  | O3P-C1-C2-C3    |
| 13  | G     | 1304 | PCW  | O3P-C1-C2-C3    |
| 13  | C     | 1109 | PCW  | O3P-C1-C2-C3    |
| 13  | C     | 1111 | PCW  | O3P-C1-C2-C3    |
| 13  | C     | 1112 | PCW  | O3P-C1-C2-C3    |
| 13  | C     | 1114 | PCW  | O3P-C1-C2-C3    |
| 13  | E     | 1304 | PCW  | O3P-C1-C2-C3    |
| 13  | C     | 1114 | PCW  | C31-C32-C33-C34 |
| 13  | A     | 1112 | PCW  | C14-C15-C16-C17 |
| 13  | G     | 1302 | PCW  | C35-C36-C37-C38 |
| 13  | C     | 1112 | PCW  | C14-C15-C16-C17 |
| 13  | E     | 1302 | PCW  | C35-C36-C37-C38 |
| 13  | A     | 1111 | PCW  | C32-C33-C34-C35 |
| 13  | C     | 1111 | PCW  | C32-C33-C34-C35 |
| 13  | A     | 1107 | PCW  | C1-C2-C3-O3     |
| 13  | A     | 1109 | PCW  | C1-C2-C3-O3     |
| 13  | A     | 1112 | PCW  | C1-C2-C3-O3     |
| 13  | G     | 1302 | PCW  | C43-C44-C45-C46 |
| 13  | C     | 1107 | PCW  | C1-C2-C3-O3     |
| 13  | C     | 1109 | PCW  | C1-C2-C3-O3     |
| 13  | C     | 1112 | PCW  | C1-C2-C3-O3     |
| 13  | E     | 1302 | PCW  | C43-C44-C45-C46 |
| 13  | G     | 1303 | PCW  | C31-C32-C33-C34 |
| 13  | E     | 1303 | PCW  | C31-C32-C33-C34 |
| 13  | G     | 1304 | PCW  | C16-C17-C18-C19 |
| 13  | E     | 1304 | PCW  | C16-C17-C18-C19 |
| 13  | A     | 1111 | PCW  | C14-C15-C16-C17 |
| 13  | C     | 1111 | PCW  | C14-C15-C16-C17 |
| 13  | A     | 1109 | PCW  | C14-C15-C16-C17 |
| 13  | C     | 1109 | PCW  | C14-C15-C16-C17 |
| 13  | G     | 1303 | PCW  | O2-C2-C3-O3     |
| 13  | E     | 1303 | PCW  | O2-C2-C3-O3     |
| 13  | A     | 1113 | PCW  | O3P-C1-C2-C3    |
| 13  | C     | 1113 | PCW  | O3P-C1-C2-C3    |
| 13  | G     | 1304 | PCW  | C31-C32-C33-C34 |
| 13  | E     | 1304 | PCW  | C31-C32-C33-C34 |
| 13  | G     | 1303 | PCW  | C23-C24-C25-C26 |
| 13  | E     | 1303 | PCW  | C23-C24-C25-C26 |
| 13  | C     | 1114 | PCW  | C25-C26-C27-C28 |
| 13  | A     | 1114 | PCW  | C25-C26-C27-C28 |

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| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 13  | A     | 1111 | PCW  | C1-C2-C3-O3     |
| 13  | A     | 1113 | PCW  | C1-C2-C3-O3     |
| 13  | A     | 1114 | PCW  | C1-C2-C3-O3     |
| 13  | C     | 1111 | PCW  | C1-C2-C3-O3     |
| 13  | C     | 1113 | PCW  | C1-C2-C3-O3     |
| 13  | C     | 1114 | PCW  | C1-C2-C3-O3     |
| 13  | A     | 1113 | PCW  | C1-O3P-P-O4P    |
| 13  | C     | 1113 | PCW  | C1-O3P-P-O4P    |
| 13  | A     | 1106 | PCW  | O3P-C1-C2-O2    |
| 13  | A     | 1111 | PCW  | O3P-C1-C2-O2    |
| 13  | A     | 1114 | PCW  | O3P-C1-C2-O2    |
| 13  | C     | 1106 | PCW  | O3P-C1-C2-O2    |
| 13  | C     | 1111 | PCW  | O3P-C1-C2-O2    |
| 13  | C     | 1114 | PCW  | O3P-C1-C2-O2    |
| 13  | A     | 1107 | PCW  | O2-C2-C3-O3     |
| 13  | A     | 1108 | PCW  | O2-C2-C3-O3     |
| 13  | A     | 1111 | PCW  | O2-C2-C3-O3     |
| 13  | A     | 1113 | PCW  | O2-C2-C3-O3     |
| 13  | C     | 1107 | PCW  | O2-C2-C3-O3     |
| 13  | C     | 1108 | PCW  | O2-C2-C3-O3     |
| 13  | C     | 1111 | PCW  | O2-C2-C3-O3     |
| 13  | C     | 1113 | PCW  | O2-C2-C3-O3     |
| 13  | A     | 1110 | PCW  | C43-C44-C45-C46 |
| 13  | G     | 1303 | PCW  | C35-C36-C37-C38 |
| 13  | C     | 1110 | PCW  | C43-C44-C45-C46 |
| 13  | E     | 1303 | PCW  | C35-C36-C37-C38 |
| 13  | A     | 1114 | PCW  | C45-C46-C47-C48 |
| 13  | C     | 1114 | PCW  | C45-C46-C47-C48 |
| 13  | A     | 1106 | PCW  | O3P-C1-C2-C3    |
| 13  | C     | 1106 | PCW  | O3P-C1-C2-C3    |
| 13  | A     | 1108 | PCW  | C1-C2-C3-O3     |
| 13  | G     | 1302 | PCW  | C1-C2-C3-O3     |
| 13  | C     | 1108 | PCW  | C1-C2-C3-O3     |
| 13  | E     | 1302 | PCW  | C1-C2-C3-O3     |
| 13  | G     | 1303 | PCW  | O3P-C1-C2-O2    |
| 13  | E     | 1303 | PCW  | O3P-C1-C2-O2    |
| 13  | A     | 1109 | PCW  | O2-C2-C3-O3     |
| 13  | C     | 1109 | PCW  | O2-C2-C3-O3     |
| 13  | C     | 1114 | PCW  | C15-C16-C17-C18 |
| 13  | A     | 1114 | PCW  | C15-C16-C17-C18 |
| 13  | A     | 1111 | PCW  | C15-C16-C17-C18 |
| 13  | C     | 1111 | PCW  | C15-C16-C17-C18 |

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| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 13  | A     | 1109 | PCW  | C1-O3P-P-O4P    |
| 13  | C     | 1109 | PCW  | C1-O3P-P-O4P    |
| 13  | A     | 1107 | PCW  | C1-O3P-P-O2P    |
| 13  | A     | 1107 | PCW  | C4-O4P-P-O1P    |
| 13  | G     | 1303 | PCW  | C4-O4P-P-O1P    |
| 13  | C     | 1107 | PCW  | C1-O3P-P-O2P    |
| 13  | C     | 1107 | PCW  | C4-O4P-P-O1P    |
| 13  | E     | 1303 | PCW  | C4-O4P-P-O1P    |
| 13  | G     | 1303 | PCW  | O3P-C1-C2-C3    |
| 13  | E     | 1303 | PCW  | O3P-C1-C2-C3    |
| 13  | E     | 1303 | PCW  | O2-C31-C32-C33  |
| 13  | A     | 1110 | PCW  | C32-C33-C34-C35 |
| 13  | C     | 1110 | PCW  | C32-C33-C34-C35 |
| 13  | A     | 1106 | PCW  | O4P-C4-C5-N     |
| 13  | A     | 1107 | PCW  | O4P-C4-C5-N     |
| 13  | A     | 1109 | PCW  | O4P-C4-C5-N     |
| 13  | A     | 1110 | PCW  | O4P-C4-C5-N     |
| 13  | A     | 1111 | PCW  | O4P-C4-C5-N     |
| 13  | A     | 1112 | PCW  | O4P-C4-C5-N     |
| 13  | A     | 1113 | PCW  | O4P-C4-C5-N     |
| 13  | A     | 1114 | PCW  | O4P-C4-C5-N     |
| 13  | G     | 1302 | PCW  | O4P-C4-C5-N     |
| 13  | G     | 1303 | PCW  | O4P-C4-C5-N     |
| 13  | G     | 1304 | PCW  | O4P-C4-C5-N     |
| 13  | C     | 1106 | PCW  | O4P-C4-C5-N     |
| 13  | C     | 1107 | PCW  | O4P-C4-C5-N     |
| 13  | C     | 1109 | PCW  | O4P-C4-C5-N     |
| 13  | C     | 1110 | PCW  | O4P-C4-C5-N     |
| 13  | C     | 1111 | PCW  | O4P-C4-C5-N     |
| 13  | C     | 1112 | PCW  | O4P-C4-C5-N     |
| 13  | C     | 1113 | PCW  | O4P-C4-C5-N     |
| 13  | C     | 1114 | PCW  | O4P-C4-C5-N     |
| 13  | E     | 1302 | PCW  | O4P-C4-C5-N     |
| 13  | E     | 1303 | PCW  | O4P-C4-C5-N     |
| 13  | E     | 1304 | PCW  | O4P-C4-C5-N     |
| 13  | A     | 1114 | PCW  | O2-C2-C3-O3     |
| 13  | C     | 1114 | PCW  | O2-C2-C3-O3     |
| 13  | A     | 1110 | PCW  | C14-C15-C16-C17 |
| 13  | C     | 1110 | PCW  | C14-C15-C16-C17 |
| 13  | G     | 1303 | PCW  | O2-C31-C32-C33  |
| 13  | A     | 1108 | PCW  | C35-C36-C37-C38 |
| 13  | C     | 1108 | PCW  | C35-C36-C37-C38 |

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| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 13  | A     | 1114 | PCW  | C39-C40-C41-C42 |
| 13  | C     | 1114 | PCW  | C39-C40-C41-C42 |
| 13  | A     | 1107 | PCW  | O3P-C1-C2-O2    |
| 13  | A     | 1112 | PCW  | O3P-C1-C2-O2    |
| 13  | G     | 1304 | PCW  | O3P-C1-C2-O2    |
| 13  | C     | 1107 | PCW  | O3P-C1-C2-O2    |
| 13  | C     | 1112 | PCW  | O3P-C1-C2-O2    |
| 13  | E     | 1304 | PCW  | O3P-C1-C2-O2    |
| 10  | A     | 1103 | ATP  | PG-O3B-PB-O3A   |
| 10  | C     | 1103 | ATP  | PG-O3B-PB-O3A   |
| 13  | A     | 1106 | PCW  | C1-O3P-P-O4P    |
| 13  | A     | 1106 | PCW  | C4-O4P-P-O3P    |
| 13  | A     | 1108 | PCW  | C1-O3P-P-O4P    |
| 13  | A     | 1109 | PCW  | C4-O4P-P-O3P    |
| 13  | A     | 1110 | PCW  | C4-O4P-P-O3P    |
| 13  | A     | 1111 | PCW  | C4-O4P-P-O3P    |
| 13  | A     | 1112 | PCW  | C4-O4P-P-O3P    |
| 13  | A     | 1113 | PCW  | C4-O4P-P-O3P    |
| 13  | A     | 1114 | PCW  | C4-O4P-P-O3P    |
| 13  | C     | 1106 | PCW  | C1-O3P-P-O4P    |
| 13  | C     | 1106 | PCW  | C4-O4P-P-O3P    |
| 13  | C     | 1108 | PCW  | C1-O3P-P-O4P    |
| 13  | C     | 1109 | PCW  | C4-O4P-P-O3P    |
| 13  | C     | 1110 | PCW  | C4-O4P-P-O3P    |
| 13  | C     | 1111 | PCW  | C4-O4P-P-O3P    |
| 13  | C     | 1112 | PCW  | C4-O4P-P-O3P    |
| 13  | C     | 1113 | PCW  | C4-O4P-P-O3P    |
| 13  | C     | 1114 | PCW  | C4-O4P-P-O3P    |
| 13  | G     | 1303 | PCW  | C1-C2-C3-O3     |
| 13  | E     | 1303 | PCW  | C1-C2-C3-O3     |
| 13  | C     | 1111 | PCW  | C42-C43-C44-C45 |
| 13  | A     | 1111 | PCW  | C42-C43-C44-C45 |
| 13  | A     | 1111 | PCW  | C41-C42-C43-C44 |
| 13  | C     | 1111 | PCW  | C41-C42-C43-C44 |
| 13  | A     | 1109 | PCW  | C17-C18-C19-C20 |
| 13  | A     | 1114 | PCW  | C19-C20-C21-C22 |
| 13  | C     | 1109 | PCW  | C17-C18-C19-C20 |
| 13  | C     | 1114 | PCW  | C19-C20-C21-C22 |
| 13  | G     | 1304 | PCW  | C20-C21-C22-C23 |
| 13  | E     | 1304 | PCW  | C20-C21-C22-C23 |
| 13  | A     | 1114 | PCW  | C41-C42-C43-C44 |
| 13  | C     | 1114 | PCW  | C41-C42-C43-C44 |

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| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 13  | A     | 1108 | PCW  | C2-C1-O3P-P     |
| 13  | C     | 1108 | PCW  | C2-C1-O3P-P     |
| 13  | A     | 1110 | PCW  | C1-C2-C3-O3     |
| 13  | C     | 1110 | PCW  | C1-C2-C3-O3     |
| 13  | G     | 1302 | PCW  | C36-C37-C38-C39 |
| 13  | E     | 1302 | PCW  | C36-C37-C38-C39 |
| 13  | A     | 1111 | PCW  | C19-C20-C21-C22 |
| 13  | G     | 1302 | PCW  | C17-C18-C19-C20 |
| 13  | C     | 1111 | PCW  | C19-C20-C21-C22 |
| 13  | E     | 1302 | PCW  | C17-C18-C19-C20 |
| 13  | A     | 1107 | PCW  | O3P-C1-C2-C3    |
| 13  | A     | 1108 | PCW  | O3P-C1-C2-C3    |
| 13  | C     | 1107 | PCW  | O3P-C1-C2-C3    |
| 13  | C     | 1108 | PCW  | O3P-C1-C2-C3    |
| 13  | A     | 1114 | PCW  | C43-C44-C45-C46 |
| 13  | C     | 1114 | PCW  | C43-C44-C45-C46 |
| 13  | A     | 1110 | PCW  | O2-C2-C3-O3     |
| 13  | C     | 1110 | PCW  | O2-C2-C3-O3     |
| 12  | D     | 501  | CLR  | C23-C24-C25-C27 |
| 13  | G     | 1303 | PCW  | C36-C37-C38-C39 |
| 13  | E     | 1303 | PCW  | C36-C37-C38-C39 |
| 12  | B     | 501  | CLR  | C23-C24-C25-C27 |
| 13  | E     | 1302 | PCW  | C41-C42-C43-C44 |
| 13  | G     | 1302 | PCW  | C41-C42-C43-C44 |
| 13  | A     | 1110 | PCW  | C39-C40-C41-C42 |
| 13  | C     | 1110 | PCW  | C39-C40-C41-C42 |
| 13  | A     | 1108 | PCW  | O3P-C1-C2-O2    |
| 13  | C     | 1108 | PCW  | O3P-C1-C2-O2    |
| 13  | A     | 1109 | PCW  | C22-C23-C24-C25 |
| 13  | C     | 1109 | PCW  | C22-C23-C24-C25 |
| 13  | G     | 1304 | PCW  | C19-C20-C21-C22 |
| 13  | E     | 1304 | PCW  | C19-C20-C21-C22 |
| 13  | A     | 1114 | PCW  | O2-C31-C32-C33  |
| 13  | C     | 1114 | PCW  | O2-C31-C32-C33  |
| 13  | C     | 1109 | PCW  | O2-C31-C32-C33  |
| 13  | A     | 1109 | PCW  | C36-C37-C38-C39 |
| 13  | C     | 1109 | PCW  | C36-C37-C38-C39 |
| 13  | E     | 1303 | PCW  | C20-C21-C22-C23 |
| 12  | A     | 1105 | CLR  | C21-C20-C22-C23 |
| 12  | C     | 1105 | CLR  | C21-C20-C22-C23 |
| 13  | A     | 1109 | PCW  | O2-C31-C32-C33  |
| 13  | A     | 1108 | PCW  | C19-C20-C21-C22 |

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| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 13  | G     | 1303 | PCW  | C17-C18-C19-C20 |
| 13  | G     | 1303 | PCW  | C19-C20-C21-C22 |
| 13  | C     | 1108 | PCW  | C19-C20-C21-C22 |
| 13  | E     | 1303 | PCW  | C17-C18-C19-C20 |
| 13  | E     | 1303 | PCW  | C19-C20-C21-C22 |
| 13  | A     | 1108 | PCW  | O2-C31-C32-C33  |
| 13  | C     | 1108 | PCW  | O2-C31-C32-C33  |
| 13  | G     | 1304 | PCW  | C37-C38-C39-C40 |
| 13  | E     | 1304 | PCW  | C37-C38-C39-C40 |
| 13  | G     | 1303 | PCW  | C20-C21-C22-C23 |
| 13  | E     | 1303 | PCW  | C32-C33-C34-C35 |
| 13  | G     | 1303 | PCW  | C32-C33-C34-C35 |
| 13  | A     | 1108 | PCW  | C37-C38-C39-C40 |
| 13  | C     | 1108 | PCW  | C37-C38-C39-C40 |
| 10  | A     | 1103 | ATP  | C5'-O5'-PA-O3A  |
| 10  | C     | 1103 | ATP  | C5'-O5'-PA-O3A  |
| 13  | A     | 1112 | PCW  | C19-C20-C21-C22 |
| 13  | C     | 1112 | PCW  | C19-C20-C21-C22 |
| 13  | A     | 1112 | PCW  | O2-C31-C32-C33  |
| 13  | C     | 1112 | PCW  | O2-C31-C32-C33  |
| 10  | A     | 1103 | ATP  | PG-O3B-PB-O1B   |
| 10  | C     | 1103 | ATP  | PG-O3B-PB-O1B   |
| 12  | A     | 1105 | CLR  | C17-C20-C22-C23 |
| 12  | C     | 1105 | CLR  | C17-C20-C22-C23 |
| 13  | A     | 1109 | PCW  | C37-C38-C39-C40 |
| 13  | A     | 1111 | PCW  | C37-C38-C39-C40 |
| 13  | C     | 1109 | PCW  | C37-C38-C39-C40 |
| 13  | A     | 1108 | PCW  | O31-C31-C32-C33 |
| 13  | A     | 1109 | PCW  | O31-C31-C32-C33 |
| 13  | C     | 1108 | PCW  | O31-C31-C32-C33 |
| 13  | C     | 1109 | PCW  | O31-C31-C32-C33 |
| 13  | C     | 1114 | PCW  | O31-C31-C32-C33 |
| 13  | A     | 1114 | PCW  | O31-C31-C32-C33 |
| 13  | C     | 1111 | PCW  | C37-C38-C39-C40 |
| 13  | A     | 1106 | PCW  | C4-O4P-P-O2P    |
| 13  | A     | 1108 | PCW  | C1-O3P-P-O2P    |
| 13  | A     | 1111 | PCW  | C4-O4P-P-O2P    |
| 13  | A     | 1112 | PCW  | C4-O4P-P-O2P    |
| 13  | A     | 1113 | PCW  | C4-O4P-P-O2P    |
| 13  | A     | 1114 | PCW  | C4-O4P-P-O2P    |
| 13  | G     | 1304 | PCW  | C1-O3P-P-O2P    |
| 13  | C     | 1106 | PCW  | C4-O4P-P-O2P    |

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| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 13  | C     | 1108 | PCW  | C1-O3P-P-O2P    |
| 13  | C     | 1111 | PCW  | C4-O4P-P-O2P    |
| 13  | C     | 1112 | PCW  | C4-O4P-P-O2P    |
| 13  | C     | 1113 | PCW  | C4-O4P-P-O2P    |
| 13  | C     | 1114 | PCW  | C4-O4P-P-O2P    |
| 13  | E     | 1304 | PCW  | C1-O3P-P-O2P    |
| 13  | G     | 1302 | PCW  | C5-C4-O4P-P     |
| 13  | E     | 1302 | PCW  | C5-C4-O4P-P     |
| 13  | G     | 1304 | PCW  | C32-C33-C34-C35 |
| 13  | E     | 1304 | PCW  | C32-C33-C34-C35 |
| 13  | G     | 1302 | PCW  | O2-C31-C32-C33  |
| 13  | E     | 1302 | PCW  | O2-C31-C32-C33  |

There are no ring outliers.

28 monomers are involved in 95 short contacts:

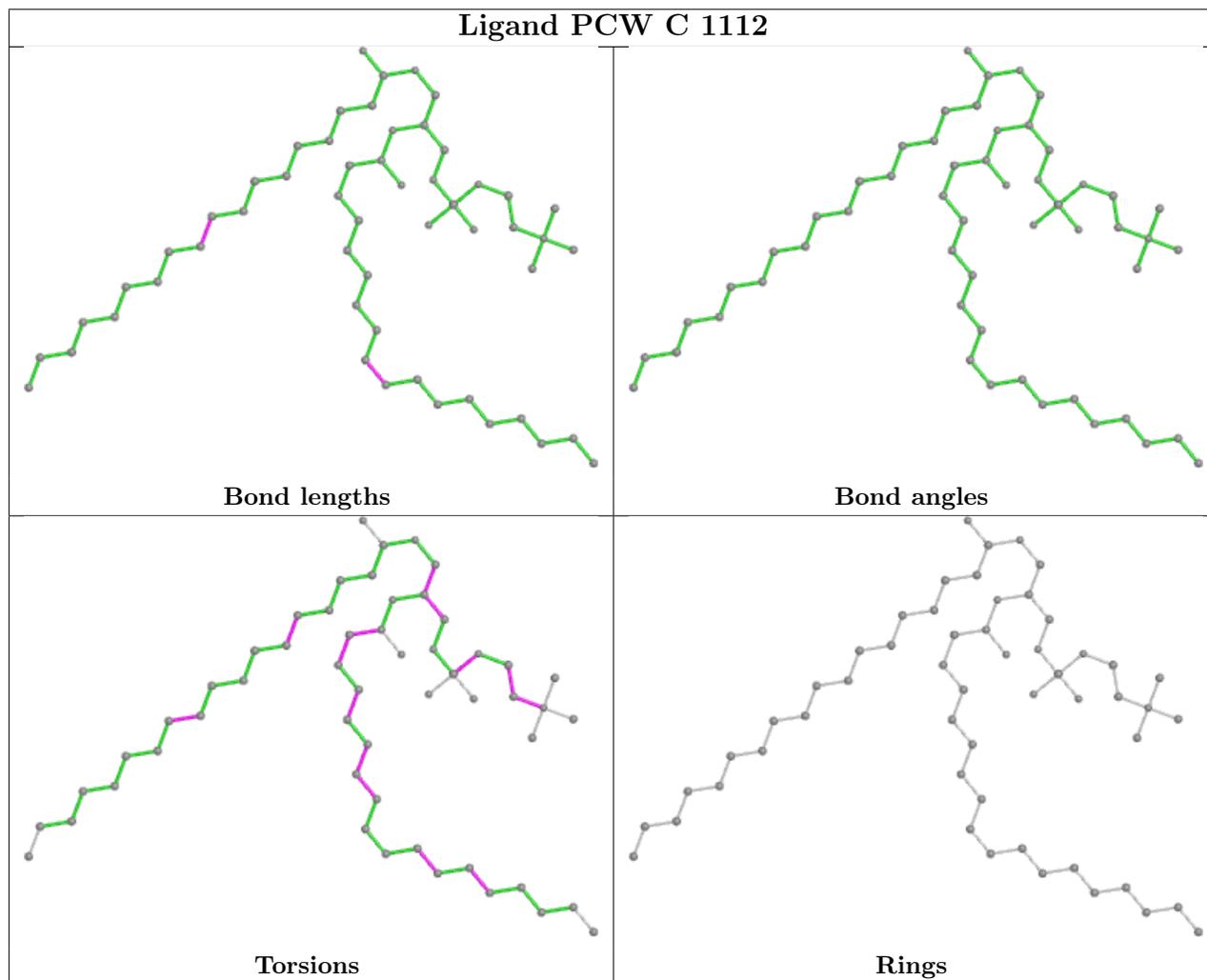
| Mol | Chain | Res  | Type | Clashes | Symm-Clashes |
|-----|-------|------|------|---------|--------------|
| 13  | C     | 1112 | PCW  | 3       | 0            |
| 13  | C     | 1113 | PCW  | 1       | 0            |
| 13  | A     | 1112 | PCW  | 4       | 0            |
| 13  | A     | 1113 | PCW  | 1       | 0            |
| 13  | E     | 1303 | PCW  | 4       | 0            |
| 12  | G     | 1301 | CLR  | 7       | 0            |
| 13  | C     | 1108 | PCW  | 11      | 0            |
| 10  | C     | 1103 | ATP  | 1       | 0            |
| 12  | D     | 501  | CLR  | 1       | 0            |
| 13  | A     | 1108 | PCW  | 11      | 0            |
| 13  | C     | 1114 | PCW  | 3       | 0            |
| 13  | G     | 1303 | PCW  | 4       | 0            |
| 13  | C     | 1111 | PCW  | 2       | 0            |
| 12  | B     | 502  | CLR  | 1       | 0            |
| 13  | A     | 1110 | PCW  | 5       | 0            |
| 13  | G     | 1302 | PCW  | 2       | 0            |
| 13  | C     | 1109 | PCW  | 4       | 0            |
| 12  | B     | 501  | CLR  | 1       | 0            |
| 13  | A     | 1111 | PCW  | 2       | 0            |
| 13  | E     | 1304 | PCW  | 18      | 0            |
| 12  | E     | 1301 | CLR  | 7       | 0            |
| 13  | C     | 1110 | PCW  | 7       | 0            |
| 12  | A     | 1105 | CLR  | 3       | 0            |
| 13  | A     | 1114 | PCW  | 3       | 0            |
| 13  | E     | 1302 | PCW  | 2       | 0            |

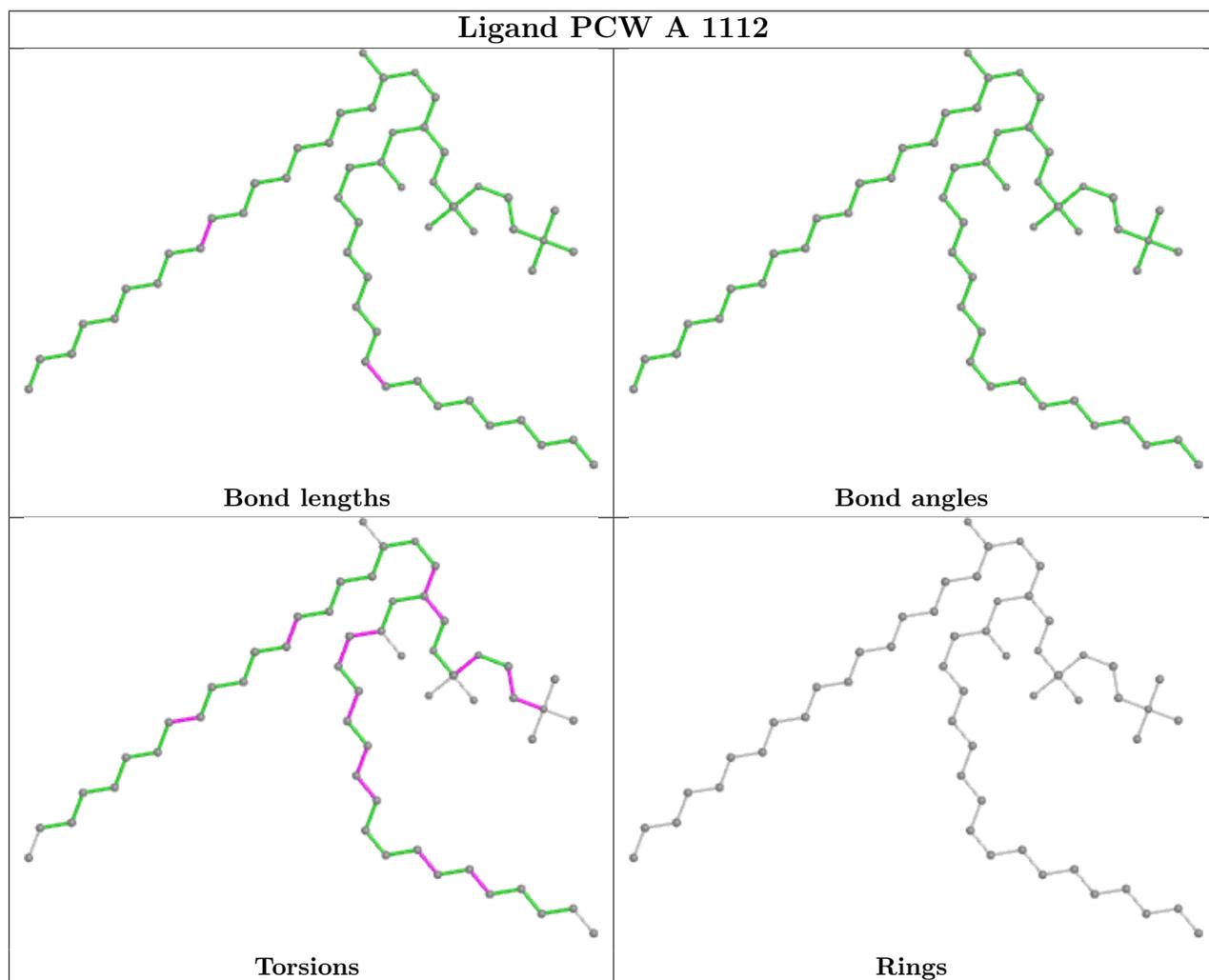
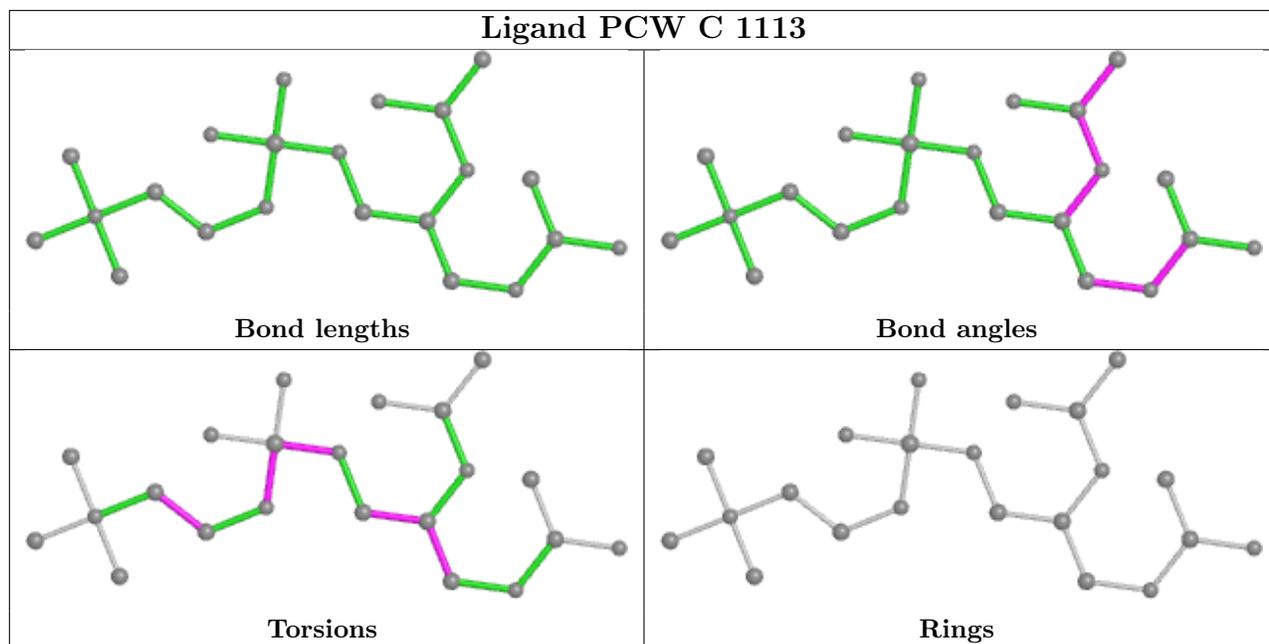
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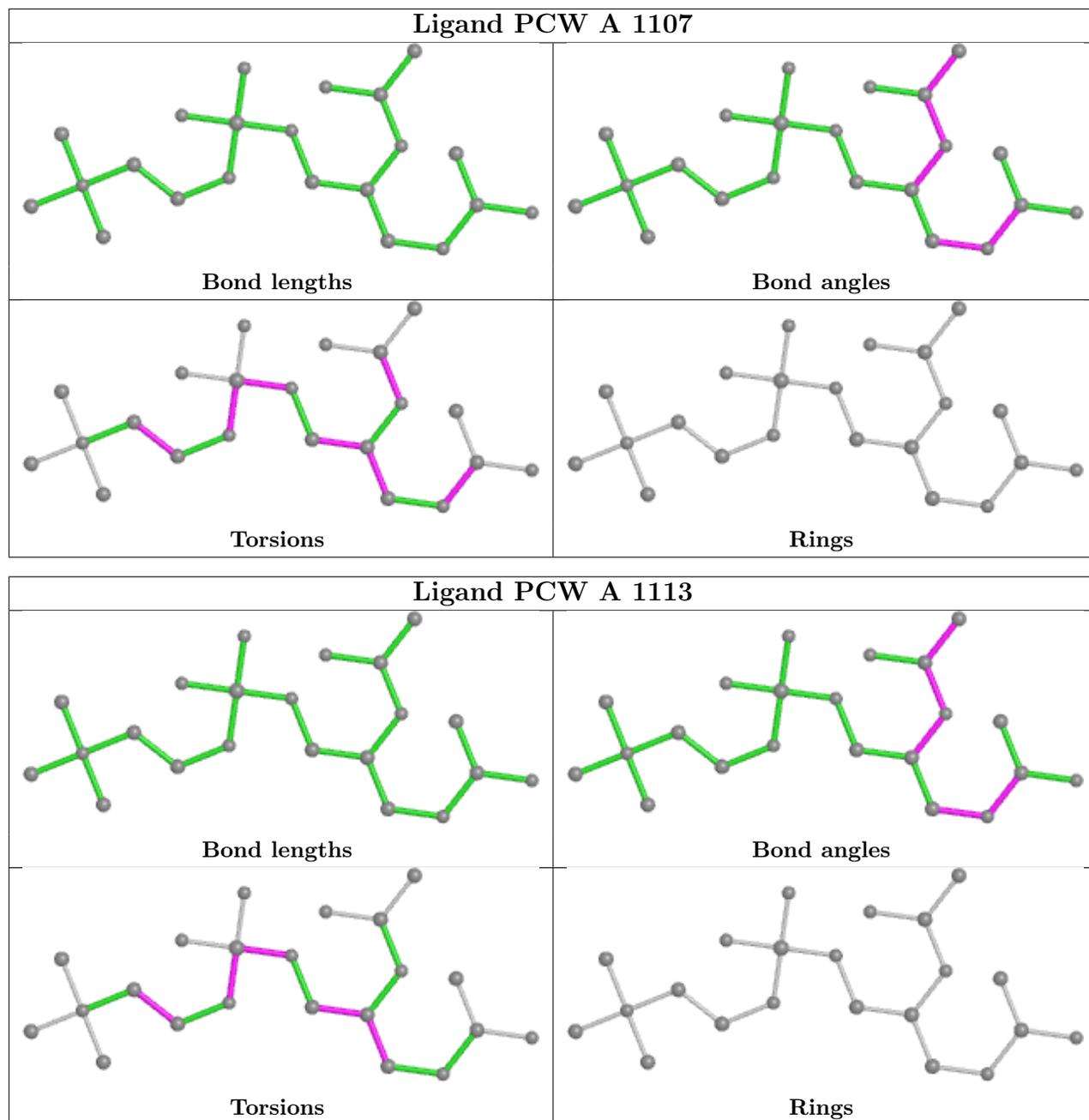
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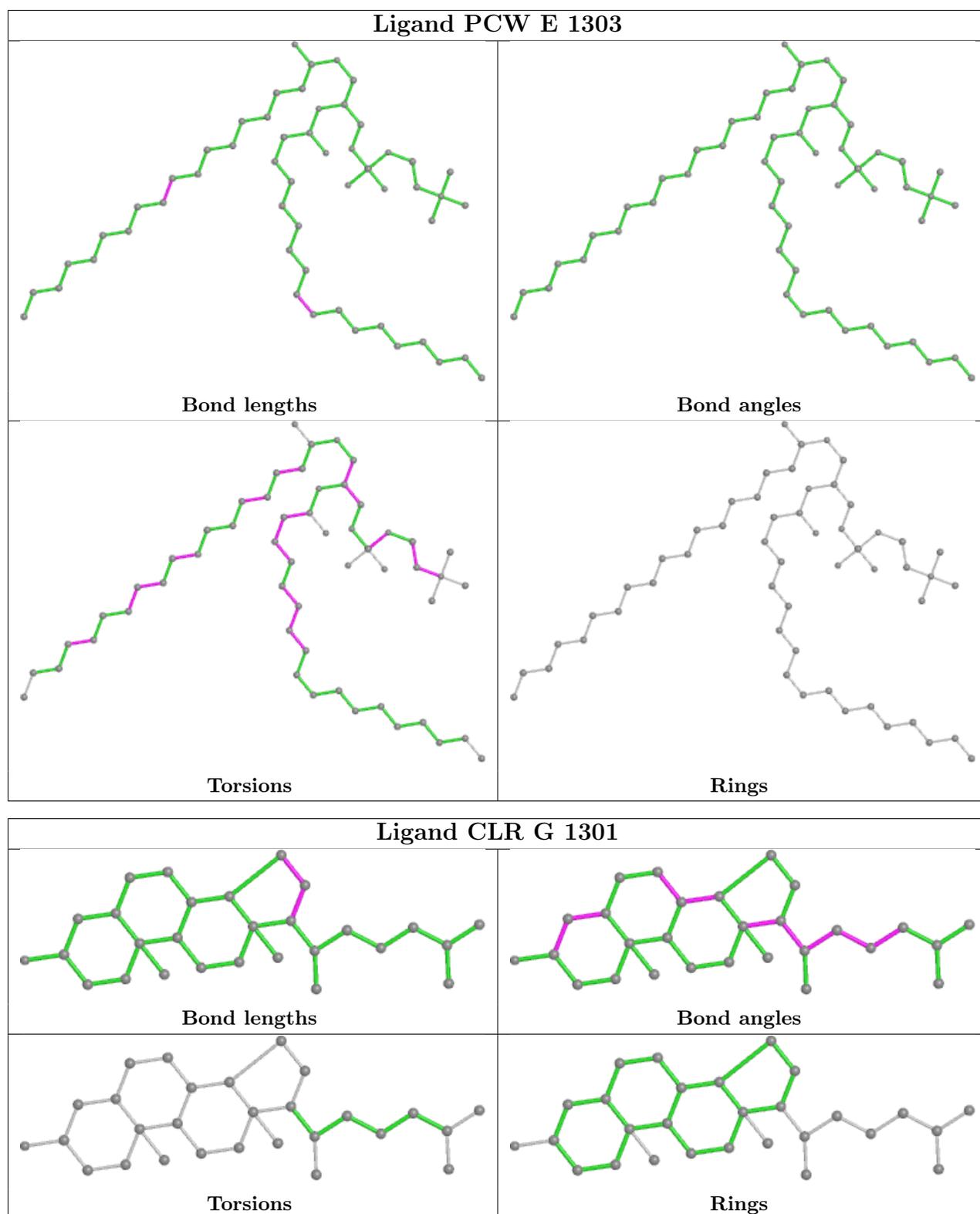
| Mol | Chain | Res  | Type | Clashes | Symm-Clashes |
|-----|-------|------|------|---------|--------------|
| 13  | G     | 1304 | PCW  | 18      | 0            |
| 13  | A     | 1109 | PCW  | 4       | 0            |
| 10  | A     | 1103 | ATP  | 1       | 0            |

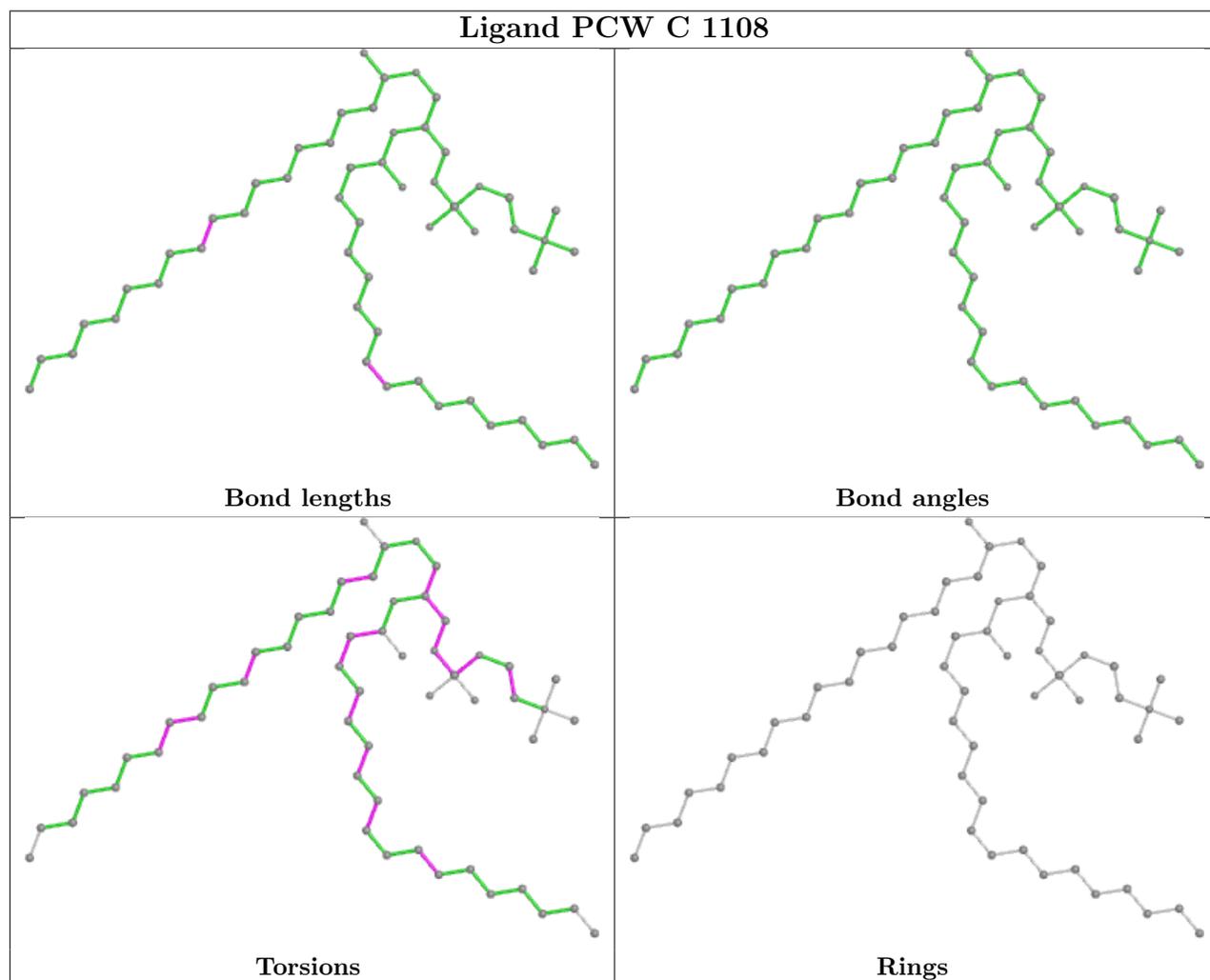
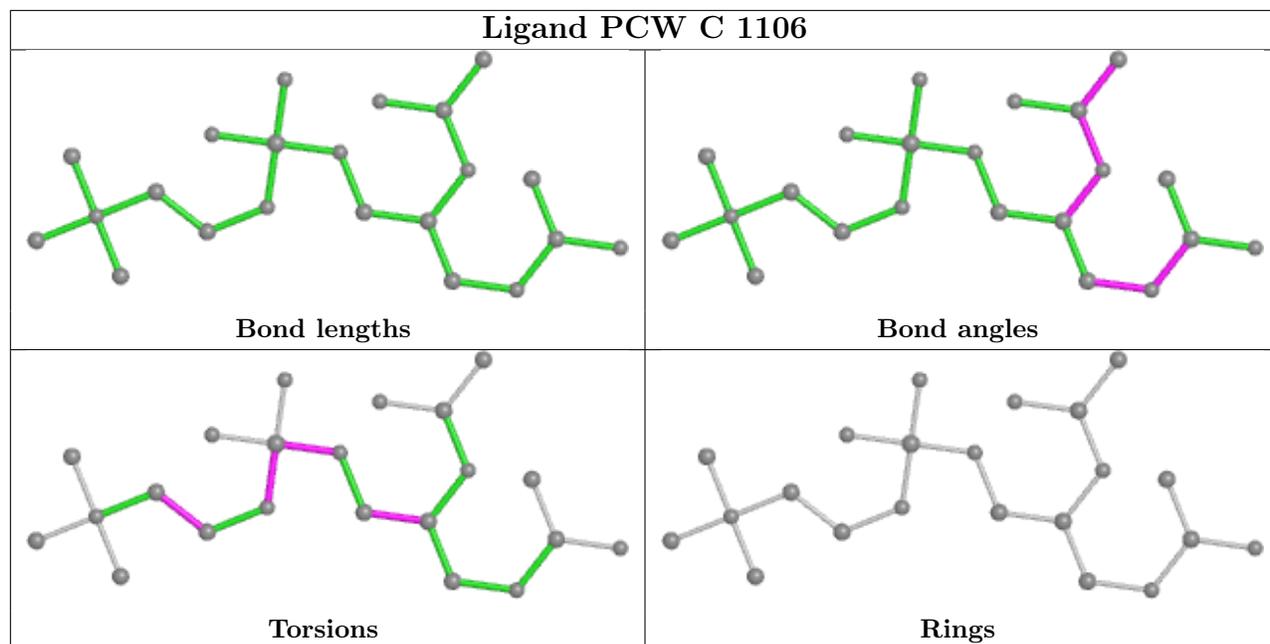
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. 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.

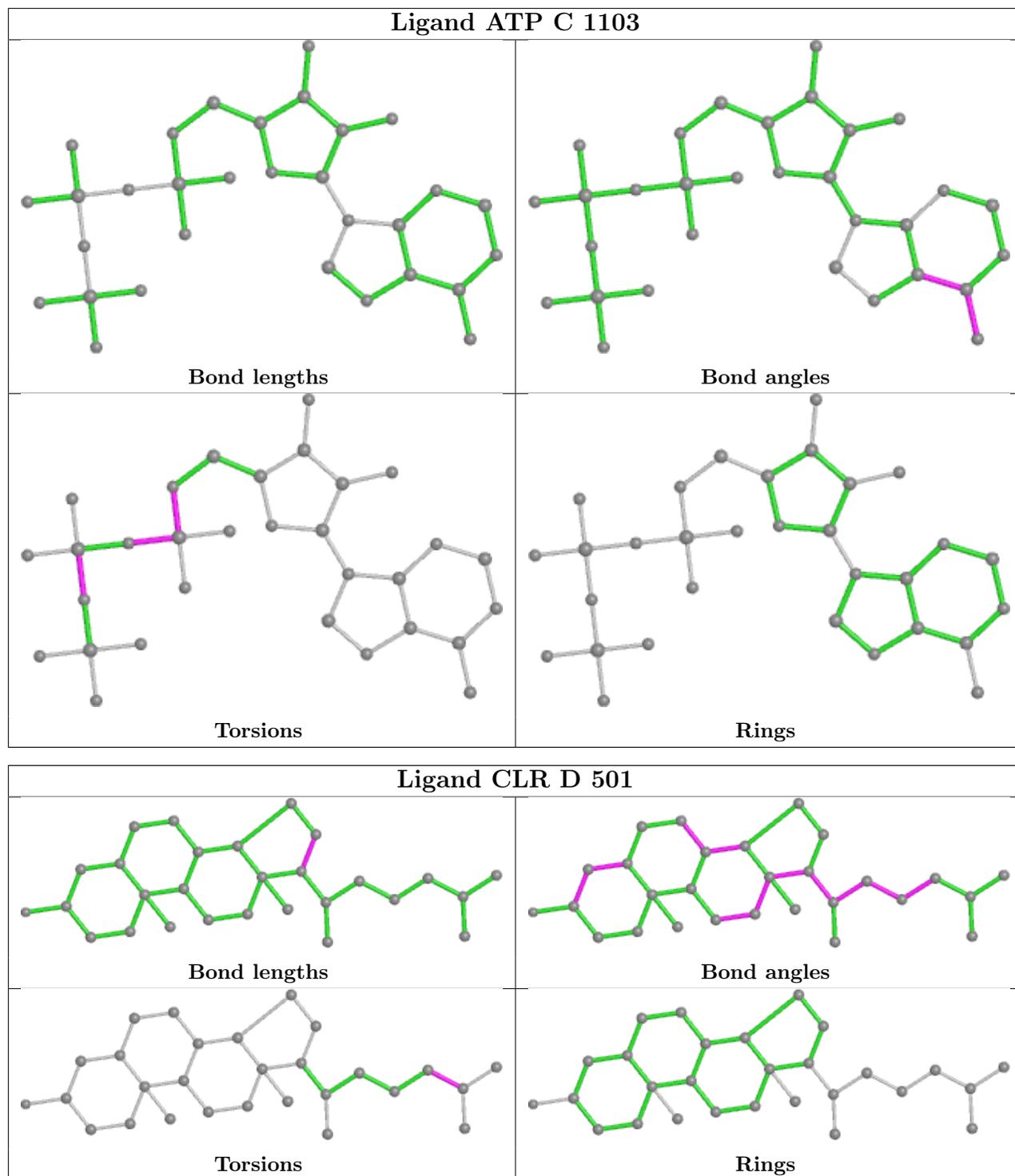


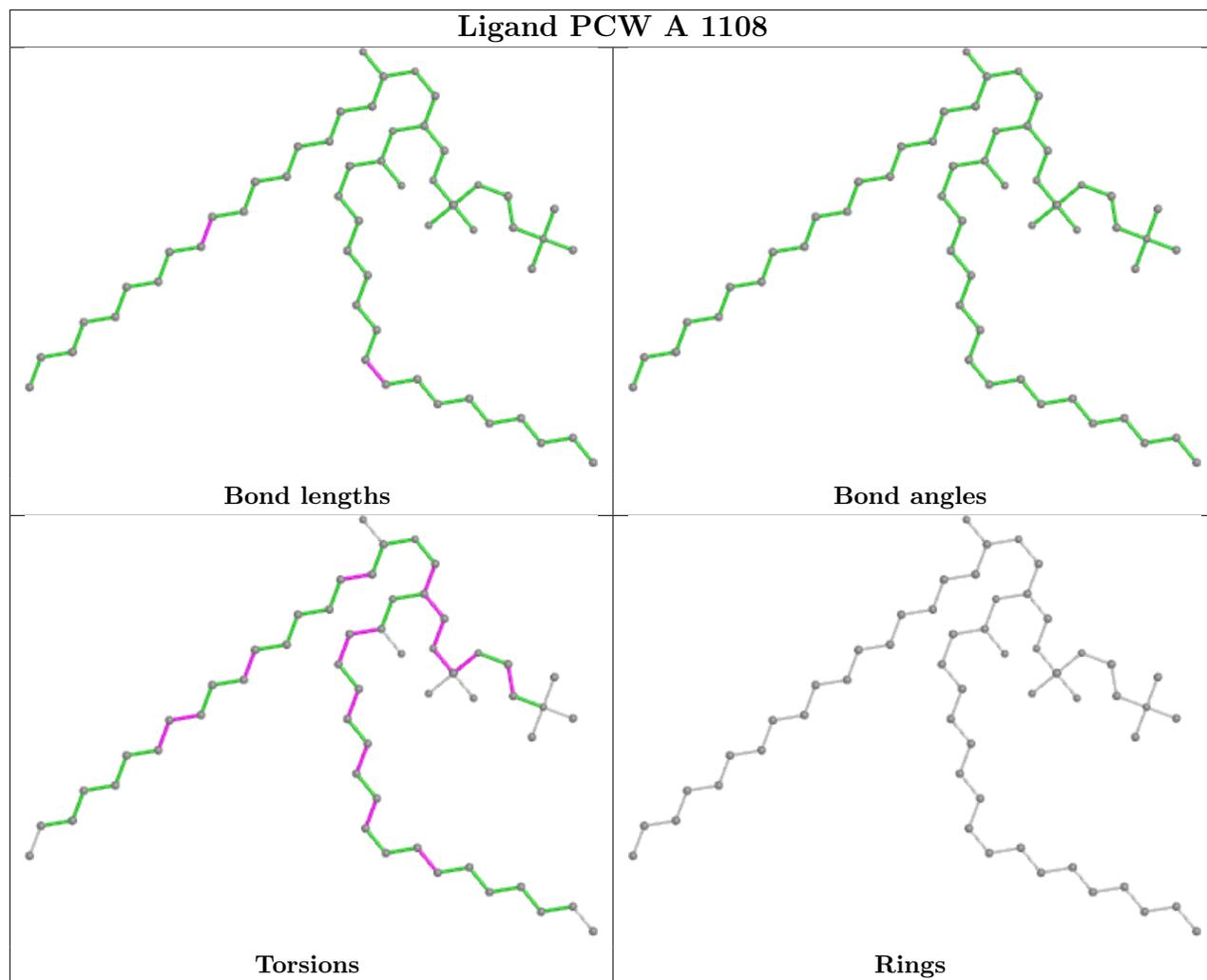


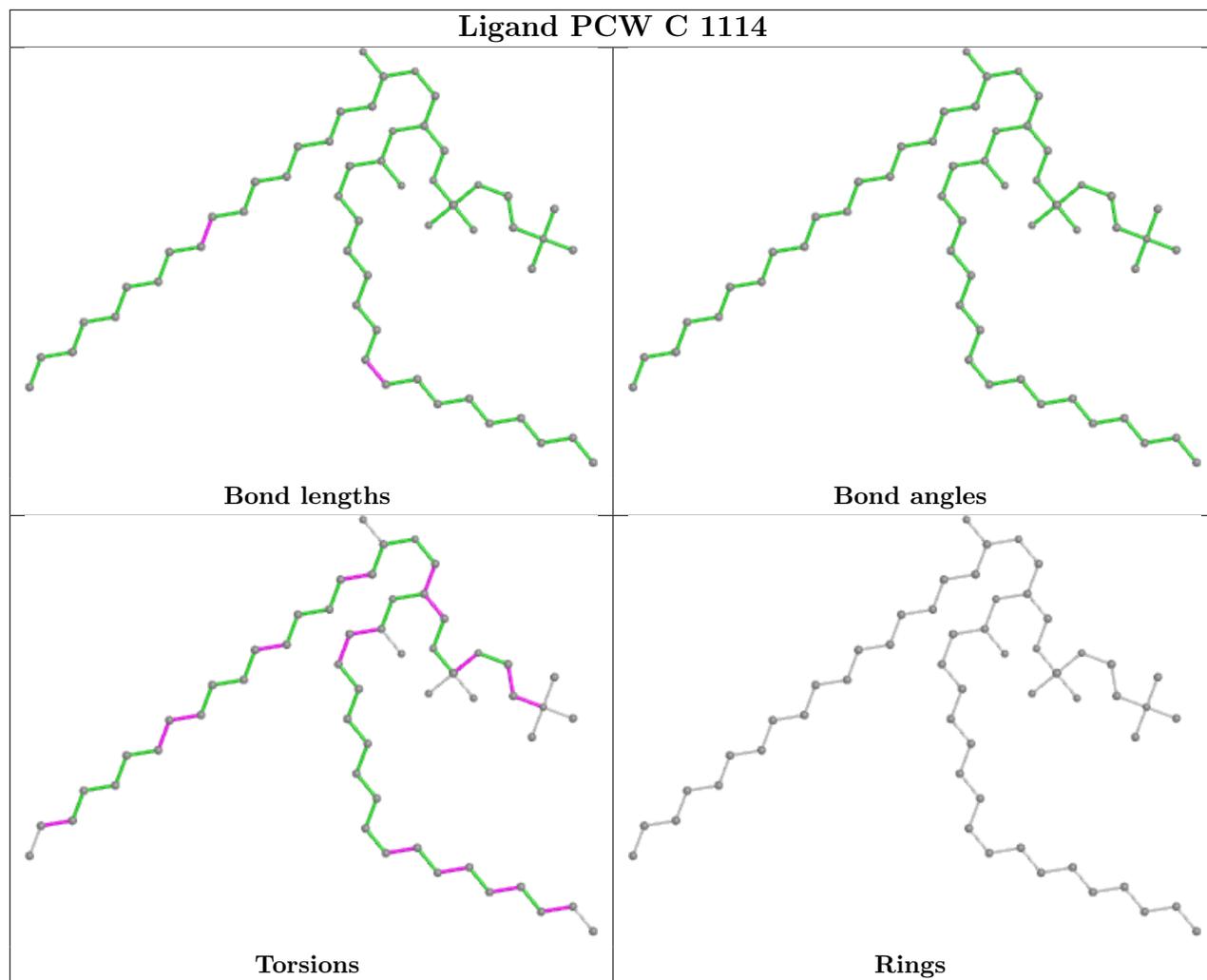


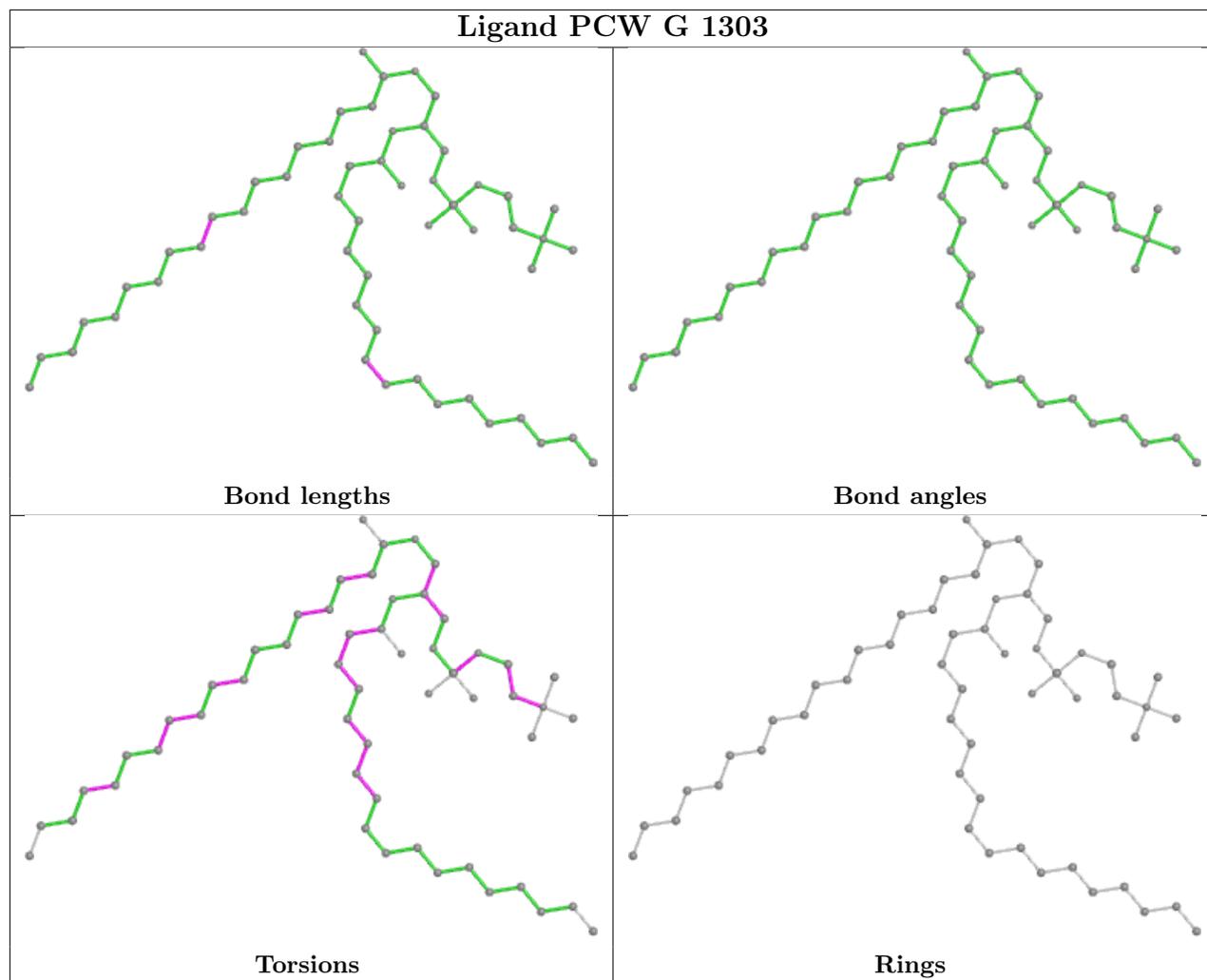


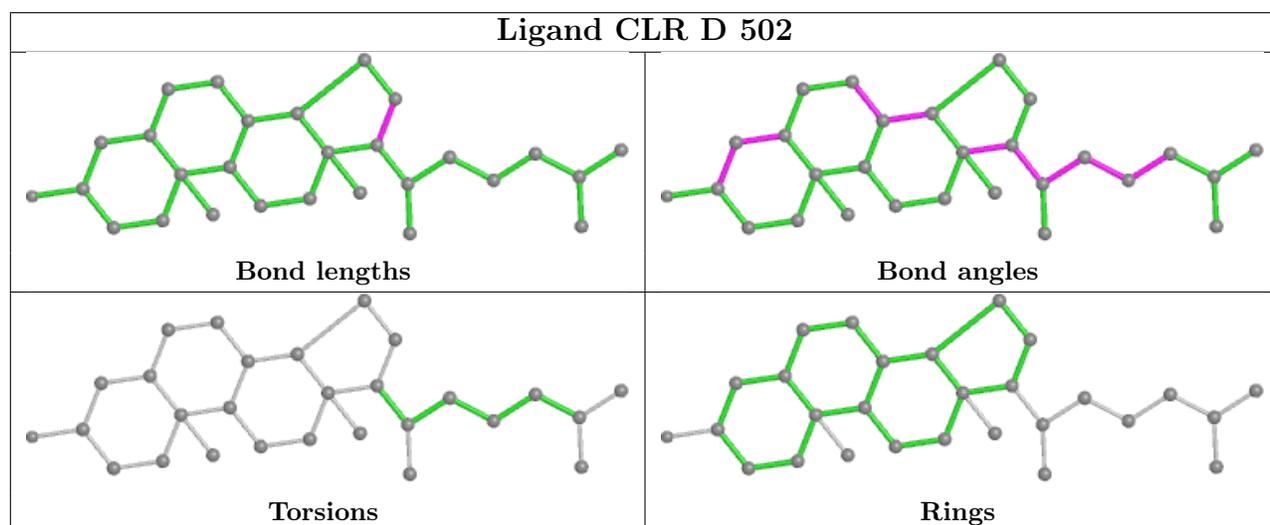
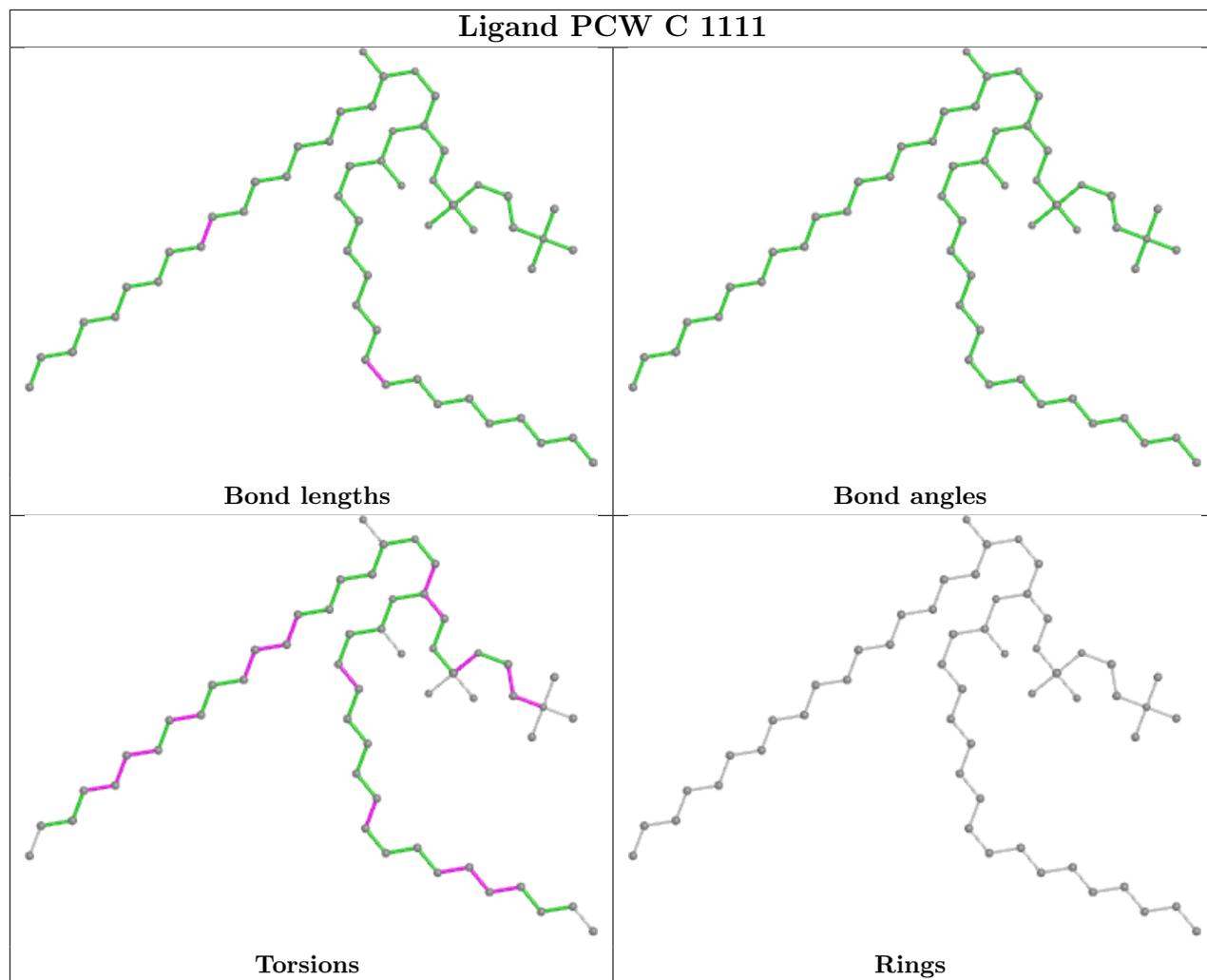


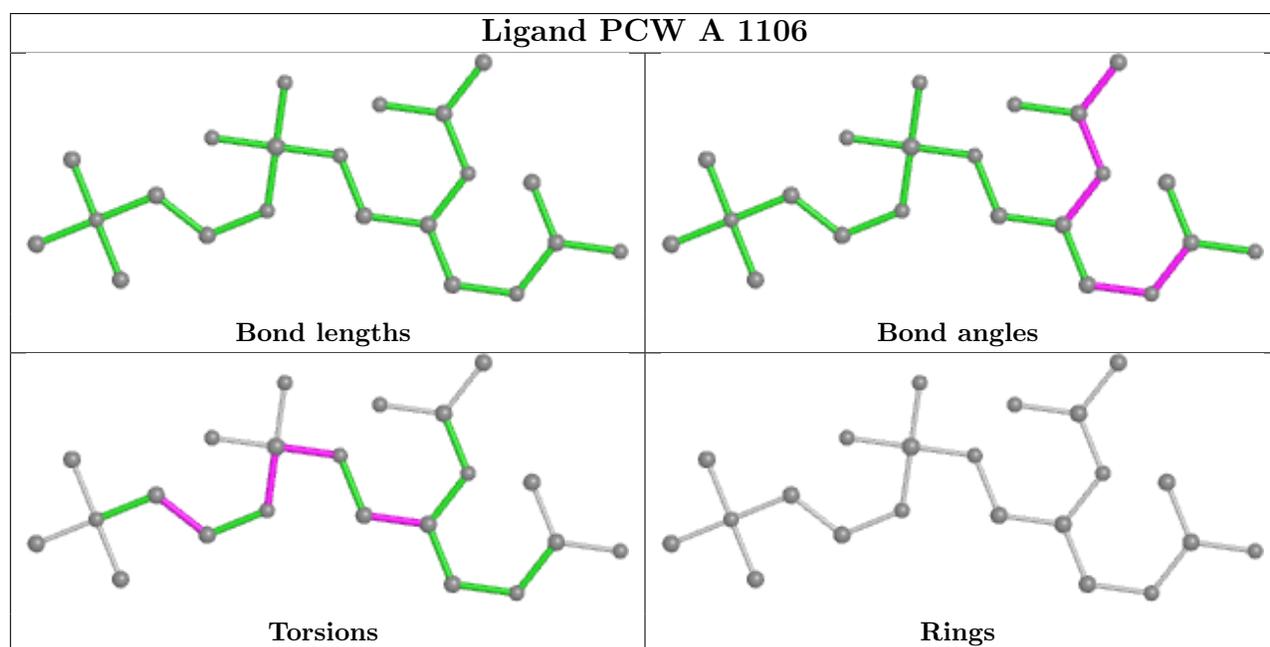
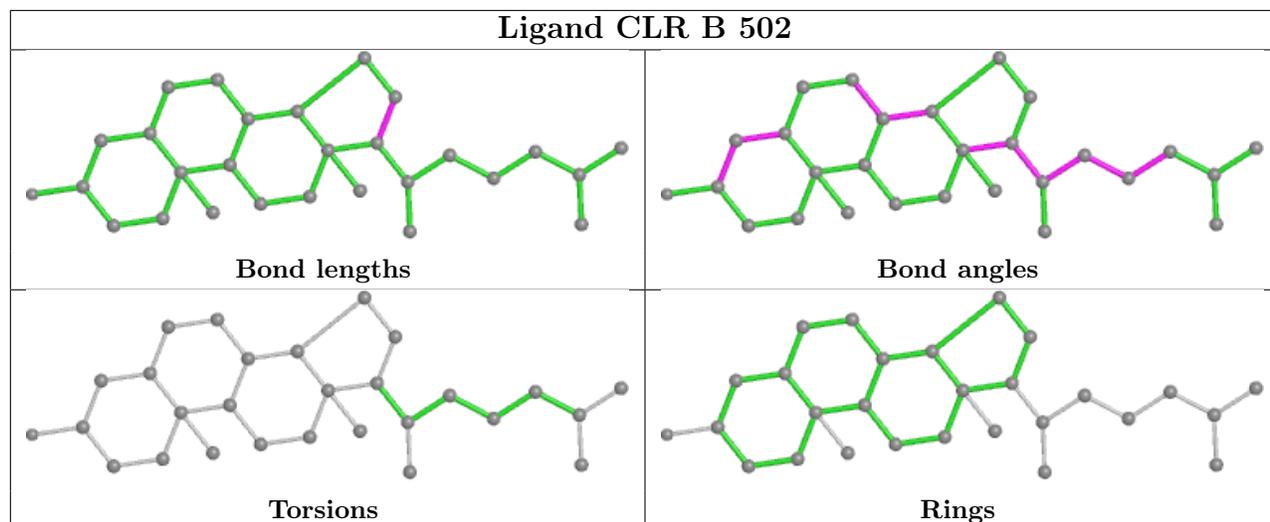


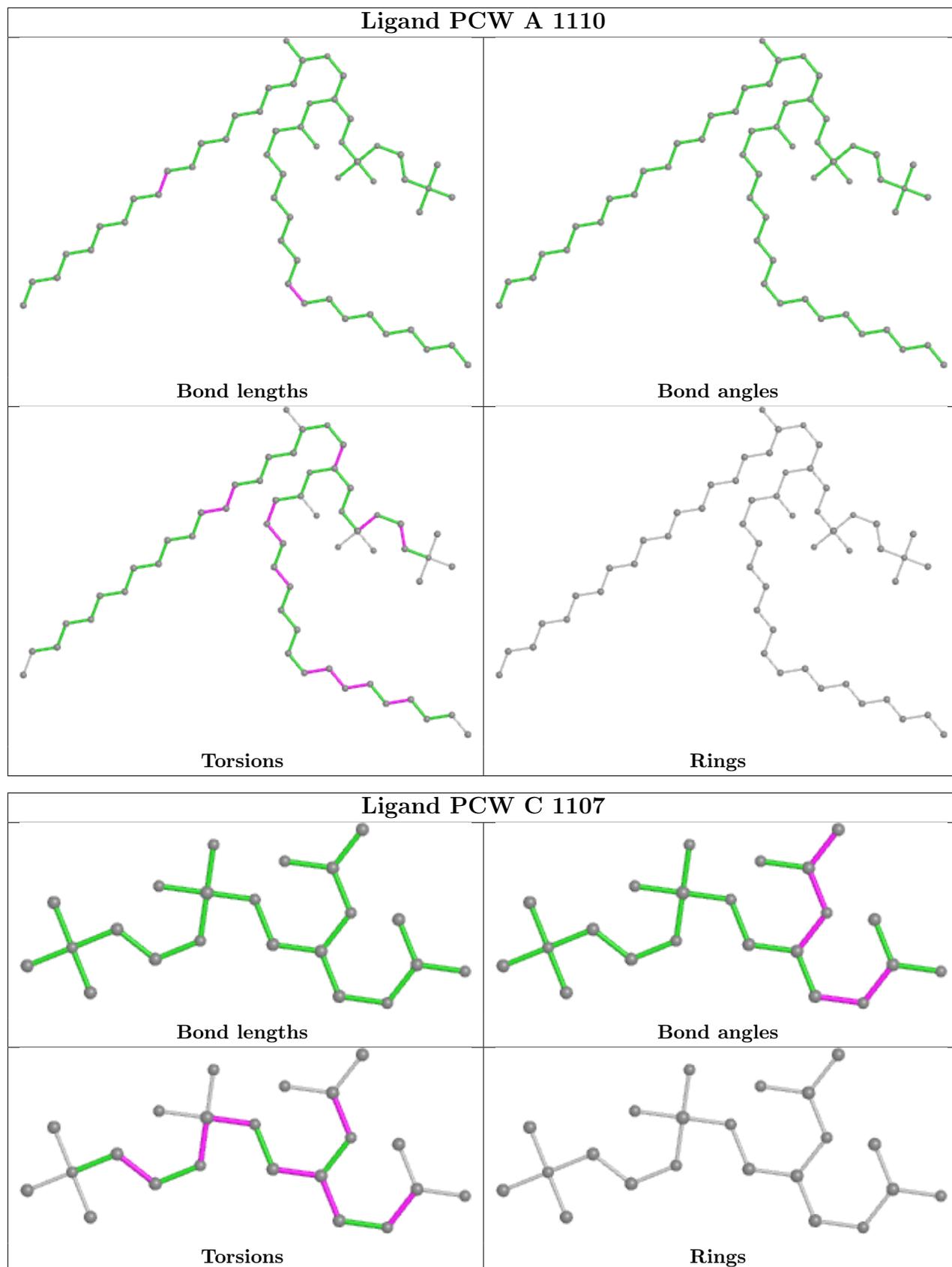


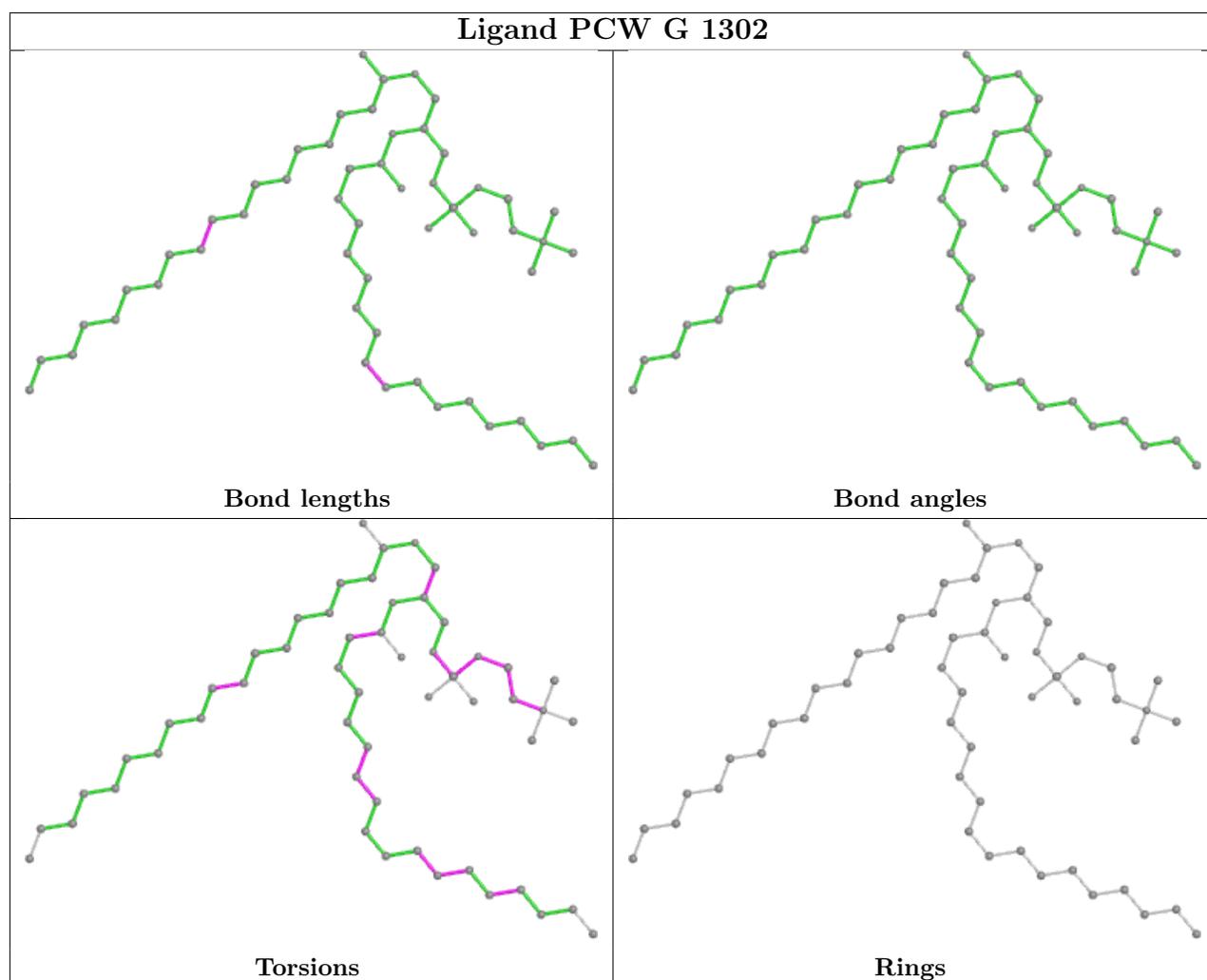
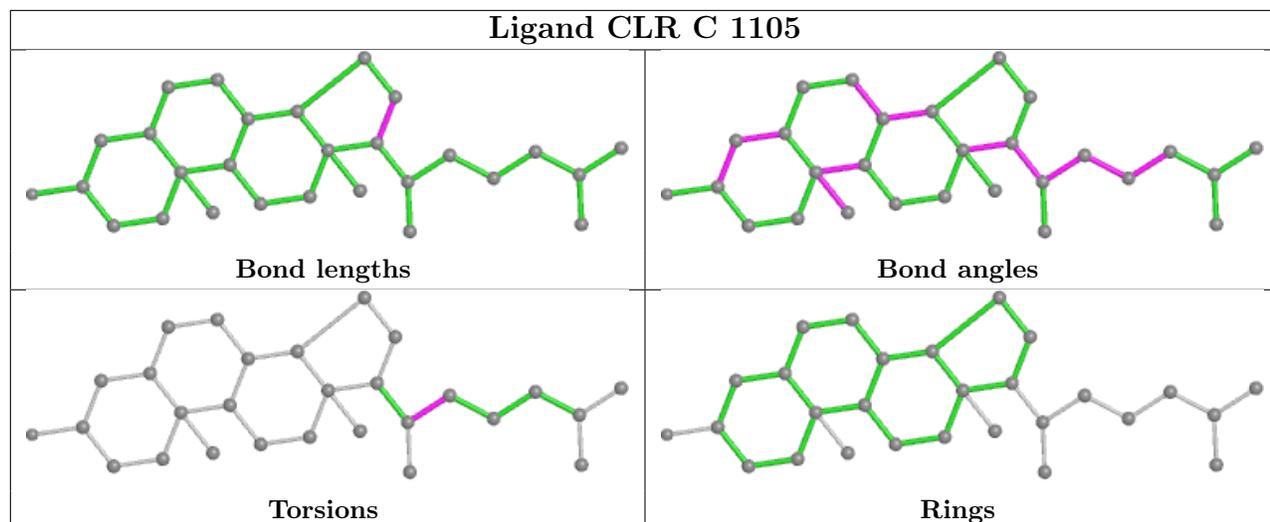


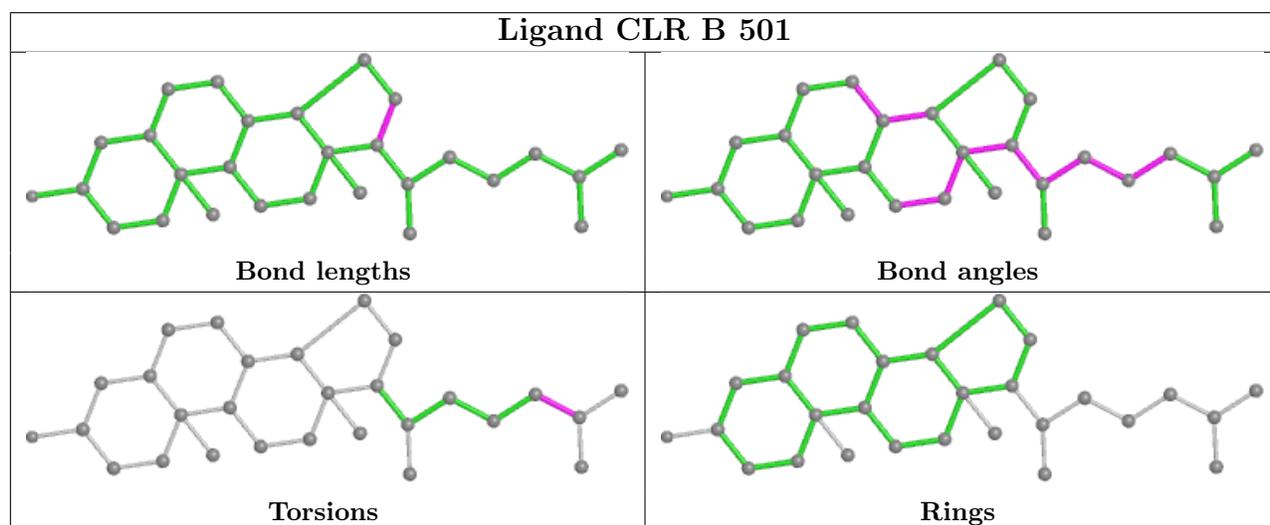
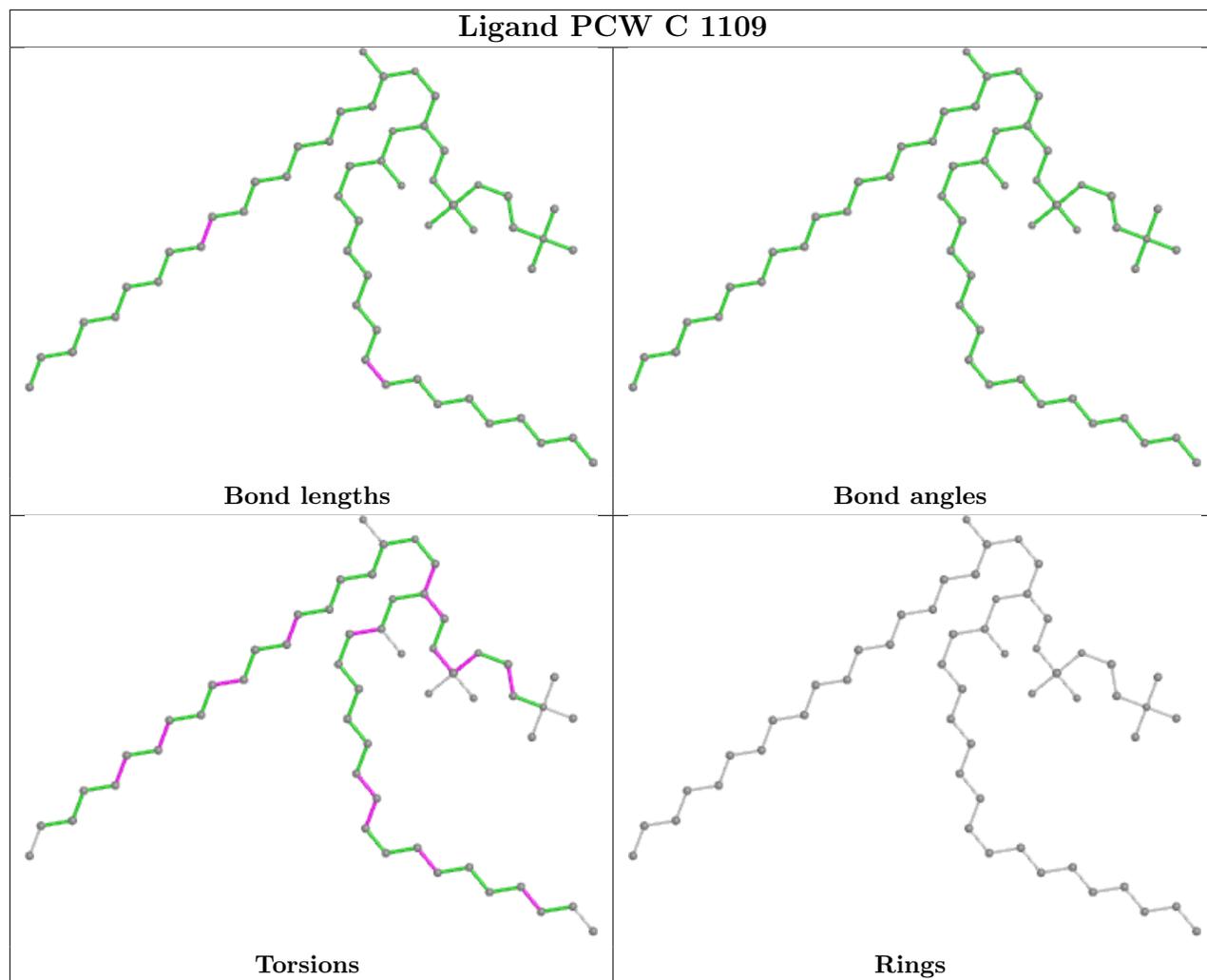


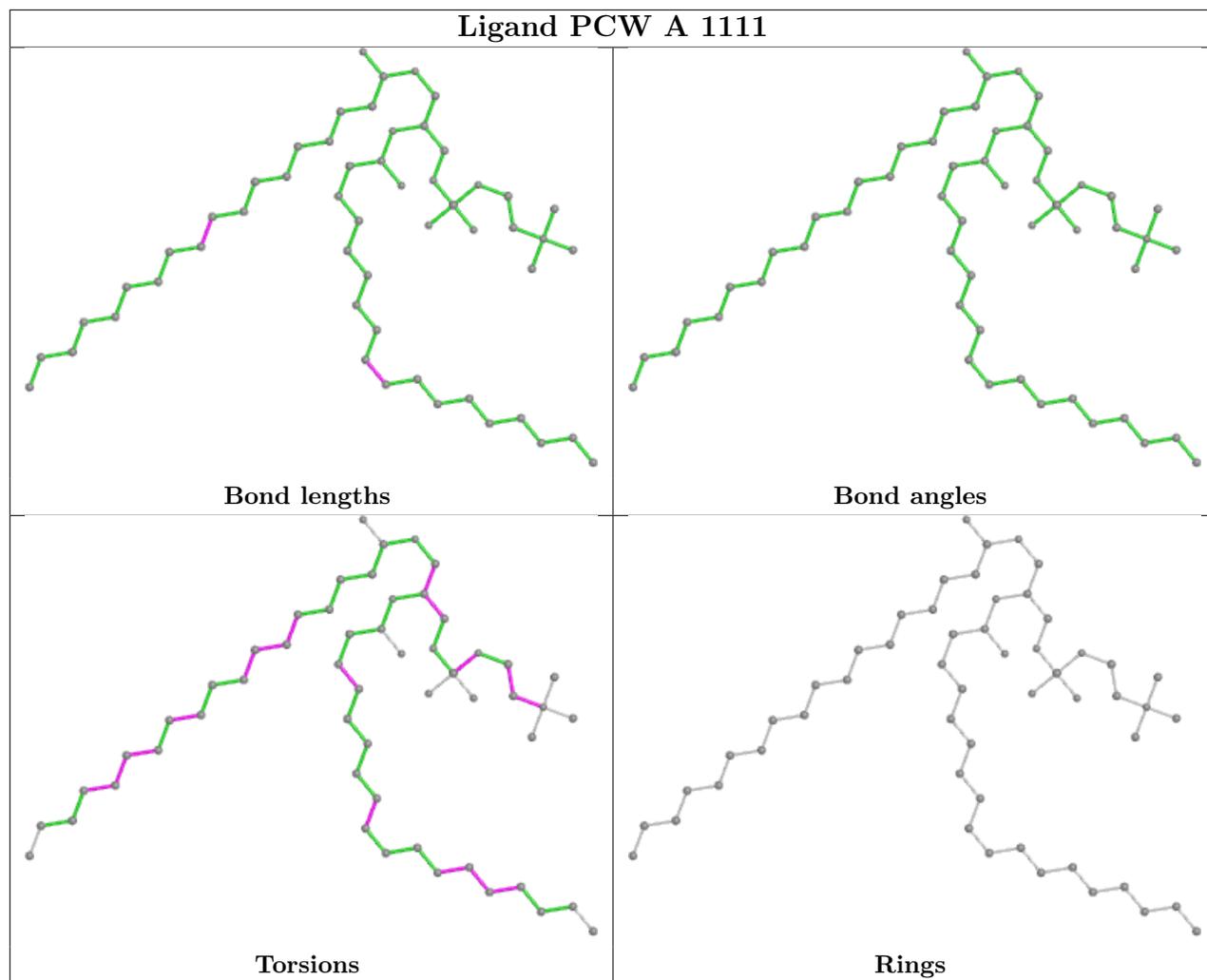


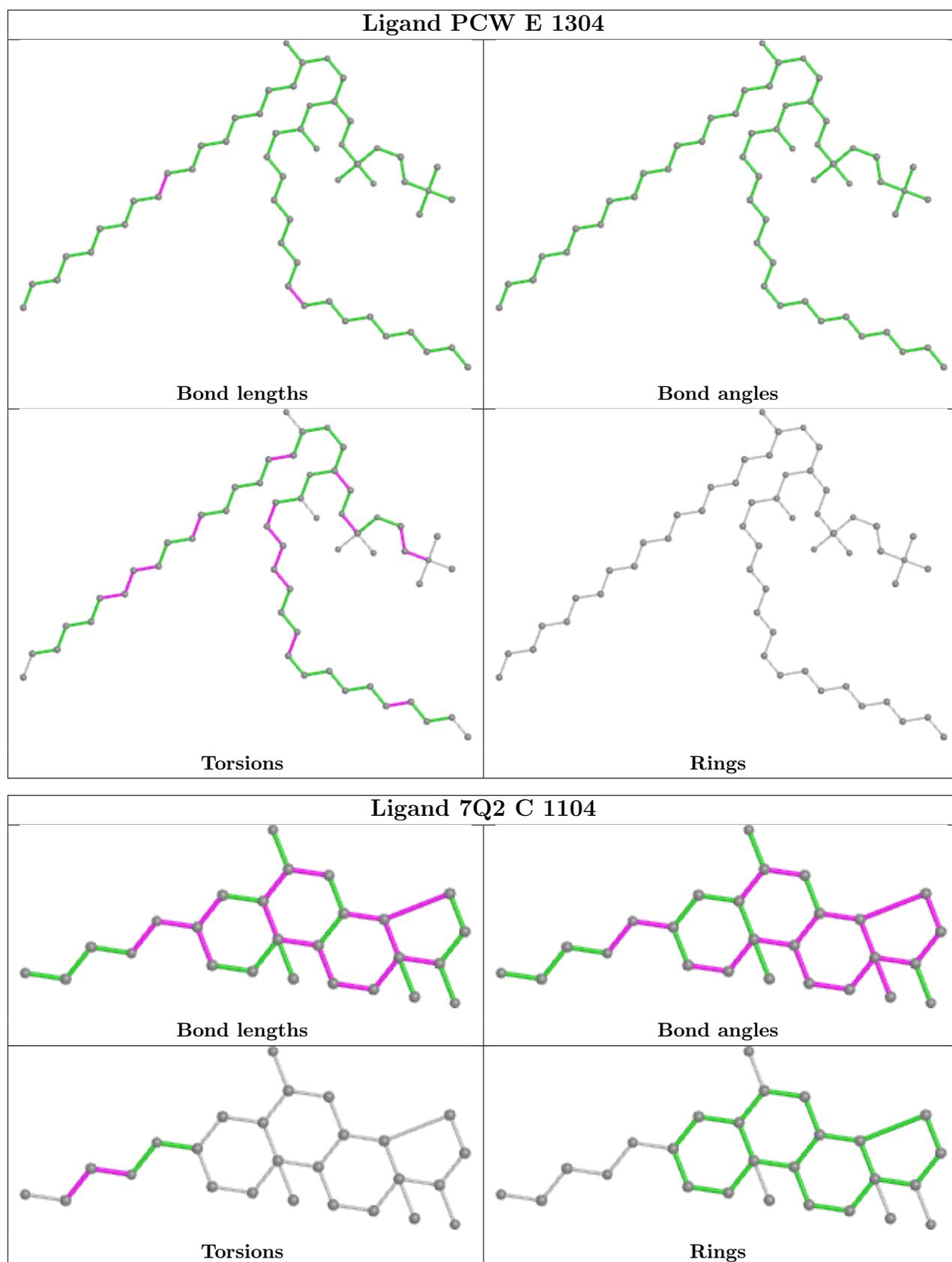


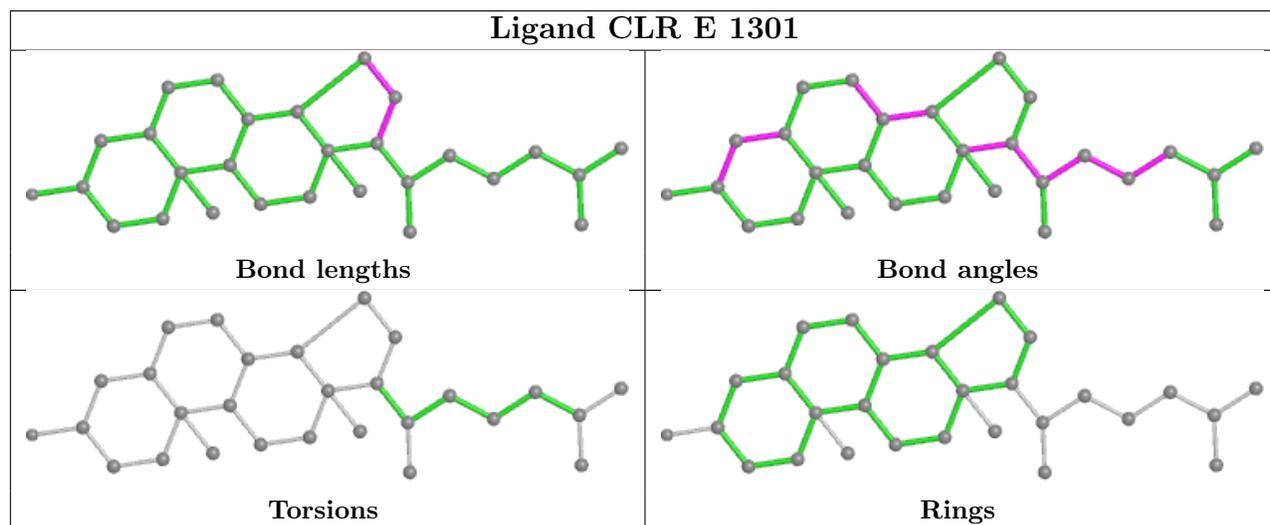
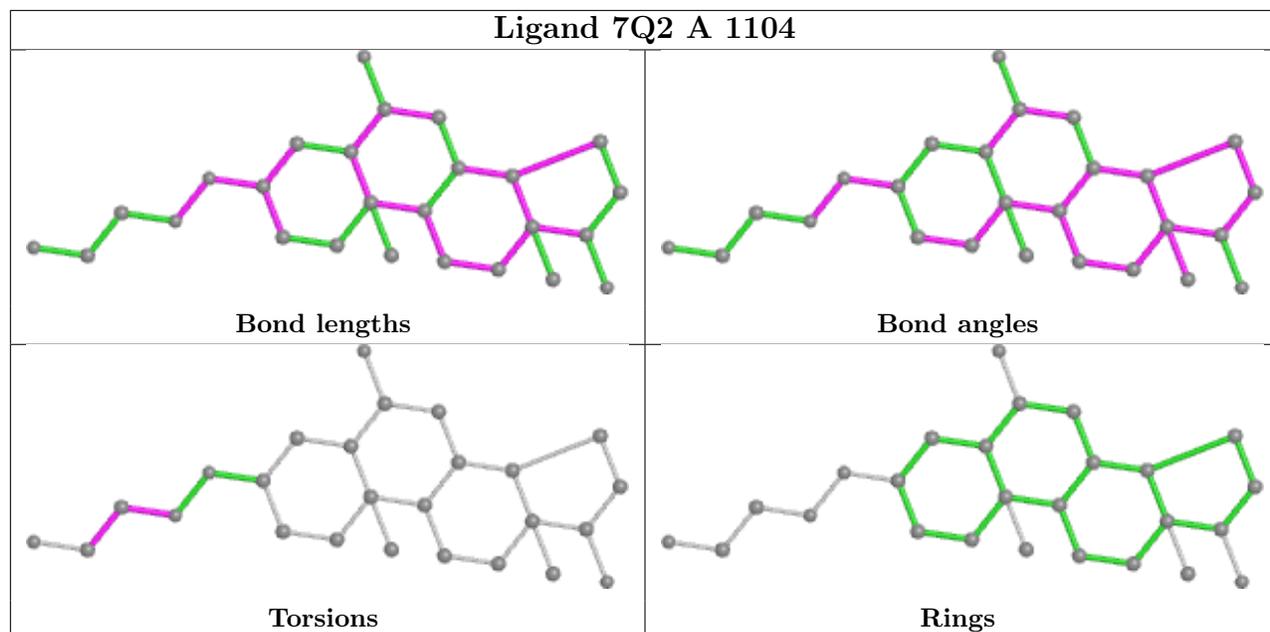


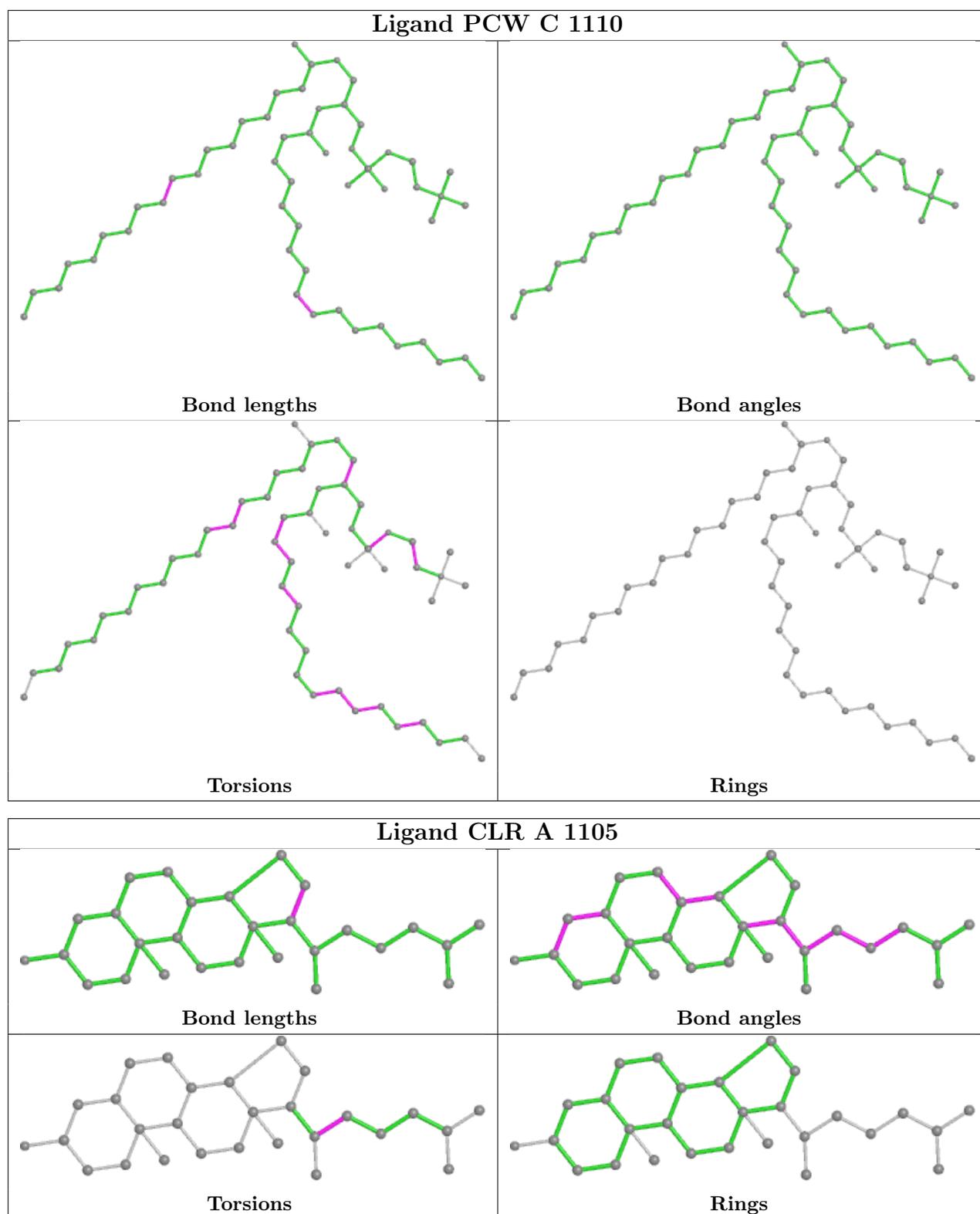


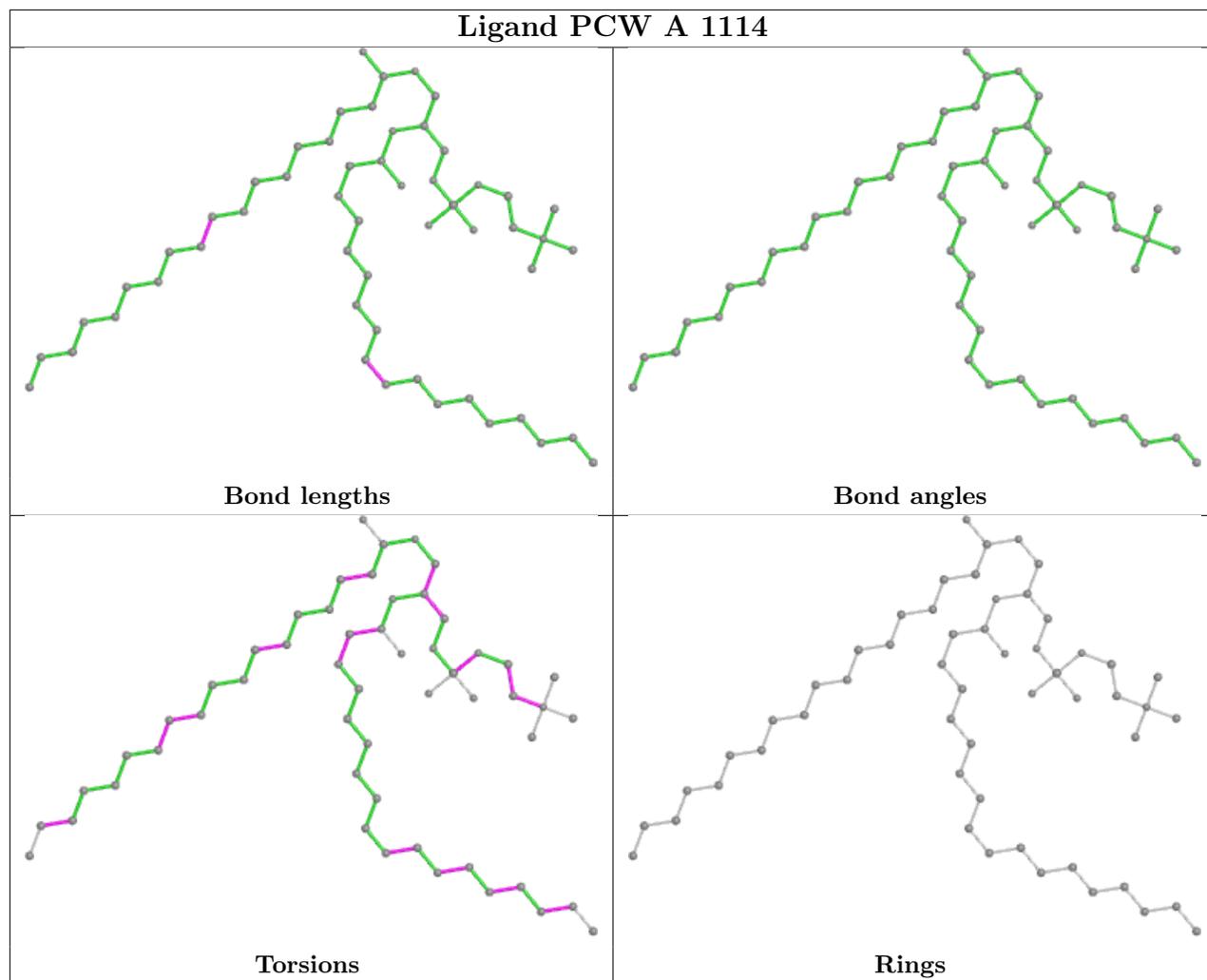


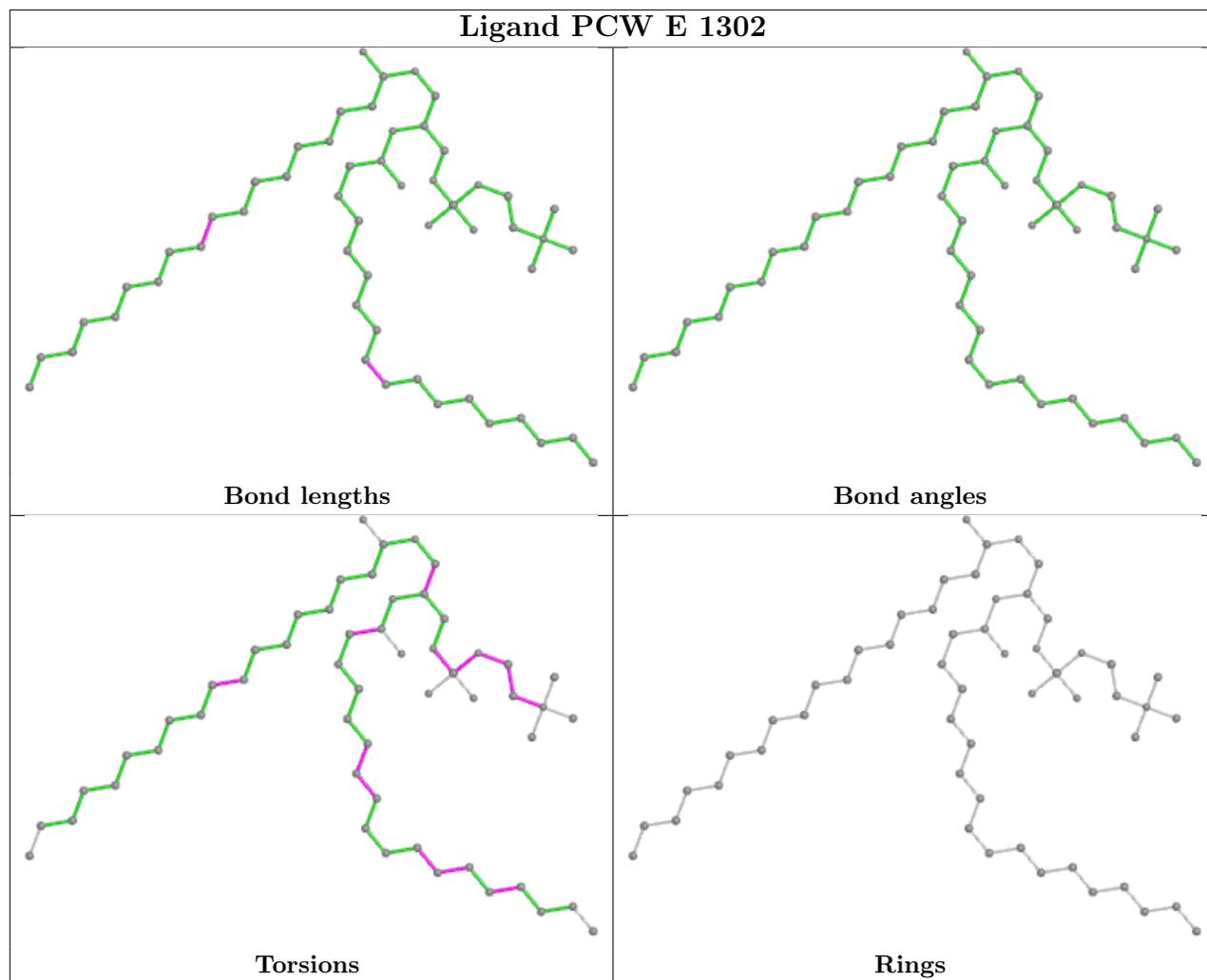


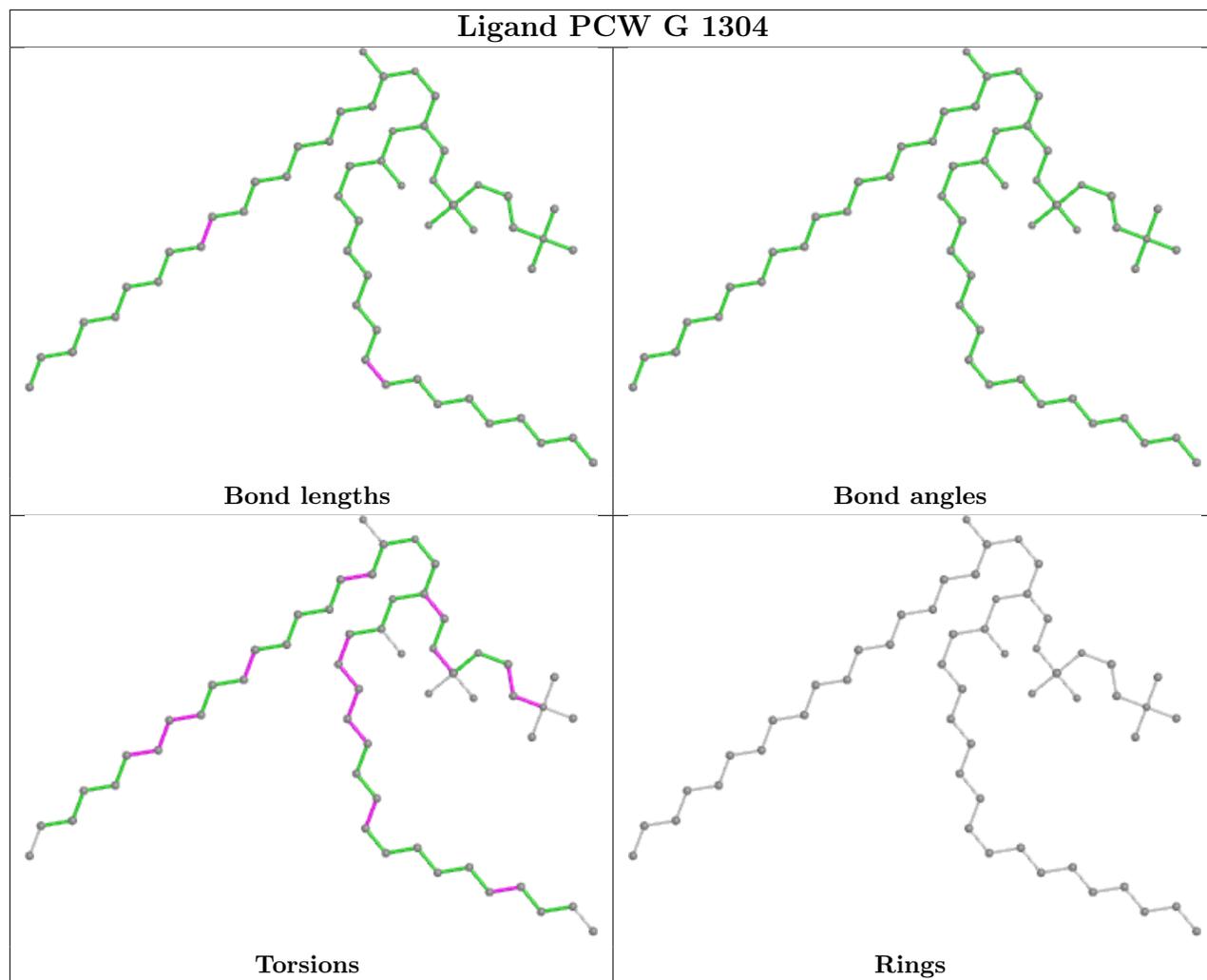


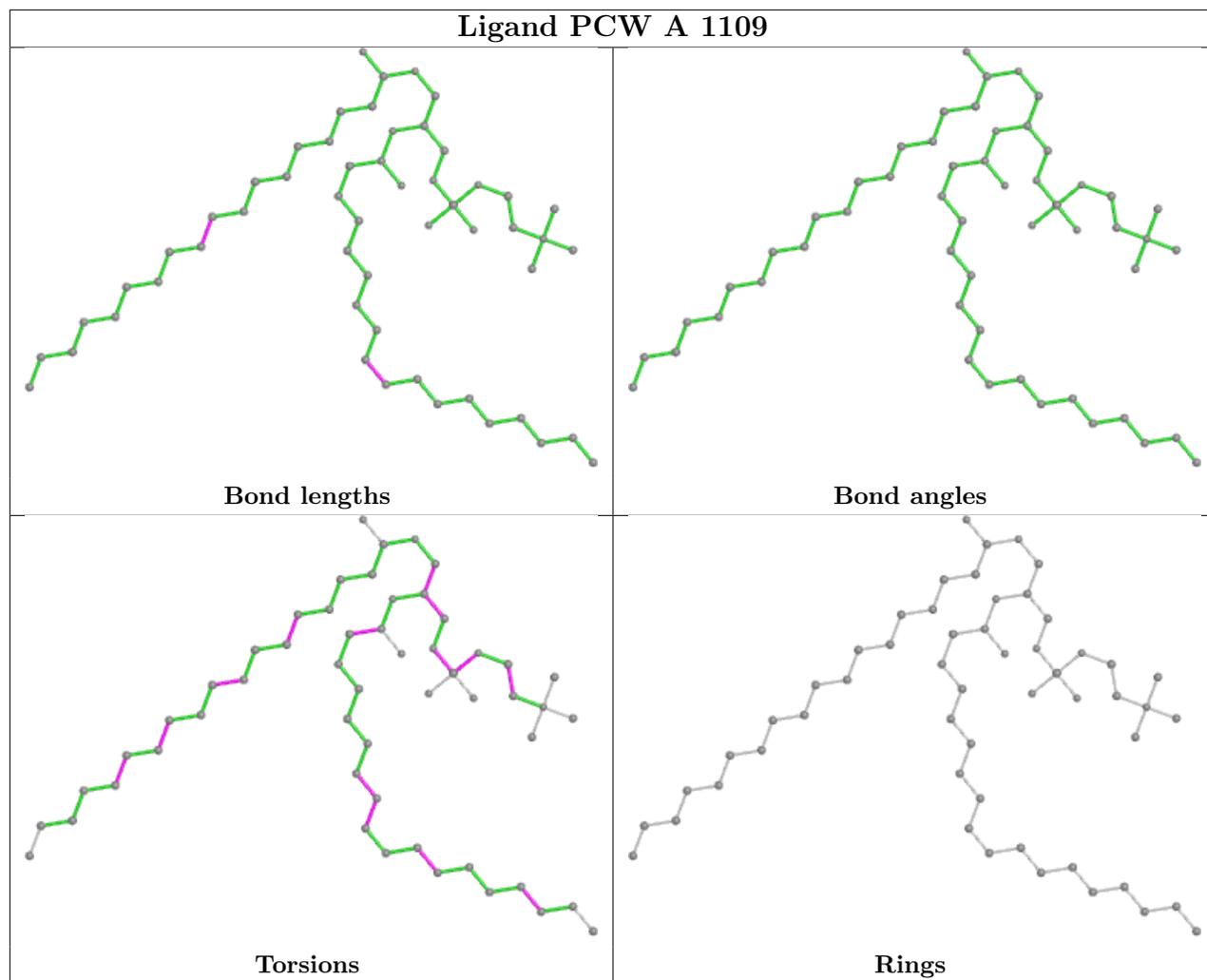


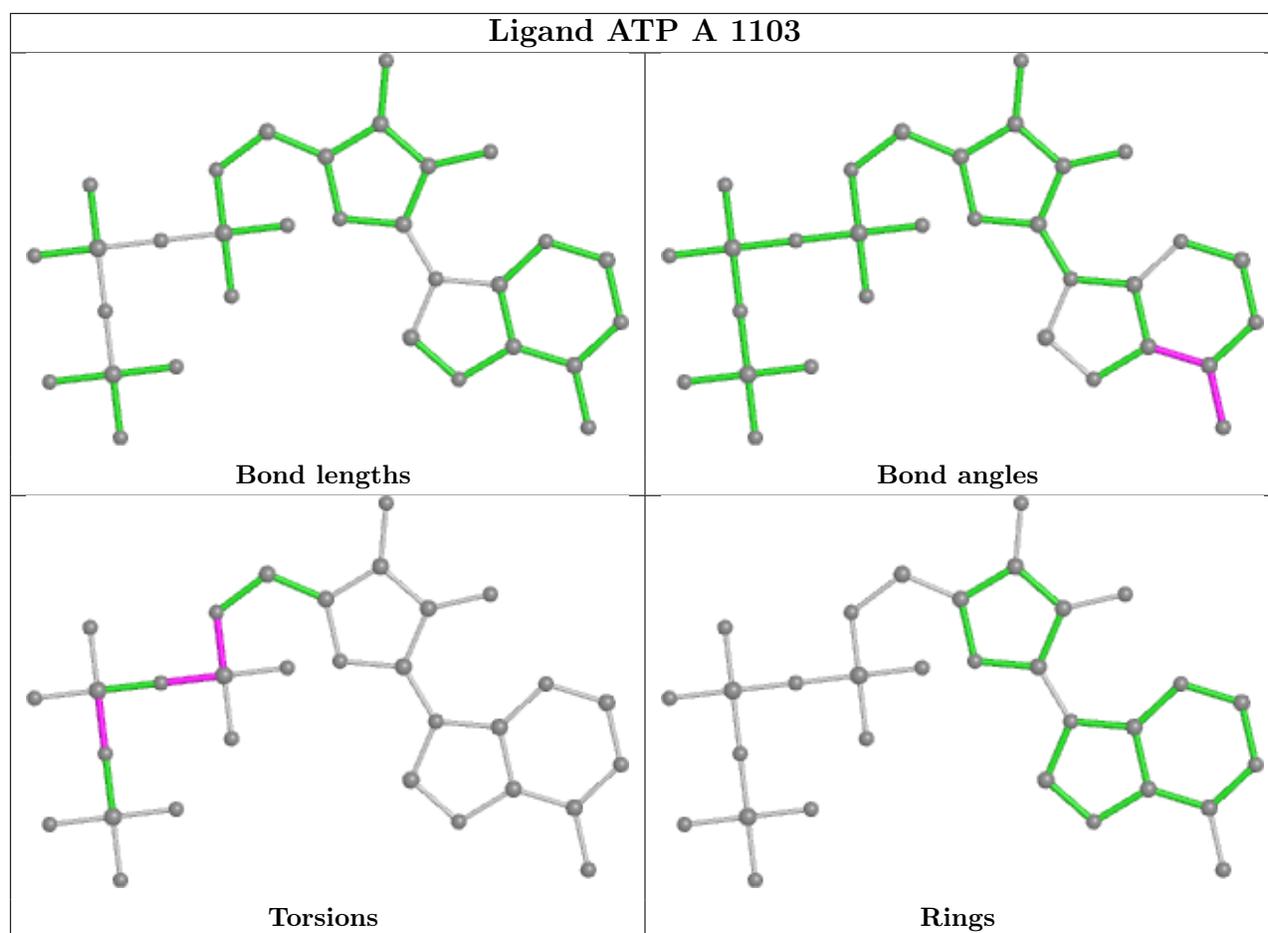












## 5.7 Other polymers [i](#)

There are no such residues in this entry.

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

There are no chain breaks in this entry.

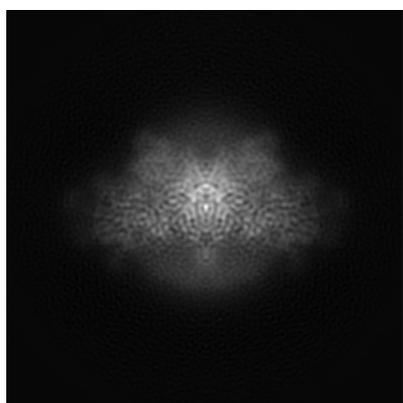
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-32897. These allow visual inspection of the internal detail of the map and identification of artifacts.

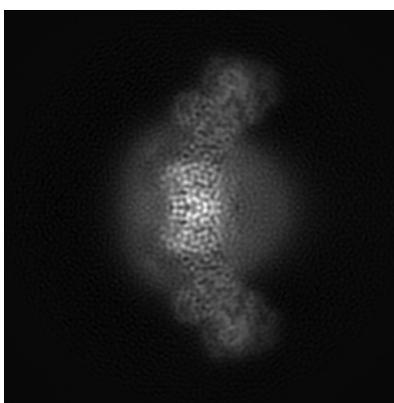
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

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

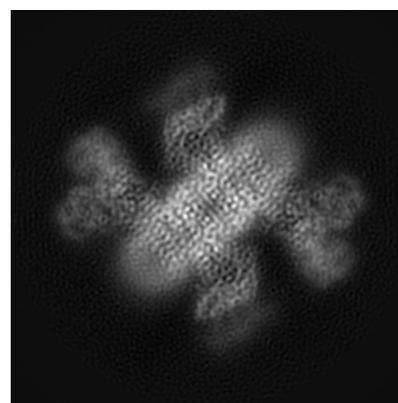
#### 6.1.1 Primary map



X



Y

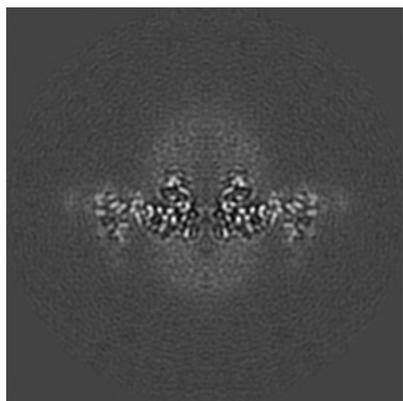


Z

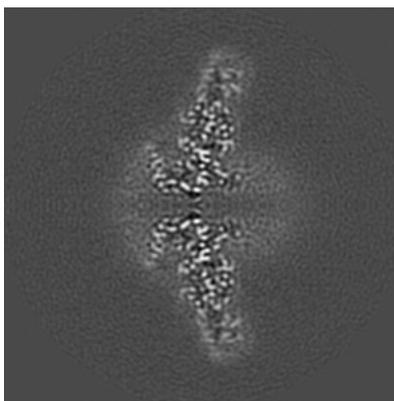
The images above show the map projected in three orthogonal directions.

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

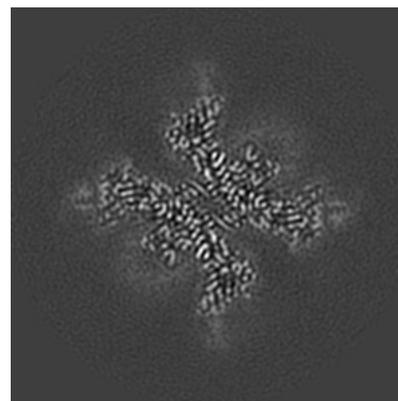
#### 6.2.1 Primary map



X Index: 120



Y Index: 120

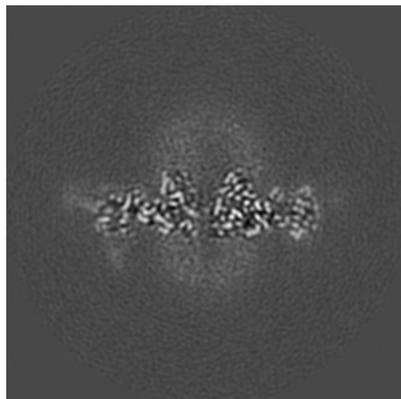


Z Index: 120

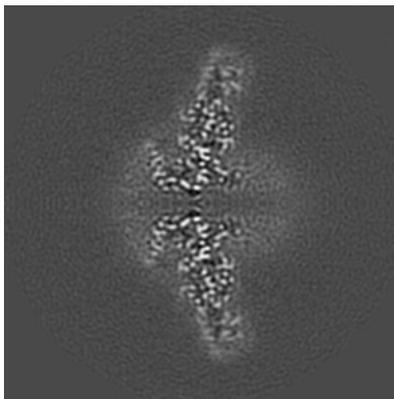
The images above show central slices of the map in three orthogonal directions.

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

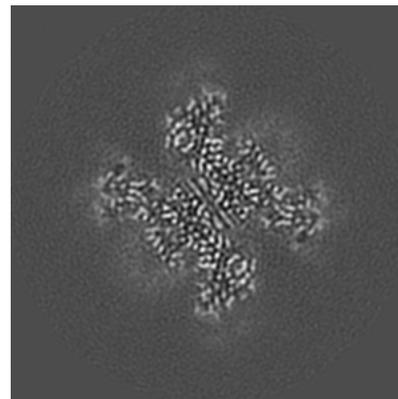
### 6.3.1 Primary map



X Index: 123



Y Index: 120

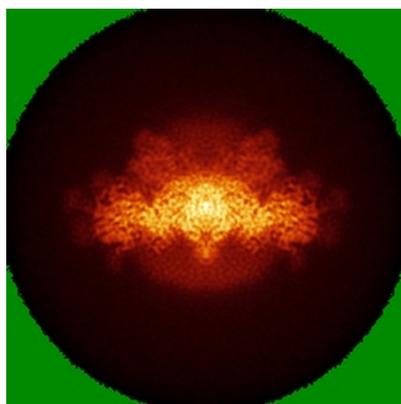


Z Index: 116

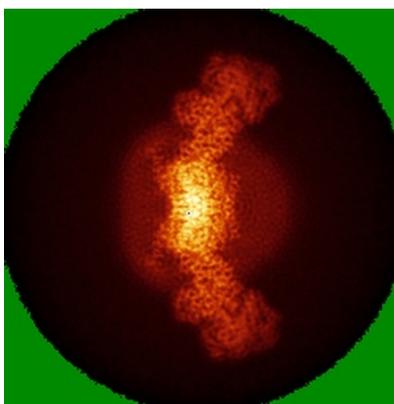
The images above show the largest variance slices of the map in three orthogonal directions.

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

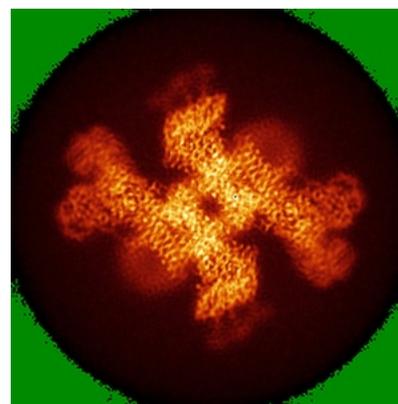
### 6.4.1 Primary map



X



Y

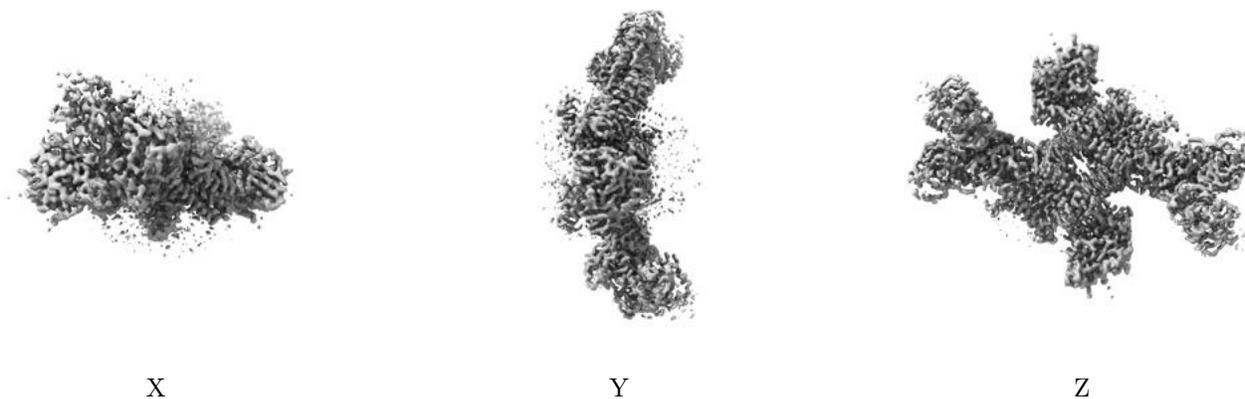


Z

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



The images above show the 3D surface view of the map at the recommended contour level 0.019. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

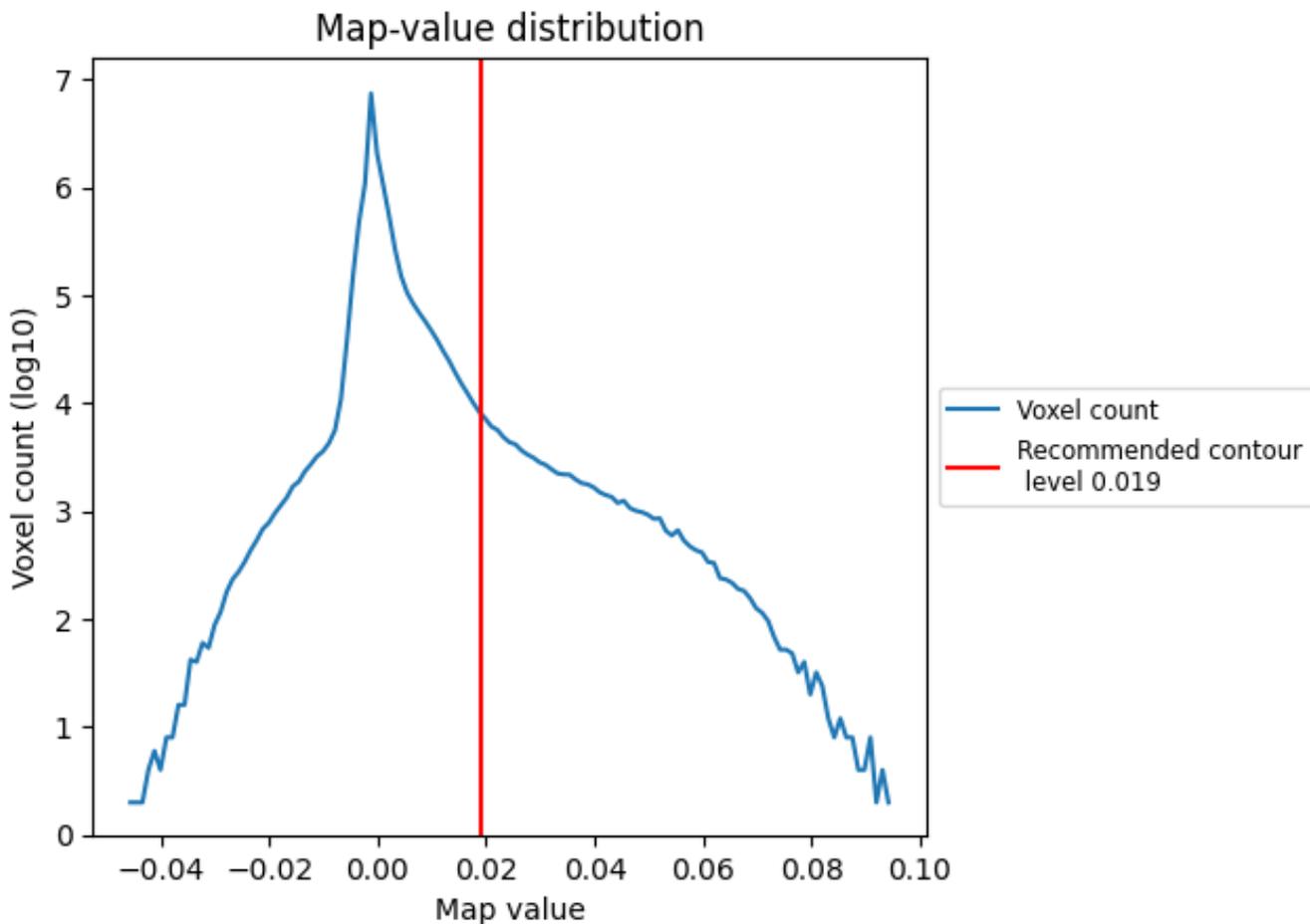
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

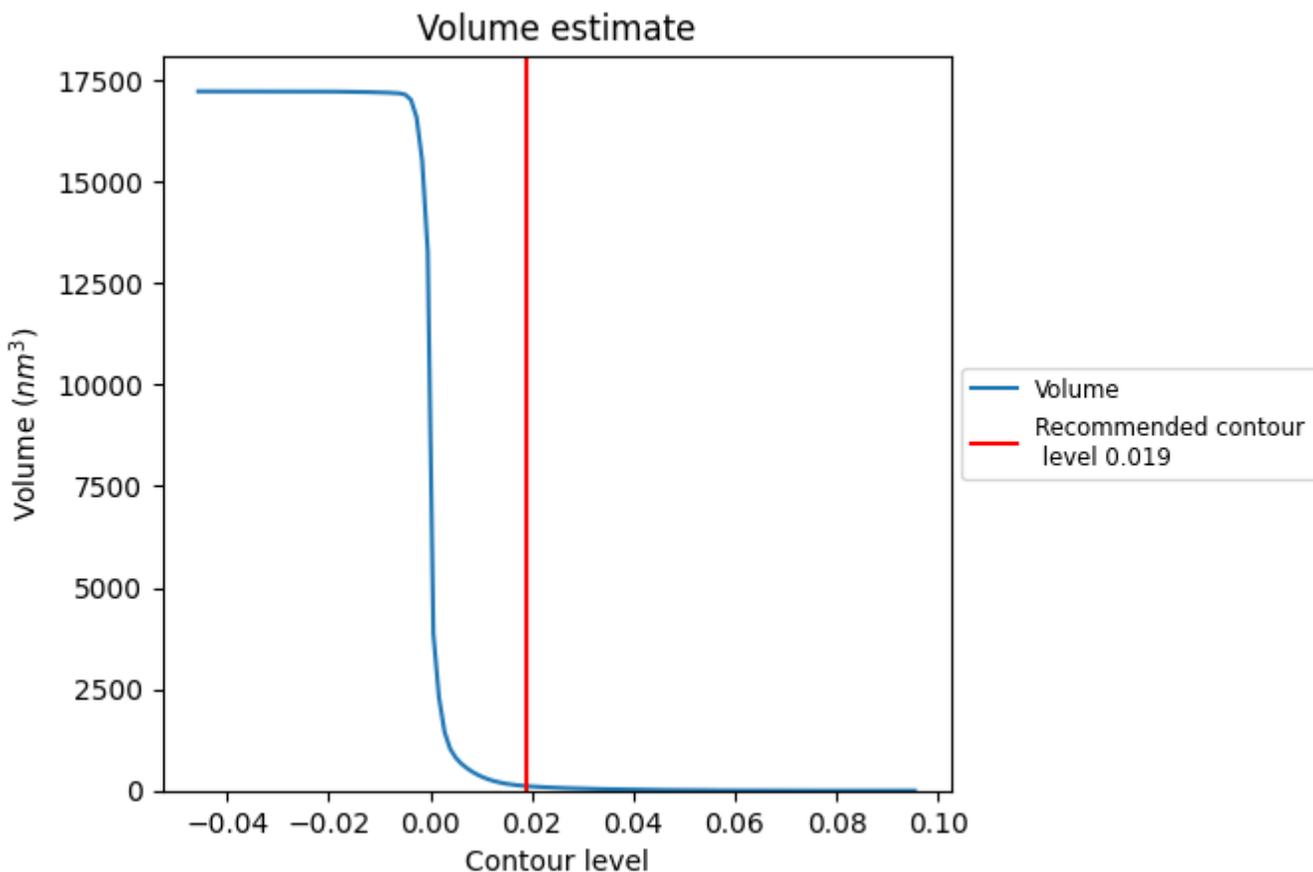
This section contains the results of statistical analysis of the map.

### 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.

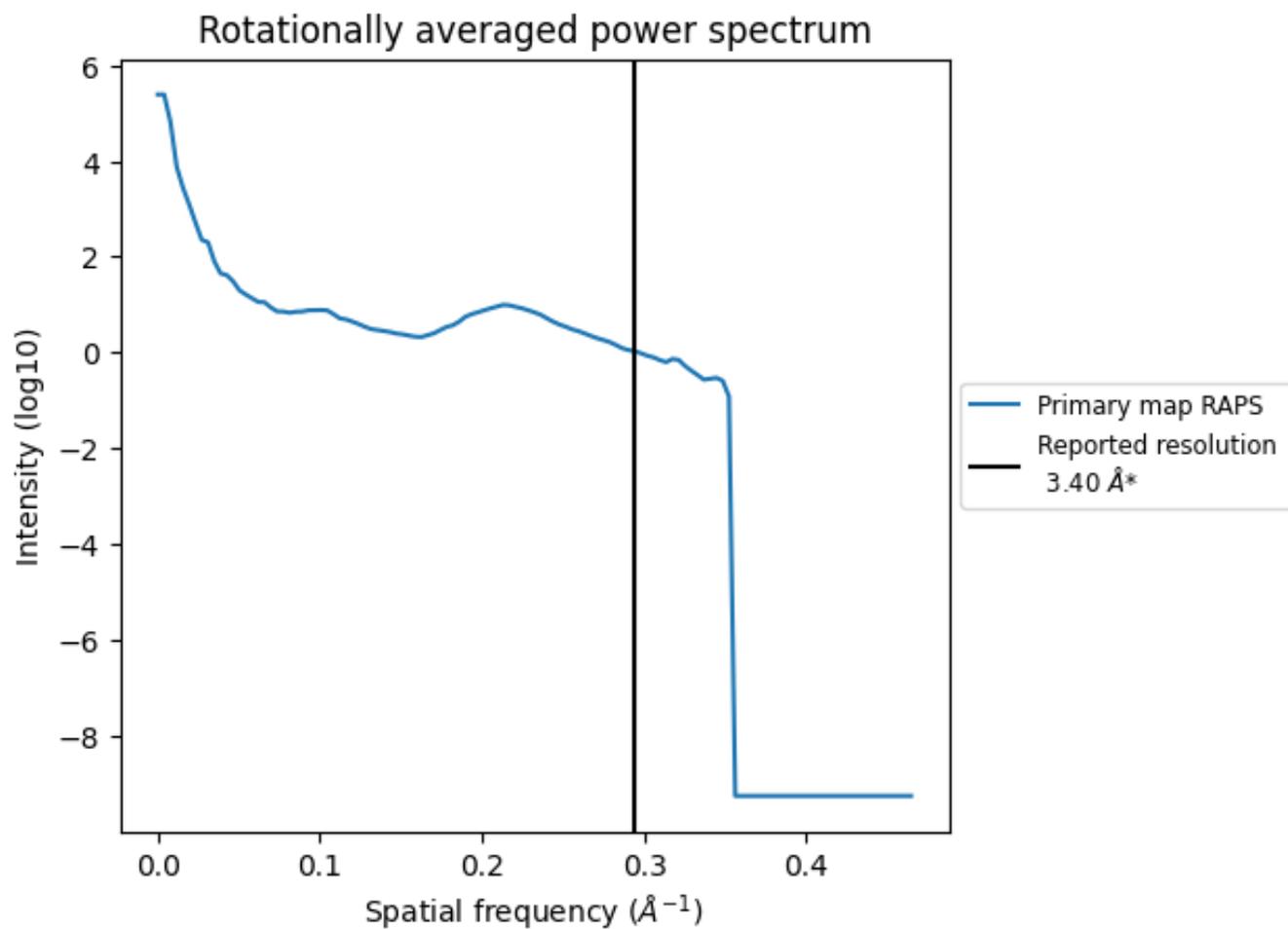
## 7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 111 nm<sup>3</sup>; this corresponds to an approximate mass of 101 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 i

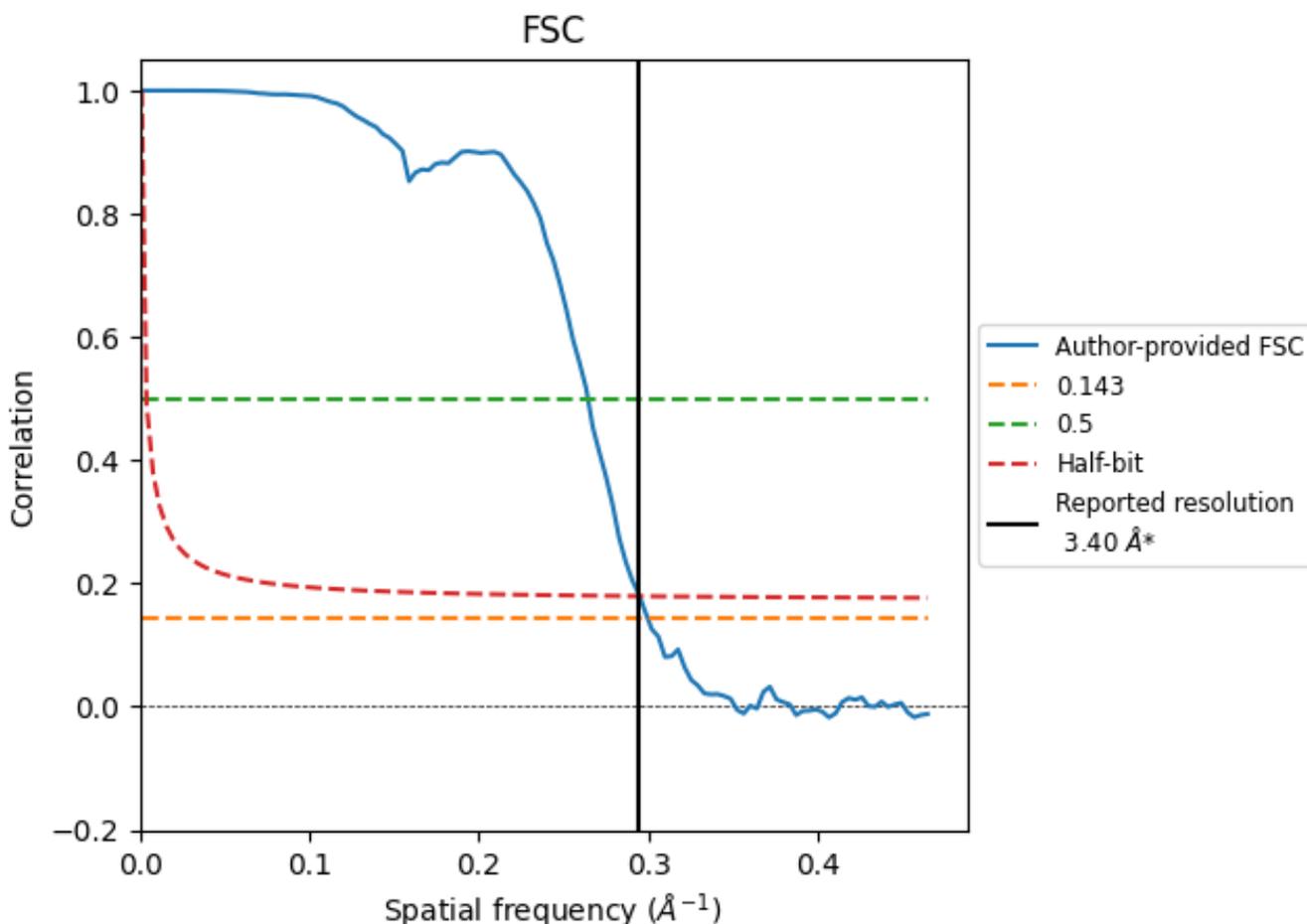


\*Reported resolution corresponds to spatial frequency of 0.294 Å<sup>-1</sup>

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

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

### 8.1 FSC [i](#)



\*Reported resolution corresponds to spatial frequency of 0.294  $\text{\AA}^{-1}$

## 8.2 Resolution estimates [i](#)

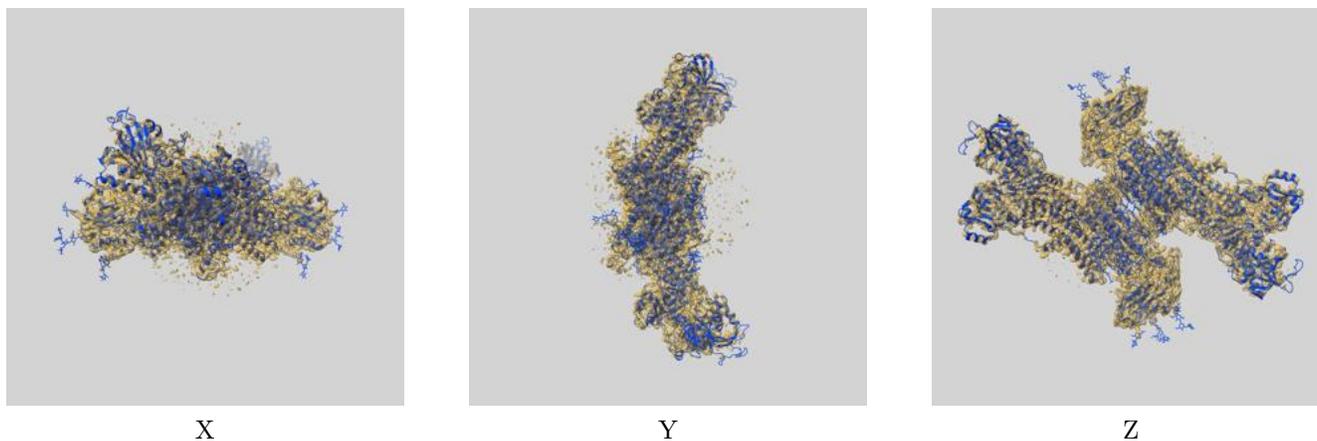
| Resolution estimate (Å)   | Estimation criterion (FSC cut-off) |      |          |
|---------------------------|------------------------------------|------|----------|
|                           | 0.143                              | 0.5  | Half-bit |
| Reported by author        | 3.40                               | -    | -        |
| Author-provided FSC curve | 3.34                               | 3.78 | 3.39     |
| Unmasked-calculated*      | -                                  | -    | -        |

\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

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

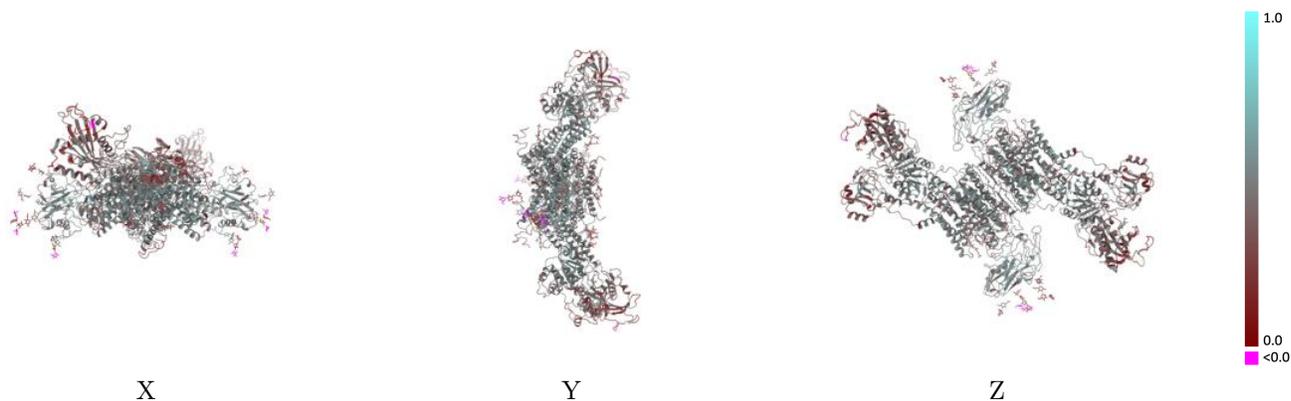
This section contains information regarding the fit between EMDB map EMD-32897 and PDB model 7WYX. Per-residue inclusion information can be found in section 3 on page 11.

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



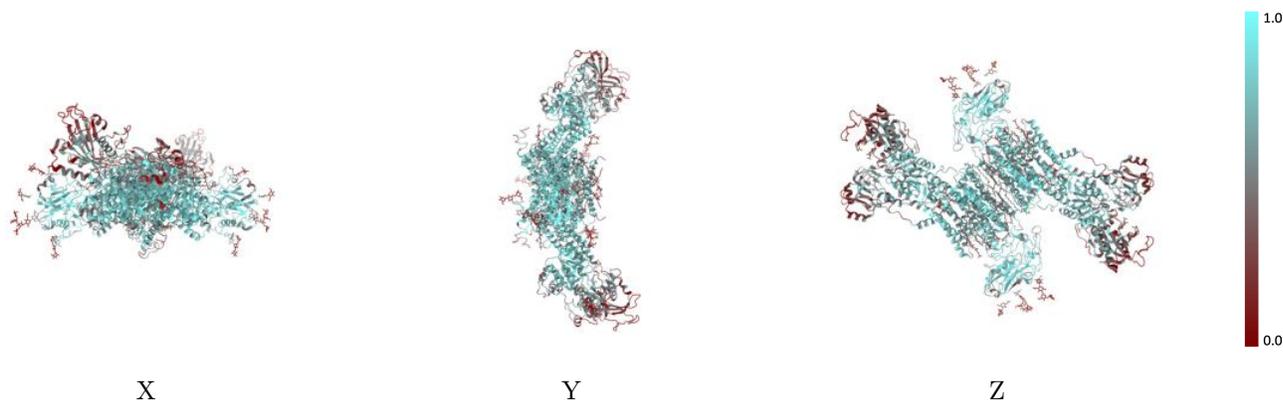
The images above show the 3D surface view of the map at the recommended contour level 0.019 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



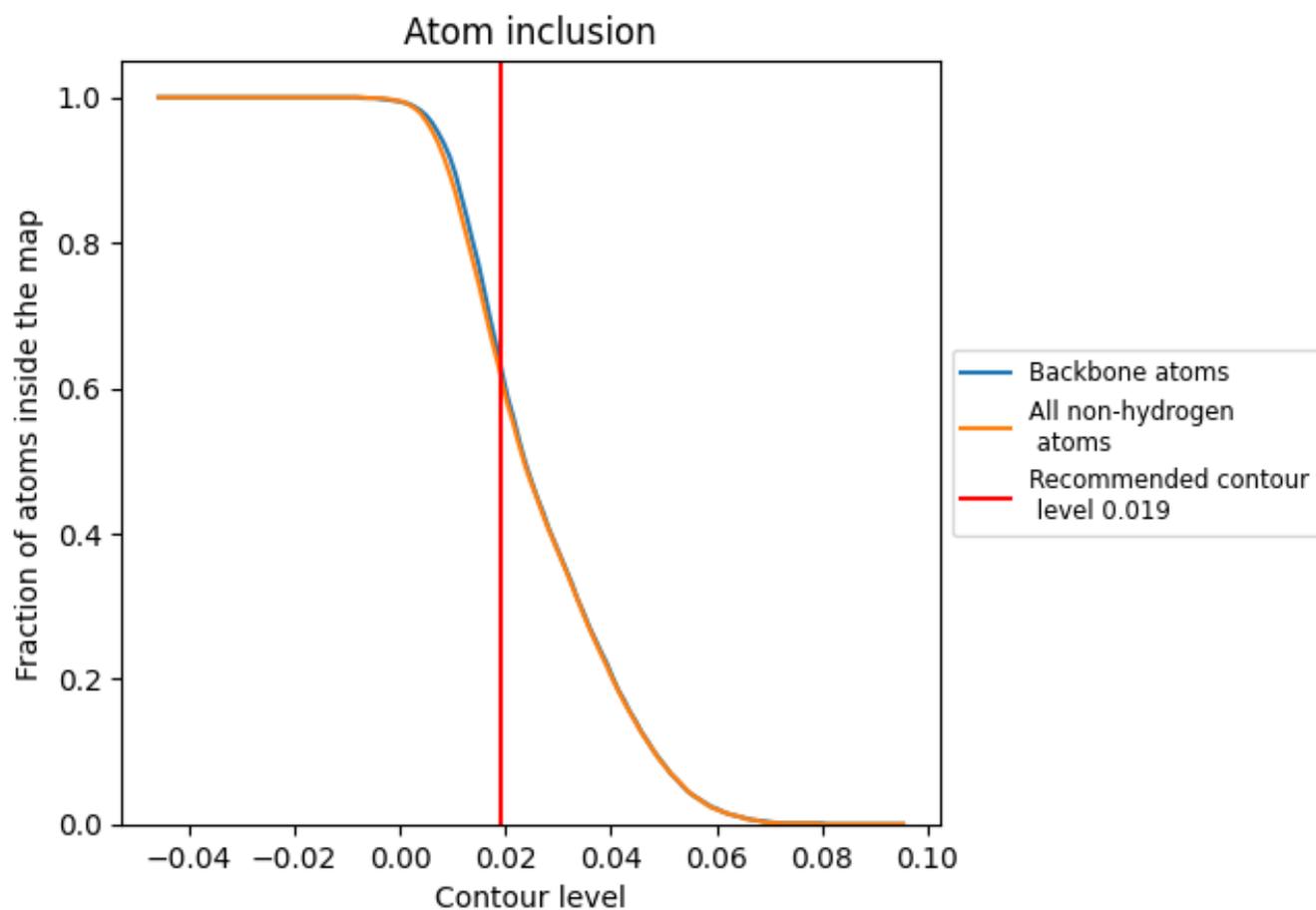
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.019).

## 9.4 Atom inclusion [i](#)



At the recommended contour level, 64% of all backbone atoms, 62% 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 (0.019) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion  | Q-score   |
|-------|---|---|
| All   |  0.6220  |  0.4450  |
| A     |  0.6100  |  0.4410  |
| B     |  0.7460  |  0.4830  |
| C     |  0.6100  |  0.4410  |
| D     |  0.7450  |  0.4850  |
| E     |  0.5690  |  0.4340  |
| F     |  0.3240  |  0.2520  |
| G     |  0.5750  |  0.4370  |
| H     |  0.0670  |  0.0590  |
| I     |  0.1330  |  0.2540  |
| J     |  0.1430  |  0.3100  |
| K     |  0.3240  |  0.2660  |
| L     |  0.0800  |  0.0680  |
| M     |  0.1330  |  0.2520  |
| N     |  0.1430 |  0.3170 |

