



# Full wwPDB X-ray Structure Validation Report ⓘ

Sep 12, 2023 – 10:46 PM EDT

PDB ID : 4NCO  
Title : Crystal Structure of the BG505 SOSIP gp140 HIV-1 Env trimer in Complex with the Broadly Neutralizing Fab PGT122  
Authors : Julien, J.-P.; Stanfield, R.L.; Lyumkis, D.; Ward, A.B.; Wilson, I.A.  
Deposited on : 2013-10-24  
Resolution : 4.70 Å(reported)

This is a Full wwPDB X-ray Structure 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/XrayValidationReportHelp>

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:

MolProbity : 4.02b-467  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.35.1  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
Refmac : 5.8.0158  
CCP4 : 7.0.044 (Gargrove)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.35.1

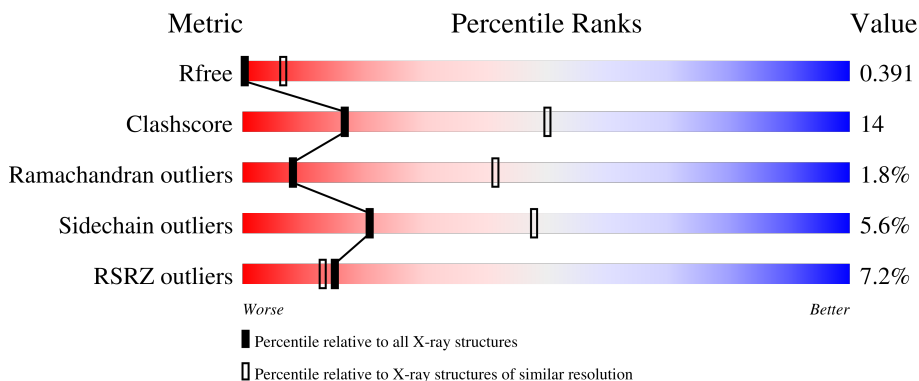
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*


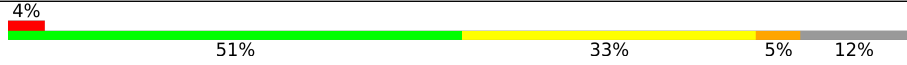
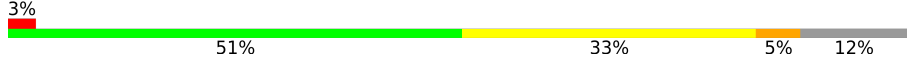
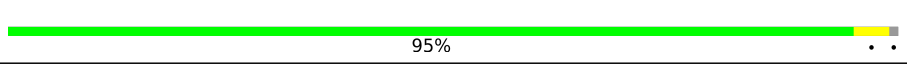
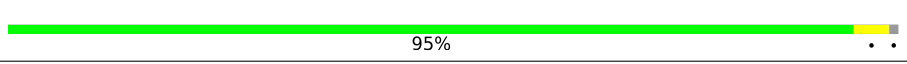
The reported resolution of this entry is 4.70 Å.

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



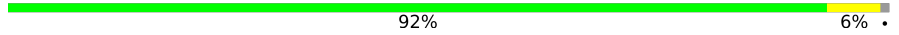

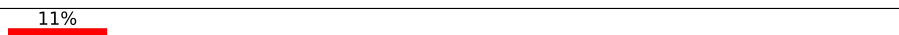
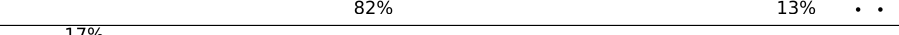


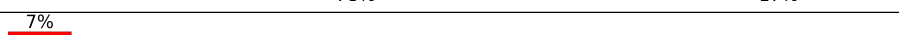



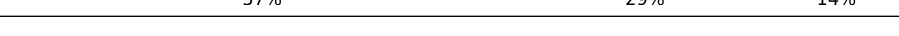


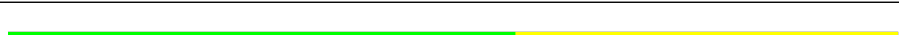
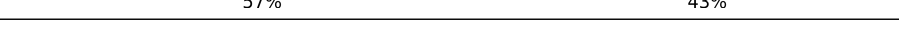



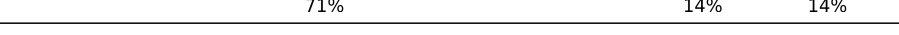

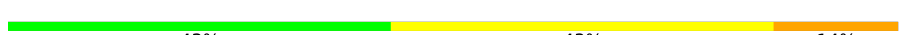
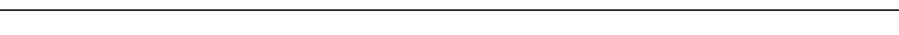



| Metric                | Whole archive<br>(#Entries) | Similar resolution<br>(#Entries, resolution range(Å)) |
|-----------------------|-----------------------------|---|
| $R_{free}$            | 130704                      | 1085 (5.58-3.80)                                      |
| Clashscore            | 141614                      | 1159 (5.60-3.80)                                      |
| Ramachandran outliers | 138981                      | 1094 (5.58-3.80)                                      |
| Sidechain outliers    | 138945                      | 1074 (5.58-3.80)                                      |
| RSRZ outliers         | 127900                      | 1118 (5.70-3.70)                                      |

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower 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 electron density. The numeric value is given above the bar.

| Mol | Chain | Length | Quality of chain   |
|-----|-------|--------|--|
| 1   | A     | 475    |  |
| 1   | E     | 475    |  |
| 1   | I     | 475    |  |
| 2   | B     | 78     |  |
| 2   | F     | 78     |  |

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| Mol | Chain | Length | Quality of chain   |
|-----|-------|--------|--|
| 2   | J     | 78     |  92% 6% . .    |
| 3   | C     | 211    |  82% 13% . .   |
| 3   | G     | 211    |  82% 13% . .   |
| 3   | K     | 211    |  81% 12% . .   |
| 4   | D     | 235    |  78% 17% . .   |
| 4   | H     | 235    |  78% 17% . .   |
| 4   | L     | 235    |  77% 19% . .   |
| 5   | M     | 7      |  57% 29% 14%   |
| 5   | N     | 7      |  57% 43%       |
| 5   | O     | 7      |  71% 14% 14%   |
| 5   | P     | 7      |  57% 43%       |
| 5   | S     | 7      |  71% 14% 14%   |
| 5   | T     | 7      |  57% 43%       |
| 5   | U     | 7      |  71% 14% 14%   |
| 5   | V     | 7      |  57% 43%       |
| 5   | Y     | 7      |  43% 43% 14%  |
| 5   | Z     | 7      |  57% 43%     |
| 5   | a     | 7      |  71% 29%     |
| 5   | b     | 7      |  71% 29%     |
| 6   | Q     | 9      |  44% 44% 11% |
| 6   | W     | 9      |  44% 56%     |
| 6   | c     | 9      |  44% 56%     |
| 7   | R     | 2      |  50% 50%     |
| 7   | X     | 2      |  100%        |
| 7   | d     | 2      |  50% 50%     |

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

| Mol | Type | Chain | Res | Chirality | Geometry | Clashes | Electron density |
|-----|------|-------|-----|-----------|----------|---------|------------------|
| 5   | NAG  | M     | 1   | -         | -        | -       | X                |
| 5   | NAG  | M     | 2   | -         | -        | -       | X                |
| 5   | BMA  | M     | 3   | -         | -        | -       | X                |
| 5   | MAN  | M     | 4   | -         | -        | -       | X                |
| 5   | MAN  | M     | 5   | -         | -        | -       | X                |
| 5   | MAN  | M     | 6   | -         | -        | -       | X                |
| 5   | MAN  | M     | 7   | -         | -        | -       | X                |
| 5   | BMA  | N     | 3   | -         | -        | -       | X                |
| 5   | MAN  | N     | 4   | -         | -        | -       | X                |
| 5   | MAN  | N     | 5   | -         | -        | -       | X                |
| 5   | MAN  | N     | 6   | -         | -        | -       | X                |
| 5   | MAN  | N     | 7   | -         | -        | -       | X                |
| 5   | NAG  | O     | 1   | -         | -        | -       | X                |
| 5   | MAN  | O     | 4   | -         | -        | -       | X                |
| 5   | MAN  | O     | 5   | -         | -        | -       | X                |
| 5   | MAN  | O     | 6   | -         | -        | -       | X                |
| 5   | BMA  | P     | 3   | -         | -        | -       | X                |
| 5   | MAN  | P     | 4   | -         | -        | -       | X                |
| 5   | MAN  | P     | 5   | -         | -        | -       | X                |
| 5   | MAN  | P     | 6   | -         | -        | -       | X                |
| 5   | MAN  | P     | 7   | -         | -        | -       | X                |
| 5   | NAG  | S     | 1   | -         | -        | -       | X                |
| 5   | NAG  | S     | 2   | -         | -        | -       | X                |
| 5   | BMA  | S     | 3   | -         | -        | -       | X                |
| 5   | MAN  | S     | 4   | -         | -        | -       | X                |
| 5   | MAN  | S     | 5   | -         | -        | -       | X                |
| 5   | MAN  | S     | 6   | -         | -        | -       | X                |
| 5   | MAN  | S     | 7   | -         | -        | -       | X                |
| 5   | MAN  | T     | 4   | -         | -        | -       | X                |
| 5   | MAN  | T     | 5   | -         | -        | -       | X                |
| 5   | MAN  | T     | 6   | -         | -        | -       | X                |
| 5   | MAN  | T     | 7   | -         | -        | -       | X                |
| 5   | NAG  | U     | 1   | -         | -        | -       | X                |
| 5   | NAG  | U     | 2   | -         | -        | -       | X                |
| 5   | MAN  | U     | 4   | -         | -        | -       | X                |
| 5   | MAN  | U     | 5   | -         | -        | -       | X                |
| 5   | MAN  | U     | 6   | -         | -        | -       | X                |
| 5   | MAN  | V     | 4   | -         | -        | -       | X                |
| 5   | MAN  | V     | 5   | -         | -        | -       | X                |
| 5   | MAN  | V     | 6   | -         | -        | -       | X                |

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| Mol | Type | Chain | Res  | Chirality | Geometry | Clashes | Electron density |
|-----|------|-------|------|-----------|----------|---------|------------------|
| 5   | NAG  | Y     | 1    | -         | -        | -       | X                |
| 5   | NAG  | Y     | 2    | -         | -        | -       | X                |
| 5   | BMA  | Y     | 3    | -         | -        | -       | X                |
| 5   | MAN  | Y     | 4    | -         | -        | -       | X                |
| 5   | MAN  | Y     | 5    | -         | -        | -       | X                |
| 5   | MAN  | Y     | 6    | -         | -        | -       | X                |
| 5   | MAN  | Y     | 7    | -         | -        | -       | X                |
| 5   | BMA  | Z     | 3    | -         | -        | -       | X                |
| 5   | MAN  | Z     | 4    | -         | -        | -       | X                |
| 5   | MAN  | Z     | 5    | -         | -        | -       | X                |
| 5   | MAN  | Z     | 7    | -         | -        | -       | X                |
| 5   | NAG  | a     | 1    | -         | -        | -       | X                |
| 5   | MAN  | a     | 4    | -         | -        | -       | X                |
| 5   | MAN  | a     | 5    | -         | -        | -       | X                |
| 5   | MAN  | a     | 6    | -         | -        | -       | X                |
| 5   | NAG  | b     | 2    | -         | -        | -       | X                |
| 5   | MAN  | b     | 4    | -         | -        | -       | X                |
| 5   | MAN  | b     | 5    | -         | -        | -       | X                |
| 5   | MAN  | b     | 6    | -         | -        | -       | X                |
| 6   | NAG  | Q     | 1    | -         | -        | -       | X                |
| 6   | MAN  | Q     | 6    | -         | -        | -       | X                |
| 6   | MAN  | W     | 4    | -         | -        | -       | X                |
| 6   | MAN  | W     | 6    | -         | -        | -       | X                |
| 6   | MAN  | W     | 7    | -         | -        | -       | X                |
| 6   | MAN  | W     | 8    | -         | -        | -       | X                |
| 6   | MAN  | c     | 4    | -         | -        | -       | X                |
| 6   | MAN  | c     | 6    | -         | -        | -       | X                |
| 6   | MAN  | c     | 7    | -         | -        | -       | X                |
| 6   | MAN  | c     | 9    | -         | -        | -       | X                |
| 7   | MAN  | R     | 1    | -         | -        | -       | X                |
| 7   | MAN  | R     | 2    | -         | -        | -       | X                |
| 7   | MAN  | X     | 1    | -         | -        | -       | X                |
| 7   | MAN  | X     | 2    | -         | -        | -       | X                |
| 7   | MAN  | d     | 1    | -         | -        | -       | X                |
| 7   | MAN  | d     | 2    | -         | -        | -       | X                |
| 8   | NAG  | A     | 1088 | -         | -        | -       | X                |
| 8   | NAG  | A     | 1160 | -         | -        | -       | X                |
| 8   | NAG  | A     | 1295 | -         | -        | -       | X                |
| 8   | NAG  | A     | 1355 | -         | -        | -       | X                |
| 8   | NAG  | A     | 1386 | -         | -        | -       | X                |
| 8   | NAG  | A     | 1392 | -         | -        | -       | X                |
| 8   | NAG  | A     | 1448 | -         | -        | -       | X                |

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| Mol | Type | Chain | Res  | Chirality | Geometry | Clashes | Electron density |
|-----|------|-------|------|-----------|----------|---------|------------------|
| 8   | NAG  | E     | 1088 | -         | -        | -       | X                |
| 8   | NAG  | E     | 1160 | -         | -        | -       | X                |
| 8   | NAG  | E     | 1234 | -         | -        | -       | X                |
| 8   | NAG  | E     | 1295 | -         | -        | -       | X                |
| 8   | NAG  | E     | 1386 | -         | -        | -       | X                |
| 8   | NAG  | E     | 1392 | -         | -        | -       | X                |
| 8   | NAG  | E     | 1448 | -         | -        | -       | X                |
| 8   | NAG  | I     | 1088 | -         | -        | -       | X                |
| 8   | NAG  | I     | 1160 | -         | -        | -       | X                |
| 8   | NAG  | I     | 1234 | -         | -        | -       | X                |
| 8   | NAG  | I     | 1295 | -         | -        | -       | X                |
| 8   | NAG  | I     | 1386 | -         | -        | -       | X                |
| 8   | NAG  | I     | 1392 | -         | -        | -       | X                |
| 8   | NAG  | I     | 1448 | -         | -        | -       | X                |

## 2 Entry composition [i](#)

There are 8 unique types of molecules in this entry. The entry contains 22014 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, 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 BG505 SOSIP gp120.

| Mol | Chain | Residues | Atoms         |           |          |          |         | ZeroOcc | AltConf | Trace |
|-----|-------|----------|---------------|-----------|----------|----------|---------|---------|---------|-------|
|     |       |          | Total         | C         | N        | O        | S       |         |         |       |
| 1   | A     | 420      | Total<br>3096 | C<br>1937 | N<br>544 | O<br>590 | S<br>25 | 0       | 0       | 0     |
| 1   | E     | 420      | Total<br>3096 | C<br>1937 | N<br>544 | O<br>590 | S<br>25 | 0       | 0       | 0     |
| 1   | I     | 420      | Total<br>3096 | C<br>1937 | N<br>544 | O<br>590 | S<br>25 | 0       | 0       | 0     |

There are 6 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment             | Reference  |
|-------|---------|----------|--------|---------------------|------------|
| A     | 332     | ASN      | THR    | engineered mutation | UNP Q2N0S6 |
| A     | 501     | CYS      | ALA    | engineered mutation | UNP Q2N0S6 |
| E     | 332     | ASN      | THR    | engineered mutation | UNP Q2N0S6 |
| E     | 501     | CYS      | ALA    | engineered mutation | UNP Q2N0S6 |
| I     | 332     | ASN      | THR    | engineered mutation | UNP Q2N0S6 |
| I     | 501     | CYS      | ALA    | engineered mutation | UNP Q2N0S6 |

- Molecule 2 is a protein called BG505 SOSIP gp41.

| Mol | Chain | Residues | Atoms        |          |         |         | ZeroOcc | AltConf | Trace |
|-----|-------|----------|--------------|----------|---------|---------|---------|---------|-------|
|     |       |          | Total        | C        | N       | O       |         |         |       |
| 2   | B     | 77       | Total<br>385 | C<br>231 | N<br>77 | O<br>77 | 0       | 0       | 0     |
| 2   | F     | 77       | Total<br>385 | C<br>231 | N<br>77 | O<br>77 | 0       | 0       | 0     |
| 2   | J     | 77       | Total<br>385 | C<br>231 | N<br>77 | O<br>77 | 0       | 0       | 0     |

- Molecule 3 is a protein called PGT122 light chain.

| Mol | Chain | Residues | Atoms         |          |          |          |        | ZeroOcc | AltConf | Trace |
|-----|-------|----------|---------------|----------|----------|----------|--------|---------|---------|-------|
|     |       |          | Total         | C        | N        | O        | S      |         |         |       |
| 3   | C     | 202      | Total<br>1530 | C<br>964 | N<br>255 | O<br>307 | S<br>4 | 0       | 0       | 0     |

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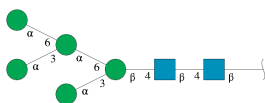
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| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 3   | G     | 202      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1530  | 964 | 255 | 307 | 4 |         |         |       |
| 3   | K     | 202      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1530  | 964 | 255 | 307 | 4 |         |         |       |

- Molecule 4 is a protein called PGT122 heavy chain.

| Mol | Chain | Residues | Atoms |      |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| 4   | D     | 226      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1728  | 1100 | 293 | 330 | 5 |         |         |       |
| 4   | H     | 226      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1728  | 1100 | 293 | 330 | 5 |         |         |       |
| 4   | L     | 226      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1728  | 1100 | 293 | 330 | 5 |         |         |       |

- Molecule 5 is an oligosaccharide called alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)-[alpha-D-mannopyranose-(1-3)]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 |    |   |    | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|----|---|----|---------|---------|-------|
| 5   | M     | 7        | Total | C  | N | O  | 0       | 0       | 0     |
|     |       |          | 83    | 46 | 2 | 35 |         |         |       |
| 5   | N     | 7        | Total | C  | N | O  | 0       | 0       | 0     |
|     |       |          | 83    | 46 | 2 | 35 |         |         |       |
| 5   | O     | 7        | Total | C  | N | O  | 0       | 0       | 0     |
|     |       |          | 83    | 46 | 2 | 35 |         |         |       |
| 5   | P     | 7        | Total | C  | N | O  | 0       | 0       | 0     |
|     |       |          | 83    | 46 | 2 | 35 |         |         |       |
| 5   | S     | 7        | Total | C  | N | O  | 0       | 0       | 0     |
|     |       |          | 83    | 46 | 2 | 35 |         |         |       |
| 5   | T     | 7        | Total | C  | N | O  | 0       | 0       | 0     |
|     |       |          | 83    | 46 | 2 | 35 |         |         |       |
| 5   | U     | 7        | Total | C  | N | O  | 0       | 0       | 0     |
|     |       |          | 83    | 46 | 2 | 35 |         |         |       |
| 5   | V     | 7        | Total | C  | N | O  | 0       | 0       | 0     |
|     |       |          | 83    | 46 | 2 | 35 |         |         |       |

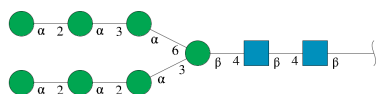
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| Mol | Chain | Residues | Atoms |    |   |    | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|----|---|----|---------|---------|-------|
| 5   | Y     | 7        | Total | C  | N | O  | 0       | 0       | 0     |
|     |       |          | 83    | 46 | 2 | 35 |         |         |       |
| 5   | Z     | 7        | Total | C  | N | O  | 0       | 0       | 0     |
|     |       |          | 83    | 46 | 2 | 35 |         |         |       |
| 5   | a     | 7        | Total | C  | N | O  | 0       | 0       | 0     |
|     |       |          | 83    | 46 | 2 | 35 |         |         |       |
| 5   | b     | 7        | Total | C  | N | O  | 0       | 0       | 0     |
|     |       |          | 83    | 46 | 2 | 35 |         |         |       |

- Molecule 6 is an oligosaccharide called alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(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.



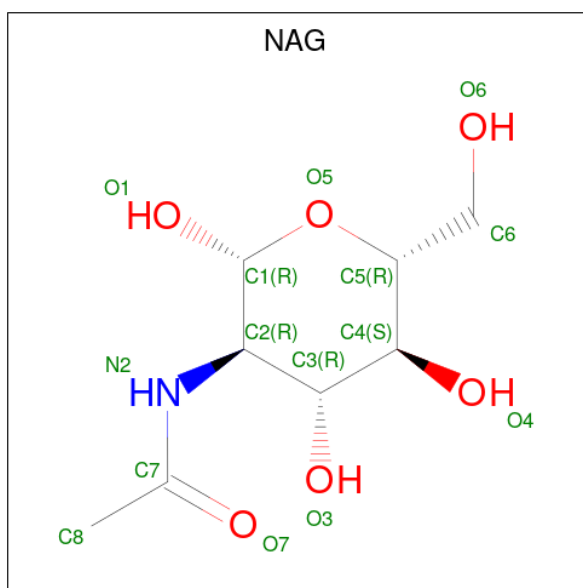
| Mol | Chain | Residues | Atoms |    |   |    | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|----|---|----|---------|---------|-------|
| 6   | Q     | 9        | Total | C  | N | O  | 0       | 0       | 0     |
|     |       |          | 105   | 58 | 2 | 45 |         |         |       |
| 6   | W     | 9        | Total | C  | N | O  | 0       | 0       | 0     |
|     |       |          | 105   | 58 | 2 | 45 |         |         |       |
| 6   | c     | 9        | Total | C  | N | O  | 0       | 0       | 0     |
|     |       |          | 105   | 58 | 2 | 45 |         |         |       |

- Molecule 7 is an oligosaccharide called alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose.



| Mol | Chain | Residues | Atoms |    |    | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|----|----|---------|---------|-------|
| 7   | R     | 2        | Total | C  | O  | 0       | 0       | 0     |
|     |       |          | 22    | 12 | 10 |         |         |       |
| 7   | X     | 2        | Total | C  | O  | 0       | 0       | 0     |
|     |       |          | 22    | 12 | 10 |         |         |       |
| 7   | d     | 2        | Total | C  | O  | 0       | 0       | 0     |
|     |       |          | 22    | 12 | 10 |         |         |       |

- Molecule 8 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula:

C<sub>8</sub>H<sub>15</sub>NO<sub>6</sub>).

| Mol | Chain | Residues | Atoms |   |   |   | ZeroOcc | AltConf |
|-----|-------|----------|-------|---|---|---|---------|---------|
| 8   | A     | 1        | Total | C | N | O | 0       | 0       |
|     |       |          | 14    | 8 | 1 | 5 |         |         |
| 8   | A     | 1        | Total | C | N | O | 0       | 0       |
|     |       |          | 14    | 8 | 1 | 5 |         |         |
| 8   | A     | 1        | Total | C | N | O | 0       | 0       |
|     |       |          | 14    | 8 | 1 | 5 |         |         |
| 8   | A     | 1        | Total | C | N | O | 0       | 0       |
|     |       |          | 14    | 8 | 1 | 5 |         |         |
| 8   | A     | 1        | Total | C | N | O | 0       | 0       |
|     |       |          | 14    | 8 | 1 | 5 |         |         |
| 8   | A     | 1        | Total | C | N | O | 0       | 0       |
|     |       |          | 14    | 8 | 1 | 5 |         |         |
| 8   | A     | 1        | Total | C | N | O | 0       | 0       |
|     |       |          | 14    | 8 | 1 | 5 |         |         |
| 8   | E     | 1        | Total | C | N | O | 0       | 0       |
|     |       |          | 14    | 8 | 1 | 5 |         |         |
| 8   | E     | 1        | Total | C | N | O | 0       | 0       |
|     |       |          | 14    | 8 | 1 | 5 |         |         |
| 8   | E     | 1        | Total | C | N | O | 0       | 0       |
|     |       |          | 14    | 8 | 1 | 5 |         |         |

Continued on next page...

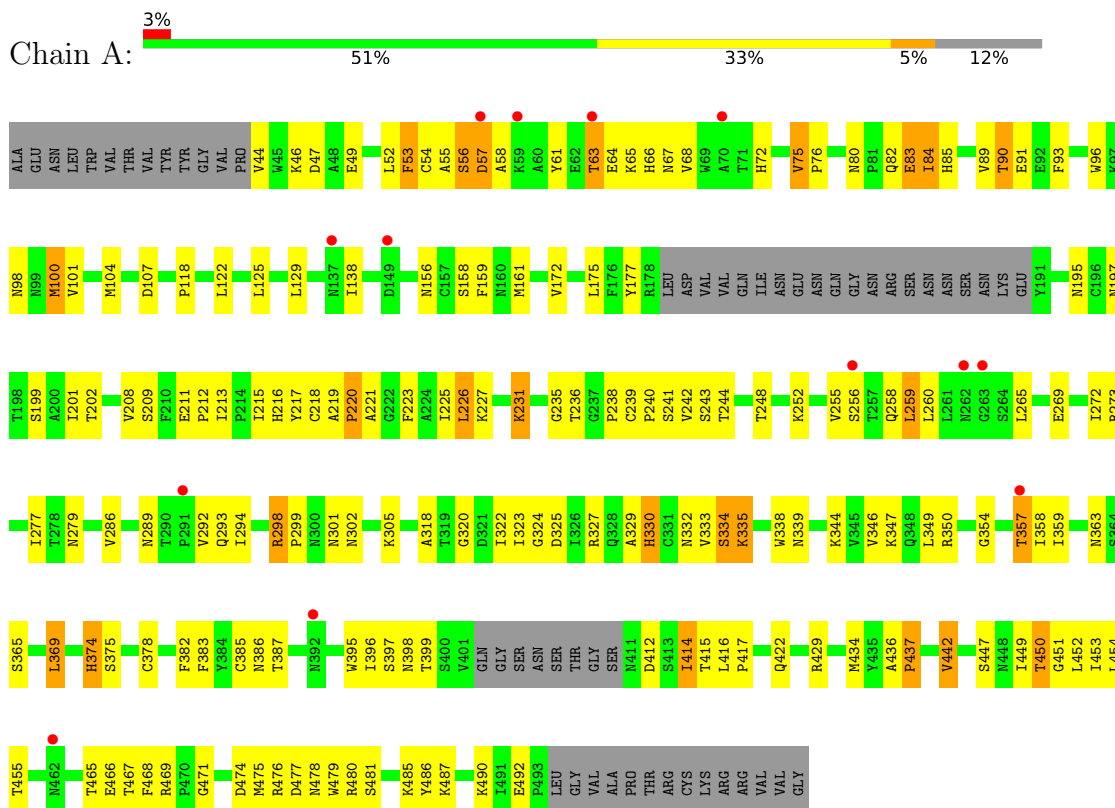
*Continued from previous page...*

| Mol | Chain | Residues | Atoms |   |   |   | ZeroOcc | AltConf |
|-----|-------|----------|-------|---|---|---|---------|---------|
| 8   | E     | 1        | Total | C | N | O | 0       | 0       |
|     |       |          | 14    | 8 | 1 | 5 |         |         |
| 8   | E     | 1        | Total | C | N | O | 0       | 0       |
|     |       |          | 14    | 8 | 1 | 5 |         |         |
| 8   | E     | 1        | Total | C | N | O | 0       | 0       |
|     |       |          | 14    | 8 | 1 | 5 |         |         |
| 8   | E     | 1        | Total | C | N | O | 0       | 0       |
|     |       |          | 14    | 8 | 1 | 5 |         |         |
| 8   | E     | 1        | Total | C | N | O | 0       | 0       |
|     |       |          | 14    | 8 | 1 | 5 |         |         |
| 8   | E     | 1        | Total | C | N | O | 0       | 0       |
|     |       |          | 14    | 8 | 1 | 5 |         |         |
| 8   | I     | 1        | Total | C | N | O | 0       | 0       |
|     |       |          | 14    | 8 | 1 | 5 |         |         |
| 8   | I     | 1        | Total | C | N | O | 0       | 0       |
|     |       |          | 14    | 8 | 1 | 5 |         |         |
| 8   | I     | 1        | Total | C | N | O | 0       | 0       |
|     |       |          | 14    | 8 | 1 | 5 |         |         |
| 8   | I     | 1        | Total | C | N | O | 0       | 0       |
|     |       |          | 14    | 8 | 1 | 5 |         |         |
| 8   | I     | 1        | Total | C | N | O | 0       | 0       |
|     |       |          | 14    | 8 | 1 | 5 |         |         |
| 8   | I     | 1        | Total | C | N | O | 0       | 0       |
|     |       |          | 14    | 8 | 1 | 5 |         |         |
| 8   | I     | 1        | Total | C | N | O | 0       | 0       |
|     |       |          | 14    | 8 | 1 | 5 |         |         |

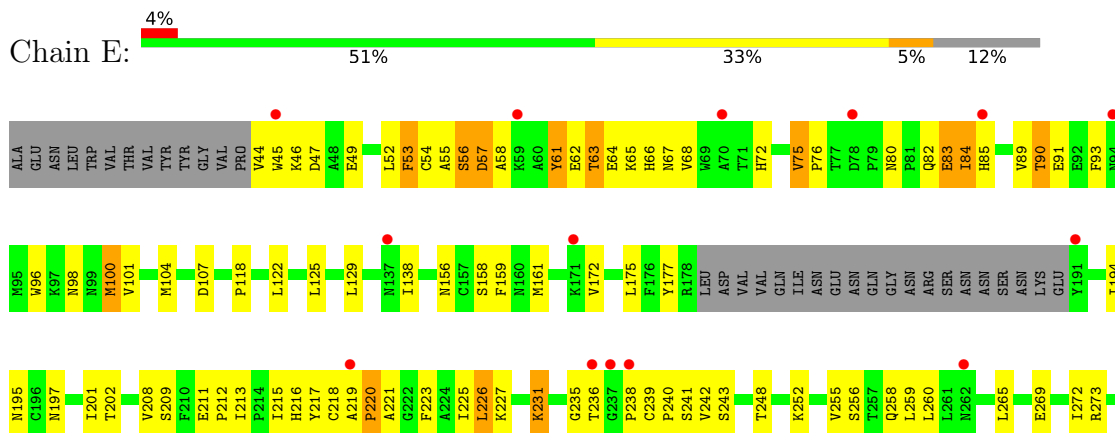
### 3 Residue-property plots i

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron 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 dot above a residue indicates a poor fit to the electron density ( $RSRZ > 2$ ). 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: BG505 SOSIP gp120



- Molecule 1: BG505 SOSIP gp120




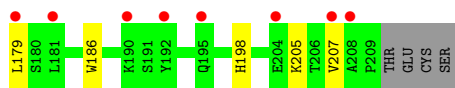
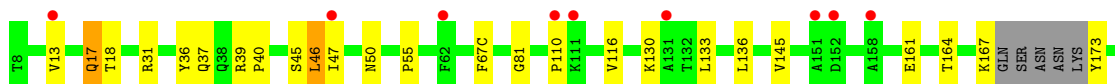


Chain J:  92% 6%




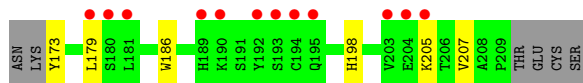
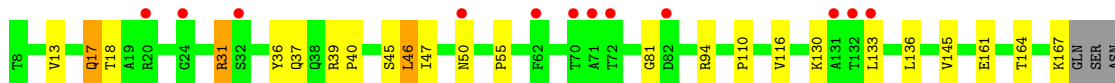
• Molecule 3: PGT122 light chain

Chain C:  8% 82% 13%




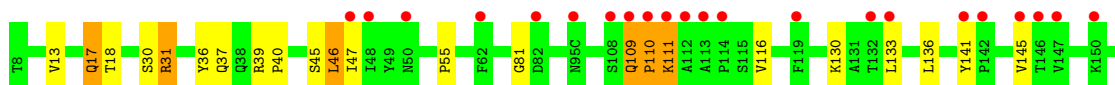
• Molecule 3: PGT122 light chain

Chain G:  11% 82% 13%




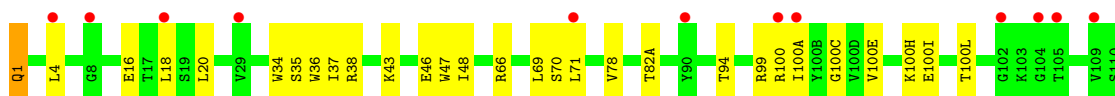
• Molecule 3: PGT122 light chain

Chain K:  17% 81% 12%

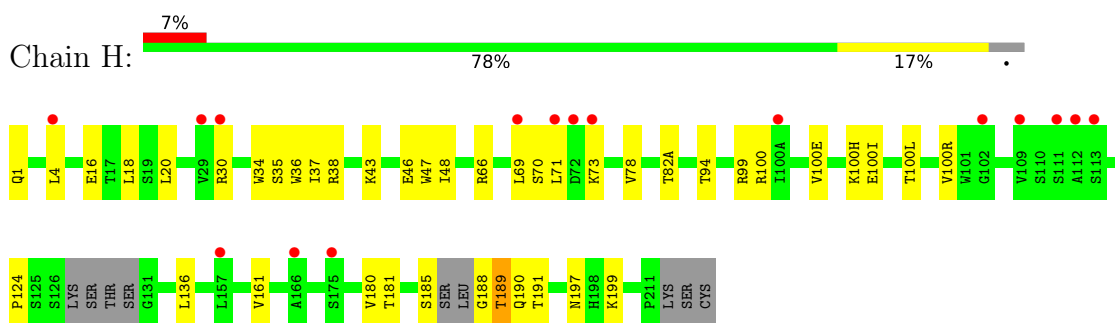


• Molecule 4: PGT122 heavy chain

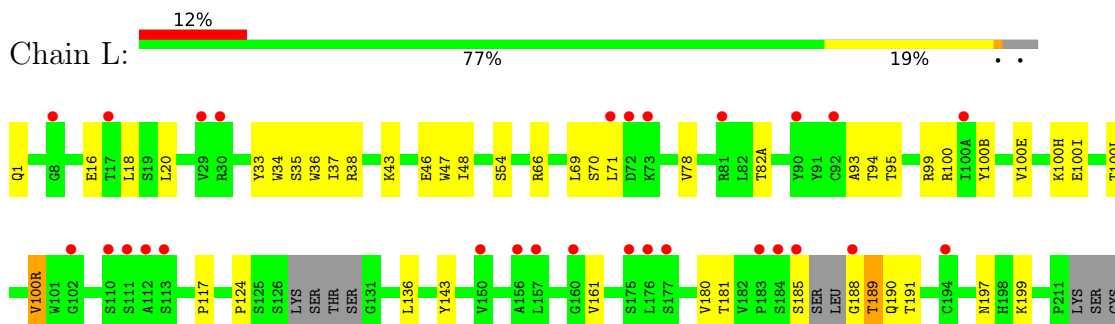
Chain D:  6% 78% 17%



• Molecule 4: PGT122 heavy chain



- Molecule 4: PGT122 heavy chain



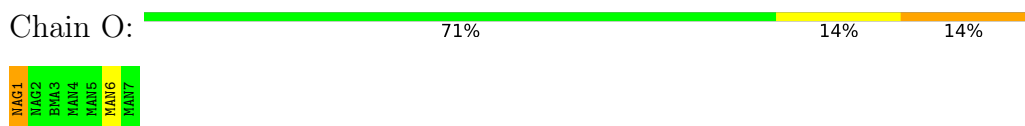
- Molecule 5: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)-[alpha-D-mannopyranose-(1-3)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



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

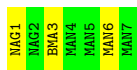


- Molecule 5: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)-[alpha-D-mannopyranose-(1-3)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



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

Chain P:  57% 43%



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

Chain S:  71% 14% 14%



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

Chain T:  57% 43%



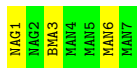
- Molecule 5: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)-[alpha-D-mannopyranose-(1-3)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain U:  71% 14% 14%



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

Chain V:  57% 43%



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

Chain Y:  43% 43% 14%





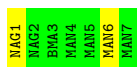
- Molecule 5: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)-[alpha-D-mannopyranose-(1-3)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain Z:  57% 43%



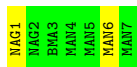
- Molecule 5: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)-[alpha-D-mannopyranose-(1-3)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain a:  71% 29%



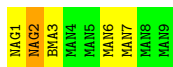
- Molecule 5: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)-[alpha-D-mannopyranose-(1-3)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain b:  71% 29%



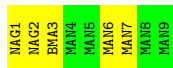
- Molecule 6: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain Q:  44% 44% 11%



- Molecule 6: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(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

Chain W:  44% 56%



- Molecule 6: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(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

Chain c:  44% 56%

MAN1  
MAN2  
MAN3  
MAN4  
MAN5  
MAN6  
MAN7  
MAN8  
MAN9

- Molecule 7: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose

Chain R:  50% 50%

MAN1  
MAN2

- Molecule 7: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose

Chain X:  100%

MAN1  
MAN2

- Molecule 7: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose

Chain d:  50% 50%

MAN1  
MAN2

## 4 Data and refinement statistics

| Property  | Value   | Source           |
|---|---|------------------|
| Space group   | C 1 2 1   | Depositor        |
| Cell constants<br>a, b, c, $\alpha$ , $\beta$ , $\gamma$                | 152.20Å 260.72Å 283.18Å<br>90.00° 99.56° 90.00°             | Depositor        |
| Resolution (Å)  | 39.89 – 4.70<br>39.89 – 4.70                                | Depositor<br>EDS |
| % Data completeness<br>(in resolution range)                            | 89.0 (39.89-4.70)<br>89.1 (39.89-4.70)                      | Depositor<br>EDS |
| $R_{merge}$   | 0.30  | Depositor        |
| $R_{sym}$   | (Not available)   | Depositor        |
| $\langle I/\sigma(I) \rangle$ <sup>1</sup>                              | 2.22 (at 4.63Å)   | Xtriage          |
| Refinement program  | PHENIX (phenix.refine: 1.8.1_1168)                          | Depositor        |
| R, $R_{free}$   | 0.375 , 0.389<br>0.377 , 0.391                              | Depositor<br>DCC |
| $R_{free}$ test set   | 2550 reflections (5.06%)                                    | wwPDB-VP         |
| Wilson B-factor (Å <sup>2</sup> )                                       | 136.6   | Xtriage          |
| Anisotropy  | 1.016   | Xtriage          |
| Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> ) | 0.29 , 374.2  | EDS              |
| L-test for twinning <sup>2</sup>  | $\langle  L  \rangle = 0.31$ , $\langle L^2 \rangle = 0.15$ | Xtriage          |
| Estimated twinning fraction   | No twinning to report.                                      | Xtriage          |
| $F_o, F_c$ correlation  | 0.75  | EDS              |
| Total number of atoms   | 22014   | wwPDB-VP         |
| Average B, all atoms (Å <sup>2</sup> )                                  | 262.0   | wwPDB-VP         |

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.71% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical values of  $\langle |L| \rangle$ ,  $\langle L^2 \rangle$  for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

## 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: BMA, MAN, NAG

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     | 0.33         | 0/3161         | 0.71        | 4/4306 (0.1%)   |
| 1   | E     | 0.35         | 0/3161         | 0.71        | 3/4306 (0.1%)   |
| 1   | I     | 0.33         | 0/3161         | 0.71        | 3/4306 (0.1%)   |
| 3   | C     | 0.27         | 0/1571         | 0.54        | 1/2151 (0.0%)   |
| 3   | G     | 0.27         | 0/1571         | 0.55        | 1/2151 (0.0%)   |
| 3   | K     | 0.28         | 0/1571         | 0.58        | 2/2151 (0.1%)   |
| 4   | D     | 0.30         | 0/1774         | 0.57        | 0/2421          |
| 4   | H     | 0.34         | 1/1774 (0.1%)  | 0.57        | 0/2421          |
| 4   | L     | 0.45         | 1/1774 (0.1%)  | 0.59        | 1/2421 (0.0%)   |
| All | All   | 0.33         | 2/19518 (0.0%) | 0.64        | 15/26634 (0.1%) |

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 1   | A     | 0                   | 3                   |
| 1   | E     | 0                   | 3                   |
| 1   | I     | 0                   | 3                   |
| 3   | C     | 0                   | 1                   |
| 3   | G     | 0                   | 1                   |
| 3   | K     | 0                   | 1                   |
| All | All   | 0                   | 12                  |

All (2) bond length outliers are listed below:

| Mol | Chain | Res    | Type | Atoms | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|--------|------|-------|-------|-------------|----------|
| 4   | L     | 100(R) | VAL  | C-N   | 13.91 | 1.66        | 1.34     |
| 4   | H     | 100(R) | VAL  | C-N   | 6.19  | 1.48        | 1.34     |

All (15) bond angle outliers are listed below:

| Mol | Chain | Res    | Type | Atoms    | Z     | Observed(°) | Ideal(°) |
|-----|-------|--------|------|----------|-------|-------------|----------|
| 1   | E     | 335    | LYS  | N-CA-C   | 6.21  | 127.77      | 111.00   |
| 1   | A     | 335    | LYS  | N-CA-C   | 6.18  | 127.69      | 111.00   |
| 1   | I     | 335    | LYS  | N-CA-C   | 6.10  | 127.48      | 111.00   |
| 1   | I     | 450    | THR  | C-N-CA   | -6.05 | 109.59      | 122.30   |
| 4   | L     | 100(R) | VAL  | O-C-N    | 6.04  | 132.37      | 122.70   |
| 1   | E     | 450    | THR  | C-N-CA   | -5.98 | 109.73      | 122.30   |
| 1   | A     | 450    | THR  | C-N-CA   | -5.97 | 109.75      | 122.30   |
| 1   | E     | 334    | SER  | C-N-CA   | 5.65  | 135.84      | 121.70   |
| 3   | K     | 111    | LYS  | N-CA-C   | 5.61  | 126.14      | 111.00   |
| 1   | A     | 334    | SER  | C-N-CA   | 5.51  | 135.48      | 121.70   |
| 3   | C     | 46     | LEU  | CA-CB-CG | 5.35  | 127.61      | 115.30   |
| 3   | K     | 46     | LEU  | CA-CB-CG | 5.35  | 127.61      | 115.30   |
| 3   | G     | 46     | LEU  | CA-CB-CG | 5.35  | 127.60      | 115.30   |
| 1   | I     | 334    | SER  | C-N-CA   | 5.32  | 134.99      | 121.70   |
| 1   | A     | 259    | LEU  | C-N-CA   | -5.00 | 109.19      | 121.70   |

There are no chirality outliers.

All (12) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group   |
|-----|-------|-----|------|---------|
| 1   | A     | 236 | THR  | Peptide |
| 1   | A     | 56  | SER  | Peptide |
| 1   | A     | 80  | ASN  | Peptide |
| 3   | C     | 110 | PRO  | Peptide |
| 1   | E     | 236 | THR  | Peptide |
| 1   | E     | 56  | SER  | Peptide |
| 1   | E     | 80  | ASN  | Peptide |
| 3   | G     | 110 | PRO  | Peptide |
| 1   | I     | 236 | THR  | Peptide |
| 1   | I     | 56  | SER  | Peptide |
| 1   | I     | 80  | ASN  | Peptide |
| 3   | K     | 110 | PRO  | Peptide |

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

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

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | A     | 3096  | 0        | 2821     | 142     | 0            |
| 1   | E     | 3096  | 0        | 2821     | 144     | 0            |
| 1   | I     | 3096  | 0        | 2821     | 140     | 0            |
| 2   | B     | 385   | 0        | 82       | 2       | 0            |
| 2   | F     | 385   | 0        | 82       | 2       | 0            |
| 2   | J     | 385   | 0        | 82       | 3       | 0            |
| 3   | C     | 1530  | 0        | 1472     | 21      | 0            |
| 3   | G     | 1530  | 0        | 1472     | 20      | 0            |
| 3   | K     | 1530  | 0        | 1472     | 22      | 0            |
| 4   | D     | 1728  | 0        | 1699     | 36      | 0            |
| 4   | H     | 1728  | 0        | 1699     | 30      | 0            |
| 4   | L     | 1728  | 0        | 1699     | 40      | 0            |
| 5   | M     | 83    | 0        | 70       | 1       | 0            |
| 5   | N     | 83    | 0        | 70       | 0       | 0            |
| 5   | O     | 83    | 0        | 70       | 5       | 0            |
| 5   | P     | 83    | 0        | 70       | 0       | 0            |
| 5   | S     | 83    | 0        | 70       | 1       | 0            |
| 5   | T     | 83    | 0        | 70       | 0       | 0            |
| 5   | U     | 83    | 0        | 70       | 5       | 0            |
| 5   | V     | 83    | 0        | 70       | 0       | 0            |
| 5   | Y     | 83    | 0        | 70       | 1       | 0            |
| 5   | Z     | 83    | 0        | 70       | 0       | 0            |
| 5   | a     | 83    | 0        | 70       | 0       | 0            |
| 5   | b     | 83    | 0        | 70       | 0       | 0            |
| 6   | Q     | 105   | 0        | 88       | 2       | 0            |
| 6   | W     | 105   | 0        | 88       | 0       | 0            |
| 6   | c     | 105   | 0        | 88       | 0       | 0            |
| 7   | R     | 22    | 0        | 19       | 3       | 0            |
| 7   | X     | 22    | 0        | 19       | 1       | 0            |
| 7   | d     | 22    | 0        | 19       | 0       | 0            |
| 8   | A     | 140   | 0        | 130      | 3       | 0            |
| 8   | E     | 140   | 0        | 130      | 3       | 0            |
| 8   | I     | 140   | 0        | 130      | 2       | 0            |
| All | All   | 22014 | 0        | 19773    | 580     | 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 14.

All (580) 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:I:293:GLN:HB2 | 1:I:334:SER:HB3 | 1.33                     | 1.11              |

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| Atom-1             | Atom-2              | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|---------------------|--------------------------|-------------------|
| 1:E:293:GLN:HB2    | 1:E:334:SER:HB3     | 1.33                     | 1.09              |
| 1:A:293:GLN:HB2    | 1:A:334:SER:HB3     | 1.33                     | 1.08              |
| 1:I:91:GLU:HA      | 1:I:239:CYS:O       | 1.74                     | 0.88              |
| 1:E:91:GLU:HA      | 1:E:239:CYS:O       | 1.74                     | 0.86              |
| 1:A:91:GLU:HA      | 1:A:239:CYS:O       | 1.74                     | 0.86              |
| 1:I:358:ILE:HB     | 1:I:465:THR:HG22    | 1.58                     | 0.84              |
| 1:E:358:ILE:HB     | 1:E:465:THR:HG22    | 1.58                     | 0.84              |
| 1:A:358:ILE:HB     | 1:A:465:THR:HG22    | 1.58                     | 0.84              |
| 1:A:260:LEU:HB2    | 1:A:450:THR:O       | 1.78                     | 0.83              |
| 1:I:260:LEU:HB2    | 1:I:450:THR:O       | 1.79                     | 0.83              |
| 4:D:38:ARG:N       | 4:D:46:GLU:O        | 2.12                     | 0.83              |
| 4:H:38:ARG:N       | 4:H:46:GLU:O        | 2.12                     | 0.82              |
| 4:L:38:ARG:N       | 4:L:46:GLU:O        | 2.12                     | 0.81              |
| 1:E:260:LEU:HB2    | 1:E:450:THR:O       | 1.79                     | 0.81              |
| 4:H:38:ARG:O       | 4:H:46:GLU:N        | 2.15                     | 0.79              |
| 4:D:38:ARG:O       | 4:D:46:GLU:N        | 2.15                     | 0.78              |
| 1:A:269:GLU:HA     | 1:A:289:ASN:HD22    | 1.48                     | 0.78              |
| 1:I:269:GLU:HA     | 1:I:289:ASN:HD22    | 1.48                     | 0.78              |
| 1:E:269:GLU:HA     | 1:E:289:ASN:HD22    | 1.48                     | 0.77              |
| 4:L:38:ARG:O       | 4:L:46:GLU:N        | 2.15                     | 0.76              |
| 1:E:335:LYS:HD3    | 1:E:414:ILE:HD11    | 1.67                     | 0.76              |
| 4:D:99:ARG:HG2     | 4:D:100(L):THR:HG22 | 1.68                     | 0.76              |
| 1:I:335:LYS:HD3    | 1:I:414:ILE:HD11    | 1.68                     | 0.75              |
| 1:A:335:LYS:HD3    | 1:A:414:ILE:HD11    | 1.67                     | 0.75              |
| 1:I:101:VAL:HG13   | 1:I:479:TRP:HB2     | 1.69                     | 0.75              |
| 1:A:55:ALA:HB3     | 1:A:216:HIS:HB2     | 1.68                     | 0.75              |
| 4:L:35:SER:HB3     | 4:L:47:TRP:HE1      | 1.51                     | 0.74              |
| 1:A:101:VAL:HG13   | 1:A:479:TRP:HB2     | 1.69                     | 0.74              |
| 1:E:101:VAL:HG13   | 1:E:479:TRP:HB2     | 1.69                     | 0.74              |
| 1:E:55:ALA:HB3     | 1:E:216:HIS:HB2     | 1.68                     | 0.74              |
| 4:H:99:ARG:HG2     | 4:H:100(L):THR:HG22 | 1.68                     | 0.74              |
| 4:L:99:ARG:HG2     | 4:L:100(L):THR:HG22 | 1.68                     | 0.74              |
| 1:I:55:ALA:HB3     | 1:I:216:HIS:HB2     | 1.68                     | 0.74              |
| 1:A:436:ALA:HB3    | 1:A:437:PRO:HD3     | 1.70                     | 0.73              |
| 1:I:436:ALA:HB3    | 1:I:437:PRO:HD3     | 1.69                     | 0.73              |
| 1:E:436:ALA:HB3    | 1:E:437:PRO:HD3     | 1.70                     | 0.73              |
| 1:A:327:ARG:HA     | 4:D:100(H):LYS:HD2  | 1.71                     | 0.72              |
| 1:E:327:ARG:HA     | 4:H:100(H):LYS:HD2  | 1.70                     | 0.72              |
| 1:E:227:LYS:HE3    | 1:E:485:LYS:HD2     | 1.75                     | 0.69              |
| 1:I:227:LYS:HE3    | 1:I:485:LYS:HD2     | 1.75                     | 0.69              |
| 4:D:100(C):GLY:HA3 | 6:Q:2:NAG:H4        | 1.74                     | 0.69              |

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| Atom-1           | Atom-2              | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|---------------------|--------------------------|-------------------|
| 1:A:227:LYS:HE3  | 1:A:485:LYS:HD2     | 1.75                     | 0.69              |
| 4:L:37:ILE:HG23  | 4:L:47:TRP:HA       | 1.76                     | 0.68              |
| 4:D:37:ILE:HG23  | 4:D:47:TRP:HA       | 1.76                     | 0.68              |
| 4:H:38:ARG:O     | 4:H:46:GLU:O        | 2.12                     | 0.68              |
| 1:E:294:ILE:HG23 | 1:E:447:SER:HB2     | 1.76                     | 0.68              |
| 4:H:37:ILE:HG23  | 4:H:47:TRP:HA       | 1.76                     | 0.67              |
| 1:A:294:ILE:HG23 | 1:A:447:SER:HB2     | 1.76                     | 0.67              |
| 1:E:477:ASP:OD1  | 1:E:480:ARG:NH1     | 2.27                     | 0.67              |
| 1:I:477:ASP:OD1  | 1:I:480:ARG:NH1     | 2.27                     | 0.67              |
| 4:D:38:ARG:O     | 4:D:46:GLU:O        | 2.12                     | 0.67              |
| 2:F:35:UNK:O     | 2:F:37:UNK:O        | 2.12                     | 0.67              |
| 2:B:35:UNK:O     | 2:B:37:UNK:O        | 2.12                     | 0.67              |
| 3:G:39:ARG:HG3   | 3:G:40:PRO:HD2      | 1.77                     | 0.67              |
| 1:A:477:ASP:OD1  | 1:A:480:ARG:NH1     | 2.27                     | 0.67              |
| 2:J:35:UNK:O     | 2:J:37:UNK:O        | 2.12                     | 0.67              |
| 4:L:38:ARG:O     | 4:L:46:GLU:O        | 2.12                     | 0.67              |
| 3:K:39:ARG:HG3   | 3:K:40:PRO:HD2      | 1.77                     | 0.66              |
| 1:I:294:ILE:HG23 | 1:I:447:SER:HB2     | 1.78                     | 0.66              |
| 3:C:39:ARG:HG3   | 3:C:40:PRO:HD2      | 1.77                     | 0.66              |
| 1:A:350:ARG:NH2  | 1:A:397:SER:O       | 2.29                     | 0.66              |
| 4:D:35:SER:HB3   | 4:D:47:TRP:HE1      | 1.62                     | 0.65              |
| 1:I:350:ARG:NH2  | 1:I:397:SER:O       | 2.29                     | 0.65              |
| 1:A:101:VAL:HG21 | 1:A:480:ARG:HG2     | 1.79                     | 0.65              |
| 1:I:327:ARG:HA   | 4:L:100(H):LYS:HD2  | 1.78                     | 0.65              |
| 1:I:101:VAL:HG21 | 1:I:480:ARG:HG2     | 1.79                     | 0.65              |
| 1:E:350:ARG:NH2  | 1:E:397:SER:O       | 2.29                     | 0.64              |
| 3:K:37:GLN:N     | 3:K:45:SER:O        | 2.31                     | 0.64              |
| 1:E:359:ILE:HD12 | 1:E:468:PHE:HE1     | 1.63                     | 0.64              |
| 1:A:68:VAL:O     | 1:A:72:HIS:ND1      | 2.31                     | 0.63              |
| 1:A:359:ILE:HD12 | 1:A:468:PHE:HE1     | 1.63                     | 0.63              |
| 1:E:330:HIS:HE1  | 1:E:415:THR:HG21    | 1.63                     | 0.63              |
| 1:E:68:VAL:O     | 1:E:72:HIS:ND1      | 2.31                     | 0.63              |
| 1:E:91:GLU:O     | 1:E:238:PRO:HA      | 1.99                     | 0.63              |
| 1:I:91:GLU:O     | 1:I:238:PRO:HA      | 1.99                     | 0.63              |
| 1:E:101:VAL:HG21 | 1:E:480:ARG:HG2     | 1.79                     | 0.63              |
| 4:H:34:TRP:CZ3   | 4:H:94:THR:HG22     | 2.34                     | 0.63              |
| 1:I:359:ILE:HD12 | 1:I:468:PHE:HE1     | 1.63                     | 0.63              |
| 3:C:37:GLN:N     | 3:C:45:SER:O        | 2.31                     | 0.62              |
| 3:G:37:GLN:N     | 3:G:45:SER:O        | 2.31                     | 0.62              |
| 1:E:330:HIS:CG   | 4:H:100(E):VAL:HG23 | 2.34                     | 0.62              |
| 1:A:91:GLU:O     | 1:A:238:PRO:HA      | 1.99                     | 0.62              |

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| Atom-1           | Atom-2              | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|---------------------|--------------------------|-------------------|
| 1:A:83:GLU:HG3   | 1:A:84:ILE:H        | 1.65                     | 0.62              |
| 1:I:68:VAL:O     | 1:I:72:HIS:ND1      | 2.31                     | 0.62              |
| 1:A:363:ASN:O    | 1:A:469:ARG:NH1     | 2.33                     | 0.62              |
| 1:I:363:ASN:O    | 1:I:469:ARG:NH1     | 2.33                     | 0.62              |
| 1:A:100:MET:N    | 1:A:100:MET:SD      | 2.73                     | 0.61              |
| 1:E:330:HIS:CB   | 4:H:100(E):VAL:HG23 | 2.30                     | 0.61              |
| 1:I:100:MET:SD   | 1:I:100:MET:N       | 2.73                     | 0.61              |
| 1:E:226:LEU:HD11 | 1:E:487:LYS:HB3     | 1.82                     | 0.61              |
| 1:I:83:GLU:HG3   | 1:I:84:ILE:H        | 1.65                     | 0.61              |
| 1:E:358:ILE:HG13 | 1:E:397:SER:H       | 1.66                     | 0.61              |
| 1:A:332:ASN:HB3  | 8:A:1295:NAG:H82    | 1.82                     | 0.61              |
| 1:E:330:HIS:CE1  | 1:E:415:THR:CG2     | 2.84                     | 0.61              |
| 1:E:363:ASN:O    | 1:E:469:ARG:NH1     | 2.33                     | 0.61              |
| 1:A:177:TYR:HE2  | 1:A:422:GLN:HE21    | 1.49                     | 0.60              |
| 1:I:226:LEU:HD11 | 1:I:487:LYS:HB3     | 1.83                     | 0.60              |
| 1:A:330:HIS:ND1  | 4:D:100(E):VAL:HG23 | 2.16                     | 0.60              |
| 1:E:332:ASN:HB3  | 8:E:1295:NAG:H82    | 1.83                     | 0.60              |
| 4:H:37:ILE:HG13  | 4:H:47:TRP:HD1      | 1.67                     | 0.60              |
| 1:I:358:ILE:HG13 | 1:I:397:SER:H       | 1.66                     | 0.60              |
| 4:L:34:TRP:CZ3   | 4:L:94:THR:HG22     | 2.37                     | 0.60              |
| 1:E:83:GLU:HG3   | 1:E:84:ILE:H        | 1.65                     | 0.60              |
| 1:I:177:TYR:HE2  | 1:I:422:GLN:HE21    | 1.49                     | 0.60              |
| 1:E:226:LEU:HD11 | 1:E:487:LYS:HD3     | 1.82                     | 0.60              |
| 3:G:37:GLN:O     | 3:G:45:SER:O        | 2.20                     | 0.60              |
| 1:E:100:MET:SD   | 1:E:100:MET:N       | 2.73                     | 0.59              |
| 1:I:226:LEU:HD11 | 1:I:487:LYS:HD3     | 1.82                     | 0.59              |
| 1:A:226:LEU:HD11 | 1:A:487:LYS:HD3     | 1.82                     | 0.59              |
| 1:A:358:ILE:HG13 | 1:A:397:SER:H       | 1.66                     | 0.59              |
| 1:E:52:LEU:HB3   | 1:E:217:TYR:HD2     | 1.67                     | 0.59              |
| 1:A:226:LEU:HD11 | 1:A:487:LYS:HB3     | 1.83                     | 0.59              |
| 1:I:52:LEU:HB3   | 1:I:217:TYR:HD2     | 1.68                     | 0.59              |
| 3:C:37:GLN:O     | 3:C:45:SER:O        | 2.20                     | 0.59              |
| 3:K:31:ARG:O     | 4:L:100:ARG:NH1     | 2.34                     | 0.59              |
| 3:K:37:GLN:O     | 3:K:45:SER:O        | 2.20                     | 0.59              |
| 4:L:54:SER:HB2   | 5:Y:6:MAN:O4        | 2.03                     | 0.59              |
| 1:E:256:SER:HB2  | 1:E:374:HIS:HE1     | 1.68                     | 0.59              |
| 4:L:37:ILE:HG13  | 4:L:47:TRP:HD1      | 1.66                     | 0.59              |
| 1:E:177:TYR:HE2  | 1:E:422:GLN:HE21    | 1.49                     | 0.59              |
| 1:I:226:LEU:CD1  | 1:I:487:LYS:HB3     | 2.33                     | 0.59              |
| 1:I:258:GLN:O    | 1:I:452:LEU:HA      | 2.03                     | 0.59              |
| 1:I:476:ARG:HA   | 1:I:479:TRP:CD1     | 2.38                     | 0.59              |

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| Atom-1           | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|--------------------|--------------------------|-------------------|
| 4:D:37:ILE:HG13  | 4:D:47:TRP:HD1     | 1.67                     | 0.58              |
| 1:E:258:GLN:O    | 1:E:452:LEU:HA     | 2.03                     | 0.58              |
| 1:I:256:SER:HB2  | 1:I:374:HIS:HE1    | 1.68                     | 0.58              |
| 1:E:226:LEU:CD1  | 1:E:487:LYS:HB3    | 2.33                     | 0.58              |
| 1:E:476:ARG:HA   | 1:E:479:TRP:CD1    | 2.38                     | 0.58              |
| 1:A:256:SER:HB2  | 1:A:374:HIS:HE1    | 1.68                     | 0.58              |
| 4:L:33:TYR:HB2   | 4:L:95:THR:O       | 2.03                     | 0.58              |
| 1:A:325:ASP:O    | 4:D:100(I):GLU:OE2 | 2.22                     | 0.58              |
| 1:A:258:GLN:O    | 1:A:452:LEU:HA     | 2.03                     | 0.58              |
| 3:K:36:TYR:HA    | 3:K:46:LEU:HA      | 1.85                     | 0.58              |
| 4:D:4:LEU:HD11   | 4:D:94:THR:HG23    | 1.85                     | 0.58              |
| 1:A:476:ARG:HA   | 1:A:479:TRP:CD1    | 2.38                     | 0.57              |
| 1:E:122:LEU:HA   | 1:E:201:ILE:HA     | 1.86                     | 0.57              |
| 3:G:36:TYR:HA    | 3:G:46:LEU:HA      | 1.85                     | 0.57              |
| 1:A:98:ASN:HB3   | 1:A:100:MET:HG2    | 1.87                     | 0.57              |
| 1:I:332:ASN:HB3  | 8:I:1295:NAG:H82   | 1.85                     | 0.57              |
| 3:C:36:TYR:HA    | 3:C:46:LEU:HA      | 1.85                     | 0.57              |
| 1:A:122:LEU:HA   | 1:A:201:ILE:HA     | 1.86                     | 0.57              |
| 1:A:226:LEU:CD1  | 1:A:487:LYS:HB3    | 2.33                     | 0.57              |
| 1:A:422:GLN:O    | 1:A:434:MET:HA     | 2.05                     | 0.57              |
| 3:C:145:VAL:HG12 | 3:C:198:HIS:HB2    | 1.86                     | 0.57              |
| 1:I:98:ASN:HB3   | 1:I:100:MET:HG2    | 1.87                     | 0.57              |
| 1:A:52:LEU:HB3   | 1:A:217:TYR:HD2    | 1.68                     | 0.57              |
| 1:A:53:PHE:HB3   | 1:A:218:CYS:HB2    | 1.87                     | 0.57              |
| 1:I:53:PHE:HB3   | 1:I:218:CYS:HB2    | 1.87                     | 0.57              |
| 3:G:145:VAL:HG12 | 3:G:198:HIS:HB2    | 1.86                     | 0.57              |
| 1:A:259:LEU:HB3  | 1:A:449:ILE:HG23   | 1.85                     | 0.57              |
| 1:I:122:LEU:HA   | 1:I:201:ILE:HA     | 1.86                     | 0.57              |
| 1:I:422:GLN:O    | 1:I:434:MET:HA     | 2.05                     | 0.57              |
| 1:E:325:ASP:O    | 4:H:100(I):GLU:OE2 | 2.23                     | 0.57              |
| 4:L:161:VAL:HG22 | 4:L:180:VAL:HG12   | 1.87                     | 0.57              |
| 1:E:53:PHE:HB3   | 1:E:218:CYS:HB2    | 1.86                     | 0.56              |
| 1:I:259:LEU:HB3  | 1:I:449:ILE:HG23   | 1.86                     | 0.56              |
| 1:E:259:LEU:HB3  | 1:E:449:ILE:HG23   | 1.86                     | 0.56              |
| 1:E:422:GLN:O    | 1:E:434:MET:HA     | 2.05                     | 0.56              |
| 3:K:110:PRO:HB2  | 3:K:111:LYS:HB2    | 1.87                     | 0.56              |
| 4:D:161:VAL:HG22 | 4:D:180:VAL:HG12   | 1.88                     | 0.56              |
| 3:K:145:VAL:HG12 | 3:K:198:HIS:HB2    | 1.87                     | 0.56              |
| 1:E:98:ASN:HB3   | 1:E:100:MET:HG2    | 1.86                     | 0.56              |
| 1:E:330:HIS:HE1  | 1:E:415:THR:CG2    | 2.19                     | 0.56              |
| 4:D:37:ILE:HG13  | 4:D:47:TRP:CD1     | 2.41                     | 0.56              |

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| Atom-1            | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 1:E:82:GLN:O      | 1:E:84:ILE:HG13  | 2.06                     | 0.56              |
| 4:D:37:ILE:HA     | 4:D:47:TRP:HA    | 1.88                     | 0.56              |
| 1:I:82:GLN:O      | 1:I:84:ILE:HG13  | 2.06                     | 0.56              |
| 4:L:37:ILE:HG13   | 4:L:47:TRP:CD1   | 2.41                     | 0.56              |
| 1:A:199:SER:HA    | 1:I:312:PRO:HB3  | 1.86                     | 0.55              |
| 4:H:37:ILE:HA     | 4:H:47:TRP:HA    | 1.88                     | 0.55              |
| 1:A:347:LYS:O     | 1:A:350:ARG:HG2  | 2.06                     | 0.55              |
| 1:I:217:TYR:O     | 1:I:248:THR:HG23 | 2.07                     | 0.55              |
| 4:H:37:ILE:HG13   | 4:H:47:TRP:CD1   | 2.41                     | 0.55              |
| 3:C:50:ASN:OD1    | 4:D:100:ARG:NH2  | 2.36                     | 0.55              |
| 1:I:347:LYS:O     | 1:I:350:ARG:HG2  | 2.06                     | 0.55              |
| 1:E:217:TYR:O     | 1:E:248:THR:HG23 | 2.07                     | 0.55              |
| 4:D:100(A):ILE:HB | 7:R:1:MAN:H3     | 1.88                     | 0.55              |
| 1:E:347:LYS:O     | 1:E:350:ARG:HG2  | 2.06                     | 0.55              |
| 4:H:161:VAL:HG22  | 4:H:180:VAL:HG12 | 1.88                     | 0.55              |
| 1:A:82:GLN:O      | 1:A:84:ILE:HG13  | 2.06                     | 0.54              |
| 1:E:451:GLY:O     | 1:E:452:LEU:HD23 | 2.08                     | 0.54              |
| 1:I:93:PHE:CE1    | 1:I:226:LEU:HD13 | 2.42                     | 0.54              |
| 1:A:93:PHE:CE1    | 1:A:226:LEU:HD13 | 2.42                     | 0.54              |
| 3:C:39:ARG:NH1    | 3:C:81:GLY:O     | 2.40                     | 0.54              |
| 1:E:93:PHE:CE1    | 1:E:226:LEU:HD13 | 2.42                     | 0.54              |
| 1:A:217:TYR:O     | 1:A:248:THR:HG23 | 2.07                     | 0.54              |
| 1:A:346:VAL:HG21  | 1:A:395:TRP:CD1  | 2.43                     | 0.54              |
| 1:E:478:ASN:O     | 1:E:481:SER:OG   | 2.20                     | 0.54              |
| 3:K:39:ARG:NH1    | 3:K:81:GLY:O     | 2.40                     | 0.54              |
| 1:A:396:ILE:HG22  | 1:A:398:ASN:H    | 1.73                     | 0.54              |
| 1:E:396:ILE:HG22  | 1:E:398:ASN:H    | 1.73                     | 0.54              |
| 4:D:34:TRP:CZ3    | 4:D:94:THR:HG22  | 2.43                     | 0.54              |
| 1:E:64:GLU:HB2    | 1:E:209:SER:HB3  | 1.90                     | 0.54              |
| 1:E:344:LYS:HA    | 1:E:347:LYS:HE2  | 1.90                     | 0.54              |
| 3:G:50:ASN:ND2    | 7:X:2:MAN:O2     | 2.38                     | 0.54              |
| 1:I:63:THR:OG1    | 1:I:64:GLU:N     | 2.40                     | 0.54              |
| 1:I:344:LYS:HA    | 1:I:347:LYS:HE2  | 1.90                     | 0.54              |
| 1:E:346:VAL:HG21  | 1:E:395:TRP:CD1  | 2.43                     | 0.54              |
| 1:I:64:GLU:HB2    | 1:I:209:SER:HB3  | 1.90                     | 0.54              |
| 1:I:82:GLN:O      | 1:I:84:ILE:N     | 2.41                     | 0.54              |
| 4:H:4:LEU:HD11    | 4:H:94:THR:HG23  | 1.90                     | 0.54              |
| 4:L:37:ILE:HA     | 4:L:47:TRP:HA    | 1.89                     | 0.54              |
| 1:A:64:GLU:HB2    | 1:A:209:SER:HB3  | 1.90                     | 0.53              |
| 1:I:451:GLY:O     | 1:I:452:LEU:HD23 | 2.07                     | 0.53              |
| 1:A:451:GLY:O     | 1:A:452:LEU:HD23 | 2.07                     | 0.53              |

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| Atom-1            | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 1:E:55:ALA:O      | 1:E:216:HIS:ND1  | 2.42                     | 0.53              |
| 1:E:63:THR:OG1    | 1:E:64:GLU:N     | 2.40                     | 0.53              |
| 1:A:265:LEU:HD23  | 1:A:450:THR:HG23 | 1.91                     | 0.53              |
| 1:A:298:ARG:HG2   | 1:A:383:PHE:CZ   | 2.43                     | 0.53              |
| 3:G:37:GLN:HB2    | 3:G:47:ILE:HG12  | 1.90                     | 0.53              |
| 1:I:55:ALA:O      | 1:I:216:HIS:ND1  | 2.42                     | 0.53              |
| 1:I:346:VAL:HG21  | 1:I:395:TRP:CD1  | 2.43                     | 0.53              |
| 3:K:37:GLN:HB2    | 3:K:47:ILE:HG12  | 1.91                     | 0.53              |
| 3:K:109:GLN:HB3   | 3:K:141:TYR:HE2  | 1.73                     | 0.53              |
| 1:A:82:GLN:O      | 1:A:84:ILE:N     | 2.41                     | 0.53              |
| 1:I:265:LEU:HD23  | 1:I:450:THR:HG23 | 1.90                     | 0.53              |
| 1:A:63:THR:OG1    | 1:A:64:GLU:N     | 2.40                     | 0.53              |
| 1:A:344:LYS:HA    | 1:A:347:LYS:HE2  | 1.90                     | 0.53              |
| 1:E:82:GLN:O      | 1:E:84:ILE:N     | 2.41                     | 0.53              |
| 1:I:46:LYS:HB3    | 1:I:490:LYS:HG3  | 1.90                     | 0.53              |
| 1:A:299:PRO:HA    | 1:A:442:VAL:HA   | 1.91                     | 0.53              |
| 1:A:378:CYS:HB2   | 1:A:383:PHE:CE1  | 2.44                     | 0.53              |
| 3:C:37:GLN:HB2    | 3:C:47:ILE:HG12  | 1.91                     | 0.53              |
| 1:E:46:LYS:HB3    | 1:E:490:LYS:HG3  | 1.91                     | 0.53              |
| 1:A:66:HIS:HB3    | 1:A:213:ILE:HG12 | 1.90                     | 0.53              |
| 4:L:35:SER:OG     | 4:L:95:THR:OG1   | 2.19                     | 0.53              |
| 4:D:100(C):GLY:CA | 6:Q:2:NAG:H4     | 2.37                     | 0.53              |
| 1:E:265:LEU:HD23  | 1:E:450:THR:HG23 | 1.91                     | 0.53              |
| 1:A:305:LYS:O     | 1:A:318:ALA:N    | 2.42                     | 0.53              |
| 1:E:66:HIS:HB3    | 1:E:213:ILE:HG12 | 1.90                     | 0.53              |
| 1:E:378:CYS:HB2   | 1:E:383:PHE:CE1  | 2.44                     | 0.53              |
| 1:I:305:LYS:O     | 1:I:318:ALA:N    | 2.42                     | 0.53              |
| 1:I:298:ARG:HG2   | 1:I:383:PHE:CZ   | 2.43                     | 0.52              |
| 1:E:298:ARG:HG2   | 1:E:383:PHE:CZ   | 2.43                     | 0.52              |
| 1:I:66:HIS:HB3    | 1:I:213:ILE:HG12 | 1.91                     | 0.52              |
| 4:L:189:THR:OG1   | 4:L:190:GLN:N    | 2.42                     | 0.52              |
| 1:E:305:LYS:O     | 1:E:318:ALA:N    | 2.42                     | 0.52              |
| 1:I:299:PRO:HA    | 1:I:442:VAL:HA   | 1.91                     | 0.52              |
| 3:K:133:LEU:HD12  | 3:K:179:LEU:HD23 | 1.92                     | 0.52              |
| 1:A:55:ALA:O      | 1:A:216:HIS:ND1  | 2.42                     | 0.52              |
| 1:E:93:PHE:HE1    | 1:E:226:LEU:HD13 | 1.75                     | 0.52              |
| 1:I:396:ILE:HG22  | 1:I:398:ASN:H    | 1.73                     | 0.52              |
| 1:A:93:PHE:HE1    | 1:A:226:LEU:HD13 | 1.75                     | 0.52              |
| 3:C:133:LEU:HD12  | 3:C:179:LEU:HD23 | 1.92                     | 0.52              |
| 4:H:189:THR:OG1   | 4:H:190:GLN:N    | 2.42                     | 0.52              |
| 1:I:346:VAL:HA    | 1:I:349:LEU:HD12 | 1.92                     | 0.52              |

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| Atom-1           | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|--------------------|--------------------------|-------------------|
| 3:K:109:GLN:HB3  | 3:K:141:TYR:CE2    | 2.45                     | 0.52              |
| 1:I:378:CYS:HB2  | 1:I:383:PHE:CE1    | 2.44                     | 0.52              |
| 1:I:330:HIS:ND1  | 4:L:100(E):VAL:HA  | 2.25                     | 0.52              |
| 4:H:185:SER:O    | 4:H:188:GLY:N      | 2.44                     | 0.51              |
| 1:E:159:PHE:HB2  | 1:E:172:VAL:HG23   | 1.93                     | 0.51              |
| 3:G:39:ARG:NH1   | 3:G:81:GLY:O       | 2.40                     | 0.51              |
| 1:E:299:PRO:HA   | 1:E:442:VAL:HA     | 1.91                     | 0.51              |
| 1:E:346:VAL:HA   | 1:E:349:LEU:HD12   | 1.92                     | 0.51              |
| 1:I:478:ASN:O    | 1:I:481:SER:OG     | 2.20                     | 0.51              |
| 3:C:50:ASN:ND2   | 7:R:2:MAN:O2       | 2.38                     | 0.51              |
| 4:D:185:SER:O    | 4:D:188:GLY:N      | 2.44                     | 0.51              |
| 1:E:252:LYS:HD3  | 5:U:1:NAG:H81      | 1.93                     | 0.51              |
| 4:L:185:SER:O    | 4:L:188:GLY:N      | 2.44                     | 0.51              |
| 1:A:334:SER:HB2  | 8:A:1295:NAG:H83   | 1.93                     | 0.51              |
| 1:A:346:VAL:HA   | 1:A:349:LEU:HD12   | 1.92                     | 0.51              |
| 1:E:90:THR:HG22  | 1:E:91:GLU:H       | 1.76                     | 0.51              |
| 1:I:64:GLU:HA    | 1:I:209:SER:N      | 2.26                     | 0.51              |
| 1:I:90:THR:HG22  | 1:I:91:GLU:H       | 1.76                     | 0.51              |
| 3:G:133:LEU:HD12 | 3:G:179:LEU:HD23   | 1.92                     | 0.50              |
| 4:H:35:SER:HB3   | 4:H:47:TRP:HE1     | 1.76                     | 0.50              |
| 1:I:248:THR:HG22 | 1:I:486:TYR:CE1    | 2.46                     | 0.50              |
| 1:A:64:GLU:HA    | 1:A:209:SER:N      | 2.26                     | 0.50              |
| 1:A:335:LYS:HG3  | 1:A:339:ASN:OD1    | 2.11                     | 0.50              |
| 1:I:286:VAL:HB   | 1:I:452:LEU:HB2    | 1.94                     | 0.50              |
| 1:I:325:ASP:O    | 4:L:100(I):GLU:OE2 | 2.29                     | 0.50              |
| 1:A:212:PRO:HB2  | 5:O:1:NAG:C8       | 2.42                     | 0.50              |
| 1:I:335:LYS:HG3  | 1:I:339:ASN:OD1    | 2.12                     | 0.50              |
| 1:A:159:PHE:HB2  | 1:A:172:VAL:HG23   | 1.92                     | 0.50              |
| 1:A:248:THR:HG22 | 1:A:486:TYR:CE1    | 2.46                     | 0.50              |
| 1:E:64:GLU:HA    | 1:E:209:SER:N      | 2.26                     | 0.50              |
| 1:E:332:ASN:OD1  | 1:E:415:THR:HG23   | 2.11                     | 0.50              |
| 1:I:159:PHE:HB2  | 1:I:172:VAL:HG23   | 1.92                     | 0.50              |
| 1:A:252:LYS:HD3  | 5:O:1:NAG:H81      | 1.93                     | 0.50              |
| 1:A:327:ARG:CA   | 4:D:100(H):LYS:HD2 | 2.41                     | 0.50              |
| 4:D:189:THR:OG1  | 4:D:190:GLN:N      | 2.42                     | 0.50              |
| 1:A:158:SER:O    | 1:A:159:PHE:HD1    | 1.94                     | 0.49              |
| 1:A:330:HIS:CE1  | 4:D:100(E):VAL:HA  | 2.46                     | 0.49              |
| 1:E:96:TRP:HZ2   | 1:E:273:ARG:HB3    | 1.77                     | 0.49              |
| 1:I:93:PHE:HE1   | 1:I:226:LEU:HD13   | 1.75                     | 0.49              |
| 1:A:90:THR:HG22  | 1:A:91:GLU:H       | 1.76                     | 0.49              |
| 1:A:226:LEU:HA   | 1:A:243:SER:O      | 2.12                     | 0.49              |

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| Atom-1            | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 1:E:129:LEU:HA    | 1:E:159:PHE:CE1  | 2.47                     | 0.49              |
| 1:E:474:ASP:HB3   | 1:E:476:ARG:HG2  | 1.94                     | 0.49              |
| 1:E:212:PRO:HB2   | 5:U:1:NAG:C8     | 2.42                     | 0.49              |
| 3:G:37:GLN:HB2    | 3:G:47:ILE:CG1   | 2.42                     | 0.49              |
| 1:A:96:TRP:HZ2    | 1:A:273:ARG:HB3  | 1.76                     | 0.49              |
| 1:E:335:LYS:HG3   | 1:E:339:ASN:OD1  | 2.12                     | 0.49              |
| 1:E:226:LEU:HA    | 1:E:243:SER:O    | 2.12                     | 0.49              |
| 1:E:248:THR:HG22  | 1:E:486:TYR:CE1  | 2.46                     | 0.49              |
| 1:I:96:TRP:HZ2    | 1:I:273:ARG:HB3  | 1.77                     | 0.49              |
| 3:K:37:GLN:HB2    | 3:K:47:ILE:CG1   | 2.42                     | 0.49              |
| 1:E:202:THR:HA    | 1:E:434:MET:HB2  | 1.95                     | 0.49              |
| 1:I:226:LEU:HA    | 1:I:243:SER:O    | 2.12                     | 0.49              |
| 1:A:474:ASP:HB3   | 1:A:476:ARG:HG2  | 1.94                     | 0.49              |
| 1:E:286:VAL:HB    | 1:E:452:LEU:HB2  | 1.94                     | 0.49              |
| 1:E:158:SER:O     | 1:E:159:PHE:HD1  | 1.94                     | 0.49              |
| 1:E:334:SER:HB2   | 8:E:1295:NAG:H83 | 1.94                     | 0.48              |
| 1:I:202:THR:HA    | 1:I:434:MET:HB2  | 1.95                     | 0.48              |
| 4:D:100(A):ILE:HB | 7:R:1:MAN:C3     | 2.42                     | 0.48              |
| 1:I:129:LEU:HA    | 1:I:159:PHE:CE1  | 2.48                     | 0.48              |
| 1:I:158:SER:O     | 1:I:159:PHE:HD1  | 1.95                     | 0.48              |
| 4:L:35:SER:CB     | 4:L:95:THR:OG1   | 2.61                     | 0.48              |
| 1:E:129:LEU:HG    | 1:E:159:PHE:CZ   | 2.48                     | 0.48              |
| 1:A:85:HIS:CE1    | 1:A:241:SER:HA   | 2.49                     | 0.48              |
| 1:A:455:THR:HG23  | 1:A:471:GLY:HA3  | 1.95                     | 0.48              |
| 1:A:46:LYS:HB3    | 1:A:490:LYS:HG3  | 1.94                     | 0.48              |
| 1:E:129:LEU:HA    | 1:E:159:PHE:HE1  | 1.79                     | 0.48              |
| 1:A:129:LEU:HA    | 1:A:159:PHE:CE1  | 2.47                     | 0.48              |
| 1:A:129:LEU:HA    | 1:A:159:PHE:HE1  | 1.79                     | 0.48              |
| 1:I:474:ASP:HB3   | 1:I:476:ARG:HG2  | 1.94                     | 0.48              |
| 1:A:212:PRO:HB2   | 5:O:1:NAG:H83    | 1.96                     | 0.48              |
| 1:A:478:ASN:O     | 1:A:481:SER:OG   | 2.20                     | 0.48              |
| 3:C:37:GLN:O      | 3:C:45:SER:OG    | 2.21                     | 0.48              |
| 3:C:37:GLN:HB2    | 3:C:47:ILE:CG1   | 2.42                     | 0.48              |
| 3:C:36:TYR:HB3    | 3:C:45:SER:O     | 2.14                     | 0.48              |
| 1:E:455:THR:HG23  | 1:E:471:GLY:HA3  | 1.95                     | 0.48              |
| 1:I:85:HIS:CE1    | 1:I:241:SER:HA   | 2.49                     | 0.48              |
| 1:I:455:THR:HG23  | 1:I:471:GLY:HA3  | 1.95                     | 0.48              |
| 1:I:375:SER:HA    | 1:I:383:PHE:O    | 2.14                     | 0.47              |
| 3:K:36:TYR:HB3    | 3:K:45:SER:O     | 2.14                     | 0.47              |
| 1:A:286:VAL:HB    | 1:A:452:LEU:HB2  | 1.94                     | 0.47              |
| 1:A:375:SER:HA    | 1:A:383:PHE:O    | 2.14                     | 0.47              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:I:365:SER:HB2  | 1:I:469:ARG:HD3   | 1.96                     | 0.47              |
| 1:A:365:SER:HB2  | 1:A:469:ARG:HD3   | 1.96                     | 0.47              |
| 3:G:36:TYR:HB3   | 3:G:45:SER:O      | 2.14                     | 0.47              |
| 1:I:259:LEU:HD13 | 1:I:449:ILE:HD13  | 1.96                     | 0.47              |
| 3:K:30:SER:HB2   | 4:L:100(B):TYR:OH | 2.15                     | 0.47              |
| 1:A:64:GLU:OE2   | 1:A:211:GLU:N     | 2.48                     | 0.47              |
| 3:K:17:GLN:CD    | 3:K:18:THR:H      | 2.18                     | 0.47              |
| 1:A:65:LYS:HG3   | 1:A:208:VAL:HB    | 1.96                     | 0.47              |
| 1:E:85:HIS:ND1   | 1:E:242:VAL:O     | 2.36                     | 0.47              |
| 1:E:85:HIS:CE1   | 1:E:241:SER:HA    | 2.49                     | 0.47              |
| 1:I:55:ALA:HB3   | 1:I:216:HIS:CB    | 2.42                     | 0.47              |
| 4:D:43:LYS:HE3   | 4:D:43:LYS:HB3    | 1.65                     | 0.47              |
| 1:E:212:PRO:HB2  | 5:U:1:NAG:H83     | 1.96                     | 0.47              |
| 1:E:354:GLY:O    | 1:E:357:THR:OG1   | 2.33                     | 0.47              |
| 1:E:365:SER:HB2  | 1:E:469:ARG:HD3   | 1.97                     | 0.47              |
| 1:I:64:GLU:OE2   | 1:I:211:GLU:N     | 2.48                     | 0.47              |
| 1:I:129:LEU:HG   | 1:I:159:PHE:CZ    | 2.49                     | 0.47              |
| 1:I:330:HIS:CE1  | 1:I:415:THR:CG2   | 2.98                     | 0.47              |
| 1:I:333:VAL:HG13 | 1:I:414:ILE:HD12  | 1.97                     | 0.47              |
| 4:L:124:PRO:HG3  | 4:L:136:LEU:HG    | 1.97                     | 0.47              |
| 1:A:75:VAL:HG22  | 1:A:76:PRO:HD2    | 1.97                     | 0.47              |
| 1:A:416:LEU:HA   | 1:A:417:PRO:HD3   | 1.65                     | 0.47              |
| 2:B:35:UNK:O     | 2:B:36:UNK:C      | 2.63                     | 0.47              |
| 1:E:64:GLU:OE2   | 1:E:211:GLU:N     | 2.48                     | 0.47              |
| 1:E:65:LYS:HG3   | 1:E:208:VAL:HB    | 1.96                     | 0.47              |
| 1:E:175:LEU:HD21 | 1:E:320:GLY:HA3   | 1.97                     | 0.47              |
| 1:E:375:SER:HA   | 1:E:383:PHE:O     | 2.15                     | 0.47              |
| 1:A:129:LEU:HG   | 1:A:159:PHE:CZ    | 2.49                     | 0.47              |
| 1:E:298:ARG:HB3  | 1:E:329:ALA:HB1   | 1.97                     | 0.47              |
| 3:G:17:GLN:CD    | 3:G:18:THR:H      | 2.18                     | 0.47              |
| 3:G:37:GLN:O     | 3:G:45:SER:OG     | 2.20                     | 0.47              |
| 1:I:65:LYS:HG3   | 1:I:208:VAL:HB    | 1.96                     | 0.47              |
| 1:I:75:VAL:HG22  | 1:I:76:PRO:HD2    | 1.97                     | 0.47              |
| 1:I:332:ASN:OD1  | 1:I:415:THR:HG23  | 2.15                     | 0.47              |
| 4:L:35:SER:HG    | 4:L:95:THR:CB     | 2.25                     | 0.47              |
| 1:I:298:ARG:H    | 1:I:298:ARG:HG3   | 1.60                     | 0.47              |
| 1:I:330:HIS:CE1  | 4:L:100(E):VAL:HA | 2.50                     | 0.47              |
| 4:L:36:TRP:HE1   | 4:L:78:VAL:HG12   | 1.80                     | 0.47              |
| 1:A:202:THR:HA   | 1:A:434:MET:HB2   | 1.96                     | 0.46              |
| 1:A:333:VAL:HG13 | 1:A:414:ILE:HD12  | 1.97                     | 0.46              |
| 1:E:259:LEU:HD13 | 1:E:449:ILE:HD13  | 1.97                     | 0.46              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:E:64:GLU:HG2   | 1:E:67:ASN:H     | 1.80                     | 0.46              |
| 1:A:64:GLU:HG2   | 1:A:67:ASN:H     | 1.80                     | 0.46              |
| 1:A:85:HIS:CE1   | 1:A:242:VAL:H    | 2.34                     | 0.46              |
| 1:A:324:GLY:HA2  | 3:C:67(C):PHE:CZ | 2.50                     | 0.46              |
| 4:H:36:TRP:HE1   | 4:H:78:VAL:HG12  | 1.80                     | 0.46              |
| 4:H:124:PRO:HG3  | 4:H:136:LEU:HG   | 1.98                     | 0.46              |
| 1:E:55:ALA:HB3   | 1:E:216:HIS:CB   | 2.42                     | 0.46              |
| 3:C:17:GLN:CD    | 3:C:18:THR:H     | 2.18                     | 0.46              |
| 1:E:75:VAL:HG22  | 1:E:76:PRO:HD2   | 1.97                     | 0.46              |
| 1:I:272:ILE:HG22 | 1:I:286:VAL:HG13 | 1.98                     | 0.46              |
| 1:A:85:HIS:ND1   | 1:A:242:VAL:O    | 2.36                     | 0.46              |
| 1:E:252:LYS:HD3  | 5:U:1:NAG:C8     | 2.44                     | 0.46              |
| 1:I:64:GLU:HG2   | 1:I:67:ASN:H     | 1.80                     | 0.46              |
| 1:A:252:LYS:HD3  | 5:O:1:NAG:C8     | 2.45                     | 0.46              |
| 1:I:175:LEU:HD21 | 1:I:320:GLY:HA3  | 1.98                     | 0.46              |
| 1:A:49:GLU:HG3   | 1:A:223:PHE:HE2  | 1.79                     | 0.46              |
| 1:A:55:ALA:HB3   | 1:A:216:HIS:CB   | 2.42                     | 0.46              |
| 1:A:259:LEU:HD13 | 1:A:449:ILE:HD13 | 1.97                     | 0.46              |
| 1:I:129:LEU:HA   | 1:I:159:PHE:HE1  | 1.81                     | 0.46              |
| 1:A:332:ASN:OD1  | 1:A:415:THR:HG23 | 2.16                     | 0.46              |
| 1:A:96:TRP:CH2   | 1:A:235:GLY:HA3  | 2.51                     | 0.45              |
| 4:D:36:TRP:HE1   | 4:D:78:VAL:HG12  | 1.80                     | 0.45              |
| 2:F:35:UNK:O     | 2:F:36:UNK:C     | 2.63                     | 0.45              |
| 1:I:85:HIS:CE1   | 1:I:242:VAL:H    | 2.34                     | 0.45              |
| 1:I:330:HIS:CE1  | 1:I:415:THR:HG21 | 2.51                     | 0.45              |
| 1:A:57:ASP:OD1   | 1:A:58:ALA:N     | 2.49                     | 0.45              |
| 1:A:298:ARG:HB3  | 1:A:329:ALA:HB1  | 1.98                     | 0.45              |
| 1:A:354:GLY:O    | 1:A:357:THR:OG1  | 2.34                     | 0.45              |
| 4:D:47:TRP:O     | 4:D:48:ILE:HG13  | 2.16                     | 0.45              |
| 1:E:85:HIS:CE1   | 1:E:242:VAL:H    | 2.34                     | 0.45              |
| 1:E:298:ARG:HG2  | 1:E:383:PHE:HZ   | 1.82                     | 0.45              |
| 3:G:31:ARG:O     | 4:H:100:ARG:NH1  | 2.45                     | 0.45              |
| 4:H:47:TRP:O     | 4:H:48:ILE:HG13  | 2.16                     | 0.45              |
| 1:A:175:LEU:HD21 | 1:A:320:GLY:HA3  | 1.97                     | 0.45              |
| 1:A:272:ILE:HG22 | 1:A:286:VAL:HG13 | 1.98                     | 0.45              |
| 1:E:49:GLU:HG3   | 1:E:223:PHE:HE2  | 1.81                     | 0.45              |
| 1:E:57:ASP:OD1   | 1:E:58:ALA:N     | 2.48                     | 0.45              |
| 1:E:96:TRP:CH2   | 1:E:235:GLY:HA3  | 2.51                     | 0.45              |
| 1:E:223:PHE:CE2  | 1:E:490:LYS:HB3  | 2.52                     | 0.45              |
| 1:A:298:ARG:HG2  | 1:A:383:PHE:HZ   | 1.82                     | 0.45              |
| 1:I:298:ARG:HG2  | 1:I:383:PHE:HZ   | 1.82                     | 0.45              |

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| Atom-1           | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|--------------------|--------------------------|-------------------|
| 2:J:35:UNK:O     | 2:J:36:UNK:C       | 2.63                     | 0.45              |
| 1:I:49:GLU:HG3   | 1:I:223:PHE:HE2    | 1.80                     | 0.45              |
| 1:A:65:LYS:NZ    | 1:A:208:VAL:HG11   | 2.32                     | 0.45              |
| 4:D:124:PRO:HG3  | 4:D:136:LEU:HG     | 1.97                     | 0.45              |
| 1:E:272:ILE:HG22 | 1:E:286:VAL:HG13   | 1.98                     | 0.45              |
| 1:I:96:TRP:CH2   | 1:I:235:GLY:HA3    | 2.52                     | 0.45              |
| 1:I:65:LYS:NZ    | 1:I:208:VAL:HG11   | 2.32                     | 0.45              |
| 1:E:44:VAL:HB    | 1:E:492:GLU:HB2    | 1.99                     | 0.45              |
| 1:A:252:LYS:HB3  | 5:O:1:NAG:H81      | 1.98                     | 0.45              |
| 3:C:46:LEU:HD23  | 3:C:55:PRO:HG3     | 1.99                     | 0.45              |
| 3:G:116:VAL:HG23 | 3:G:205:LYS:HD2    | 1.99                     | 0.45              |
| 1:I:220:PRO:HG2  | 1:I:223:PHE:CD1    | 2.52                     | 0.45              |
| 1:I:298:ARG:HB3  | 1:I:329:ALA:HB1    | 1.99                     | 0.45              |
| 1:E:422:GLN:OE1  | 1:E:436:ALA:HA     | 2.17                     | 0.44              |
| 4:L:66:ARG:HD2   | 4:L:82(A):THR:O    | 2.17                     | 0.44              |
| 4:D:66:ARG:HD2   | 4:D:82(A):THR:O    | 2.17                     | 0.44              |
| 1:I:354:GLY:O    | 1:I:357:THR:OG1    | 2.34                     | 0.44              |
| 1:E:62:GLU:O     | 1:E:63:THR:OG1     | 2.35                     | 0.44              |
| 1:E:161:MET:HE2  | 1:E:172:VAL:HG11   | 1.99                     | 0.44              |
| 1:E:219:ALA:HB2  | 1:E:225:ILE:HG13   | 2.00                     | 0.44              |
| 1:E:220:PRO:HG2  | 1:E:223:PHE:CD1    | 2.52                     | 0.44              |
| 4:H:66:ARG:HD2   | 4:H:82(A):THR:O    | 2.17                     | 0.44              |
| 1:I:85:HIS:ND1   | 1:I:242:VAL:O      | 2.36                     | 0.44              |
| 4:L:47:TRP:O     | 4:L:48:ILE:HG13    | 2.16                     | 0.44              |
| 3:K:37:GLN:O     | 3:K:45:SER:C       | 2.56                     | 0.44              |
| 1:A:138:ILE:C    | 5:M:1:NAG:HN2      | 2.21                     | 0.44              |
| 3:C:167:LYS:HE3  | 3:C:173:TYR:CE1    | 2.52                     | 0.44              |
| 1:E:65:LYS:NZ    | 1:E:208:VAL:HG11   | 2.32                     | 0.44              |
| 1:I:259:LEU:HA   | 1:I:451:GLY:O      | 2.18                     | 0.44              |
| 1:I:327:ARG:CA   | 4:L:100(H):LYS:HD2 | 2.44                     | 0.44              |
| 3:K:46:LEU:HD23  | 3:K:55:PRO:HG3     | 1.99                     | 0.44              |
| 4:L:34:TRP:CZ3   | 4:L:94:THR:CG2     | 3.01                     | 0.44              |
| 1:A:259:LEU:HA   | 1:A:451:GLY:O      | 2.18                     | 0.44              |
| 1:A:260:LEU:HD21 | 1:A:481:SER:OG     | 2.18                     | 0.44              |
| 1:A:369:LEU:H    | 1:A:369:LEU:HG     | 1.58                     | 0.44              |
| 3:G:37:GLN:O     | 3:G:45:SER:C       | 2.56                     | 0.44              |
| 1:I:260:LEU:HD21 | 1:I:481:SER:OG     | 2.17                     | 0.44              |
| 1:I:440:GLN:HB3  | 1:I:441:GLY:H      | 1.53                     | 0.44              |
| 1:A:219:ALA:HB2  | 1:A:225:ILE:HG13   | 2.00                     | 0.44              |
| 3:C:37:GLN:O     | 3:C:45:SER:C       | 2.56                     | 0.44              |
| 1:E:255:VAL:HG13 | 1:E:475:MET:SD     | 2.58                     | 0.44              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:I:223:PHE:CD2  | 1:I:490:LYS:HB3  | 2.51                     | 0.44              |
| 3:K:186:TRP:HH2  | 3:K:207:VAL:HG22 | 1.83                     | 0.44              |
| 1:E:333:VAL:HG13 | 1:E:414:ILE:HD12 | 1.98                     | 0.44              |
| 3:G:186:TRP:HH2  | 3:G:207:VAL:HG22 | 1.83                     | 0.44              |
| 3:K:116:VAL:HG23 | 3:K:205:LYS:HD2  | 1.99                     | 0.44              |
| 3:C:186:TRP:HH2  | 3:C:207:VAL:HG22 | 1.83                     | 0.44              |
| 1:E:279:ASN:HB2  | 8:E:1276:NAG:O5  | 2.18                     | 0.44              |
| 1:E:63:THR:O     | 1:E:208:VAL:HA   | 2.18                     | 0.43              |
| 1:E:298:ARG:H    | 1:E:298:ARG:HG3  | 1.59                     | 0.43              |
| 3:G:167:LYS:HE3  | 3:G:173:TYR:CE1  | 2.53                     | 0.43              |
| 4:L:18:LEU:HD11  | 4:L:20:LEU:HD21  | 2.00                     | 0.43              |
| 3:C:47:ILE:HD13  | 3:C:47:ILE:HA    | 1.87                     | 0.43              |
| 1:I:255:VAL:HG13 | 1:I:475:MET:SD   | 2.58                     | 0.43              |
| 1:I:369:LEU:H    | 1:I:369:LEU:HG   | 1.58                     | 0.43              |
| 4:L:93:ALA:HA    | 4:L:100(R):VAL:O | 2.18                     | 0.43              |
| 1:A:54:CYS:SG    | 1:A:215:ILE:HG23 | 2.58                     | 0.43              |
| 1:I:57:ASP:OD1   | 1:I:58:ALA:N     | 2.52                     | 0.43              |
| 1:I:422:GLN:OE1  | 1:I:436:ALA:HA   | 2.17                     | 0.43              |
| 1:A:422:GLN:OE1  | 1:A:436:ALA:HA   | 2.17                     | 0.43              |
| 1:E:416:LEU:HA   | 1:E:417:PRO:HD3  | 1.65                     | 0.43              |
| 4:H:43:LYS:HE3   | 4:H:43:LYS:HB3   | 1.65                     | 0.43              |
| 1:A:255:VAL:HG13 | 1:A:475:MET:SD   | 2.58                     | 0.43              |
| 3:C:116:VAL:HG23 | 3:C:205:LYS:HD2  | 2.00                     | 0.43              |
| 1:E:259:LEU:HA   | 1:E:451:GLY:O    | 2.18                     | 0.43              |
| 1:I:219:ALA:HB2  | 1:I:225:ILE:HG13 | 2.00                     | 0.43              |
| 4:L:38:ARG:O     | 4:L:46:GLU:C     | 2.57                     | 0.43              |
| 1:A:330:HIS:CE1  | 1:A:415:THR:HG21 | 2.54                     | 0.43              |
| 1:E:61:TYR:HB3   | 1:E:62:GLU:H     | 1.53                     | 0.43              |
| 1:I:54:CYS:SG    | 1:I:215:ILE:HG23 | 2.59                     | 0.43              |
| 3:K:167:LYS:HE3  | 3:K:173:TYR:CE1  | 2.53                     | 0.43              |
| 1:A:63:THR:O     | 1:A:208:VAL:HA   | 2.18                     | 0.43              |
| 1:E:129:LEU:HG   | 1:E:159:PHE:HZ   | 1.83                     | 0.43              |
| 1:E:239:CYS:HA   | 1:E:240:PRO:HD3  | 1.46                     | 0.43              |
| 4:D:111:SER:O    | 4:D:111:SER:OG   | 2.32                     | 0.43              |
| 3:G:46:LEU:HD23  | 3:G:55:PRO:HG3   | 1.99                     | 0.43              |
| 1:I:63:THR:O     | 1:I:208:VAL:HA   | 2.18                     | 0.43              |
| 1:I:104:MET:HG3  | 1:I:217:TYR:OH   | 2.19                     | 0.43              |
| 1:A:220:PRO:HG2  | 1:A:223:PHE:CD1  | 2.53                     | 0.43              |
| 1:E:252:LYS:HB3  | 5:U:1:NAG:H81    | 2.01                     | 0.43              |
| 3:K:47:ILE:HD12  | 3:K:47:ILE:HG23  | 1.80                     | 0.43              |
| 1:E:93:PHE:HD2   | 1:E:239:CYS:HB3  | 1.84                     | 0.43              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 4:L:43:LYS:HB3   | 4:L:43:LYS:HE3   | 1.65                     | 0.43              |
| 1:A:292:VAL:HB   | 1:A:449:ILE:HB   | 2.01                     | 0.42              |
| 1:E:54:CYS:SG    | 1:E:215:ILE:HG23 | 2.58                     | 0.42              |
| 1:E:260:LEU:HD21 | 1:E:481:SER:OG   | 2.18                     | 0.42              |
| 1:I:301:ASN:O    | 1:I:302:ASN:ND2  | 2.52                     | 0.42              |
| 4:D:38:ARG:O     | 4:D:46:GLU:C     | 2.57                     | 0.42              |
| 1:A:298:ARG:H    | 1:A:298:ARG:HG3  | 1.58                     | 0.42              |
| 1:A:453:ILE:O    | 1:A:454:LEU:HD23 | 2.19                     | 0.42              |
| 1:I:335:LYS:HA   | 1:I:338:TRP:HB3  | 2.02                     | 0.42              |
| 1:A:93:PHE:HD2   | 1:A:239:CYS:HB3  | 1.84                     | 0.42              |
| 1:I:44:VAL:HB    | 1:I:492:GLU:HB2  | 2.00                     | 0.42              |
| 1:A:104:MET:HG3  | 1:A:217:TYR:OH   | 2.19                     | 0.42              |
| 1:A:129:LEU:HG   | 1:A:159:PHE:HZ   | 1.84                     | 0.42              |
| 1:I:129:LEU:HG   | 1:I:159:PHE:HZ   | 1.85                     | 0.42              |
| 1:I:239:CYS:HA   | 1:I:240:PRO:HD3  | 1.46                     | 0.42              |
| 1:I:359:ILE:HD13 | 1:I:466:GLU:HB2  | 2.02                     | 0.42              |
| 1:A:223:PHE:CE2  | 1:A:490:LYS:HB3  | 2.54                     | 0.42              |
| 1:E:292:VAL:HB   | 1:E:449:ILE:HB   | 2.01                     | 0.42              |
| 1:E:453:ILE:O    | 1:E:454:LEU:HD23 | 2.19                     | 0.42              |
| 1:E:223:PHE:CD2  | 1:E:490:LYS:HB3  | 2.55                     | 0.42              |
| 1:I:161:MET:SD   | 1:I:172:VAL:HG21 | 2.60                     | 0.42              |
| 1:I:453:ILE:O    | 1:I:454:LEU:HD23 | 2.19                     | 0.42              |
| 1:I:161:MET:O    | 1:I:169:LYS:HA   | 2.20                     | 0.42              |
| 1:E:104:MET:HG3  | 1:E:217:TYR:OH   | 2.19                     | 0.42              |
| 4:H:18:LEU:HD11  | 4:H:20:LEU:HD21  | 2.01                     | 0.42              |
| 1:A:359:ILE:HD13 | 1:A:466:GLU:HB2  | 2.02                     | 0.42              |
| 1:E:54:CYS:HA    | 1:E:216:HIS:O    | 2.20                     | 0.42              |
| 1:E:138:ILE:C    | 5:S:1:NAG:HN2    | 2.23                     | 0.42              |
| 1:I:45:TRP:HB3   | 1:I:489:VAL:HG21 | 2.02                     | 0.42              |
| 1:A:330:HIS:CE1  | 1:A:415:THR:CG2  | 3.03                     | 0.41              |
| 4:D:18:LEU:HD11  | 4:D:20:LEU:HD21  | 2.01                     | 0.41              |
| 1:I:54:CYS:HA    | 1:I:216:HIS:O    | 2.20                     | 0.41              |
| 1:E:335:LYS:O    | 1:E:339:ASN:N    | 2.48                     | 0.41              |
| 1:E:335:LYS:HA   | 1:E:338:TRP:HB3  | 2.03                     | 0.41              |
| 1:A:54:CYS:HA    | 1:A:216:HIS:O    | 2.20                     | 0.41              |
| 4:D:197:ASN:OD1  | 4:D:199:LYS:HG3  | 2.21                     | 0.41              |
| 1:E:436:ALA:CB   | 1:E:437:PRO:HD3  | 2.46                     | 0.41              |
| 4:H:197:ASN:OD1  | 4:H:199:LYS:HG3  | 2.21                     | 0.41              |
| 1:E:220:PRO:HB2  | 1:E:221:ALA:H    | 1.76                     | 0.41              |
| 1:I:93:PHE:HD2   | 1:I:239:CYS:HB3  | 1.84                     | 0.41              |
| 1:A:335:LYS:O    | 1:A:339:ASN:N    | 2.48                     | 0.41              |

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| Atom-1           | Atom-2              | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|---------------------|--------------------------|-------------------|
| 4:L:38:ARG:HB3   | 4:L:48:ILE:HD11     | 2.03                     | 0.41              |
| 1:A:301:ASN:O    | 1:A:302:ASN:ND2     | 2.54                     | 0.41              |
| 1:A:385:CYS:O    | 1:A:387:THR:HG23    | 2.21                     | 0.41              |
| 1:E:325:ASP:CB   | 3:G:94:ARG:HH11     | 2.33                     | 0.41              |
| 1:A:44:VAL:HB    | 1:A:492:GLU:HB2     | 2.01                     | 0.41              |
| 1:A:231:LYS:H    | 1:A:231:LYS:HD3     | 1.85                     | 0.41              |
| 1:A:279:ASN:HB2  | 8:A:1276:NAG:O5     | 2.21                     | 0.41              |
| 1:E:231:LYS:H    | 1:E:231:LYS:HD3     | 1.85                     | 0.41              |
| 4:H:38:ARG:HB3   | 4:H:48:ILE:HD11     | 2.03                     | 0.41              |
| 4:D:36:TRP:O     | 4:D:48:ILE:HB       | 2.21                     | 0.41              |
| 1:E:359:ILE:HD13 | 1:E:466:GLU:HB2     | 2.02                     | 0.41              |
| 4:H:36:TRP:O     | 4:H:48:ILE:HB       | 2.21                     | 0.41              |
| 4:H:46:GLU:O     | 4:H:47:TRP:O        | 2.39                     | 0.41              |
| 1:I:334:SER:HB2  | 8:I:1295:NAG:H83    | 2.02                     | 0.41              |
| 1:I:335:LYS:HE2  | 1:I:339:ASN:ND2     | 2.36                     | 0.41              |
| 1:I:385:CYS:O    | 1:I:387:THR:HG23    | 2.21                     | 0.41              |
| 4:L:197:ASN:OD1  | 4:L:199:LYS:HG3     | 2.20                     | 0.41              |
| 1:A:83:GLU:HA    | 1:A:244:THR:O       | 2.21                     | 0.41              |
| 1:A:231:LYS:HB2  | 1:A:231:LYS:NZ      | 2.36                     | 0.41              |
| 1:E:385:CYS:O    | 1:E:387:THR:HG23    | 2.21                     | 0.41              |
| 1:I:62:GLU:HB3   | 1:I:63:THR:H        | 1.67                     | 0.41              |
| 1:I:231:LYS:H    | 1:I:231:LYS:HD3     | 1.85                     | 0.41              |
| 1:I:231:LYS:NZ   | 1:I:231:LYS:HB2     | 2.36                     | 0.41              |
| 1:E:292:VAL:HG11 | 1:E:338:TRP:HE3     | 1.86                     | 0.41              |
| 1:I:83:GLU:HA    | 1:I:244:THR:O       | 2.21                     | 0.41              |
| 1:I:292:VAL:HB   | 1:I:449:ILE:HB      | 2.02                     | 0.40              |
| 1:A:220:PRO:HB2  | 1:A:221:ALA:H       | 1.76                     | 0.40              |
| 4:D:46:GLU:O     | 4:D:47:TRP:O        | 2.39                     | 0.40              |
| 1:E:45:TRP:HB3   | 1:E:489:VAL:HG21    | 2.02                     | 0.40              |
| 1:E:335:LYS:HE2  | 1:E:339:ASN:ND2     | 2.36                     | 0.40              |
| 1:I:330:HIS:HB3  | 4:L:100(E):VAL:HG23 | 2.03                     | 0.40              |
| 1:A:239:CYS:HA   | 1:A:240:PRO:HD3     | 1.46                     | 0.40              |
| 1:E:331:CYS:SG   | 1:E:332:ASN:N       | 2.95                     | 0.40              |
| 4:L:35:SER:HB2   | 4:L:95:THR:OG1      | 2.21                     | 0.40              |
| 4:L:36:TRP:O     | 4:L:48:ILE:HB       | 2.21                     | 0.40              |
| 4:L:117:PRO:HB3  | 4:L:143:TYR:HB3     | 2.04                     | 0.40              |
| 4:H:30:ARG:HD3   | 4:H:73:LYS:HD3      | 2.04                     | 0.40              |
| 1:I:223:PHE:CE2  | 1:I:490:LYS:HB3     | 2.57                     | 0.40              |
| 1:I:345:VAL:O    | 1:I:349:LEU:HG      | 2.22                     | 0.40              |
| 1:I:359:ILE:HD12 | 1:I:468:PHE:CE1     | 2.50                     | 0.40              |
| 2:J:9:UNK:O      | 2:J:10:UNK:C        | 2.69                     | 0.40              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:161:MET:SD   | 1:A:172:VAL:HG21 | 2.61                     | 0.40              |
| 1:A:335:LYS:HE2  | 1:A:339:ASN:ND2  | 2.36                     | 0.40              |
| 1:A:335:LYS:HA   | 1:A:338:TRP:HB3  | 2.03                     | 0.40              |
| 4:D:1:GLN:OE1    | 4:D:1:GLN:N      | 2.53                     | 0.40              |
| 1:I:292:VAL:HG11 | 1:I:338:TRP:HE3  | 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 X-ray entries followed by that with respect to entries of similar resolution.

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     | 414/475 (87%)   | 349 (84%)  | 51 (12%) | 14 (3%)  | 3           | 29  |
| 1   | E     | 414/475 (87%)   | 348 (84%)  | 51 (12%) | 15 (4%)  | 3           | 28  |
| 1   | I     | 414/475 (87%)   | 348 (84%)  | 52 (13%) | 14 (3%)  | 3           | 29  |
| 3   | C     | 198/211 (94%)   | 191 (96%)  | 7 (4%)   | 0        | 100         | 100 |
| 3   | G     | 198/211 (94%)   | 191 (96%)  | 7 (4%)   | 0        | 100         | 100 |
| 3   | K     | 198/211 (94%)   | 192 (97%)  | 6 (3%)   | 0        | 100         | 100 |
| 4   | D     | 220/235 (94%)   | 213 (97%)  | 6 (3%)   | 1 (0%)   | 29          | 68  |
| 4   | H     | 220/235 (94%)   | 213 (97%)  | 6 (3%)   | 1 (0%)   | 29          | 68  |
| 4   | L     | 220/235 (94%)   | 213 (97%)  | 6 (3%)   | 1 (0%)   | 29          | 68  |
| All | All   | 2496/2763 (90%) | 2258 (90%) | 192 (8%) | 46 (2%)  | 8           | 41  |

All (46) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 57  | ASP  |
| 1   | A     | 83  | GLU  |
| 1   | A     | 323 | ILE  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | A            | 429        | ARG         |
| 1          | E            | 57         | ASP         |
| 1          | E            | 83         | GLU         |
| 1          | E            | 323        | ILE         |
| 1          | E            | 429        | ARG         |
| 1          | I            | 57         | ASP         |
| 1          | I            | 83         | GLU         |
| 1          | I            | 323        | ILE         |
| 1          | I            | 429        | ARG         |
| 1          | A            | 195        | ASN         |
| 1          | A            | 322        | ILE         |
| 4          | D            | 189        | THR         |
| 1          | E            | 195        | ASN         |
| 1          | E            | 322        | ILE         |
| 4          | H            | 189        | THR         |
| 1          | I            | 195        | ASN         |
| 1          | I            | 322        | ILE         |
| 4          | L            | 189        | THR         |
| 1          | A            | 56         | SER         |
| 1          | E            | 56         | SER         |
| 1          | I            | 56         | SER         |
| 1          | A            | 63         | THR         |
| 1          | A            | 220        | PRO         |
| 1          | E            | 63         | THR         |
| 1          | E            | 220        | PRO         |
| 1          | I            | 63         | THR         |
| 1          | I            | 220        | PRO         |
| 1          | A            | 84         | ILE         |
| 1          | A            | 118        | PRO         |
| 1          | E            | 84         | ILE         |
| 1          | E            | 118        | PRO         |
| 1          | I            | 84         | ILE         |
| 1          | I            | 89         | VAL         |
| 1          | I            | 118        | PRO         |
| 1          | A            | 89         | VAL         |
| 1          | A            | 437        | PRO         |
| 1          | E            | 89         | VAL         |
| 1          | E            | 437        | PRO         |
| 1          | I            | 437        | PRO         |
| 1          | A            | 442        | VAL         |
| 1          | E            | 442        | VAL         |
| 1          | I            | 442        | VAL         |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | E     | 194 | ILE  |

### 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 X-ray entries followed by that with respect to entries of similar resolution.

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     | 317/422 (75%)   | 293 (92%)  | 24 (8%)  | 13          | 39 |
| 1   | E     | 317/422 (75%)   | 293 (92%)  | 24 (8%)  | 13          | 39 |
| 1   | I     | 317/422 (75%)   | 293 (92%)  | 24 (8%)  | 13          | 39 |
| 3   | C     | 171/180 (95%)   | 164 (96%)  | 7 (4%)   | 30          | 56 |
| 3   | G     | 171/180 (95%)   | 164 (96%)  | 7 (4%)   | 30          | 56 |
| 3   | K     | 171/180 (95%)   | 163 (95%)  | 8 (5%)   | 26          | 52 |
| 4   | D     | 196/205 (96%)   | 189 (96%)  | 7 (4%)   | 35          | 59 |
| 4   | H     | 196/205 (96%)   | 189 (96%)  | 7 (4%)   | 35          | 59 |
| 4   | L     | 196/205 (96%)   | 189 (96%)  | 7 (4%)   | 35          | 59 |
| All | All   | 2052/2421 (85%) | 1937 (94%) | 115 (6%) | 21          | 48 |

All (115) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 47  | ASP  |
| 1   | A     | 53  | PHE  |
| 1   | A     | 61  | TYR  |
| 1   | A     | 75  | VAL  |
| 1   | A     | 90  | THR  |
| 1   | A     | 100 | MET  |
| 1   | A     | 107 | ASP  |
| 1   | A     | 125 | LEU  |
| 1   | A     | 156 | ASN  |
| 1   | A     | 197 | ASN  |
| 1   | A     | 226 | LEU  |
| 1   | A     | 231 | LYS  |
| 1   | A     | 277 | ILE  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | A            | 298        | ARG         |
| 1          | A            | 330        | HIS         |
| 1          | A            | 357        | THR         |
| 1          | A            | 369        | LEU         |
| 1          | A            | 374        | HIS         |
| 1          | A            | 382        | PHE         |
| 1          | A            | 386        | ASN         |
| 1          | A            | 399        | THR         |
| 1          | A            | 412        | ASP         |
| 1          | A            | 414        | ILE         |
| 1          | A            | 467        | THR         |
| 3          | C            | 13         | VAL         |
| 3          | C            | 17         | GLN         |
| 3          | C            | 31         | ARG         |
| 3          | C            | 130        | LYS         |
| 3          | C            | 136        | LEU         |
| 3          | C            | 161        | GLU         |
| 3          | C            | 164        | THR         |
| 4          | D            | 1          | GLN         |
| 4          | D            | 16         | GLU         |
| 4          | D            | 69         | LEU         |
| 4          | D            | 70         | SER         |
| 4          | D            | 71         | LEU         |
| 4          | D            | 181        | THR         |
| 4          | D            | 191        | THR         |
| 1          | E            | 47         | ASP         |
| 1          | E            | 53         | PHE         |
| 1          | E            | 61         | TYR         |
| 1          | E            | 75         | VAL         |
| 1          | E            | 90         | THR         |
| 1          | E            | 100        | MET         |
| 1          | E            | 107        | ASP         |
| 1          | E            | 125        | LEU         |
| 1          | E            | 156        | ASN         |
| 1          | E            | 197        | ASN         |
| 1          | E            | 226        | LEU         |
| 1          | E            | 231        | LYS         |
| 1          | E            | 277        | ILE         |
| 1          | E            | 298        | ARG         |
| 1          | E            | 330        | HIS         |
| 1          | E            | 357        | THR         |
| 1          | E            | 369        | LEU         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | E            | 374        | HIS         |
| 1          | E            | 382        | PHE         |
| 1          | E            | 386        | ASN         |
| 1          | E            | 399        | THR         |
| 1          | E            | 412        | ASP         |
| 1          | E            | 414        | ILE         |
| 1          | E            | 467        | THR         |
| 3          | G            | 13         | VAL         |
| 3          | G            | 17         | GLN         |
| 3          | G            | 31         | ARG         |
| 3          | G            | 130        | LYS         |
| 3          | G            | 136        | LEU         |
| 3          | G            | 161        | GLU         |
| 3          | G            | 164        | THR         |
| 4          | H            | 1          | GLN         |
| 4          | H            | 16         | GLU         |
| 4          | H            | 69         | LEU         |
| 4          | H            | 70         | SER         |
| 4          | H            | 71         | LEU         |
| 4          | H            | 181        | THR         |
| 4          | H            | 191        | THR         |
| 1          | I            | 47         | ASP         |
| 1          | I            | 53         | PHE         |
| 1          | I            | 61         | TYR         |
| 1          | I            | 75         | VAL         |
| 1          | I            | 90         | THR         |
| 1          | I            | 100        | MET         |
| 1          | I            | 107        | ASP         |
| 1          | I            | 125        | LEU         |
| 1          | I            | 156        | ASN         |
| 1          | I            | 197        | ASN         |
| 1          | I            | 226        | LEU         |
| 1          | I            | 231        | LYS         |
| 1          | I            | 277        | ILE         |
| 1          | I            | 298        | ARG         |
| 1          | I            | 330        | HIS         |
| 1          | I            | 357        | THR         |
| 1          | I            | 369        | LEU         |
| 1          | I            | 374        | HIS         |
| 1          | I            | 382        | PHE         |
| 1          | I            | 386        | ASN         |
| 1          | I            | 399        | THR         |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | I     | 412 | ASP  |
| 1   | I     | 414 | ILE  |
| 1   | I     | 467 | THR  |
| 3   | K     | 13  | VAL  |
| 3   | K     | 17  | GLN  |
| 3   | K     | 31  | ARG  |
| 3   | K     | 109 | GLN  |
| 3   | K     | 130 | LYS  |
| 3   | K     | 136 | LEU  |
| 3   | K     | 161 | GLU  |
| 3   | K     | 164 | THR  |
| 4   | L     | 1   | GLN  |
| 4   | L     | 16  | GLU  |
| 4   | L     | 69  | LEU  |
| 4   | L     | 70  | SER  |
| 4   | L     | 71  | LEU  |
| 4   | L     | 181 | THR  |
| 4   | L     | 191 | THR  |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 130 | GLN  |
| 1   | A     | 374 | HIS  |
| 1   | E     | 289 | ASN  |
| 1   | E     | 330 | HIS  |
| 1   | E     | 374 | HIS  |
| 1   | I     | 289 | ASN  |
| 1   | I     | 374 | HIS  |

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

## 5.5 Carbohydrates i

117 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 |
| 5   | NAG  | M     | 1   | 1,5  | 14,14,15     | 0.57 | 0        | 17,19,21    | 1.37 | 1 (5%)   |
| 5   | NAG  | M     | 2   | 5    | 14,14,15     | 0.55 | 0        | 17,19,21    | 0.83 | 0        |
| 5   | BMA  | M     | 3   | 5    | 11,11,12     | 0.69 | 0        | 15,15,17    | 0.87 | 1 (6%)   |
| 5   | MAN  | M     | 4   | 5    | 11,11,12     | 0.71 | 0        | 15,15,17    | 0.87 | 0        |
| 5   | MAN  | M     | 5   | 5    | 11,11,12     | 0.64 | 0        | 15,15,17    | 0.66 | 0        |
| 5   | MAN  | M     | 6   | 5    | 11,11,12     | 0.66 | 0        | 15,15,17    | 1.12 | 2 (13%)  |
| 5   | MAN  | M     | 7   | 5    | 11,11,12     | 0.60 | 0        | 15,15,17    | 0.68 | 0        |
| 5   | NAG  | N     | 1   | 1,5  | 14,14,15     | 0.61 | 0        | 17,19,21    | 1.43 | 3 (17%)  |
| 5   | NAG  | N     | 2   | 5    | 14,14,15     | 0.57 | 0        | 17,19,21    | 0.88 | 0        |
| 5   | BMA  | N     | 3   | 5    | 11,11,12     | 0.77 | 0        | 15,15,17    | 0.83 | 1 (6%)   |
| 5   | MAN  | N     | 4   | 5    | 11,11,12     | 0.73 | 0        | 15,15,17    | 1.09 | 0        |
| 5   | MAN  | N     | 5   | 5    | 11,11,12     | 0.64 | 0        | 15,15,17    | 0.68 | 0        |
| 5   | MAN  | N     | 6   | 5    | 11,11,12     | 0.71 | 0        | 15,15,17    | 0.89 | 1 (6%)   |
| 5   | MAN  | N     | 7   | 5    | 11,11,12     | 0.59 | 0        | 15,15,17    | 0.71 | 0        |
| 5   | NAG  | O     | 1   | 1,5  | 14,14,15     | 0.76 | 1 (7%)   | 17,19,21    | 1.45 | 3 (17%)  |
| 5   | NAG  | O     | 2   | 5    | 14,14,15     | 0.56 | 0        | 17,19,21    | 0.78 | 0        |
| 5   | BMA  | O     | 3   | 5    | 11,11,12     | 0.75 | 0        | 15,15,17    | 0.73 | 0        |
| 5   | MAN  | O     | 4   | 5    | 11,11,12     | 0.70 | 0        | 15,15,17    | 0.92 | 0        |
| 5   | MAN  | O     | 5   | 5    | 11,11,12     | 0.64 | 0        | 15,15,17    | 0.65 | 0        |
| 5   | MAN  | O     | 6   | 5    | 11,11,12     | 0.71 | 0        | 15,15,17    | 0.90 | 1 (6%)   |
| 5   | MAN  | O     | 7   | 5    | 11,11,12     | 0.59 | 0        | 15,15,17    | 0.69 | 0        |
| 5   | NAG  | P     | 1   | 1,5  | 14,14,15     | 0.61 | 0        | 17,19,21    | 1.20 | 1 (5%)   |
| 5   | NAG  | P     | 2   | 5    | 14,14,15     | 0.59 | 0        | 17,19,21    | 0.79 | 0        |
| 5   | BMA  | P     | 3   | 5    | 11,11,12     | 0.73 | 0        | 15,15,17    | 0.79 | 1 (6%)   |
| 5   | MAN  | P     | 4   | 5    | 11,11,12     | 0.71 | 0        | 15,15,17    | 0.92 | 0        |
| 5   | MAN  | P     | 5   | 5    | 11,11,12     | 0.63 | 0        | 15,15,17    | 0.65 | 0        |
| 5   | MAN  | P     | 6   | 5    | 11,11,12     | 0.70 | 0        | 15,15,17    | 0.90 | 1 (6%)   |
| 5   | MAN  | P     | 7   | 5    | 11,11,12     | 0.59 | 0        | 15,15,17    | 0.68 | 0        |
| 6   | NAG  | Q     | 1   | 6,1  | 14,14,15     | 0.62 | 0        | 17,19,21    | 1.51 | 3 (17%)  |

| Mol | Type | Chain | Res | Link | Bond lengths |      |          | Bond angles |      |          |
|-----|------|-------|-----|------|--------------|------|----------|-------------|------|----------|
|     |      |       |     |      | Counts       | RMSZ | # Z  > 2 | Counts      | RMSZ | # Z  > 2 |
| 6   | NAG  | Q     | 2   | 6    | 14,14,15     | 0.53 | 0        | 17,19,21    | 1.16 | 2 (11%)  |
| 6   | BMA  | Q     | 3   | 6    | 11,11,12     | 0.71 | 0        | 15,15,17    | 1.37 | 1 (6%)   |
| 6   | MAN  | Q     | 4   | 6    | 11,11,12     | 0.53 | 0        | 15,15,17    | 0.83 | 0        |
| 6   | MAN  | Q     | 5   | 6    | 11,11,12     | 0.61 | 0        | 15,15,17    | 0.81 | 0        |
| 6   | MAN  | Q     | 6   | 6    | 11,11,12     | 0.66 | 0        | 15,15,17    | 0.74 | 1 (6%)   |
| 6   | MAN  | Q     | 7   | 6    | 11,11,12     | 0.67 | 0        | 15,15,17    | 1.10 | 1 (6%)   |
| 6   | MAN  | Q     | 8   | 6    | 11,11,12     | 0.62 | 0        | 15,15,17    | 0.66 | 0        |
| 6   | MAN  | Q     | 9   | 6    | 11,11,12     | 0.63 | 0        | 15,15,17    | 0.62 | 0        |
| 7   | MAN  | R     | 1   | 7    | 11,11,12     | 0.72 | 0        | 15,15,17    | 1.35 | 2 (13%)  |
| 7   | MAN  | R     | 2   | 7    | 11,11,12     | 0.70 | 0        | 15,15,17    | 0.71 | 0        |
| 5   | NAG  | S     | 1   | 1,5  | 14,14,15     | 0.58 | 0        | 17,19,21    | 1.38 | 1 (5%)   |
| 5   | NAG  | S     | 2   | 5    | 14,14,15     | 0.54 | 0        | 17,19,21    | 0.84 | 0        |
| 5   | BMA  | S     | 3   | 5    | 11,11,12     | 0.70 | 0        | 15,15,17    | 0.87 | 1 (6%)   |
| 5   | MAN  | S     | 4   | 5    | 11,11,12     | 0.71 | 0        | 15,15,17    | 0.88 | 0        |
| 5   | MAN  | S     | 5   | 5    | 11,11,12     | 0.62 | 0        | 15,15,17    | 0.66 | 0        |
| 5   | MAN  | S     | 6   | 5    | 11,11,12     | 0.70 | 0        | 15,15,17    | 0.87 | 0        |
| 5   | MAN  | S     | 7   | 5    | 11,11,12     | 0.61 | 0        | 15,15,17    | 0.67 | 0        |
| 5   | NAG  | T     | 1   | 1,5  | 14,14,15     | 0.61 | 0        | 17,19,21    | 1.41 | 3 (17%)  |
| 5   | NAG  | T     | 2   | 5    | 14,14,15     | 0.56 | 0        | 17,19,21    | 0.89 | 0        |
| 5   | BMA  | T     | 3   | 5    | 11,11,12     | 0.78 | 0        | 15,15,17    | 0.84 | 1 (6%)   |
| 5   | MAN  | T     | 4   | 5    | 11,11,12     | 0.75 | 0        | 15,15,17    | 1.09 | 0        |
| 5   | MAN  | T     | 5   | 5    | 11,11,12     | 0.63 | 0        | 15,15,17    | 0.68 | 0        |
| 5   | MAN  | T     | 6   | 5    | 11,11,12     | 0.71 | 0        | 15,15,17    | 0.90 | 1 (6%)   |
| 5   | MAN  | T     | 7   | 5    | 11,11,12     | 0.59 | 0        | 15,15,17    | 0.71 | 0        |
| 5   | NAG  | U     | 1   | 1,5  | 14,14,15     | 0.75 | 1 (7%)   | 17,19,21    | 1.44 | 3 (17%)  |
| 5   | NAG  | U     | 2   | 5    | 14,14,15     | 0.55 | 0        | 17,19,21    | 0.76 | 0        |
| 5   | BMA  | U     | 3   | 5    | 11,11,12     | 0.75 | 0        | 15,15,17    | 0.73 | 0        |
| 5   | MAN  | U     | 4   | 5    | 11,11,12     | 0.71 | 0        | 15,15,17    | 0.91 | 0        |
| 5   | MAN  | U     | 5   | 5    | 11,11,12     | 0.64 | 0        | 15,15,17    | 0.65 | 0        |
| 5   | MAN  | U     | 6   | 5    | 11,11,12     | 0.70 | 0        | 15,15,17    | 0.90 | 1 (6%)   |
| 5   | MAN  | U     | 7   | 5    | 11,11,12     | 0.60 | 0        | 15,15,17    | 0.69 | 0        |
| 5   | NAG  | V     | 1   | 1,5  | 14,14,15     | 0.62 | 0        | 17,19,21    | 1.13 | 1 (5%)   |
| 5   | NAG  | V     | 2   | 5    | 14,14,15     | 0.57 | 0        | 17,19,21    | 0.78 | 0        |
| 5   | BMA  | V     | 3   | 5    | 11,11,12     | 0.72 | 0        | 15,15,17    | 0.81 | 1 (6%)   |
| 5   | MAN  | V     | 4   | 5    | 11,11,12     | 0.71 | 0        | 15,15,17    | 0.92 | 0        |
| 5   | MAN  | V     | 5   | 5    | 11,11,12     | 0.65 | 0        | 15,15,17    | 0.66 | 0        |
| 5   | MAN  | V     | 6   | 5    | 11,11,12     | 0.71 | 0        | 15,15,17    | 0.90 | 1 (6%)   |
| 5   | MAN  | V     | 7   | 5    | 11,11,12     | 0.61 | 0        | 15,15,17    | 0.68 | 0        |
| 6   | NAG  | W     | 1   | 6,1  | 14,14,15     | 0.64 | 0        | 17,19,21    | 1.55 | 3 (17%)  |

| Mol | Type | Chain | Res | Link | Bond lengths |      |          | Bond angles |      |          |
|-----|------|-------|-----|------|--------------|------|----------|-------------|------|----------|
|     |      |       |     |      | Counts       | RMSZ | # Z  > 2 | Counts      | RMSZ | # Z  > 2 |
| 6   | NAG  | W     | 2   | 6    | 14,14,15     | 0.58 | 0        | 17,19,21    | 0.84 | 1 (5%)   |
| 6   | BMA  | W     | 3   | 6    | 11,11,12     | 0.76 | 0        | 15,15,17    | 0.97 | 1 (6%)   |
| 6   | MAN  | W     | 4   | 6    | 11,11,12     | 0.53 | 0        | 15,15,17    | 0.80 | 0        |
| 6   | MAN  | W     | 5   | 6    | 11,11,12     | 0.60 | 0        | 15,15,17    | 0.82 | 0        |
| 6   | MAN  | W     | 6   | 6    | 11,11,12     | 0.67 | 0        | 15,15,17    | 0.74 | 1 (6%)   |
| 6   | MAN  | W     | 7   | 6    | 11,11,12     | 0.67 | 0        | 15,15,17    | 1.10 | 1 (6%)   |
| 6   | MAN  | W     | 8   | 6    | 11,11,12     | 0.63 | 0        | 15,15,17    | 0.65 | 0        |
| 6   | MAN  | W     | 9   | 6    | 11,11,12     | 0.64 | 0        | 15,15,17    | 0.63 | 0        |
| 7   | MAN  | X     | 1   | 7    | 11,11,12     | 0.66 | 0        | 15,15,17    | 1.25 | 2 (13%)  |
| 7   | MAN  | X     | 2   | 7    | 11,11,12     | 0.66 | 0        | 15,15,17    | 0.87 | 0        |
| 5   | NAG  | Y     | 1   | 1,5  | 14,14,15     | 0.56 | 0        | 17,19,21    | 1.44 | 1 (5%)   |
| 5   | NAG  | Y     | 2   | 5    | 14,14,15     | 0.52 | 0        | 17,19,21    | 0.96 | 1 (5%)   |
| 5   | BMA  | Y     | 3   | 5    | 11,11,12     | 0.68 | 0        | 15,15,17    | 0.94 | 1 (6%)   |
| 5   | MAN  | Y     | 4   | 5    | 11,11,12     | 0.70 | 0        | 15,15,17    | 0.86 | 0        |
| 5   | MAN  | Y     | 5   | 5    | 11,11,12     | 0.64 | 0        | 15,15,17    | 0.65 | 0        |
| 5   | MAN  | Y     | 6   | 5    | 11,11,12     | 0.69 | 0        | 15,15,17    | 1.18 | 2 (13%)  |
| 5   | MAN  | Y     | 7   | 5    | 11,11,12     | 0.60 | 0        | 15,15,17    | 0.67 | 0        |
| 5   | NAG  | Z     | 1   | 1,5  | 14,14,15     | 0.63 | 0        | 17,19,21    | 1.47 | 2 (11%)  |
| 5   | NAG  | Z     | 2   | 5    | 14,14,15     | 0.59 | 0        | 17,19,21    | 0.88 | 0        |
| 5   | BMA  | Z     | 3   | 5    | 11,11,12     | 0.77 | 0        | 15,15,17    | 0.83 | 1 (6%)   |
| 5   | MAN  | Z     | 4   | 5    | 11,11,12     | 0.75 | 0        | 15,15,17    | 1.10 | 0        |
| 5   | MAN  | Z     | 5   | 5    | 11,11,12     | 0.64 | 0        | 15,15,17    | 0.68 | 0        |
| 5   | MAN  | Z     | 6   | 5    | 11,11,12     | 0.70 | 0        | 15,15,17    | 0.90 | 1 (6%)   |
| 5   | MAN  | Z     | 7   | 5    | 11,11,12     | 0.57 | 0        | 15,15,17    | 0.71 | 0        |
| 5   | NAG  | a     | 1   | 1,5  | 14,14,15     | 0.72 | 0        | 17,19,21    | 1.48 | 3 (17%)  |
| 5   | NAG  | a     | 2   | 5    | 14,14,15     | 0.57 | 0        | 17,19,21    | 0.78 | 0        |
| 5   | BMA  | a     | 3   | 5    | 11,11,12     | 0.75 | 0        | 15,15,17    | 0.73 | 0        |
| 5   | MAN  | a     | 4   | 5    | 11,11,12     | 0.70 | 0        | 15,15,17    | 0.92 | 0        |
| 5   | MAN  | a     | 5   | 5    | 11,11,12     | 0.64 | 0        | 15,15,17    | 0.65 | 0        |
| 5   | MAN  | a     | 6   | 5    | 11,11,12     | 0.71 | 0        | 15,15,17    | 0.90 | 1 (6%)   |
| 5   | MAN  | a     | 7   | 5    | 11,11,12     | 0.59 | 0        | 15,15,17    | 0.69 | 0        |
| 5   | NAG  | b     | 1   | 1,5  | 14,14,15     | 0.68 | 0        | 17,19,21    | 1.19 | 1 (5%)   |
| 5   | NAG  | b     | 2   | 5    | 14,14,15     | 0.59 | 0        | 17,19,21    | 0.81 | 0        |
| 5   | BMA  | b     | 3   | 5    | 11,11,12     | 0.74 | 0        | 15,15,17    | 0.79 | 0        |
| 5   | MAN  | b     | 4   | 5    | 11,11,12     | 0.71 | 0        | 15,15,17    | 0.92 | 0        |
| 5   | MAN  | b     | 5   | 5    | 11,11,12     | 0.64 | 0        | 15,15,17    | 0.66 | 0        |
| 5   | MAN  | b     | 6   | 5    | 11,11,12     | 0.71 | 0        | 15,15,17    | 0.89 | 1 (6%)   |
| 5   | MAN  | b     | 7   | 5    | 11,11,12     | 0.60 | 0        | 15,15,17    | 0.68 | 0        |
| 6   | NAG  | c     | 1   | 6,1  | 14,14,15     | 0.57 | 0        | 17,19,21    | 1.57 | 3 (17%)  |

| Mol | Type | Chain | Res | Link | Bond lengths |      |          | Bond angles |      |          |
|-----|------|-------|-----|------|--------------|------|----------|-------------|------|----------|
|     |      |       |     |      | Counts       | RMSZ | # Z  > 2 | Counts      | RMSZ | # Z  > 2 |
| 6   | NAG  | c     | 2   | 6    | 14,14,15     | 0.58 | 0        | 17,19,21    | 1.19 | 1 (5%)   |
| 6   | BMA  | c     | 3   | 6    | 11,11,12     | 0.71 | 0        | 15,15,17    | 1.44 | 1 (6%)   |
| 6   | MAN  | c     | 4   | 6    | 11,11,12     | 0.52 | 0        | 15,15,17    | 0.83 | 0        |
| 6   | MAN  | c     | 5   | 6    | 11,11,12     | 0.60 | 0        | 15,15,17    | 0.82 | 0        |
| 6   | MAN  | c     | 6   | 6    | 11,11,12     | 0.67 | 0        | 15,15,17    | 0.75 | 1 (6%)   |
| 6   | MAN  | c     | 7   | 6    | 11,11,12     | 0.67 | 0        | 15,15,17    | 1.19 | 1 (6%)   |
| 6   | MAN  | c     | 8   | 6    | 11,11,12     | 0.62 | 0        | 15,15,17    | 0.65 | 0        |
| 6   | MAN  | c     | 9   | 6    | 11,11,12     | 0.64 | 0        | 15,15,17    | 0.62 | 0        |
| 7   | MAN  | d     | 1   | 7    | 11,11,12     | 0.73 | 0        | 15,15,17    | 1.34 | 2 (13%)  |
| 7   | MAN  | d     | 2   | 7    | 11,11,12     | 0.75 | 0        | 15,15,17    | 0.84 | 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   |
|-----|------|-------|-----|------|---------|-----------|---------|
| 5   | NAG  | M     | 1   | 1,5  | -       | 3/6/23/26 | 0/1/1/1 |
| 5   | NAG  | M     | 2   | 5    | -       | 0/6/23/26 | 0/1/1/1 |
| 5   | BMA  | M     | 3   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | M     | 4   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | M     | 5   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | M     | 6   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | M     | 7   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | NAG  | N     | 1   | 1,5  | -       | 0/6/23/26 | 0/1/1/1 |
| 5   | NAG  | N     | 2   | 5    | -       | 0/6/23/26 | 0/1/1/1 |
| 5   | BMA  | N     | 3   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | N     | 4   | 5    | -       | 1/2/19/22 | 0/1/1/1 |
| 5   | MAN  | N     | 5   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | N     | 6   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | N     | 7   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | NAG  | O     | 1   | 1,5  | -       | 2/6/23/26 | 0/1/1/1 |
| 5   | NAG  | O     | 2   | 5    | -       | 0/6/23/26 | 0/1/1/1 |
| 5   | BMA  | O     | 3   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | O     | 4   | 5    | -       | 2/2/19/22 | 0/1/1/1 |
| 5   | MAN  | O     | 5   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | O     | 6   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | O     | 7   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | NAG  | P     | 1   | 1,5  | -       | 1/6/23/26 | 0/1/1/1 |
| 5   | NAG  | P     | 2   | 5    | -       | 0/6/23/26 | 0/1/1/1 |
| 5   | BMA  | P     | 3   | 5    | -       | 0/2/19/22 | 0/1/1/1 |

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| Mol | Type | Chain | Res | Link | Chirals | Torsions  | Rings   |
|-----|------|-------|-----|------|---------|-----------|---------|
| 5   | MAN  | P     | 4   | 5    | -       | 2/2/19/22 | 0/1/1/1 |
| 5   | MAN  | P     | 5   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | P     | 6   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | P     | 7   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 6   | NAG  | Q     | 1   | 6,1  | -       | 0/6/23/26 | 0/1/1/1 |
| 6   | NAG  | Q     | 2   | 6    | -       | 0/6/23/26 | 0/1/1/1 |
| 6   | BMA  | Q     | 3   | 6    | -       | 0/2/19/22 | 0/1/1/1 |
| 6   | MAN  | Q     | 4   | 6    | -       | 0/2/19/22 | 0/1/1/1 |
| 6   | MAN  | Q     | 5   | 6    | -       | 2/2/19/22 | 0/1/1/1 |
| 6   | MAN  | Q     | 6   | 6    | -       | 0/2/19/22 | 0/1/1/1 |
| 6   | MAN  | Q     | 7   | 6    | -       | 2/2/19/22 | 0/1/1/1 |
| 6   | MAN  | Q     | 8   | 6    | -       | 0/2/19/22 | 0/1/1/1 |
| 6   | MAN  | Q     | 9   | 6    | -       | 0/2/19/22 | 0/1/1/1 |
| 7   | MAN  | R     | 1   | 7    | -       | 2/2/19/22 | 0/1/1/1 |
| 7   | MAN  | R     | 2   | 7    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | NAG  | S     | 1   | 1,5  | -       | 3/6/23/26 | 0/1/1/1 |
| 5   | NAG  | S     | 2   | 5    | -       | 0/6/23/26 | 0/1/1/1 |
| 5   | BMA  | S     | 3   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | S     | 4   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | S     | 5   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | S     | 6   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | S     | 7   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | NAG  | T     | 1   | 1,5  | -       | 0/6/23/26 | 0/1/1/1 |
| 5   | NAG  | T     | 2   | 5    | -       | 0/6/23/26 | 0/1/1/1 |
| 5   | BMA  | T     | 3   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | T     | 4   | 5    | -       | 1/2/19/22 | 0/1/1/1 |
| 5   | MAN  | T     | 5   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | T     | 6   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | T     | 7   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | NAG  | U     | 1   | 1,5  | -       | 2/6/23/26 | 0/1/1/1 |
| 5   | NAG  | U     | 2   | 5    | -       | 0/6/23/26 | 0/1/1/1 |
| 5   | BMA  | U     | 3   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | U     | 4   | 5    | -       | 2/2/19/22 | 0/1/1/1 |
| 5   | MAN  | U     | 5   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | U     | 6   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | U     | 7   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | NAG  | V     | 1   | 1,5  | -       | 0/6/23/26 | 0/1/1/1 |
| 5   | NAG  | V     | 2   | 5    | -       | 0/6/23/26 | 0/1/1/1 |
| 5   | BMA  | V     | 3   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | V     | 4   | 5    | -       | 2/2/19/22 | 0/1/1/1 |

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| Mol | Type | Chain | Res | Link | Chirals | Torsions  | Rings   |
|-----|------|-------|-----|------|---------|-----------|---------|
| 5   | MAN  | V     | 5   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | V     | 6   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | V     | 7   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 6   | NAG  | W     | 1   | 6,1  | -       | 0/6/23/26 | 0/1/1/1 |
| 6   | NAG  | W     | 2   | 6    | -       | 1/6/23/26 | 0/1/1/1 |
| 6   | BMA  | W     | 3   | 6    | -       | 0/2/19/22 | 0/1/1/1 |
| 6   | MAN  | W     | 4   | 6    | -       | 0/2/19/22 | 0/1/1/1 |
| 6   | MAN  | W     | 5   | 6    | -       | 2/2/19/22 | 0/1/1/1 |
| 6   | MAN  | W     | 6   | 6    | -       | 0/2/19/22 | 0/1/1/1 |
| 6   | MAN  | W     | 7   | 6    | -       | 2/2/19/22 | 0/1/1/1 |
| 6   | MAN  | W     | 8   | 6    | -       | 0/2/19/22 | 0/1/1/1 |
| 6   | MAN  | W     | 9   | 6    | -       | 0/2/19/22 | 0/1/1/1 |
| 7   | MAN  | X     | 1   | 7    | -       | 2/2/19/22 | 1/1/1/1 |
| 7   | MAN  | X     | 2   | 7    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | NAG  | Y     | 1   | 1,5  | -       | 3/6/23/26 | 0/1/1/1 |
| 5   | NAG  | Y     | 2   | 5    | -       | 0/6/23/26 | 0/1/1/1 |
| 5   | BMA  | Y     | 3   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | Y     | 4   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | Y     | 5   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | Y     | 6   | 5    | -       | 2/2/19/22 | 0/1/1/1 |
| 5   | MAN  | Y     | 7   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | NAG  | Z     | 1   | 1,5  | -       | 0/6/23/26 | 0/1/1/1 |
| 5   | NAG  | Z     | 2   | 5    | -       | 0/6/23/26 | 0/1/1/1 |
| 5   | BMA  | Z     | 3   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | Z     | 4   | 5    | -       | 1/2/19/22 | 0/1/1/1 |
| 5   | MAN  | Z     | 5   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | Z     | 6   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | Z     | 7   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | NAG  | a     | 1   | 1,5  | -       | 2/6/23/26 | 0/1/1/1 |
| 5   | NAG  | a     | 2   | 5    | -       | 0/6/23/26 | 0/1/1/1 |
| 5   | BMA  | a     | 3   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | a     | 4   | 5    | -       | 2/2/19/22 | 0/1/1/1 |
| 5   | MAN  | a     | 5   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | a     | 6   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | a     | 7   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | NAG  | b     | 1   | 1,5  | -       | 0/6/23/26 | 0/1/1/1 |
| 5   | NAG  | b     | 2   | 5    | -       | 0/6/23/26 | 0/1/1/1 |
| 5   | BMA  | b     | 3   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | b     | 4   | 5    | -       | 2/2/19/22 | 0/1/1/1 |
| 5   | MAN  | b     | 5   | 5    | -       | 0/2/19/22 | 0/1/1/1 |

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| Mol | Type | Chain | Res | Link | Chirals | Torsions  | Rings   |
|-----|------|-------|-----|------|---------|-----------|---------|
| 5   | MAN  | b     | 6   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 5   | MAN  | b     | 7   | 5    | -       | 0/2/19/22 | 0/1/1/1 |
| 6   | NAG  | c     | 1   | 6,1  | -       | 0/6/23/26 | 0/1/1/1 |
| 6   | NAG  | c     | 2   | 6    | -       | 2/6/23/26 | 0/1/1/1 |
| 6   | BMA  | c     | 3   | 6    | -       | 0/2/19/22 | 0/1/1/1 |
| 6   | MAN  | c     | 4   | 6    | -       | 0/2/19/22 | 0/1/1/1 |
| 6   | MAN  | c     | 5   | 6    | -       | 2/2/19/22 | 0/1/1/1 |
| 6   | MAN  | c     | 6   | 6    | -       | 0/2/19/22 | 0/1/1/1 |
| 6   | MAN  | c     | 7   | 6    | -       | 2/2/19/22 | 0/1/1/1 |
| 6   | MAN  | c     | 8   | 6    | -       | 0/2/19/22 | 0/1/1/1 |
| 6   | MAN  | c     | 9   | 6    | -       | 0/2/19/22 | 0/1/1/1 |
| 7   | MAN  | d     | 1   | 7    | -       | 2/2/19/22 | 0/1/1/1 |
| 7   | MAN  | d     | 2   | 7    | -       | 0/2/19/22 | 0/1/1/1 |

All (2) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|-------|-------|-------------|----------|
| 5   | U     | 1   | NAG  | O5-C1 | -2.02 | 1.40        | 1.43     |
| 5   | O     | 1   | NAG  | O5-C1 | -2.01 | 1.40        | 1.43     |

All (73) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms    | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|----------|-------|-------------|----------|
| 6   | c     | 3   | BMA  | C1-C2-C3 | 4.35  | 115.01      | 109.67   |
| 6   | Q     | 3   | BMA  | C1-C2-C3 | 4.13  | 114.75      | 109.67   |
| 5   | Y     | 1   | NAG  | C4-C3-C2 | 4.11  | 117.05      | 111.02   |
| 5   | S     | 1   | NAG  | C4-C3-C2 | 3.87  | 116.69      | 111.02   |
| 5   | M     | 1   | NAG  | C4-C3-C2 | 3.84  | 116.65      | 111.02   |
| 7   | d     | 1   | MAN  | O5-C1-C2 | 3.65  | 116.40      | 110.77   |
| 7   | X     | 1   | MAN  | O5-C1-C2 | 3.63  | 116.37      | 110.77   |
| 6   | W     | 1   | NAG  | C3-C4-C5 | 3.53  | 116.53      | 110.24   |
| 6   | c     | 1   | NAG  | C3-C4-C5 | 3.52  | 116.52      | 110.24   |
| 5   | O     | 1   | NAG  | C3-C4-C5 | 3.50  | 116.47      | 110.24   |
| 5   | a     | 1   | NAG  | C3-C4-C5 | 3.49  | 116.47      | 110.24   |
| 6   | c     | 1   | NAG  | O5-C1-C2 | -3.45 | 105.83      | 111.29   |
| 7   | R     | 1   | MAN  | O5-C1-C2 | 3.45  | 116.10      | 110.77   |
| 6   | Q     | 1   | NAG  | C3-C4-C5 | 3.43  | 116.36      | 110.24   |
| 5   | U     | 1   | NAG  | C3-C4-C5 | 3.39  | 116.28      | 110.24   |
| 5   | Z     | 1   | NAG  | C3-C4-C5 | 3.38  | 116.27      | 110.24   |
| 6   | W     | 1   | NAG  | O5-C1-C2 | -3.30 | 106.08      | 111.29   |
| 5   | T     | 1   | NAG  | O5-C1-C2 | -3.21 | 106.22      | 111.29   |

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| Mol | Chain | Res | Type | Atoms    | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|----------|-------|-------------|----------|
| 6   | Q     | 1   | NAG  | O5-C1-C2 | -3.21 | 106.23      | 111.29   |
| 5   | Z     | 1   | NAG  | O5-C1-C2 | -3.16 | 106.29      | 111.29   |
| 5   | N     | 1   | NAG  | O5-C1-C2 | -3.15 | 106.31      | 111.29   |
| 6   | c     | 7   | MAN  | O5-C5-C6 | 2.97  | 111.87      | 107.20   |
| 5   | N     | 1   | NAG  | C3-C4-C5 | 2.96  | 115.53      | 110.24   |
| 5   | U     | 1   | NAG  | C4-C3-C2 | 2.89  | 115.26      | 111.02   |
| 5   | O     | 1   | NAG  | C4-C3-C2 | 2.84  | 115.18      | 111.02   |
| 5   | T     | 1   | NAG  | C3-C4-C5 | 2.81  | 115.26      | 110.24   |
| 5   | a     | 1   | NAG  | C4-C3-C2 | 2.81  | 115.14      | 111.02   |
| 6   | W     | 3   | BMA  | C1-C2-C3 | 2.77  | 113.08      | 109.67   |
| 5   | Y     | 3   | BMA  | C1-C2-C3 | 2.75  | 113.05      | 109.67   |
| 6   | W     | 7   | MAN  | O5-C5-C6 | 2.70  | 111.43      | 107.20   |
| 6   | Q     | 7   | MAN  | O5-C5-C6 | 2.67  | 111.38      | 107.20   |
| 5   | b     | 1   | NAG  | C4-C3-C2 | 2.60  | 114.83      | 111.02   |
| 5   | V     | 1   | NAG  | C4-C3-C2 | 2.59  | 114.81      | 111.02   |
| 5   | Y     | 6   | MAN  | O5-C5-C6 | 2.54  | 111.19      | 107.20   |
| 5   | P     | 1   | NAG  | C4-C3-C2 | 2.50  | 114.68      | 111.02   |
| 5   | T     | 6   | MAN  | O5-C1-C2 | -2.47 | 106.96      | 110.77   |
| 5   | Z     | 6   | MAN  | O5-C1-C2 | -2.46 | 106.97      | 110.77   |
| 5   | N     | 6   | MAN  | O5-C1-C2 | -2.46 | 106.97      | 110.77   |
| 5   | O     | 6   | MAN  | O5-C1-C2 | -2.46 | 106.97      | 110.77   |
| 6   | c     | 2   | NAG  | C3-C4-C5 | 2.45  | 114.61      | 110.24   |
| 5   | a     | 6   | MAN  | O5-C1-C2 | -2.45 | 106.99      | 110.77   |
| 7   | d     | 1   | MAN  | O5-C5-C6 | 2.45  | 111.04      | 107.20   |
| 5   | V     | 6   | MAN  | O5-C1-C2 | -2.44 | 107.01      | 110.77   |
| 5   | Y     | 6   | MAN  | C2-C3-C4 | -2.43 | 106.69      | 110.89   |
| 5   | P     | 6   | MAN  | O5-C1-C2 | -2.42 | 107.03      | 110.77   |
| 5   | U     | 6   | MAN  | O5-C1-C2 | -2.41 | 107.04      | 110.77   |
| 5   | S     | 3   | BMA  | C1-C2-C3 | 2.41  | 112.63      | 109.67   |
| 6   | Q     | 1   | NAG  | C4-C3-C2 | 2.41  | 114.55      | 111.02   |
| 5   | b     | 6   | MAN  | O5-C1-C2 | -2.41 | 107.06      | 110.77   |
| 6   | c     | 1   | NAG  | C4-C3-C2 | 2.39  | 114.52      | 111.02   |
| 5   | M     | 3   | BMA  | C1-C2-C3 | 2.37  | 112.58      | 109.67   |
| 7   | R     | 1   | MAN  | O5-C5-C6 | 2.31  | 110.83      | 107.20   |
| 5   | a     | 1   | NAG  | O5-C1-C2 | -2.31 | 107.64      | 111.29   |
| 6   | W     | 1   | NAG  | C4-C3-C2 | 2.29  | 114.38      | 111.02   |
| 6   | Q     | 2   | NAG  | C3-C4-C5 | 2.27  | 114.29      | 110.24   |
| 5   | U     | 1   | NAG  | O5-C1-C2 | -2.25 | 107.73      | 111.29   |
| 5   | T     | 3   | BMA  | C1-C2-C3 | 2.22  | 112.39      | 109.67   |
| 5   | O     | 1   | NAG  | O5-C1-C2 | -2.18 | 107.85      | 111.29   |
| 5   | M     | 6   | MAN  | C2-C3-C4 | -2.15 | 107.17      | 110.89   |
| 5   | V     | 3   | BMA  | C1-C2-C3 | 2.13  | 112.28      | 109.67   |

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| Mol | Chain | Res | Type | Atoms    | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|----------|-------|-------------|----------|
| 6   | W     | 2   | NAG  | O5-C5-C6 | 2.13  | 110.54      | 107.20   |
| 5   | N     | 3   | BMA  | C1-C2-C3 | 2.13  | 112.28      | 109.67   |
| 5   | M     | 6   | MAN  | O5-C5-C6 | 2.12  | 110.53      | 107.20   |
| 5   | T     | 1   | NAG  | C4-C3-C2 | 2.10  | 114.10      | 111.02   |
| 6   | Q     | 2   | NAG  | O5-C5-C6 | 2.10  | 110.50      | 107.20   |
| 5   | Z     | 3   | BMA  | C1-C2-C3 | 2.05  | 112.19      | 109.67   |
| 6   | c     | 6   | MAN  | O5-C1-C2 | -2.05 | 107.61      | 110.77   |
| 7   | X     | 1   | MAN  | O5-C5-C6 | 2.05  | 110.42      | 107.20   |
| 6   | W     | 6   | MAN  | O5-C1-C2 | -2.04 | 107.62      | 110.77   |
| 5   | Y     | 2   | NAG  | O5-C1-C2 | -2.03 | 108.08      | 111.29   |
| 6   | Q     | 6   | MAN  | O5-C1-C2 | -2.03 | 107.64      | 110.77   |
| 5   | N     | 1   | NAG  | C4-C3-C2 | 2.03  | 113.99      | 111.02   |
| 5   | P     | 3   | BMA  | C1-C2-C3 | 2.01  | 112.14      | 109.67   |

There are no chirality outliers.

All (54) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms       |
|-----|-------|-----|------|-------------|
| 5   | O     | 1   | NAG  | C8-C7-N2-C2 |
| 5   | O     | 1   | NAG  | O7-C7-N2-C2 |
| 5   | U     | 1   | NAG  | C8-C7-N2-C2 |
| 5   | U     | 1   | NAG  | O7-C7-N2-C2 |
| 5   | a     | 1   | NAG  | C8-C7-N2-C2 |
| 5   | a     | 1   | NAG  | O7-C7-N2-C2 |
| 7   | X     | 1   | MAN  | O5-C5-C6-O6 |
| 7   | R     | 1   | MAN  | O5-C5-C6-O6 |
| 7   | d     | 1   | MAN  | O5-C5-C6-O6 |
| 6   | Q     | 7   | MAN  | C4-C5-C6-O6 |
| 6   | W     | 7   | MAN  | C4-C5-C6-O6 |
| 6   | c     | 7   | MAN  | C4-C5-C6-O6 |
| 6   | Q     | 5   | MAN  | O5-C5-C6-O6 |
| 6   | W     | 5   | MAN  | O5-C5-C6-O6 |
| 5   | M     | 1   | NAG  | C8-C7-N2-C2 |
| 5   | S     | 1   | NAG  | C8-C7-N2-C2 |
| 5   | Y     | 1   | NAG  | C8-C7-N2-C2 |
| 6   | c     | 5   | MAN  | O5-C5-C6-O6 |
| 7   | X     | 1   | MAN  | C4-C5-C6-O6 |
| 7   | R     | 1   | MAN  | C4-C5-C6-O6 |
| 5   | M     | 1   | NAG  | O7-C7-N2-C2 |
| 7   | d     | 1   | MAN  | C4-C5-C6-O6 |
| 6   | Q     | 7   | MAN  | O5-C5-C6-O6 |
| 6   | W     | 7   | MAN  | O5-C5-C6-O6 |

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| Mol | Chain | Res | Type | Atoms       |
|-----|-------|-----|------|-------------|
| 6   | c     | 7   | MAN  | O5-C5-C6-O6 |
| 5   | S     | 1   | NAG  | O7-C7-N2-C2 |
| 5   | Y     | 1   | NAG  | O7-C7-N2-C2 |
| 6   | Q     | 5   | MAN  | C4-C5-C6-O6 |
| 5   | O     | 4   | MAN  | O5-C5-C6-O6 |
| 5   | U     | 4   | MAN  | O5-C5-C6-O6 |
| 5   | a     | 4   | MAN  | O5-C5-C6-O6 |
| 6   | W     | 5   | MAN  | C4-C5-C6-O6 |
| 6   | c     | 5   | MAN  | C4-C5-C6-O6 |
| 5   | P     | 4   | MAN  | O5-C5-C6-O6 |
| 5   | V     | 4   | MAN  | O5-C5-C6-O6 |
| 5   | b     | 4   | MAN  | O5-C5-C6-O6 |
| 5   | Y     | 6   | MAN  | C4-C5-C6-O6 |
| 5   | Y     | 6   | MAN  | O5-C5-C6-O6 |
| 5   | N     | 4   | MAN  | O5-C5-C6-O6 |
| 5   | Z     | 4   | MAN  | O5-C5-C6-O6 |
| 5   | T     | 4   | MAN  | O5-C5-C6-O6 |
| 6   | c     | 2   | NAG  | C4-C5-C6-O6 |
| 6   | c     | 2   | NAG  | O5-C5-C6-O6 |
| 5   | M     | 1   | NAG  | C1-C2-N2-C7 |
| 5   | S     | 1   | NAG  | C1-C2-N2-C7 |
| 5   | Y     | 1   | NAG  | C3-C2-N2-C7 |
| 5   | P     | 1   | NAG  | C4-C5-C6-O6 |
| 5   | O     | 4   | MAN  | C4-C5-C6-O6 |
| 5   | U     | 4   | MAN  | C4-C5-C6-O6 |
| 5   | a     | 4   | MAN  | C4-C5-C6-O6 |
| 6   | W     | 2   | NAG  | C4-C5-C6-O6 |
| 5   | V     | 4   | MAN  | C4-C5-C6-O6 |
| 5   | b     | 4   | MAN  | C4-C5-C6-O6 |
| 5   | P     | 4   | MAN  | C4-C5-C6-O6 |

All (1) ring outliers are listed below:

| Mol | Chain | Res | Type | Atoms             |
|-----|-------|-----|------|-------------------|
| 7   | X     | 1   | MAN  | C1-C2-C3-C4-C5-O5 |

9 monomers are involved in 19 short contacts:

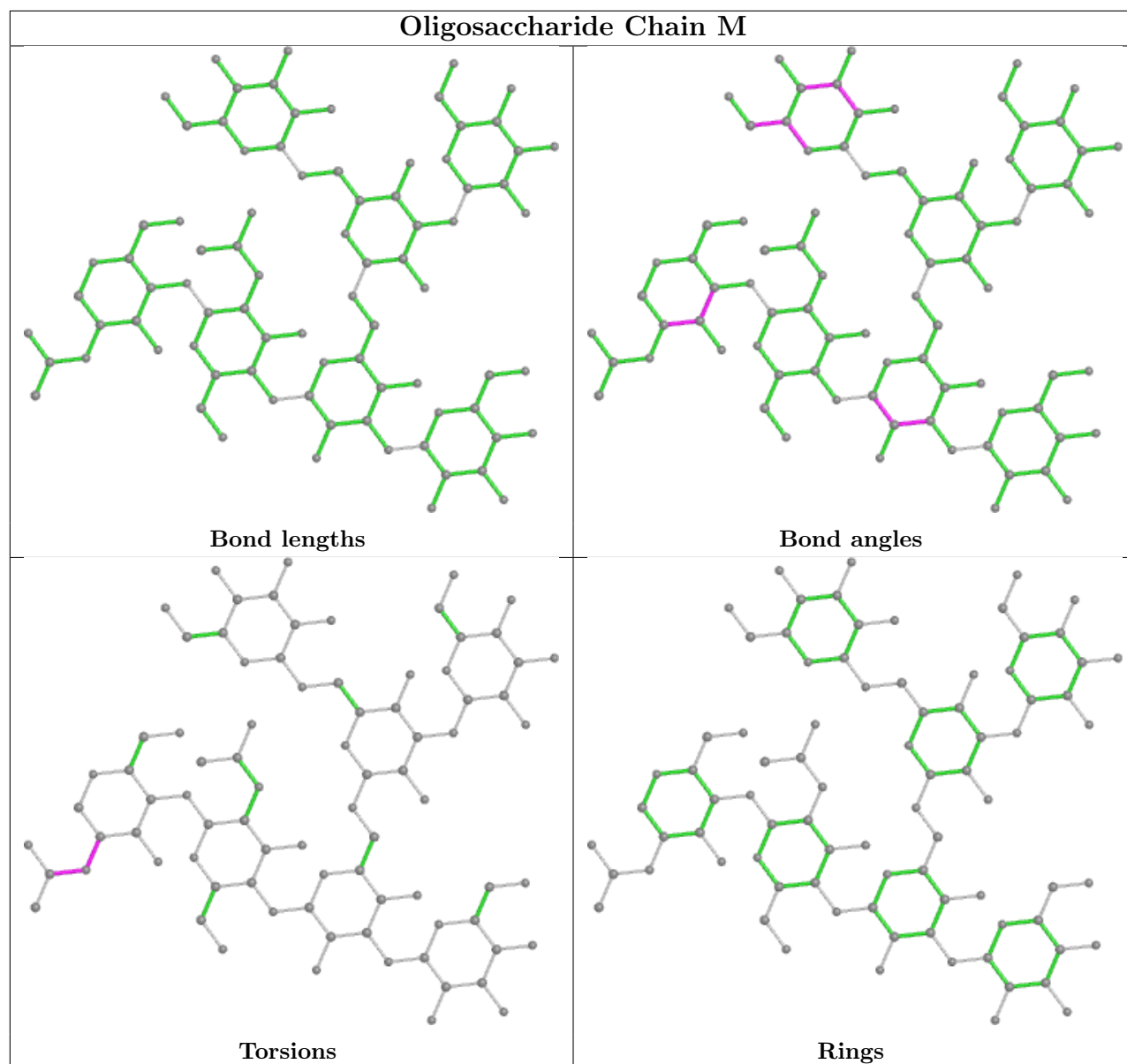
| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|-----|------|---------|--------------|
| 7   | X     | 2   | MAN  | 1       | 0            |
| 5   | S     | 1   | NAG  | 1       | 0            |
| 7   | R     | 2   | MAN  | 1       | 0            |

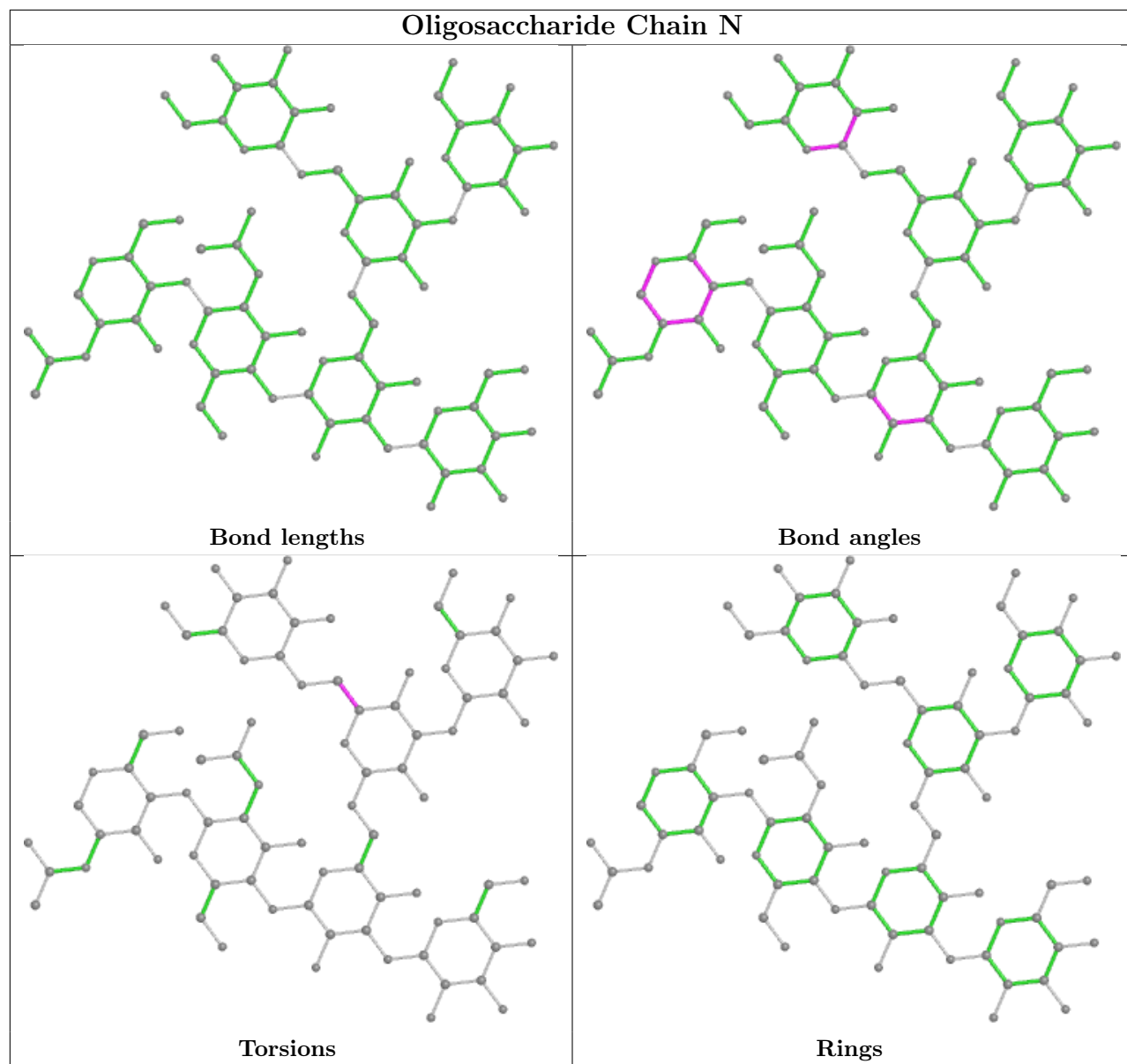
*Continued on next page...*

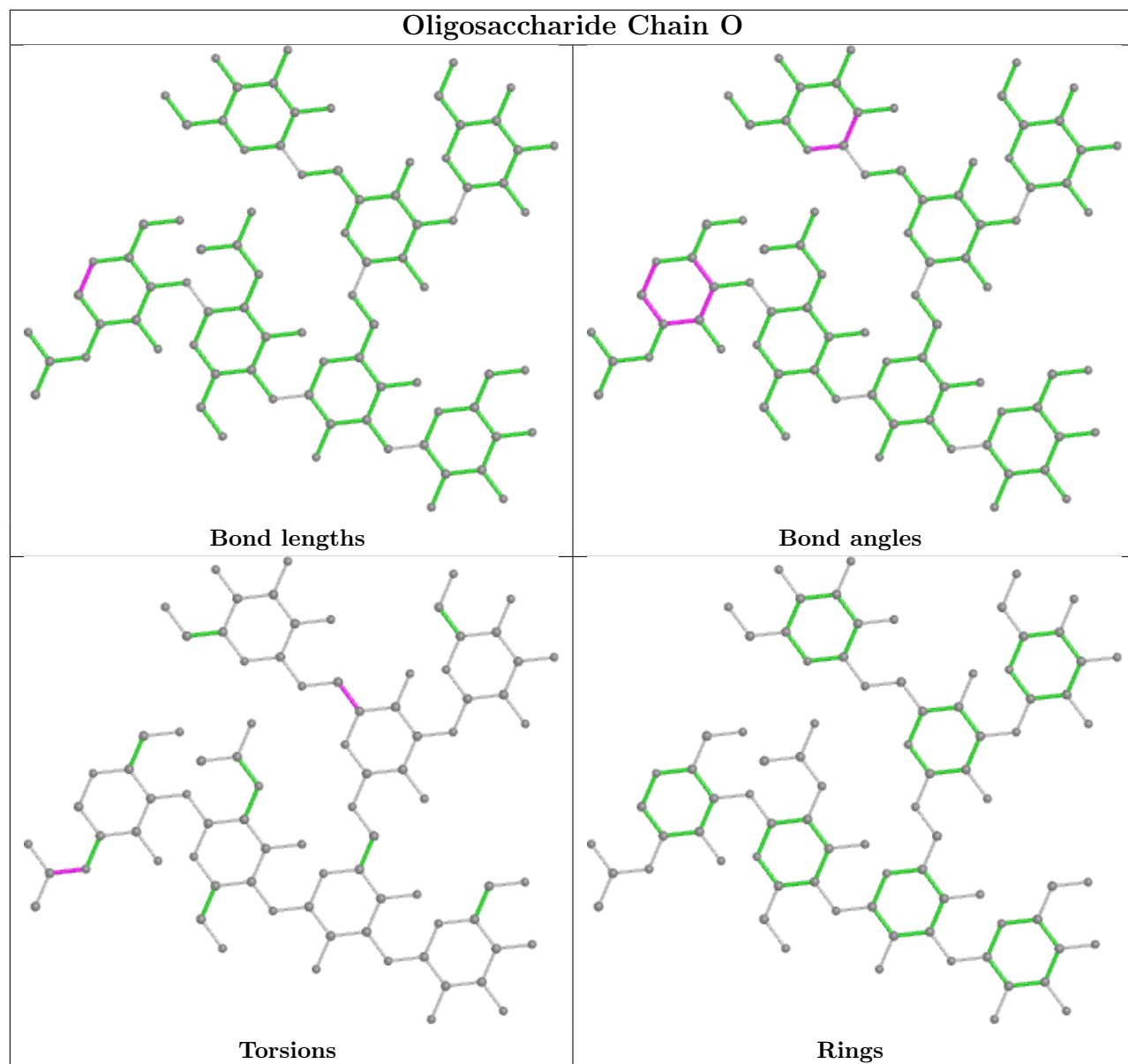
Continued from previous page...

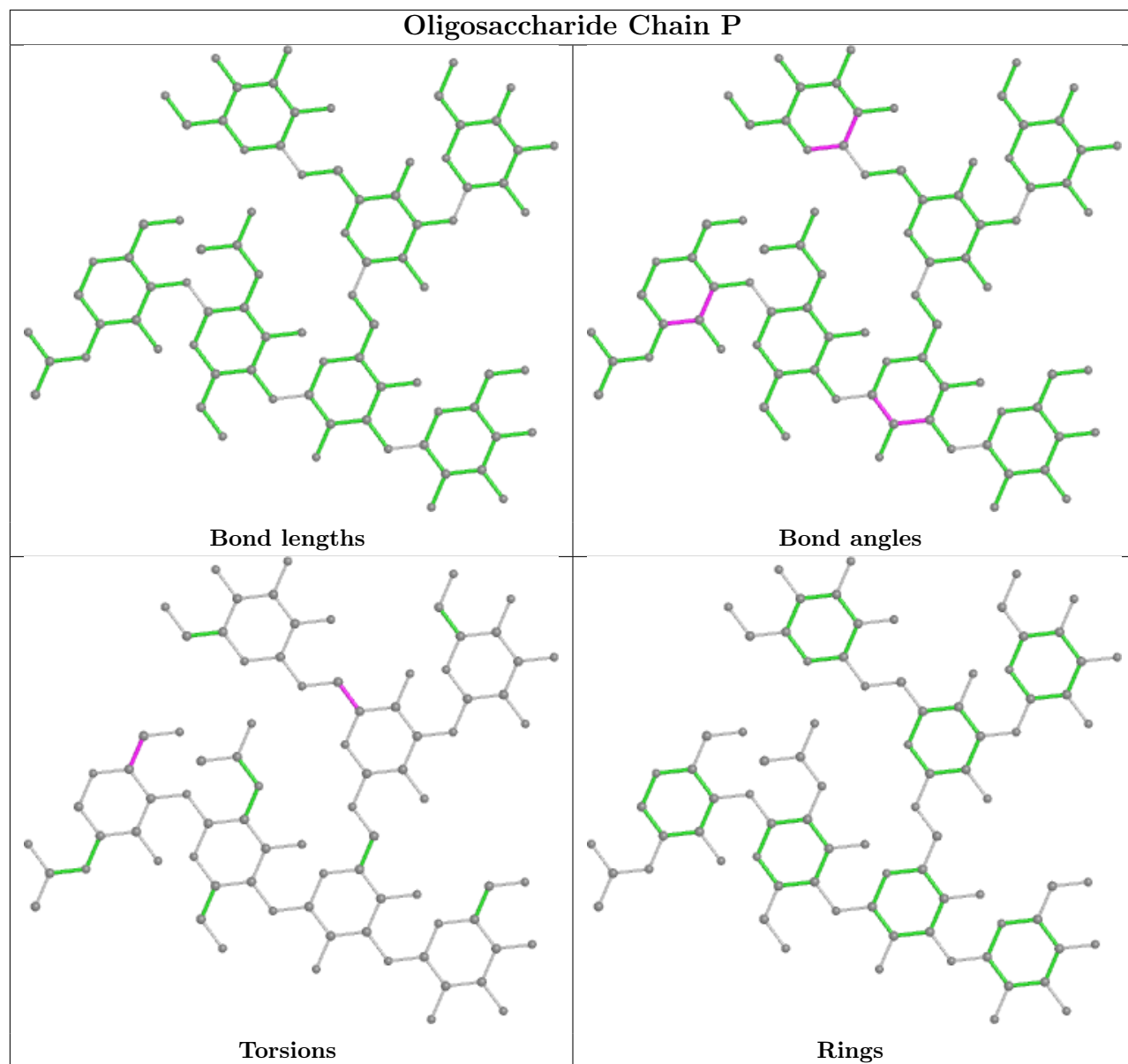
| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|-----|------|---------|--------------|
| 5   | Y     | 6   | MAN  | 1       | 0            |
| 5   | M     | 1   | NAG  | 1       | 0            |
| 5   | O     | 1   | NAG  | 5       | 0            |
| 7   | R     | 1   | MAN  | 2       | 0            |
| 5   | U     | 1   | NAG  | 5       | 0            |
| 6   | Q     | 2   | NAG  | 2       | 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.

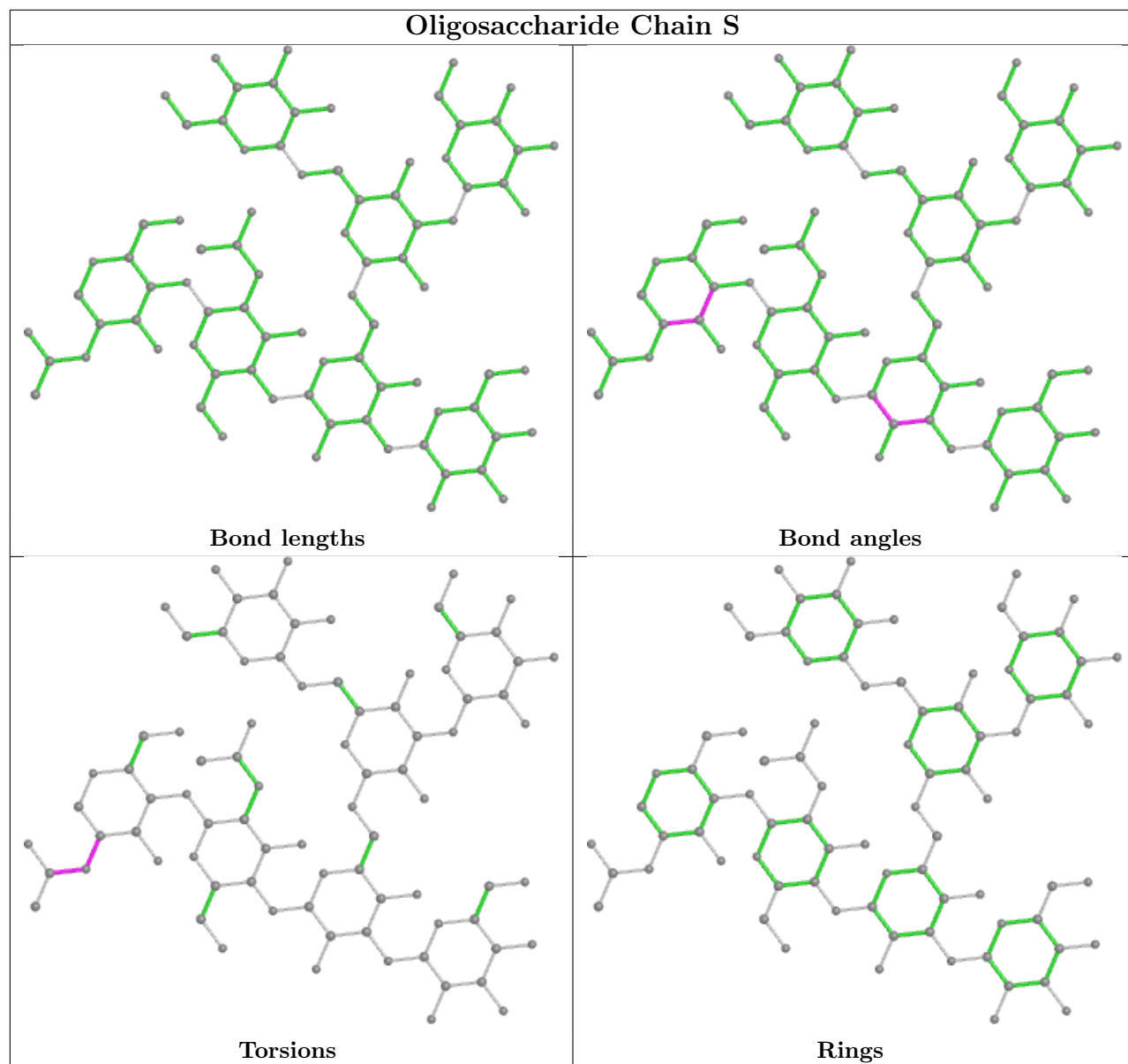


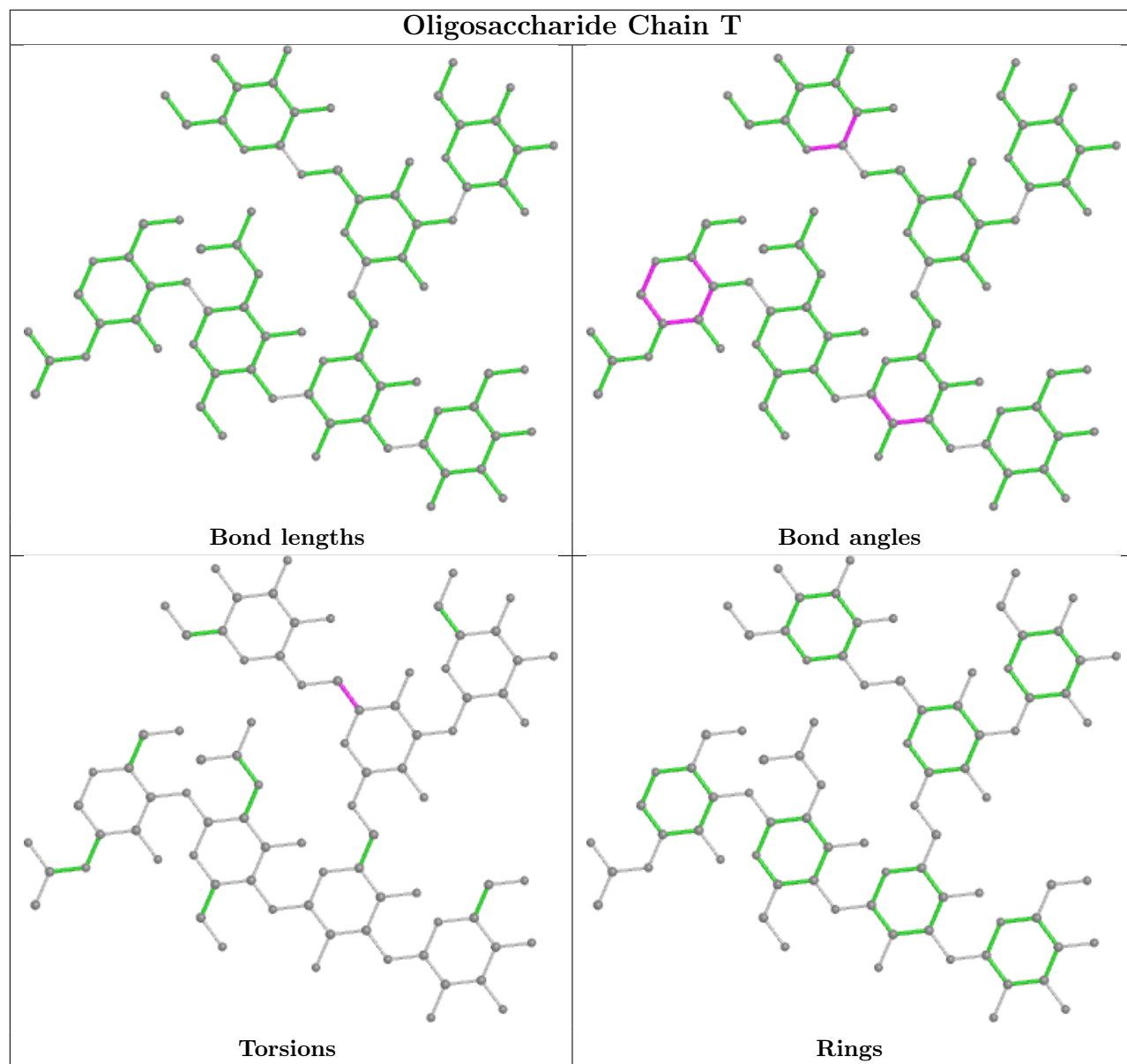


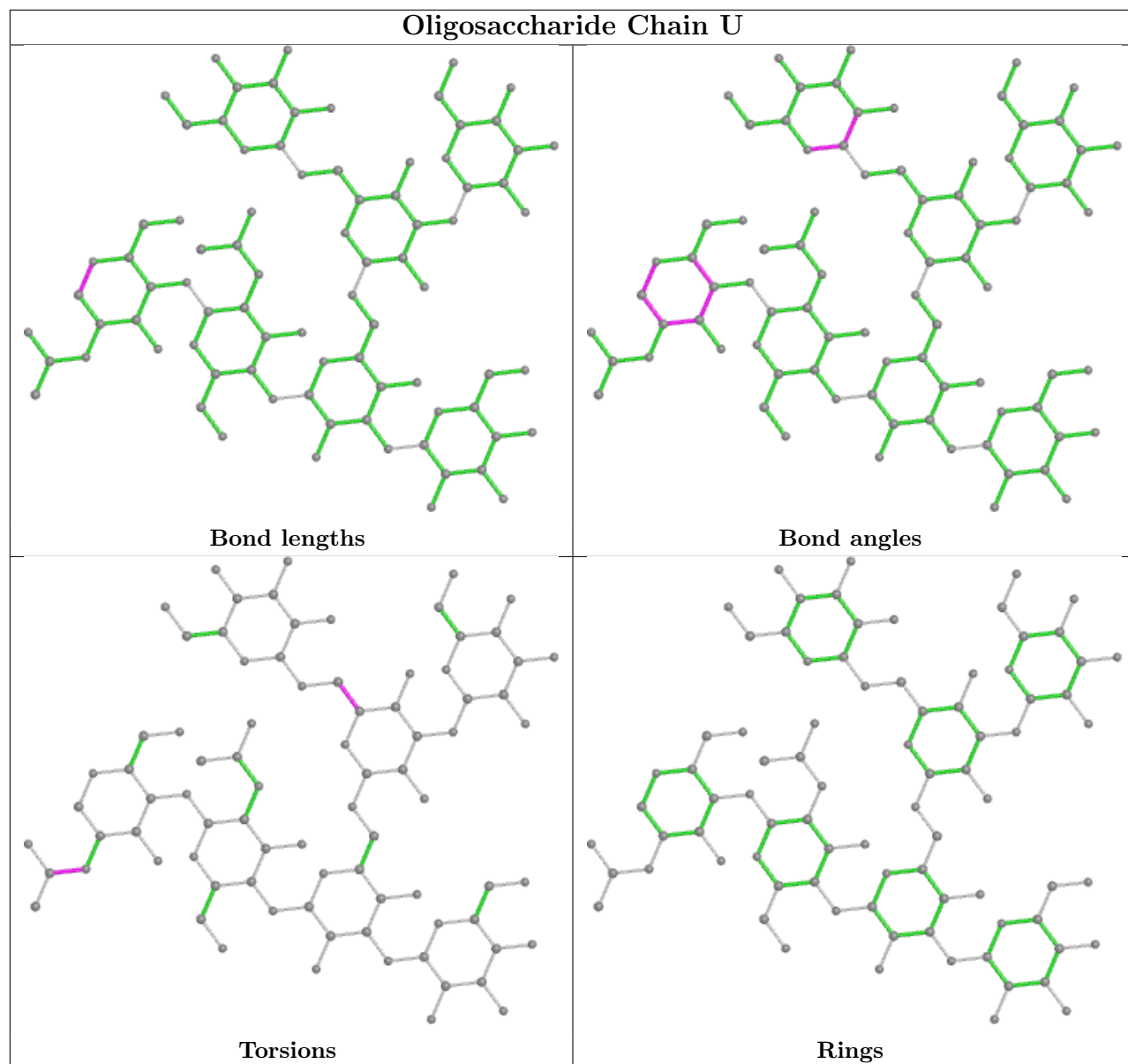


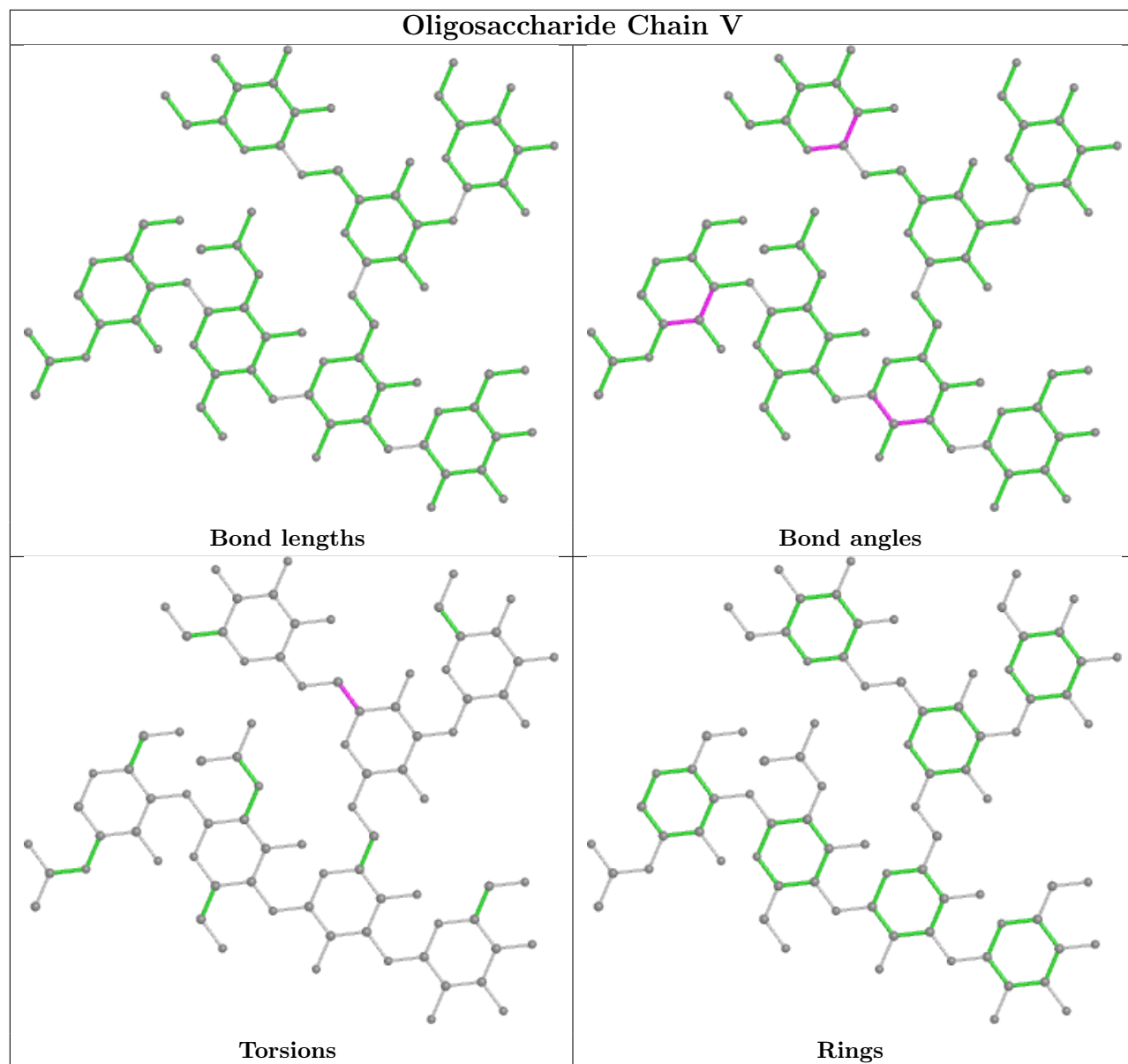


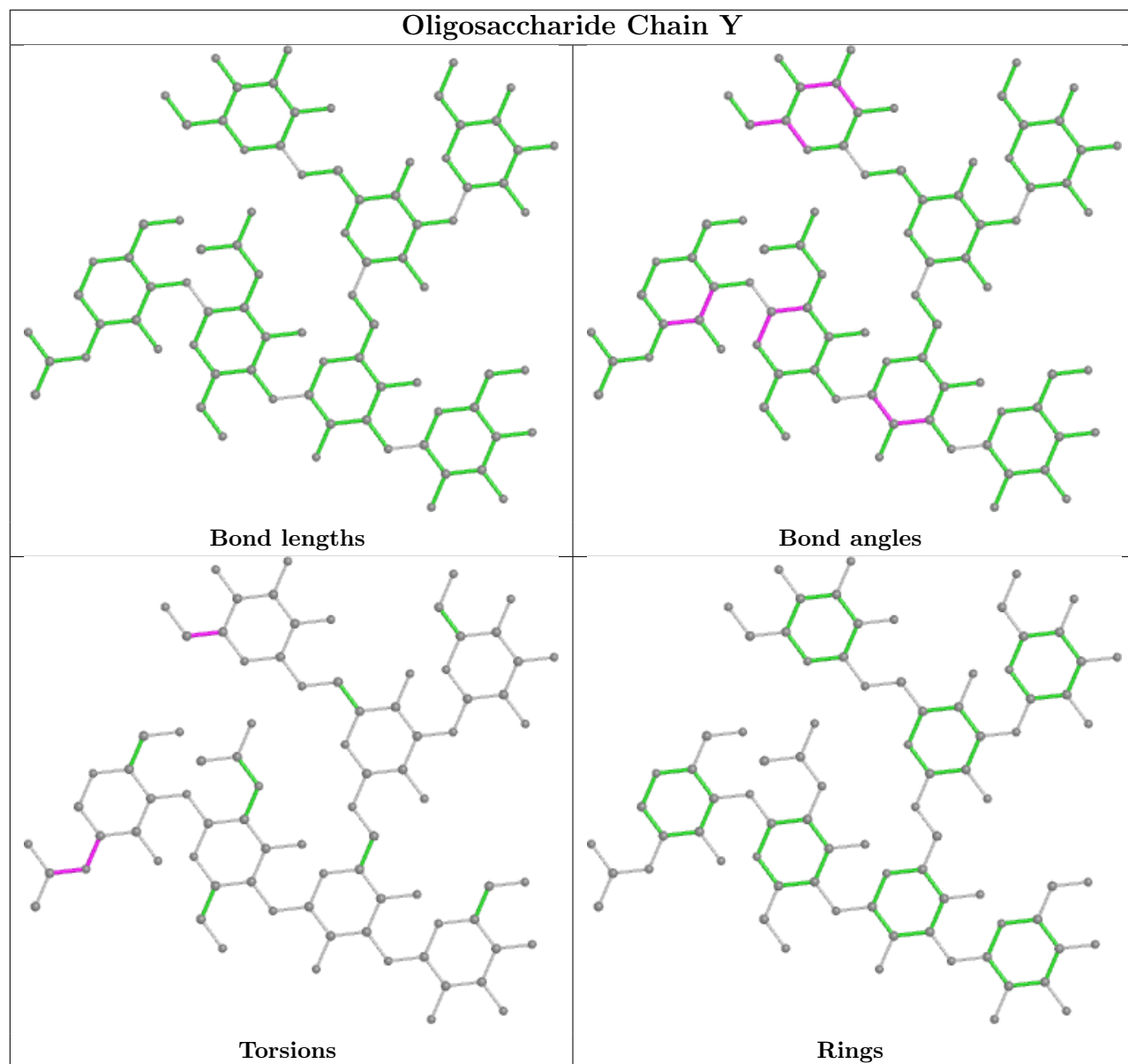


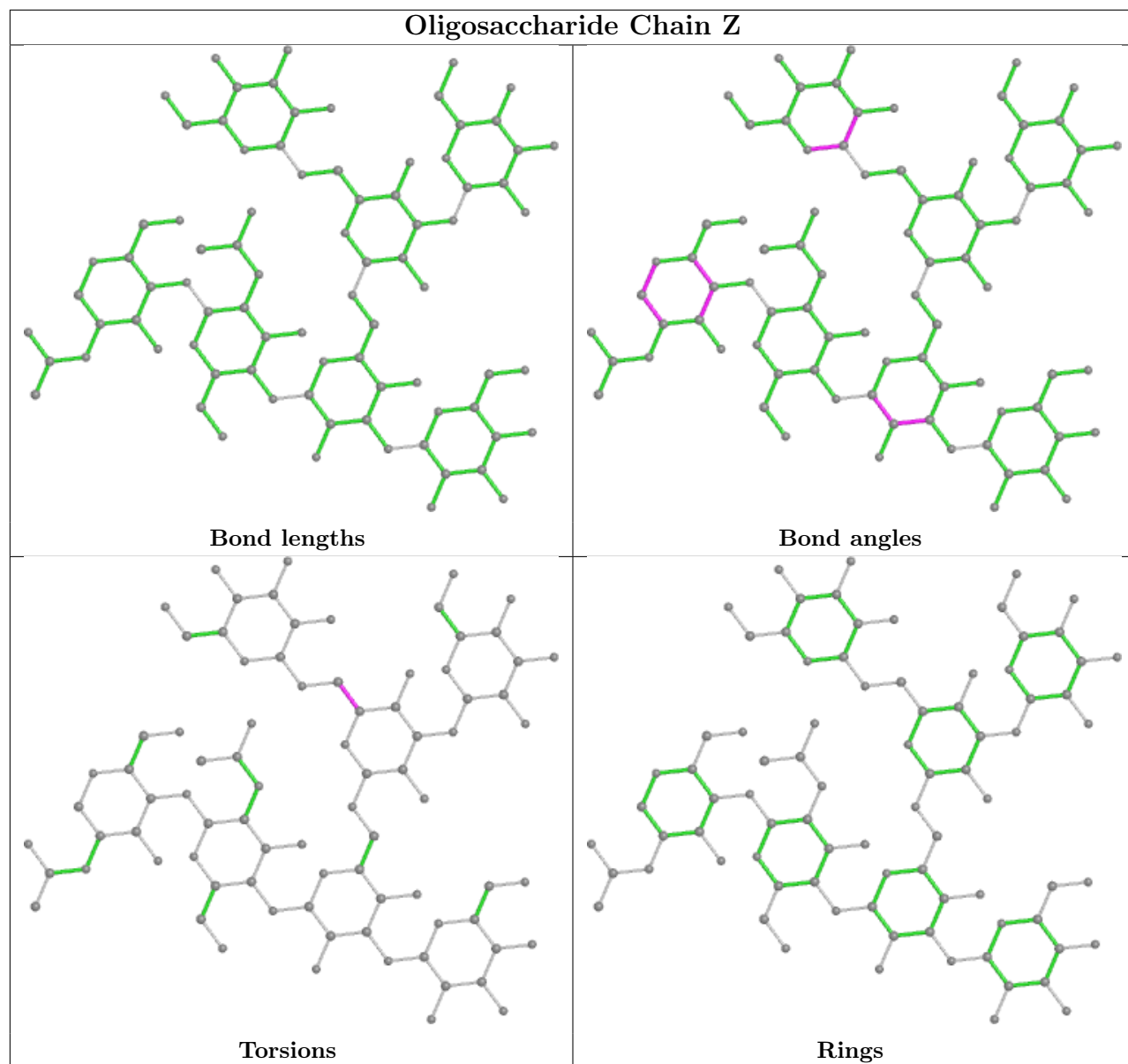


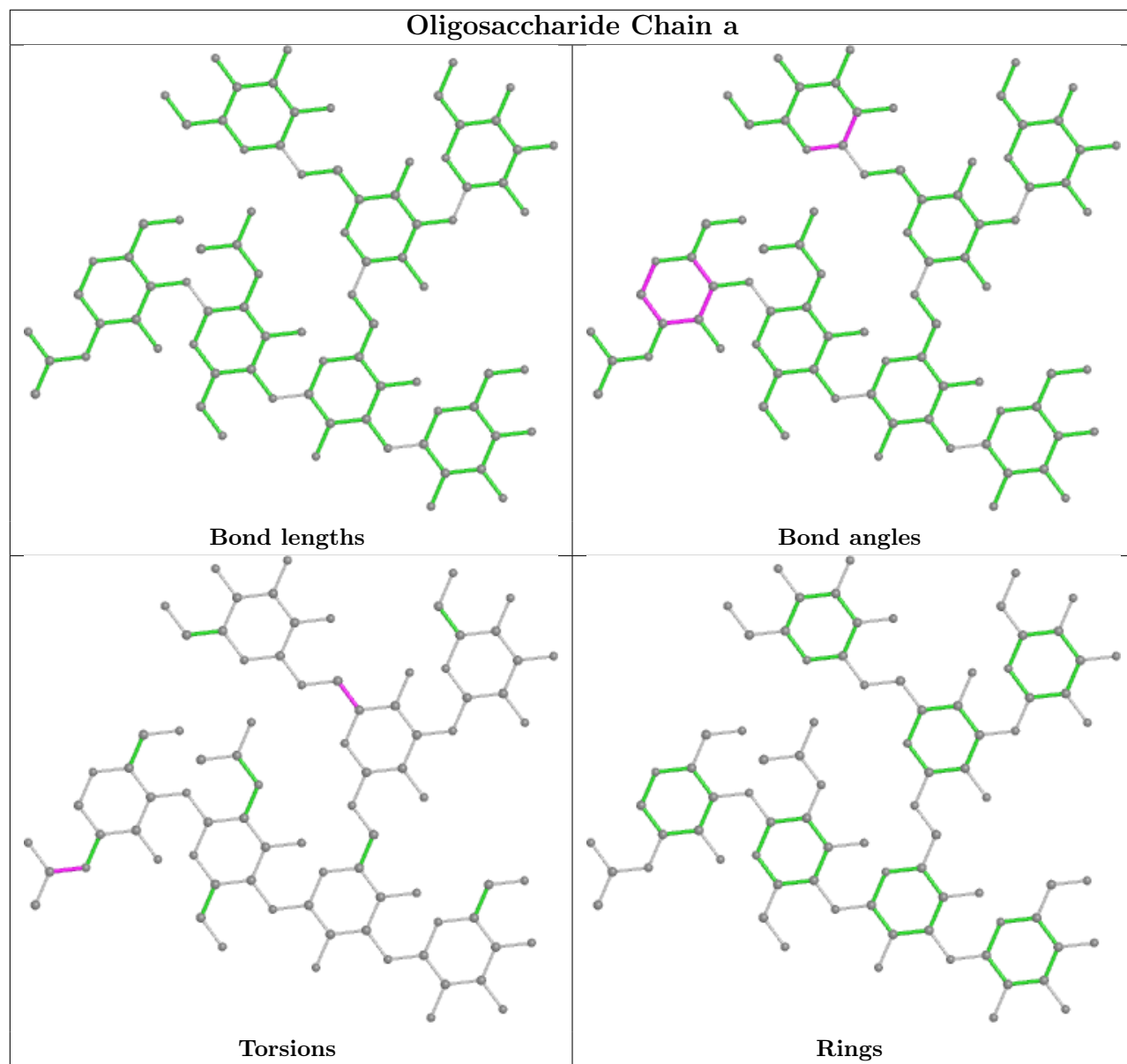


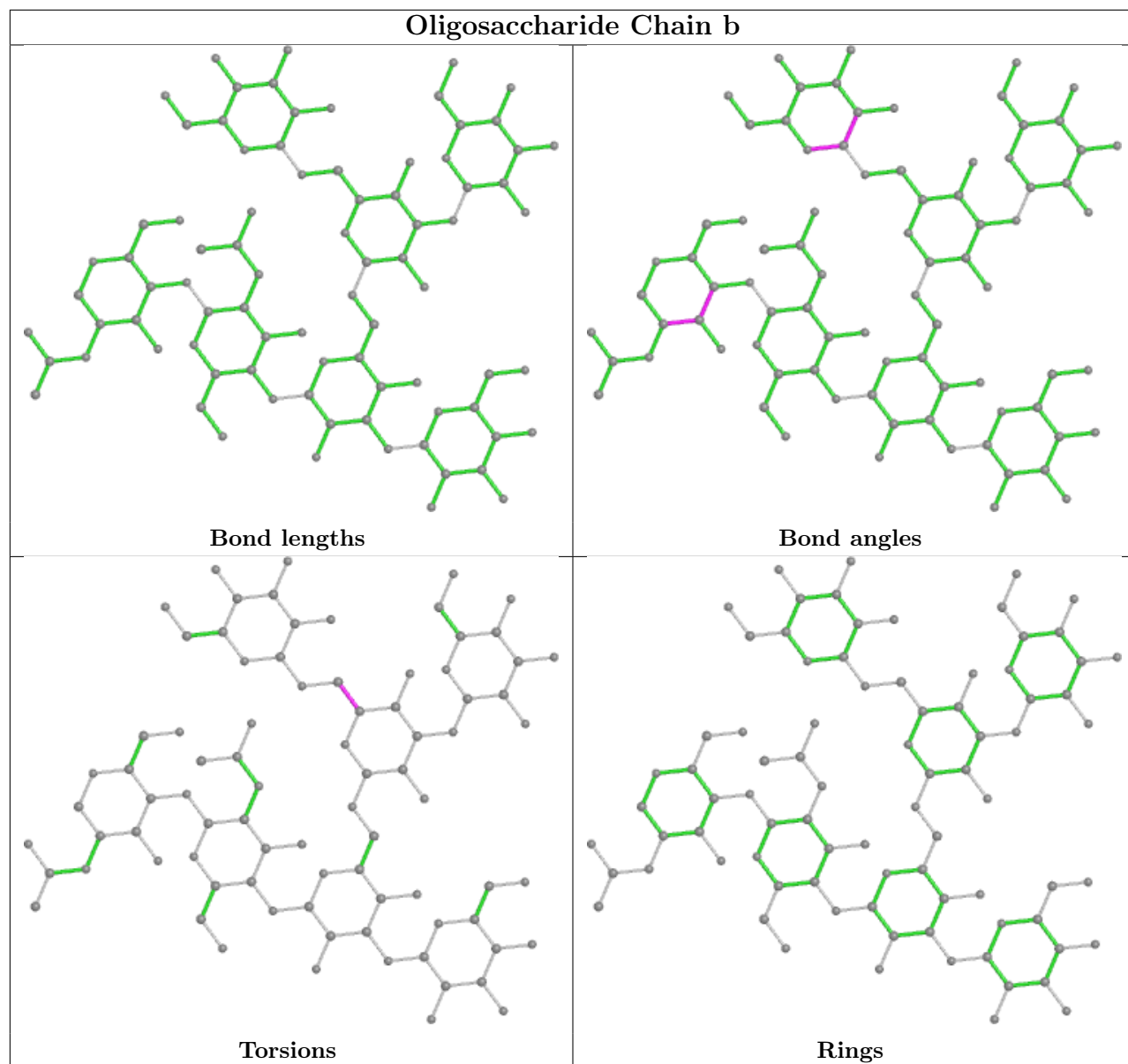




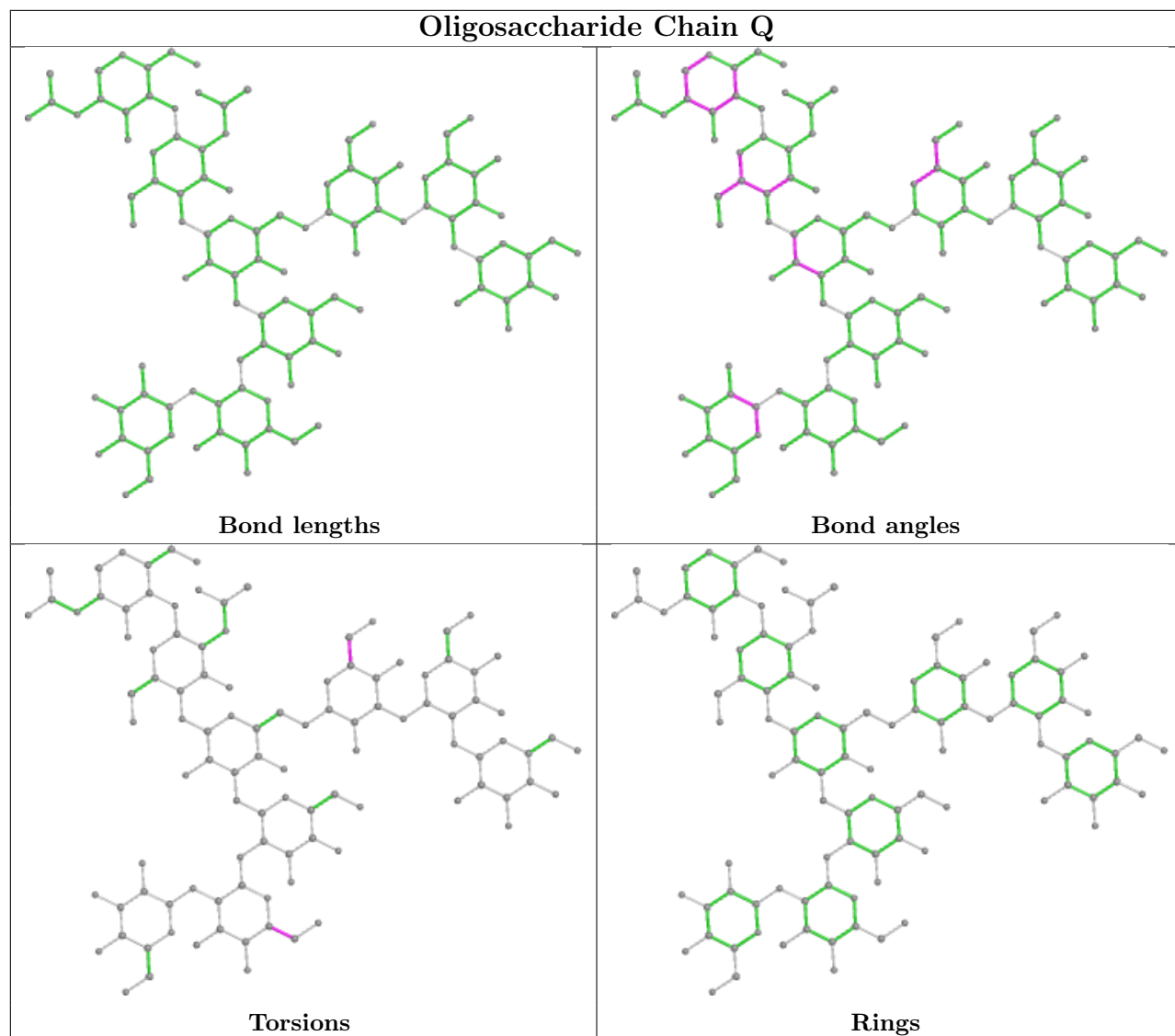


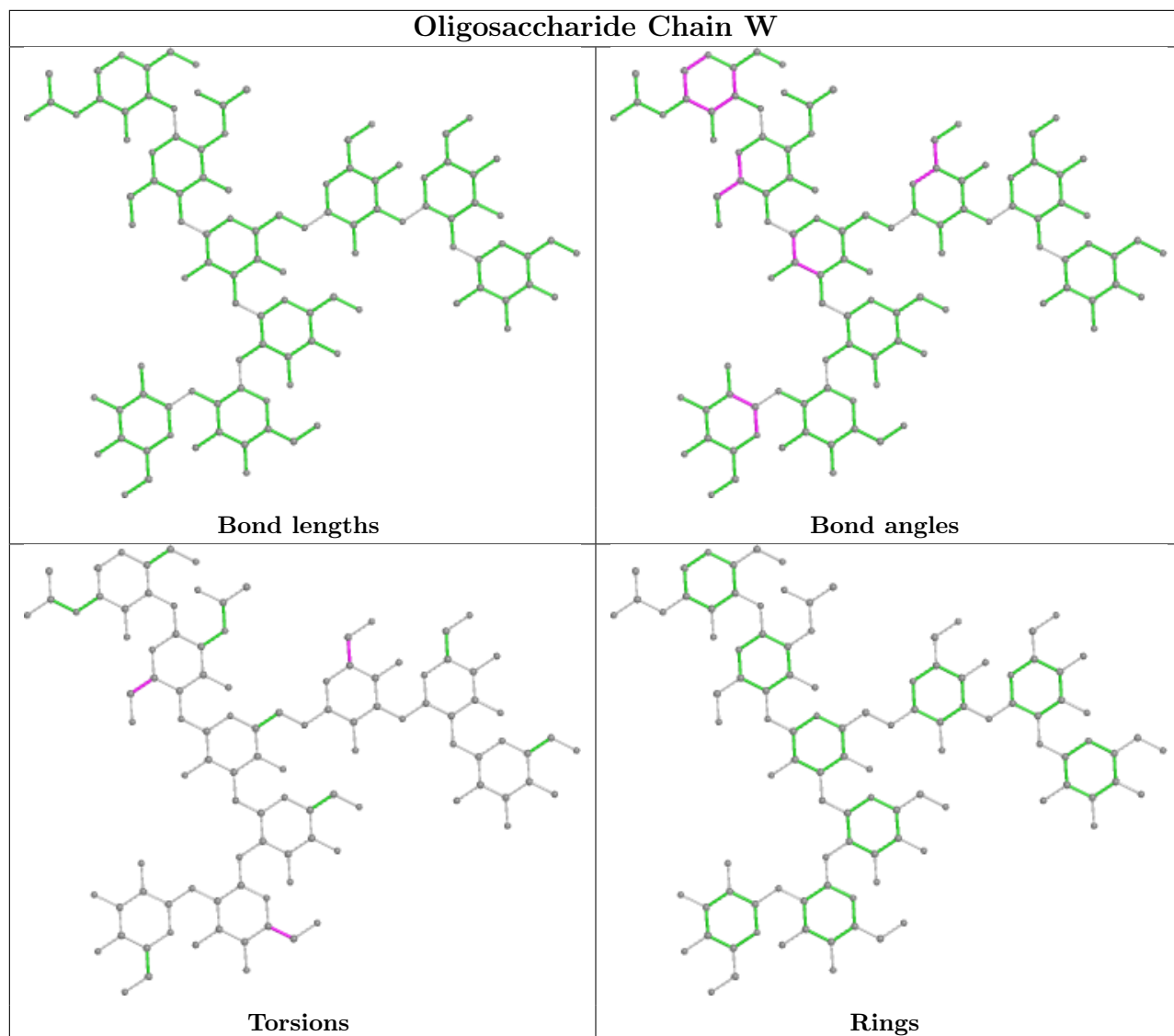


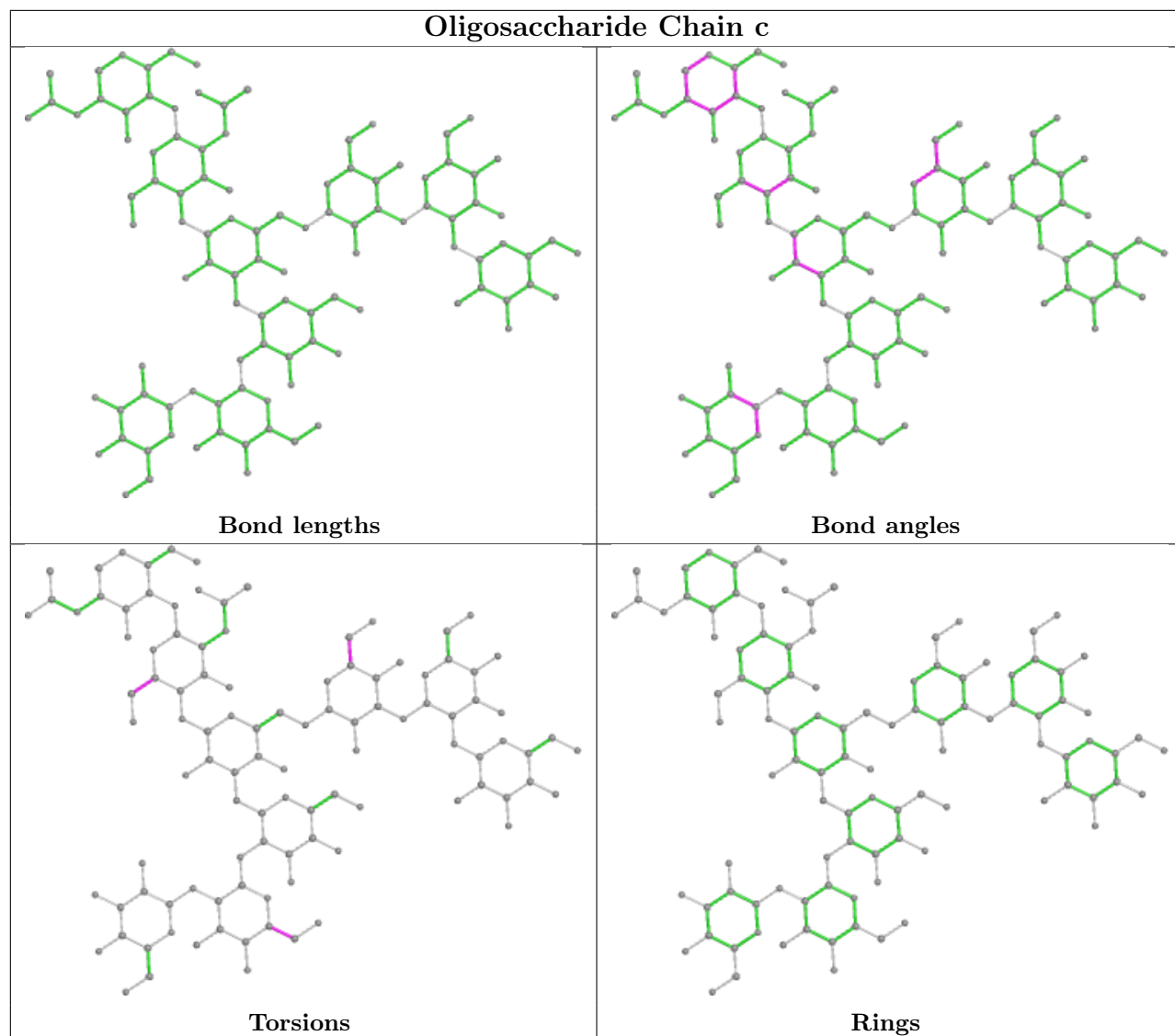


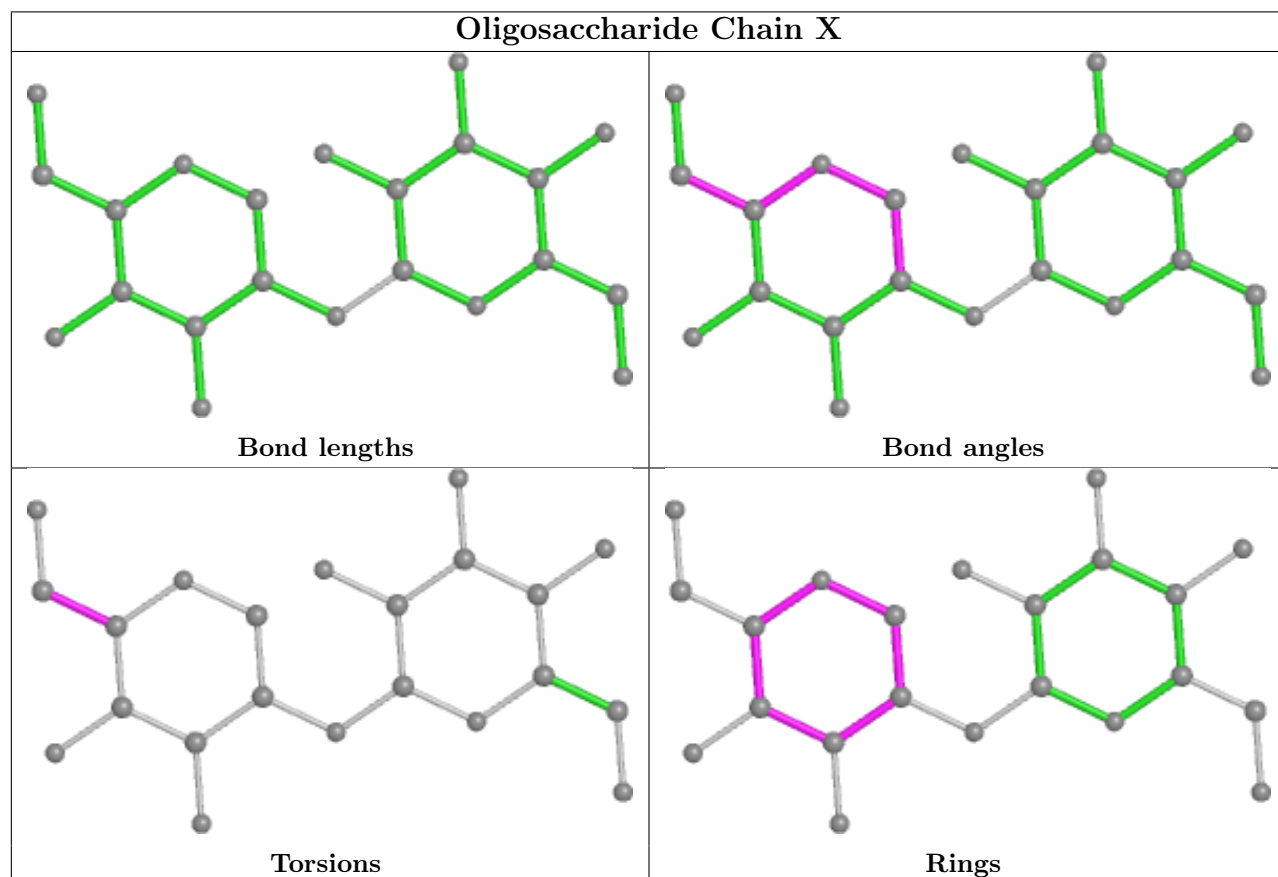
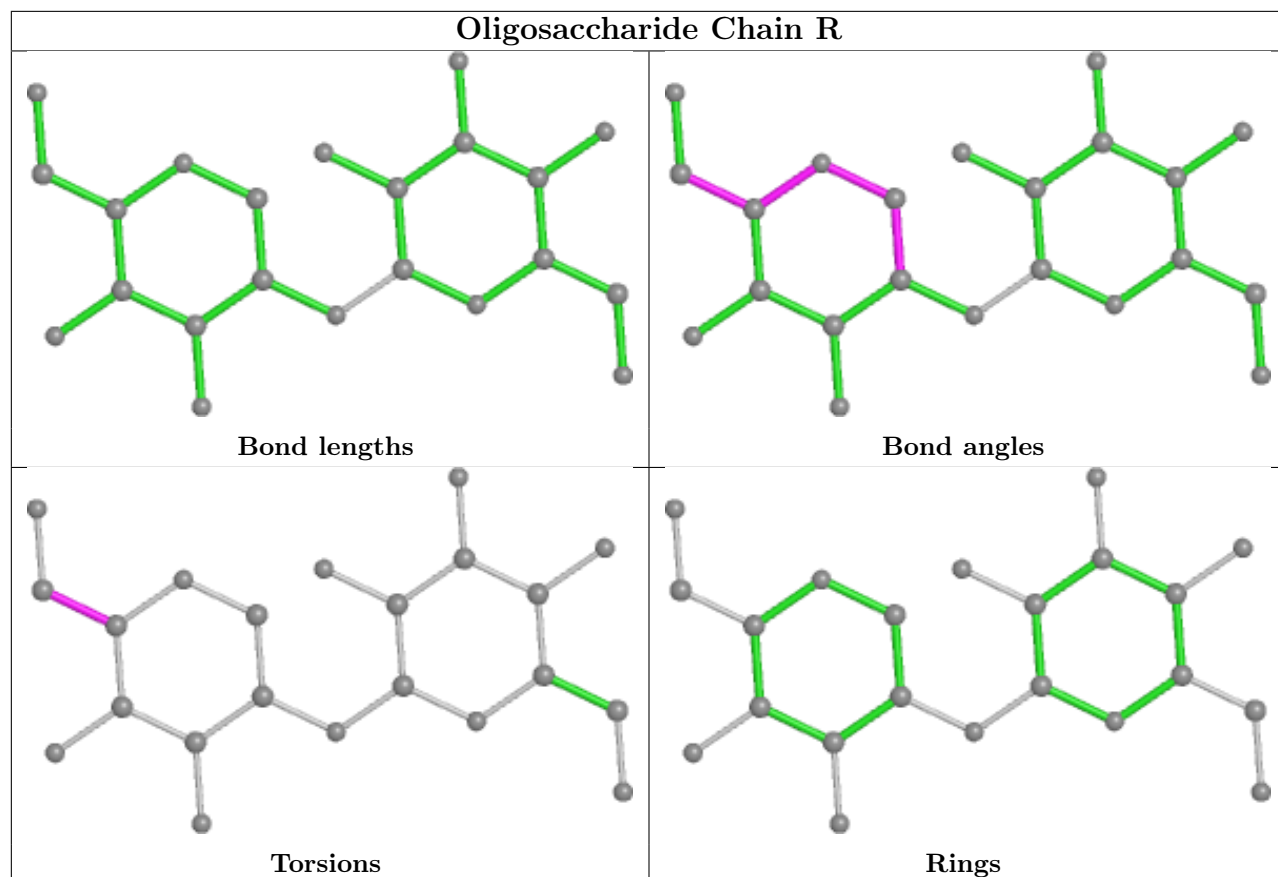


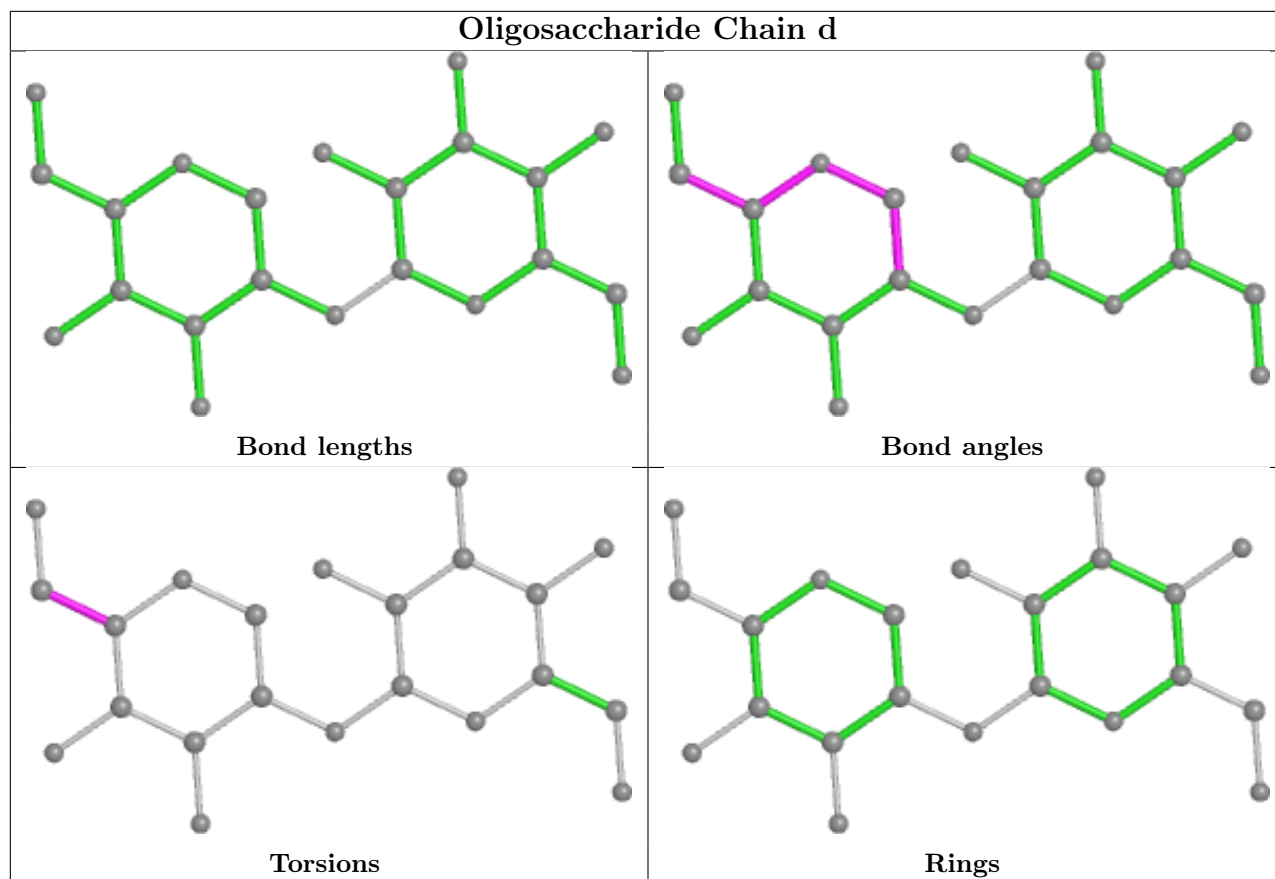












## 5.6 Ligand geometry [i](#)

30 ligands 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 | $\# Z  > 2$ |
| 8   | NAG  | A     | 1234 | 1    | 14,14,15     | 0.44 | 0           | 17,19,21    | 1.19 | 2 (11%)     |
| 8   | NAG  | I     | 1234 | 1    | 14,14,15     | 0.47 | 0           | 17,19,21    | 1.18 | 2 (11%)     |
| 8   | NAG  | I     | 1355 | 1    | 14,14,15     | 0.48 | 0           | 17,19,21    | 0.87 | 1 (5%)      |
| 8   | NAG  | I     | 1392 | 1    | 14,14,15     | 0.43 | 0           | 17,19,21    | 0.80 | 0           |
| 8   | NAG  | I     | 1160 | 1    | 14,14,15     | 0.42 | 0           | 17,19,21    | 0.91 | 1 (5%)      |
| 8   | NAG  | A     | 1448 | 1    | 14,14,15     | 0.51 | 0           | 17,19,21    | 1.47 | 3 (17%)     |
| 8   | NAG  | A     | 1392 | 1    | 14,14,15     | 0.46 | 0           | 17,19,21    | 0.75 | 0           |

| Mol | Type | Chain | Res  | Link | Bond lengths |      |          | Bond angles |      |          |
|-----|------|-------|------|------|--------------|------|----------|-------------|------|----------|
|     |      |       |      |      | Counts       | RMSZ | # Z  > 2 | Counts      | RMSZ | # Z  > 2 |
| 8   | NAG  | I     | 1386 | 1    | 14,14,15     | 0.54 | 0        | 17,19,21    | 0.83 | 1 (5%)   |
| 8   | NAG  | A     | 1276 | 1    | 14,14,15     | 0.41 | 0        | 17,19,21    | 1.19 | 1 (5%)   |
| 8   | NAG  | E     | 1197 | 1    | 14,14,15     | 0.47 | 0        | 17,19,21    | 0.82 | 0        |
| 8   | NAG  | A     | 1160 | 1    | 14,14,15     | 0.50 | 0        | 17,19,21    | 0.78 | 0        |
| 8   | NAG  | E     | 1386 | 1    | 14,14,15     | 0.58 | 0        | 17,19,21    | 0.76 | 0        |
| 8   | NAG  | A     | 1295 | 1    | 14,14,15     | 0.54 | 0        | 17,19,21    | 0.74 | 0        |
| 8   | NAG  | A     | 1355 | 1    | 14,14,15     | 0.50 | 0        | 17,19,21    | 0.78 | 0        |
| 8   | NAG  | E     | 1276 | 1    | 14,14,15     | 0.45 | 0        | 17,19,21    | 1.25 | 2 (11%)  |
| 8   | NAG  | I     | 1088 | 1    | 14,14,15     | 0.50 | 0        | 17,19,21    | 0.89 | 1 (5%)   |
| 8   | NAG  | I     | 1295 | 1    | 14,14,15     | 0.52 | 0        | 17,19,21    | 0.83 | 1 (5%)   |
| 8   | NAG  | E     | 1088 | 1    | 14,14,15     | 0.56 | 0        | 17,19,21    | 0.75 | 0        |
| 8   | NAG  | E     | 1234 | 1    | 14,14,15     | 0.44 | 0        | 17,19,21    | 1.15 | 2 (11%)  |
| 8   | NAG  | E     | 1392 | 1    | 14,14,15     | 0.49 | 0        | 17,19,21    | 0.71 | 0        |
| 8   | NAG  | E     | 1355 | 1    | 14,14,15     | 0.51 | 0        | 17,19,21    | 0.75 | 0        |
| 8   | NAG  | I     | 1197 | 1    | 14,14,15     | 0.50 | 0        | 17,19,21    | 0.83 | 0        |
| 8   | NAG  | I     | 1276 | 1    | 14,14,15     | 0.47 | 0        | 17,19,21    | 1.04 | 1 (5%)   |
| 8   | NAG  | E     | 1160 | 1    | 14,14,15     | 0.50 | 0        | 17,19,21    | 0.73 | 0        |
| 8   | NAG  | E     | 1448 | 1    | 14,14,15     | 0.50 | 0        | 17,19,21    | 1.53 | 3 (17%)  |
| 8   | NAG  | A     | 1197 | 1    | 14,14,15     | 0.46 | 0        | 17,19,21    | 0.91 | 1 (5%)   |
| 8   | NAG  | I     | 1448 | 1    | 14,14,15     | 0.46 | 0        | 17,19,21    | 1.56 | 3 (17%)  |
| 8   | NAG  | A     | 1088 | 1    | 14,14,15     | 0.49 | 0        | 17,19,21    | 0.88 | 1 (5%)   |
| 8   | NAG  | E     | 1295 | 1    | 14,14,15     | 0.51 | 0        | 17,19,21    | 0.77 | 0        |
| 8   | NAG  | A     | 1386 | 1    | 14,14,15     | 0.57 | 0        | 17,19,21    | 0.79 | 1 (5%)   |

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   |
|-----|------|-------|------|------|---------|-----------|---------|
| 8   | NAG  | A     | 1234 | 1    | -       | 0/6/23/26 | 0/1/1/1 |
| 8   | NAG  | I     | 1234 | 1    | -       | 0/6/23/26 | 0/1/1/1 |
| 8   | NAG  | I     | 1355 | 1    | -       | 0/6/23/26 | 0/1/1/1 |
| 8   | NAG  | I     | 1392 | 1    | -       | 0/6/23/26 | 0/1/1/1 |
| 8   | NAG  | I     | 1160 | 1    | -       | 2/6/23/26 | 0/1/1/1 |
| 8   | NAG  | A     | 1448 | 1    | -       | 4/6/23/26 | 0/1/1/1 |
| 8   | NAG  | A     | 1392 | 1    | -       | 0/6/23/26 | 0/1/1/1 |
| 8   | NAG  | I     | 1386 | 1    | -       | 0/6/23/26 | 0/1/1/1 |
| 8   | NAG  | A     | 1276 | 1    | -       | 0/6/23/26 | 0/1/1/1 |

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| Mol | Type | Chain | Res  | Link | Chirals | Torsions  | Rings   |
|-----|------|-------|------|------|---------|-----------|---------|
| 8   | NAG  | E     | 1197 | 1    | -       | 0/6/23/26 | 0/1/1/1 |
| 8   | NAG  | A     | 1160 | 1    | -       | 2/6/23/26 | 0/1/1/1 |
| 8   | NAG  | E     | 1386 | 1    | -       | 0/6/23/26 | 0/1/1/1 |
| 8   | NAG  | A     | 1295 | 1    | -       | 0/6/23/26 | 0/1/1/1 |
| 8   | NAG  | A     | 1355 | 1    | -       | 0/6/23/26 | 0/1/1/1 |
| 8   | NAG  | E     | 1276 | 1    | -       | 0/6/23/26 | 0/1/1/1 |
| 8   | NAG  | I     | 1088 | 1    | -       | 0/6/23/26 | 0/1/1/1 |
| 8   | NAG  | I     | 1295 | 1    | -       | 0/6/23/26 | 0/1/1/1 |
| 8   | NAG  | E     | 1088 | 1    | -       | 0/6/23/26 | 0/1/1/1 |
| 8   | NAG  | E     | 1234 | 1    | -       | 0/6/23/26 | 0/1/1/1 |
| 8   | NAG  | E     | 1392 | 1    | -       | 0/6/23/26 | 0/1/1/1 |
| 8   | NAG  | E     | 1355 | 1    | -       | 0/6/23/26 | 0/1/1/1 |
| 8   | NAG  | I     | 1197 | 1    | -       | 0/6/23/26 | 0/1/1/1 |
| 8   | NAG  | I     | 1276 | 1    | -       | 0/6/23/26 | 0/1/1/1 |
| 8   | NAG  | E     | 1160 | 1    | -       | 2/6/23/26 | 0/1/1/1 |
| 8   | NAG  | E     | 1448 | 1    | -       | 4/6/23/26 | 0/1/1/1 |
| 8   | NAG  | A     | 1197 | 1    | -       | 0/6/23/26 | 0/1/1/1 |
| 8   | NAG  | I     | 1448 | 1    | -       | 4/6/23/26 | 0/1/1/1 |
| 8   | NAG  | A     | 1088 | 1    | -       | 0/6/23/26 | 0/1/1/1 |
| 8   | NAG  | E     | 1295 | 1    | -       | 0/6/23/26 | 0/1/1/1 |
| 8   | NAG  | A     | 1386 | 1    | -       | 0/6/23/26 | 0/1/1/1 |

There are no bond length outliers.

All (27) bond angle outliers are listed below:

| Mol | Chain | Res  | Type | Atoms    | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|----------|-------|-------------|----------|
| 8   | I     | 1448 | NAG  | C1-O5-C5 | 3.33  | 116.71      | 112.19   |
| 8   | E     | 1448 | NAG  | C1-O5-C5 | 3.31  | 116.68      | 112.19   |
| 8   | A     | 1448 | NAG  | C1-O5-C5 | 3.09  | 116.38      | 112.19   |
| 8   | A     | 1276 | NAG  | C1-O5-C5 | 2.99  | 116.25      | 112.19   |
| 8   | E     | 1276 | NAG  | C1-O5-C5 | 2.97  | 116.21      | 112.19   |
| 8   | I     | 1448 | NAG  | O5-C1-C2 | -2.81 | 106.86      | 111.29   |
| 8   | E     | 1448 | NAG  | O5-C1-C2 | -2.80 | 106.87      | 111.29   |
| 8   | A     | 1448 | NAG  | O5-C1-C2 | -2.69 | 107.04      | 111.29   |
| 8   | A     | 1234 | NAG  | C1-O5-C5 | 2.61  | 115.73      | 112.19   |
| 8   | I     | 1276 | NAG  | C1-O5-C5 | 2.53  | 115.62      | 112.19   |
| 8   | A     | 1088 | NAG  | C1-O5-C5 | 2.42  | 115.47      | 112.19   |
| 8   | I     | 1088 | NAG  | C1-O5-C5 | 2.41  | 115.46      | 112.19   |
| 8   | I     | 1448 | NAG  | C2-N2-C7 | -2.39 | 119.50      | 122.90   |
| 8   | E     | 1448 | NAG  | C2-N2-C7 | -2.30 | 119.64      | 122.90   |
| 8   | I     | 1234 | NAG  | O5-C1-C2 | -2.28 | 107.68      | 111.29   |

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| Mol | Chain | Res  | Type | Atoms    | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|----------|-------|-------------|----------|
| 8   | A     | 1197 | NAG  | C1-O5-C5 | 2.25  | 115.25      | 112.19   |
| 8   | E     | 1234 | NAG  | O5-C1-C2 | -2.24 | 107.74      | 111.29   |
| 8   | A     | 1448 | NAG  | C2-N2-C7 | -2.24 | 119.71      | 122.90   |
| 8   | I     | 1160 | NAG  | C1-O5-C5 | 2.23  | 115.21      | 112.19   |
| 8   | E     | 1276 | NAG  | O5-C1-C2 | -2.16 | 107.88      | 111.29   |
| 8   | I     | 1234 | NAG  | C1-O5-C5 | 2.12  | 115.06      | 112.19   |
| 8   | A     | 1234 | NAG  | O5-C1-C2 | -2.09 | 107.99      | 111.29   |
| 8   | E     | 1234 | NAG  | C1-O5-C5 | 2.08  | 115.00      | 112.19   |
| 8   | A     | 1386 | NAG  | C1-O5-C5 | 2.07  | 114.99      | 112.19   |
| 8   | I     | 1355 | NAG  | C1-O5-C5 | 2.04  | 114.95      | 112.19   |
| 8   | I     | 1386 | NAG  | C1-O5-C5 | 2.04  | 114.95      | 112.19   |
| 8   | I     | 1295 | NAG  | C1-O5-C5 | 2.02  | 114.93      | 112.19   |

There are no chirality outliers.

All (18) torsion outliers are listed below:

| Mol | Chain | Res  | Type | Atoms       |
|-----|-------|------|------|-------------|
| 8   | E     | 1160 | NAG  | C8-C7-N2-C2 |
| 8   | A     | 1160 | NAG  | C8-C7-N2-C2 |
| 8   | E     | 1160 | NAG  | O7-C7-N2-C2 |
| 8   | I     | 1160 | NAG  | C8-C7-N2-C2 |
| 8   | I     | 1160 | NAG  | O7-C7-N2-C2 |
| 8   | A     | 1448 | NAG  | O5-C5-C6-O6 |
| 8   | E     | 1448 | NAG  | O5-C5-C6-O6 |
| 8   | I     | 1448 | NAG  | O5-C5-C6-O6 |
| 8   | I     | 1448 | NAG  | C8-C7-N2-C2 |
| 8   | A     | 1160 | NAG  | O7-C7-N2-C2 |
| 8   | A     | 1448 | NAG  | C8-C7-N2-C2 |
| 8   | E     | 1448 | NAG  | C8-C7-N2-C2 |
| 8   | I     | 1448 | NAG  | O7-C7-N2-C2 |
| 8   | A     | 1448 | NAG  | O7-C7-N2-C2 |
| 8   | E     | 1448 | NAG  | O7-C7-N2-C2 |
| 8   | A     | 1448 | NAG  | C4-C5-C6-O6 |
| 8   | E     | 1448 | NAG  | C4-C5-C6-O6 |
| 8   | I     | 1448 | NAG  | C4-C5-C6-O6 |

There are no ring outliers.

5 monomers are involved in 8 short contacts:

| Mol | Chain | Res  | Type | Clashes | Symm-Clashes |
|-----|-------|------|------|---------|--------------|
| 8   | A     | 1276 | NAG  | 1       | 0            |

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| Mol | Chain | Res  | Type | Clashes | Symm-Clashes |
|-----|-------|------|------|---------|--------------|
| 8   | A     | 1295 | NAG  | 2       | 0            |
| 8   | E     | 1276 | NAG  | 1       | 0            |
| 8   | I     | 1295 | NAG  | 2       | 0            |
| 8   | E     | 1295 | NAG  | 2       | 0            |

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

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

The following chains have linkage breaks:

| Mol | Chain | Number of breaks |
|-----|-------|------------------|
| 4   | L     | 1                |

All chain breaks are listed below:

| Model | Chain | Residue-1  | Atom-1 | Residue-2 | Atom-2 | Distance (Å) |
|-------|-------|------------|--------|-----------|--------|--------------|
| 1     | L     | 100(R):VAL | C      | 101:TRP   | N      | 1.66         |

## 6 Fit of model and data [i](#)

### 6.1 Protein, DNA and RNA chains [i](#)

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95<sup>th</sup> percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q< 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

| Mol | Chain | Analysed        | <RSRZ> | #RSRZ>2        | OWAB(Å <sup>2</sup> ) | Q<0.9 |
|-----|-------|-----------------|--------|----------------|-----------------------|-------|
| 1   | A     | 420/475 (88%)   | 0.03   | 13 (3%) 49 39  | 7, 227, 434, 596      | 0     |
| 1   | E     | 420/475 (88%)   | 0.06   | 18 (4%) 35 30  | 16, 221, 423, 559     | 0     |
| 1   | I     | 420/475 (88%)   | 0.08   | 16 (3%) 40 33  | 25, 216, 434, 550     | 0     |
| 2   | B     | 0/78            | -      | -              | -                     | -     |
| 2   | F     | 0/78            | -      | -              | -                     | -     |
| 2   | J     | 0/78            | -      | -              | -                     | -     |
| 3   | C     | 202/211 (95%)   | 0.41   | 17 (8%) 11 10  | 74, 234, 422, 563     | 0     |
| 3   | G     | 202/211 (95%)   | 0.46   | 24 (11%) 4 5   | 43, 229, 392, 572     | 0     |
| 3   | K     | 202/211 (95%)   | 0.77   | 36 (17%) 1 2   | 47, 291, 454, 533     | 0     |
| 4   | D     | 226/235 (96%)   | 0.42   | 15 (6%) 18 15  | 67, 232, 488, 582     | 0     |
| 4   | H     | 226/235 (96%)   | 0.30   | 16 (7%) 16 13  | 56, 232, 421, 563     | 0     |
| 4   | L     | 226/235 (96%)   | 0.65   | 28 (12%) 4 5   | 71, 287, 466, 582     | 0     |
| All | All   | 2544/2997 (84%) | 0.28   | 183 (7%) 15 13 | 7, 236, 440, 596      | 0     |

All (183) RSRZ outliers are listed below:

| Mol | Chain | Res    | Type | RSRZ |
|-----|-------|--------|------|------|
| 4   | D     | 100(A) | ILE  | 6.9  |
| 3   | K     | 204    | GLU  | 6.5  |
| 4   | L     | 111    | SER  | 6.2  |
| 4   | D     | 29     | VAL  | 6.1  |
| 3   | K     | 147    | VAL  | 5.6  |
| 3   | G     | 204    | GLU  | 5.6  |
| 4   | L     | 112    | ALA  | 5.6  |
| 4   | L     | 188    | GLY  | 5.2  |
| 4   | H     | 112    | ALA  | 5.0  |
| 4   | D     | 112    | ALA  | 5.0  |
| 3   | C     | 111    | LYS  | 5.0  |
| 3   | K     | 193    | SER  | 5.0  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> | <b>RSRZ</b> |
|------------|--------------|------------|-------------|-------------|
| 4          | L            | 177        | SER         | 5.0         |
| 3          | K            | 179        | LEU         | 4.8         |
| 4          | L            | 184        | SER         | 4.7         |
| 3          | K            | 145        | VAL         | 4.7         |
| 3          | G            | 133        | LEU         | 4.7         |
| 3          | K            | 108        | SER         | 4.7         |
| 3          | K            | 175        | ALA         | 4.6         |
| 3          | K            | 159        | GLY         | 4.6         |
| 4          | H            | 100(A)     | ILE         | 4.4         |
| 3          | K            | 133        | LEU         | 4.4         |
| 4          | L            | 185        | SER         | 4.2         |
| 4          | H            | 71         | LEU         | 4.2         |
| 3          | G            | 190        | LYS         | 4.2         |
| 4          | D            | 102        | GLY         | 4.1         |
| 4          | L            | 102        | GLY         | 4.1         |
| 3          | K            | 192        | TYR         | 4.0         |
| 4          | L            | 100(A)     | ILE         | 3.9         |
| 4          | L            | 71         | LEU         | 3.9         |
| 4          | D            | 109        | VAL         | 3.9         |
| 4          | L            | 29         | VAL         | 3.7         |
| 4          | L            | 92         | CYS         | 3.7         |
| 3          | G            | 71         | ALA         | 3.7         |
| 3          | K            | 47         | ILE         | 3.7         |
| 1          | A            | 59         | LYS         | 3.6         |
| 3          | K            | 174        | ALA         | 3.6         |
| 1          | I            | 309        | ILE         | 3.6         |
| 4          | L            | 176        | LEU         | 3.6         |
| 4          | D            | 71         | LEU         | 3.5         |
| 3          | G            | 203        | VAL         | 3.5         |
| 3          | K            | 50         | ASN         | 3.5         |
| 3          | G            | 192        | TYR         | 3.4         |
| 3          | C            | 207        | VAL         | 3.4         |
| 4          | H            | 175        | SER         | 3.4         |
| 3          | K            | 132        | THR         | 3.4         |
| 4          | D            | 105        | THR         | 3.4         |
| 1          | I            | 262        | ASN         | 3.4         |
| 1          | E            | 262        | ASN         | 3.4         |
| 3          | G            | 132        | THR         | 3.3         |
| 3          | G            | 189        | HIS         | 3.3         |
| 4          | H            | 102        | GLY         | 3.3         |
| 4          | L            | 183        | PRO         | 3.3         |
| 1          | E            | 309        | ILE         | 3.3         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> | <b>RSRZ</b> |
|------------|--------------|------------|-------------|-------------|
| 4          | L            | 73         | LYS         | 3.3         |
| 1          | E            | 357        | THR         | 3.2         |
| 4          | D            | 104        | GLY         | 3.2         |
| 3          | G            | 70         | THR         | 3.2         |
| 3          | C            | 181        | LEU         | 3.2         |
| 3          | K            | 190        | LYS         | 3.2         |
| 3          | C            | 13         | VAL         | 3.2         |
| 3          | C            | 151        | ALA         | 3.2         |
| 4          | L            | 160        | GLY         | 3.2         |
| 4          | H            | 73         | LYS         | 3.2         |
| 1          | E            | 237        | GLY         | 3.2         |
| 1          | I            | 357        | THR         | 3.1         |
| 4          | D            | 100        | ARG         | 3.1         |
| 3          | K            | 162        | THR         | 3.1         |
| 1          | E            | 59         | LYS         | 3.1         |
| 4          | H            | 111        | SER         | 3.1         |
| 3          | K            | 82         | ASP         | 3.1         |
| 1          | I            | 59         | LYS         | 3.0         |
| 3          | C            | 47         | ILE         | 3.0         |
| 3          | K            | 113        | ALA         | 3.0         |
| 3          | C            | 204        | GLU         | 3.0         |
| 3          | C            | 158        | ALA         | 2.9         |
| 1          | E            | 238        | PRO         | 2.9         |
| 3          | C            | 110        | PRO         | 2.9         |
| 3          | K            | 111        | LYS         | 2.9         |
| 3          | K            | 164        | THR         | 2.9         |
| 3          | K            | 146        | THR         | 2.9         |
| 4          | L            | 156        | ALA         | 2.8         |
| 4          | H            | 30         | ARG         | 2.8         |
| 4          | L            | 72         | ASP         | 2.8         |
| 3          | K            | 141        | TYR         | 2.8         |
| 4          | L            | 150        | VAL         | 2.8         |
| 3          | C            | 190        | LYS         | 2.8         |
| 4          | D            | 90         | TYR         | 2.8         |
| 1          | E            | 137        | ASN         | 2.8         |
| 1          | E            | 236        | THR         | 2.7         |
| 4          | L            | 175        | SER         | 2.7         |
| 3          | G            | 180        | SER         | 2.7         |
| 1          | E            | 78         | ASP         | 2.7         |
| 4          | H            | 72         | ASP         | 2.7         |
| 3          | C            | 62         | PHE         | 2.7         |
| 1          | A            | 137        | ASN         | 2.7         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> | <b>RSRZ</b> |
|------------|--------------|------------|-------------|-------------|
| 4          | L            | 157        | LEU         | 2.7         |
| 1          | E            | 94         | ASN         | 2.7         |
| 3          | G            | 179        | LEU         | 2.7         |
| 4          | D            | 8          | GLY         | 2.7         |
| 1          | I            | 238        | PRO         | 2.7         |
| 1          | A            | 256        | SER         | 2.7         |
| 3          | G            | 50         | ASN         | 2.6         |
| 3          | G            | 131        | ALA         | 2.6         |
| 4          | L            | 110        | SER         | 2.6         |
| 4          | H            | 113        | SER         | 2.6         |
| 3          | C            | 152        | ASP         | 2.6         |
| 3          | C            | 179        | LEU         | 2.6         |
| 3          | C            | 192        | TYR         | 2.6         |
| 1          | I            | 263        | GLY         | 2.6         |
| 3          | C            | 131        | ALA         | 2.5         |
| 3          | K            | 114        | PRO         | 2.5         |
| 3          | C            | 208        | ALA         | 2.5         |
| 4          | H            | 109        | VAL         | 2.5         |
| 3          | G            | 32         | SER         | 2.5         |
| 3          | G            | 193        | SER         | 2.5         |
| 3          | G            | 205        | LYS         | 2.5         |
| 3          | K            | 194        | CYS         | 2.4         |
| 3          | K            | 150        | LYS         | 2.4         |
| 1          | I            | 78         | ASP         | 2.4         |
| 3          | G            | 62         | PHE         | 2.4         |
| 3          | K            | 155        | PRO         | 2.4         |
| 3          | G            | 72         | THR         | 2.4         |
| 1          | A            | 392        | ASN         | 2.4         |
| 3          | K            | 195        | GLN         | 2.4         |
| 1          | A            | 263        | GLY         | 2.4         |
| 1          | I            | 63         | THR         | 2.4         |
| 4          | D            | 157        | LEU         | 2.4         |
| 3          | K            | 110        | PRO         | 2.4         |
| 4          | L            | 30         | ARG         | 2.4         |
| 3          | G            | 195        | GLN         | 2.3         |
| 4          | L            | 8          | GLY         | 2.3         |
| 4          | D            | 18         | LEU         | 2.3         |
| 1          | I            | 308        | ARG         | 2.3         |
| 3          | K            | 109        | GLN         | 2.3         |
| 1          | A            | 262        | ASN         | 2.3         |
| 4          | D            | 124        | PRO         | 2.3         |
| 1          | E            | 330        | HIS         | 2.3         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> | <b>RSRZ</b> |
|------------|--------------|------------|-------------|-------------|
| 1          | A            | 291        | PRO         | 2.3         |
| 1          | E            | 70         | ALA         | 2.3         |
| 3          | G            | 82         | ASP         | 2.3         |
| 4          | H            | 166        | ALA         | 2.3         |
| 1          | I            | 491        | ILE         | 2.3         |
| 4          | L            | 194        | CYS         | 2.3         |
| 1          | E            | 308        | ARG         | 2.3         |
| 1          | I            | 174        | SER         | 2.3         |
| 4          | L            | 113        | SER         | 2.3         |
| 4          | H            | 69         | LEU         | 2.3         |
| 4          | H            | 157        | LEU         | 2.2         |
| 3          | K            | 196        | VAL         | 2.2         |
| 4          | H            | 4          | LEU         | 2.2         |
| 3          | K            | 142        | PRO         | 2.2         |
| 4          | L            | 17         | THR         | 2.2         |
| 3          | K            | 62         | PHE         | 2.2         |
| 4          | D            | 4          | LEU         | 2.2         |
| 1          | A            | 63         | THR         | 2.2         |
| 1          | A            | 357        | THR         | 2.2         |
| 3          | G            | 20         | ARG         | 2.2         |
| 1          | I            | 71         | THR         | 2.2         |
| 3          | G            | 181        | LEU         | 2.2         |
| 1          | I            | 236        | THR         | 2.2         |
| 3          | C            | 195        | GLN         | 2.2         |
| 4          | H            | 29         | VAL         | 2.2         |
| 3          | K            | 119        | PHE         | 2.2         |
| 1          | E            | 45         | TRP         | 2.1         |
| 1          | E            | 85         | HIS         | 2.1         |
| 1          | I            | 330        | HIS         | 2.1         |
| 3          | K            | 95(C)      | ASN         | 2.1         |
| 1          | A            | 70         | ALA         | 2.1         |
| 1          | E            | 171        | LYS         | 2.1         |
| 3          | G            | 24         | GLY         | 2.1         |
| 4          | L            | 90         | TYR         | 2.1         |
| 1          | E            | 191        | TYR         | 2.1         |
| 1          | A            | 462        | ASN         | 2.1         |
| 1          | I            | 379        | GLY         | 2.1         |
| 4          | L            | 81         | ARG         | 2.0         |
| 1          | E            | 219        | ALA         | 2.0         |
| 3          | K            | 112        | ALA         | 2.0         |
| 1          | A            | 57         | ASP         | 2.0         |
| 1          | A            | 149        | ASP         | 2.0         |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 3   | K     | 48  | ILE  | 2.0  |
| 3   | G     | 194 | CYS  | 2.0  |
| 1   | I     | 58  | ALA  | 2.0  |

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

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

## 6.3 Carbohydrates [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95<sup>th</sup> percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

| Mol | Type | Chain | Res | Atoms | RSCC  | RSR  | B-factors(Å <sup>2</sup> ) | Q<0.9 |
|-----|------|-------|-----|-------|-------|------|----------------------------|-------|
| 5   | MAN  | a     | 6   | 11/12 | -0.36 | 1.46 | 532,532,532,532            | 0     |
| 5   | MAN  | Z     | 7   | 11/12 | -0.35 | 2.15 | 550,550,550,550            | 0     |
| 5   | MAN  | Y     | 4   | 11/12 | -0.27 | 0.99 | 550,550,550,550            | 0     |
| 7   | MAN  | R     | 2   | 11/12 | -0.25 | 2.17 | 489,489,489,489            | 0     |
| 5   | MAN  | S     | 5   | 11/12 | -0.16 | 1.74 | 550,550,550,550            | 0     |
| 5   | NAG  | S     | 1   | 14/15 | -0.13 | 1.36 | 550,550,550,550            | 0     |
| 5   | MAN  | S     | 4   | 11/12 | -0.09 | 1.23 | 550,550,550,550            | 0     |
| 7   | MAN  | X     | 1   | 11/12 | -0.07 | 1.12 | 427,427,427,427            | 0     |
| 7   | MAN  | X     | 2   | 11/12 | -0.07 | 1.31 | 545,545,545,545            | 0     |
| 7   | MAN  | R     | 1   | 11/12 | -0.06 | 1.94 | 550,550,550,550            | 0     |
| 5   | MAN  | U     | 5   | 11/12 | -0.05 | 1.40 | 550,550,550,550            | 0     |
| 5   | MAN  | S     | 6   | 11/12 | -0.05 | 1.53 | 497,497,497,497            | 0     |
| 5   | MAN  | O     | 6   | 11/12 | -0.03 | 0.70 | 455,455,455,455            | 0     |
| 7   | MAN  | d     | 2   | 11/12 | -0.01 | 1.83 | 550,550,550,550            | 0     |
| 5   | MAN  | Y     | 5   | 11/12 | 0.03  | 1.50 | 477,477,477,477            | 0     |
| 5   | MAN  | b     | 4   | 11/12 | 0.06  | 0.40 | 467,467,467,467            | 0     |
| 5   | MAN  | U     | 6   | 11/12 | 0.07  | 0.82 | 515,515,515,515            | 0     |
| 5   | MAN  | S     | 7   | 11/12 | 0.09  | 1.10 | 518,518,518,518            | 0     |
| 5   | MAN  | U     | 4   | 11/12 | 0.09  | 0.72 | 550,550,550,550            | 0     |
| 5   | MAN  | M     | 5   | 11/12 | 0.10  | 1.53 | 481,481,481,481            | 0     |
| 5   | MAN  | V     | 6   | 11/12 | 0.12  | 0.97 | 454,454,454,454            | 0     |
| 5   | MAN  | P     | 6   | 11/12 | 0.15  | 0.78 | 470,470,470,470            | 0     |
| 5   | MAN  | P     | 7   | 11/12 | 0.17  | 1.17 | 447,447,447,447            | 0     |
| 5   | MAN  | N     | 6   | 11/12 | 0.18  | 0.72 | 464,464,464,464            | 0     |

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| Mol | Type | Chain | Res | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|-----|-------|------|------|-----------------------------|-------|
| 7   | MAN  | d     | 1   | 11/12 | 0.27 | 1.13 | 408,408,408,408             | 0     |
| 5   | MAN  | a     | 5   | 11/12 | 0.28 | 1.14 | 507,507,507,507             | 0     |
| 5   | NAG  | Y     | 1   | 14/15 | 0.29 | 0.77 | 530,530,530,530             | 0     |
| 5   | BMA  | V     | 3   | 11/12 | 0.31 | 0.27 | 492,492,492,492             | 0     |
| 5   | MAN  | O     | 5   | 11/12 | 0.32 | 1.00 | 468,468,468,468             | 0     |
| 5   | MAN  | V     | 5   | 11/12 | 0.33 | 1.21 | 495,495,495,495             | 0     |
| 5   | MAN  | Y     | 6   | 11/12 | 0.34 | 1.48 | 494,494,494,494             | 0     |
| 5   | MAN  | P     | 5   | 11/12 | 0.35 | 0.96 | 418,418,418,418             | 0     |
| 6   | MAN  | W     | 6   | 11/12 | 0.35 | 0.63 | 452,452,452,452             | 0     |
| 5   | BMA  | S     | 3   | 11/12 | 0.36 | 1.00 | 500,500,500,500             | 0     |
| 5   | BMA  | Y     | 3   | 11/12 | 0.39 | 0.41 | 402,402,402,402             | 0     |
| 5   | MAN  | V     | 4   | 11/12 | 0.39 | 0.61 | 471,471,471,471             | 0     |
| 5   | NAG  | U     | 1   | 14/15 | 0.39 | 0.67 | 408,408,408,408             | 0     |
| 5   | NAG  | M     | 1   | 14/15 | 0.40 | 0.58 | 439,439,439,439             | 0     |
| 5   | MAN  | a     | 4   | 11/12 | 0.40 | 0.72 | 545,545,545,545             | 0     |
| 5   | MAN  | M     | 4   | 11/12 | 0.40 | 0.82 | 517,517,517,517             | 0     |
| 5   | BMA  | N     | 3   | 11/12 | 0.41 | 0.47 | 483,483,483,483             | 0     |
| 5   | MAN  | Y     | 7   | 11/12 | 0.42 | 0.74 | 520,520,520,520             | 0     |
| 6   | MAN  | Q     | 5   | 11/12 | 0.44 | 0.35 | 302,302,302,302             | 0     |
| 5   | MAN  | Z     | 6   | 11/12 | 0.45 | 0.32 | 428,428,428,428             | 0     |
| 5   | BMA  | Z     | 3   | 11/12 | 0.45 | 0.56 | 491,491,491,491             | 0     |
| 5   | MAN  | T     | 6   | 11/12 | 0.46 | 0.52 | 446,446,446,446             | 0     |
| 5   | MAN  | N     | 7   | 11/12 | 0.46 | 1.55 | 498,498,498,498             | 0     |
| 5   | MAN  | M     | 7   | 11/12 | 0.46 | 0.49 | 451,451,451,451             | 0     |
| 5   | MAN  | O     | 4   | 11/12 | 0.48 | 0.60 | 550,550,550,550             | 0     |
| 5   | MAN  | Z     | 4   | 11/12 | 0.50 | 0.57 | 550,550,550,550             | 0     |
| 5   | MAN  | N     | 4   | 11/12 | 0.51 | 0.83 | 550,550,550,550             | 0     |
| 5   | NAG  | O     | 1   | 14/15 | 0.52 | 0.65 | 423,423,423,423             | 0     |
| 6   | MAN  | W     | 5   | 11/12 | 0.53 | 0.37 | 330,330,330,330             | 0     |
| 6   | BMA  | W     | 3   | 11/12 | 0.53 | 0.35 | 400,400,400,400             | 0     |
| 6   | MAN  | Q     | 6   | 11/12 | 0.54 | 0.49 | 422,422,422,422             | 0     |
| 6   | MAN  | W     | 7   | 11/12 | 0.54 | 0.63 | 418,418,418,418             | 0     |
| 5   | MAN  | b     | 6   | 11/12 | 0.54 | 0.89 | 474,474,474,474             | 0     |
| 5   | NAG  | a     | 1   | 14/15 | 0.54 | 0.70 | 437,437,437,437             | 0     |
| 6   | MAN  | Q     | 9   | 11/12 | 0.55 | 0.38 | 303,303,303,303             | 0     |
| 5   | MAN  | T     | 7   | 11/12 | 0.56 | 1.41 | 542,542,542,542             | 0     |
| 5   | MAN  | N     | 5   | 11/12 | 0.56 | 0.45 | 329,329,329,329             | 0     |
| 5   | MAN  | T     | 4   | 11/12 | 0.57 | 0.54 | 550,550,550,550             | 0     |
| 5   | NAG  | Y     | 2   | 14/15 | 0.57 | 0.55 | 460,460,460,460             | 0     |
| 5   | BMA  | U     | 3   | 11/12 | 0.58 | 0.27 | 340,340,340,340             | 0     |
| 6   | MAN  | c     | 6   | 11/12 | 0.58 | 0.51 | 436,436,436,436             | 0     |

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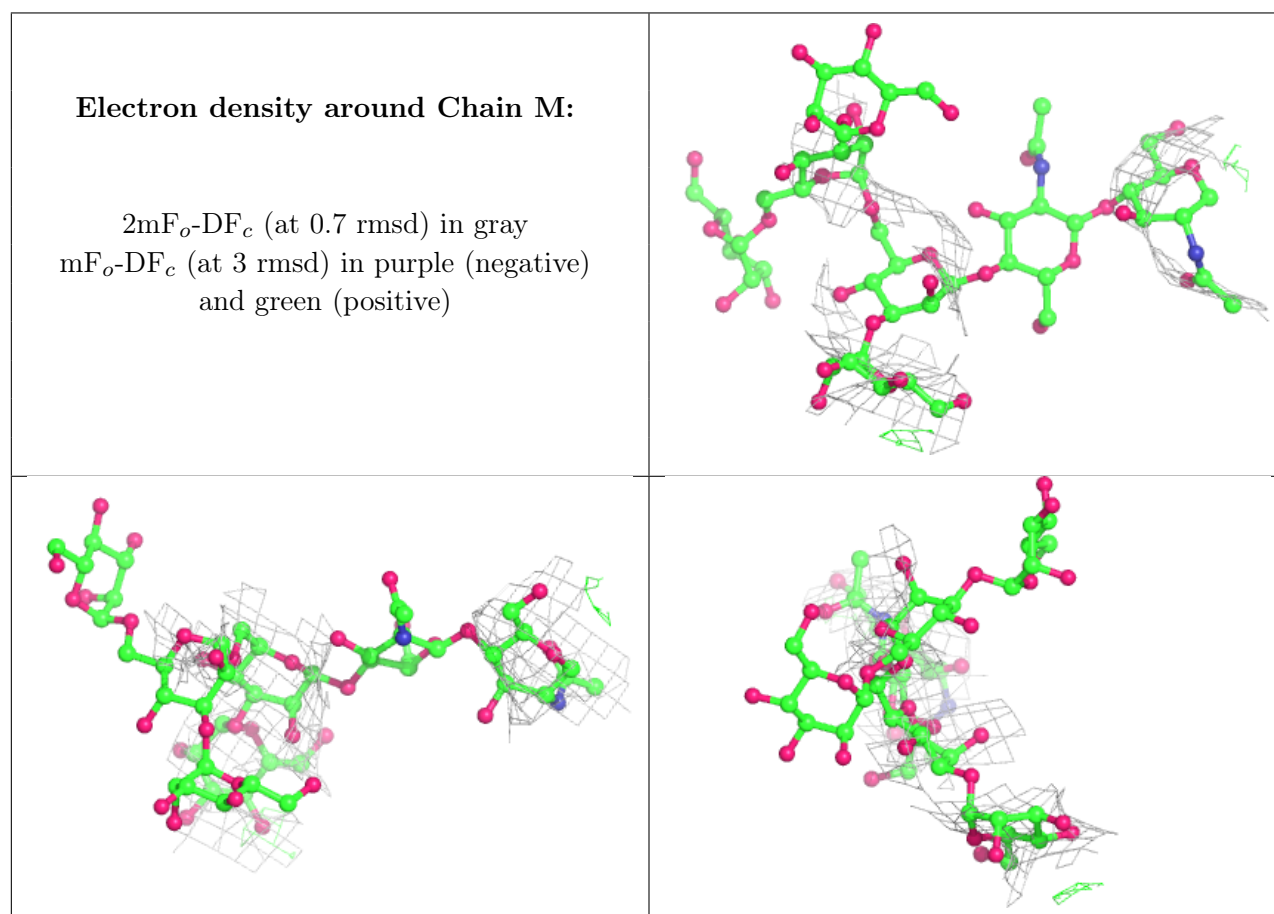
| Mol | Type | Chain | Res | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|-----|-------|------|------|-----------------------------|-------|
| 5   | BMA  | O     | 3   | 11/12 | 0.59 | 0.22 | 506,506,506,506             | 0     |
| 6   | MAN  | W     | 4   | 11/12 | 0.59 | 0.62 | 550,550,550,550             | 0     |
| 5   | BMA  | T     | 3   | 11/12 | 0.59 | 0.31 | 466,466,466,466             | 0     |
| 5   | BMA  | b     | 3   | 11/12 | 0.60 | 0.34 | 474,474,474,474             | 0     |
| 5   | BMA  | P     | 3   | 11/12 | 0.60 | 0.54 | 455,455,455,455             | 0     |
| 5   | MAN  | M     | 6   | 11/12 | 0.60 | 1.15 | 434,434,434,434             | 0     |
| 5   | MAN  | b     | 5   | 11/12 | 0.61 | 1.07 | 482,482,482,482             | 0     |
| 5   | MAN  | P     | 4   | 11/12 | 0.62 | 0.66 | 483,483,483,483             | 0     |
| 5   | BMA  | M     | 3   | 11/12 | 0.62 | 0.44 | 356,356,356,356             | 0     |
| 5   | MAN  | T     | 5   | 11/12 | 0.62 | 0.60 | 422,422,422,422             | 0     |
| 5   | NAG  | M     | 2   | 14/15 | 0.64 | 0.97 | 519,519,519,519             | 0     |
| 6   | MAN  | Q     | 7   | 11/12 | 0.66 | 0.34 | 309,309,309,309             | 0     |
| 5   | NAG  | b     | 2   | 14/15 | 0.66 | 0.47 | 382,382,382,382             | 0     |
| 6   | NAG  | Q     | 1   | 14/15 | 0.68 | 0.54 | 366,366,366,366             | 0     |
| 5   | MAN  | b     | 7   | 11/12 | 0.69 | 0.36 | 330,330,330,330             | 0     |
| 5   | NAG  | S     | 2   | 14/15 | 0.69 | 1.08 | 488,488,488,488             | 0     |
| 6   | MAN  | c     | 5   | 11/12 | 0.70 | 0.29 | 277,277,277,277             | 0     |
| 5   | MAN  | Z     | 5   | 11/12 | 0.70 | 0.47 | 410,410,410,410             | 0     |
| 6   | MAN  | c     | 7   | 11/12 | 0.71 | 0.47 | 382,382,382,382             | 0     |
| 6   | MAN  | c     | 9   | 11/12 | 0.71 | 0.52 | 362,362,362,362             | 0     |
| 5   | NAG  | U     | 2   | 14/15 | 0.72 | 0.42 | 310,310,310,310             | 0     |
| 6   | NAG  | c     | 1   | 14/15 | 0.75 | 0.37 | 292,292,292,292             | 0     |
| 6   | MAN  | c     | 4   | 11/12 | 0.75 | 0.68 | 550,550,550,550             | 0     |
| 6   | NAG  | W     | 1   | 14/15 | 0.77 | 0.35 | 302,302,302,302             | 0     |
| 5   | NAG  | V     | 2   | 14/15 | 0.77 | 0.31 | 335,335,335,335             | 0     |
| 5   | NAG  | P     | 2   | 14/15 | 0.77 | 0.26 | 307,307,307,307             | 0     |
| 6   | NAG  | W     | 2   | 14/15 | 0.78 | 0.39 | 388,388,388,388             | 0     |
| 5   | NAG  | Z     | 1   | 14/15 | 0.78 | 0.36 | 337,337,337,337             | 0     |
| 6   | MAN  | W     | 8   | 11/12 | 0.78 | 0.81 | 491,491,491,491             | 0     |
| 5   | MAN  | V     | 7   | 11/12 | 0.78 | 0.38 | 377,377,377,377             | 0     |
| 5   | NAG  | b     | 1   | 14/15 | 0.78 | 0.36 | 276,276,276,276             | 0     |
| 5   | MAN  | O     | 7   | 11/12 | 0.80 | 0.20 | 229,229,229,229             | 0     |
| 5   | NAG  | Z     | 2   | 14/15 | 0.81 | 0.38 | 375,375,375,375             | 0     |
| 5   | NAG  | P     | 1   | 14/15 | 0.82 | 0.29 | 202,202,202,202             | 0     |
| 5   | MAN  | U     | 7   | 11/12 | 0.82 | 0.30 | 195,195,195,195             | 0     |
| 6   | BMA  | Q     | 3   | 11/12 | 0.82 | 0.36 | 292,292,292,292             | 0     |
| 5   | MAN  | a     | 7   | 11/12 | 0.83 | 0.26 | 197,197,197,197             | 0     |
| 5   | NAG  | V     | 1   | 14/15 | 0.84 | 0.30 | 242,242,242,242             | 0     |
| 6   | MAN  | Q     | 4   | 11/12 | 0.84 | 0.35 | 550,550,550,550             | 0     |
| 6   | MAN  | W     | 9   | 11/12 | 0.84 | 0.55 | 335,335,335,335             | 0     |
| 5   | NAG  | a     | 2   | 14/15 | 0.84 | 0.29 | 231,231,231,231             | 0     |
| 6   | NAG  | Q     | 2   | 14/15 | 0.84 | 0.35 | 258,258,258,258             | 0     |

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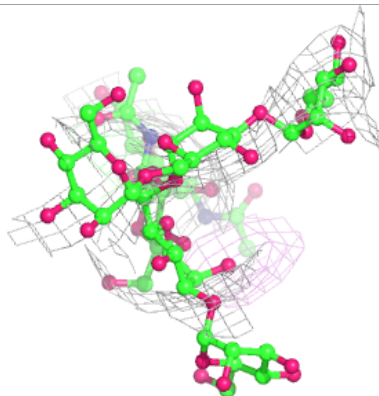
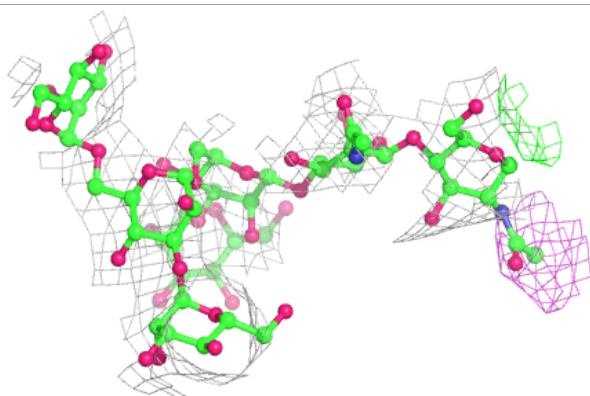
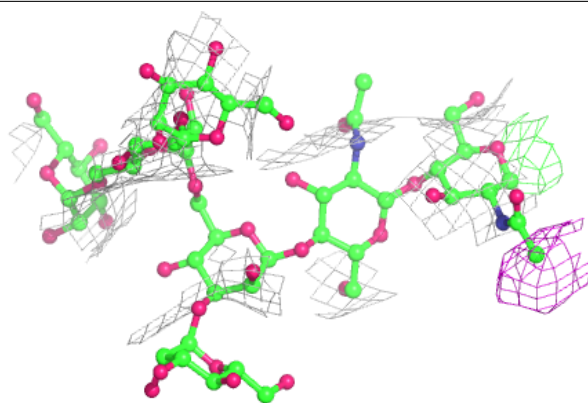
| Mol | Type | Chain | Res | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|-----|-------|------|------|-----------------------------|-------|
| 5   | NAG  | T     | 1   | 14/15 | 0.85 | 0.31 | 186,186,186,186             | 0     |
| 6   | MAN  | c     | 8   | 11/12 | 0.85 | 0.83 | 507,507,507,507             | 0     |
| 5   | BMA  | a     | 3   | 11/12 | 0.85 | 0.15 | 297,297,297,297             | 0     |
| 5   | NAG  | N     | 1   | 14/15 | 0.87 | 0.34 | 356,356,356,356             | 0     |
| 5   | NAG  | O     | 2   | 14/15 | 0.88 | 0.31 | 410,410,410,410             | 0     |
| 5   | NAG  | N     | 2   | 14/15 | 0.89 | 0.28 | 310,310,310,310             | 0     |
| 6   | MAN  | Q     | 8   | 11/12 | 0.91 | 0.82 | 500,500,500,500             | 0     |
| 6   | BMA  | c     | 3   | 11/12 | 0.91 | 0.25 | 345,345,345,345             | 0     |
| 5   | NAG  | T     | 2   | 14/15 | 0.92 | 0.28 | 301,301,301,301             | 0     |
| 6   | NAG  | c     | 2   | 14/15 | 0.96 | 0.22 | 213,213,213,213             | 0     |

The following is a graphical depiction of the model fit to experimental electron density for oligosaccharide. Each fit is shown from different orientation to approximate a three-dimensional view.

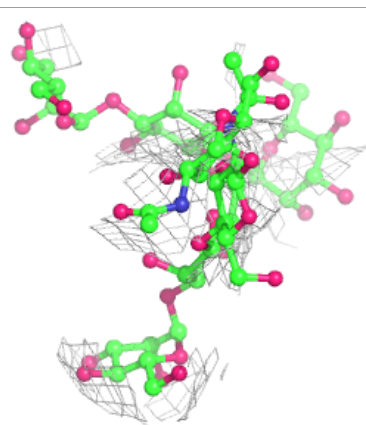
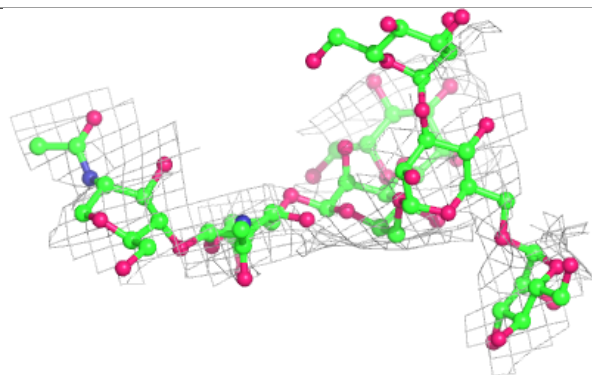
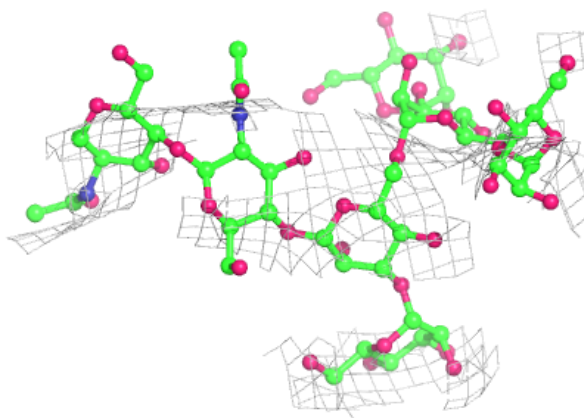


**Electron density around Chain N:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)

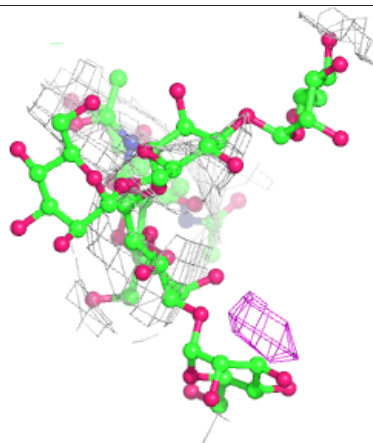
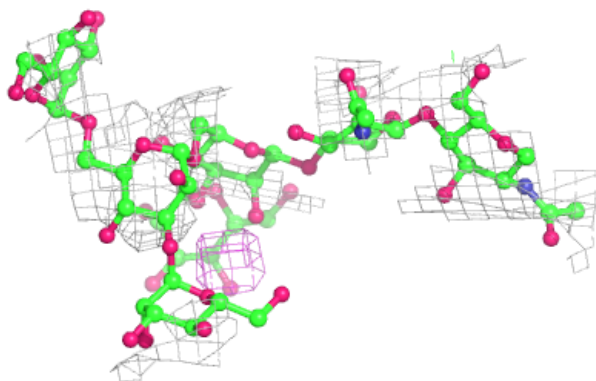
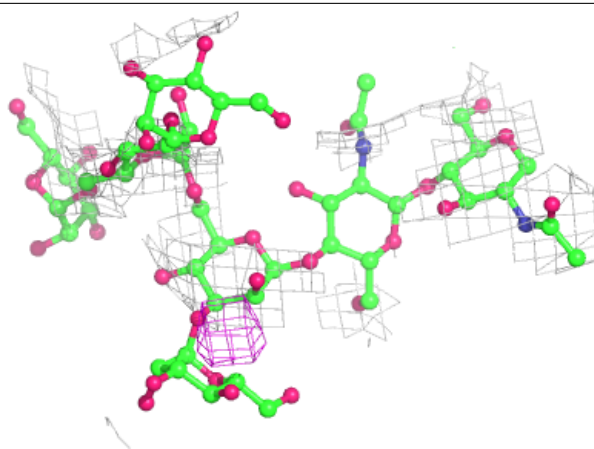
**Electron density around Chain O:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



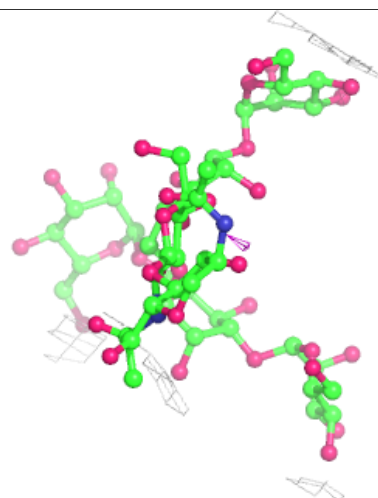
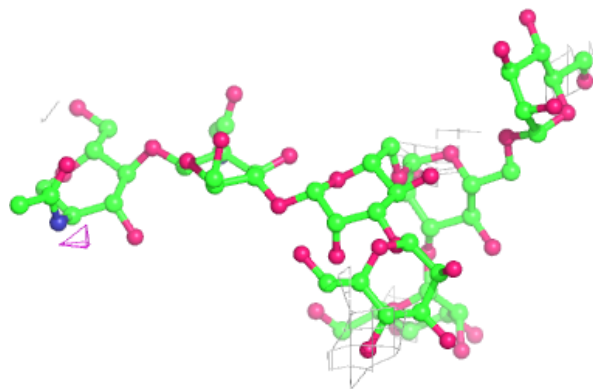
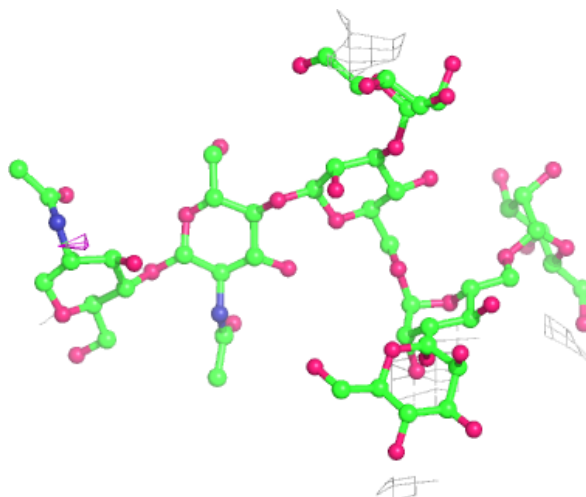
**Electron density around Chain P:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



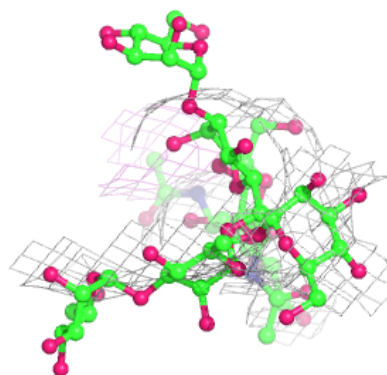
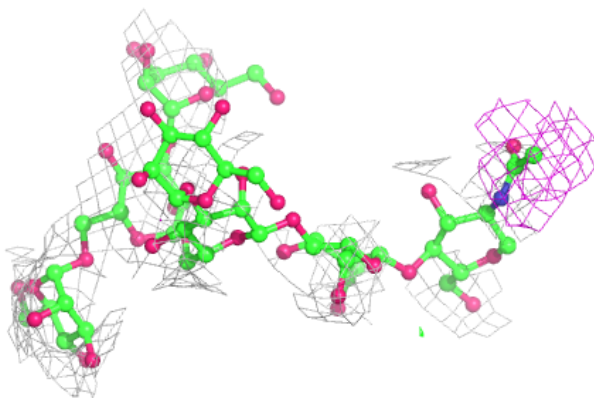
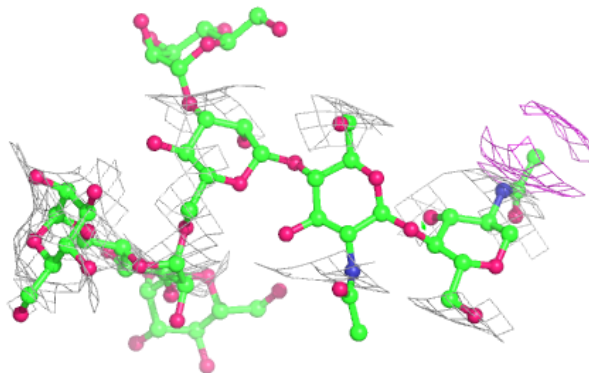
**Electron density around Chain S:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



**Electron density around Chain T:**

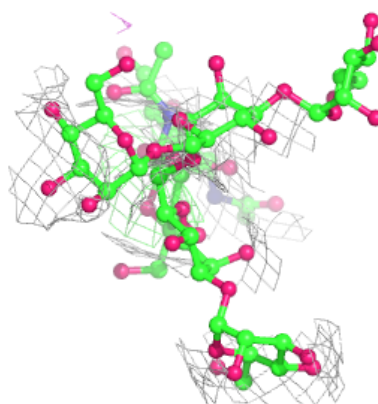
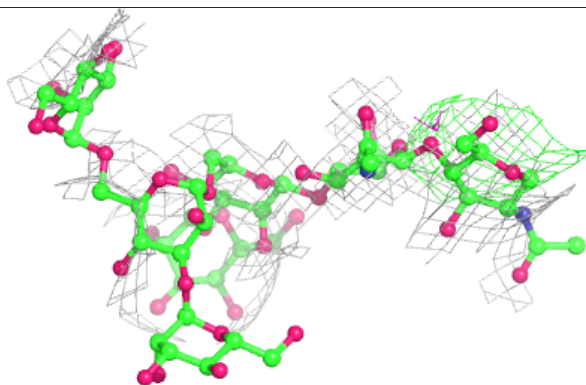
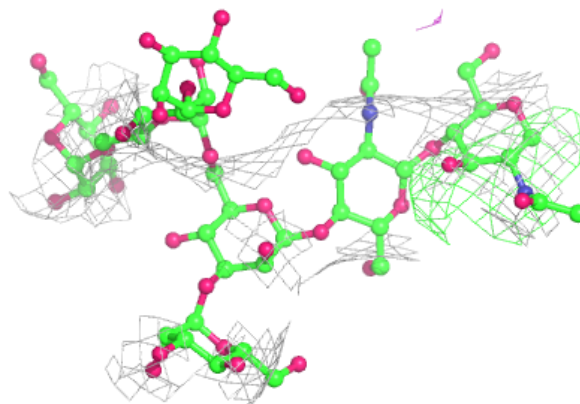
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



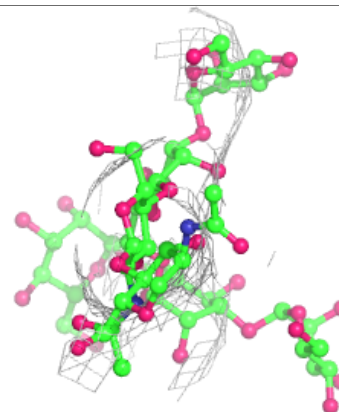
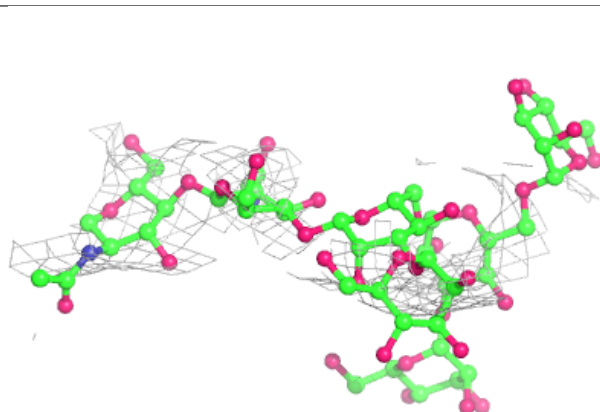
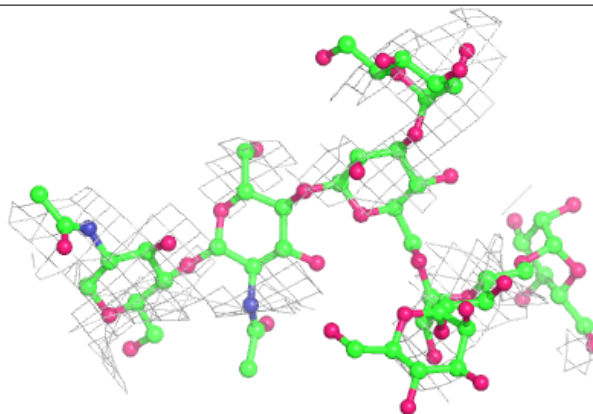


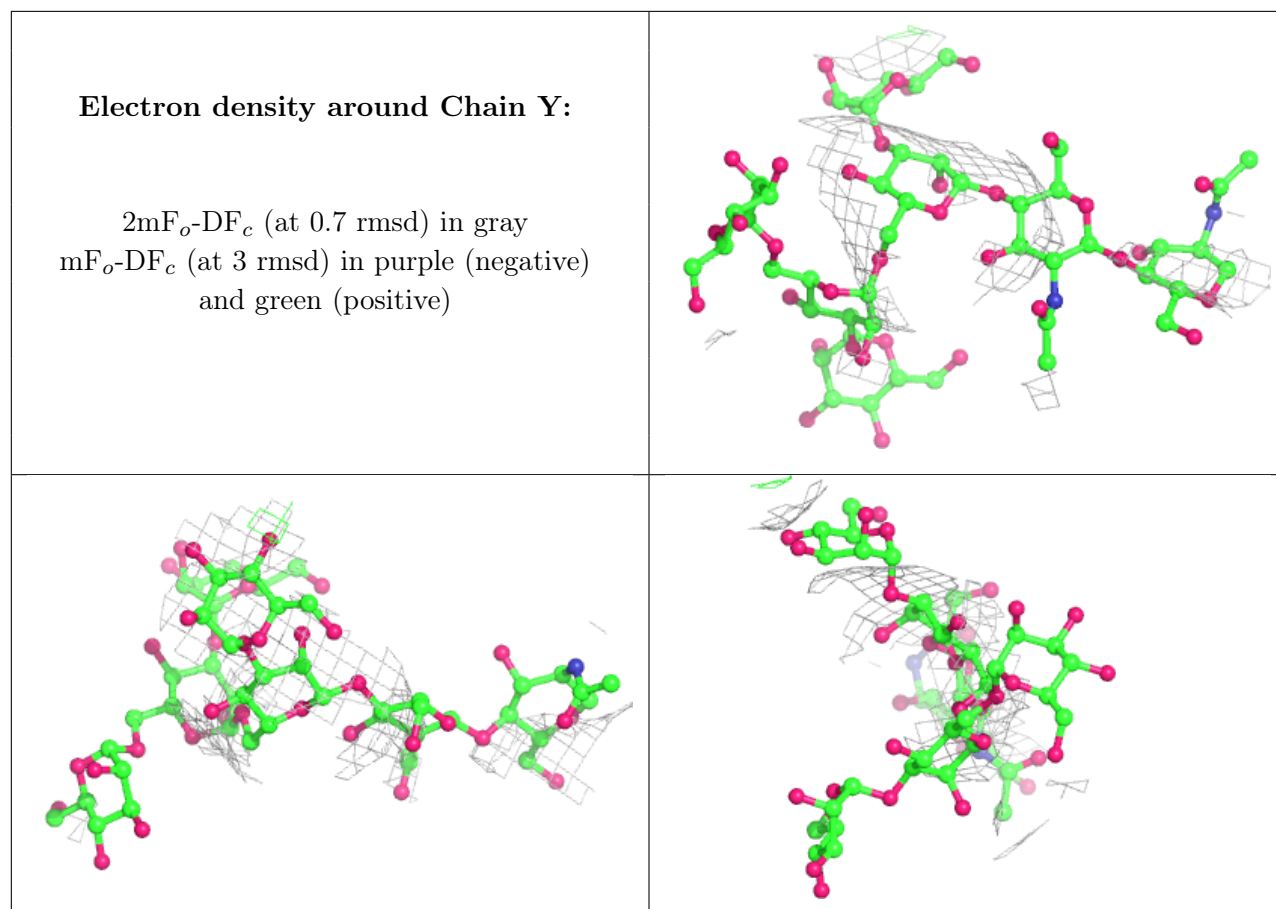
**Electron density around Chain U:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)

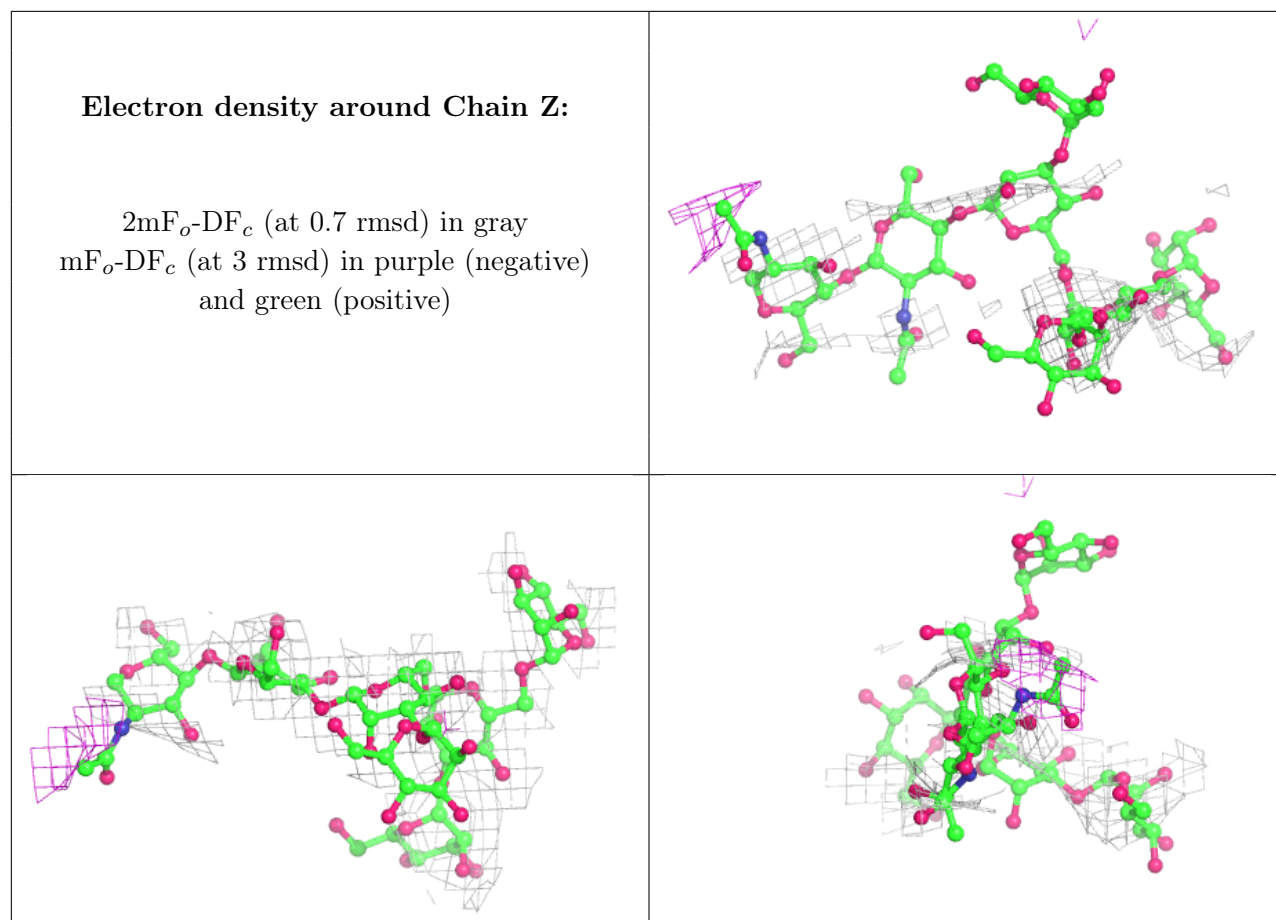
**Electron density around Chain V:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



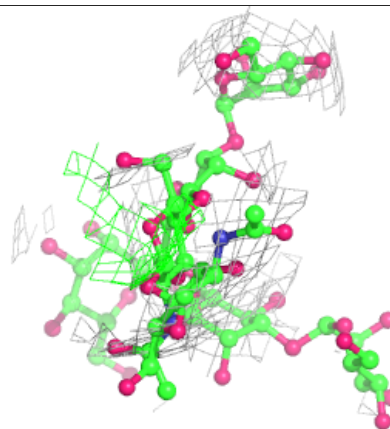
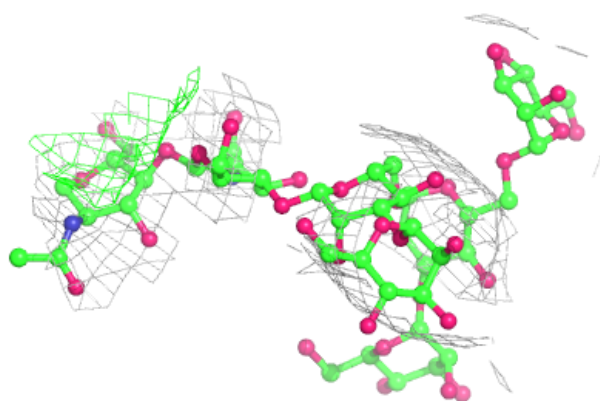
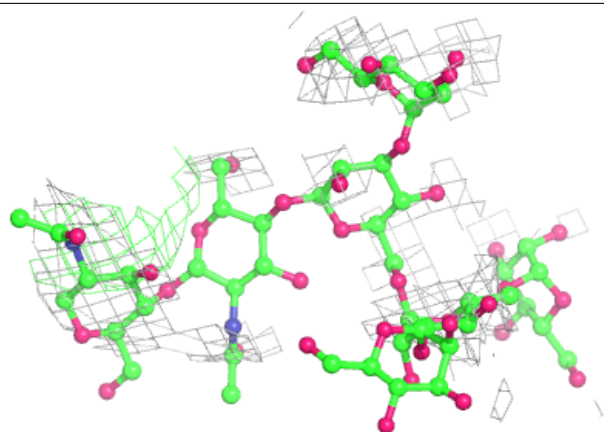




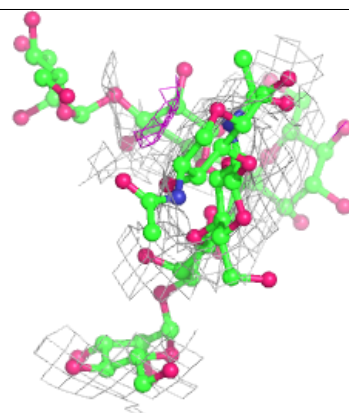
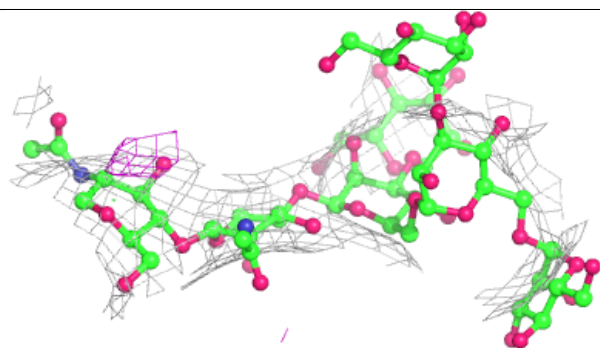
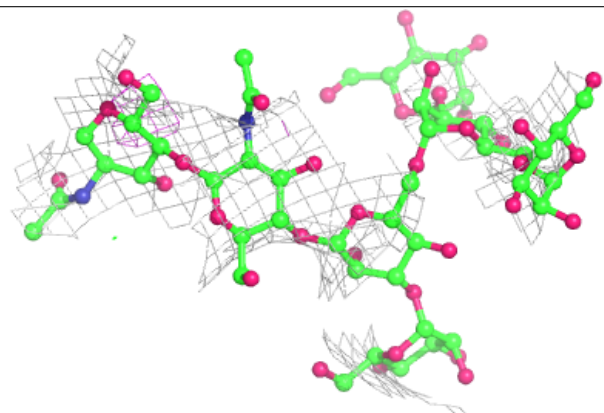


**Electron density around Chain a:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)

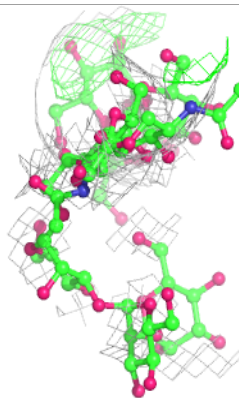
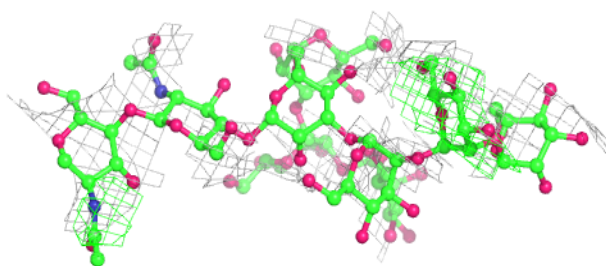
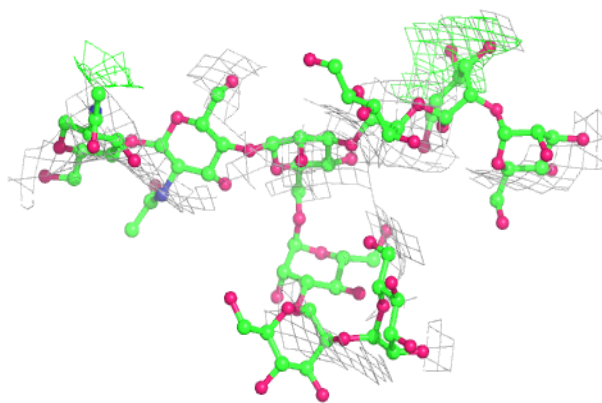
**Electron density around Chain b:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)

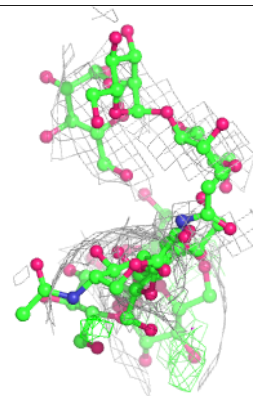
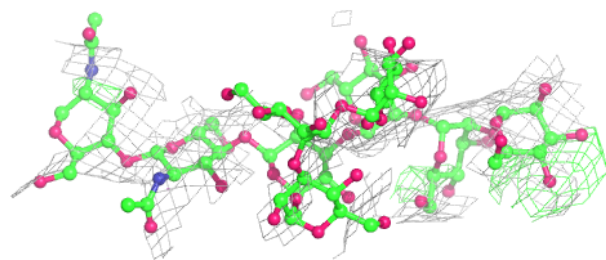
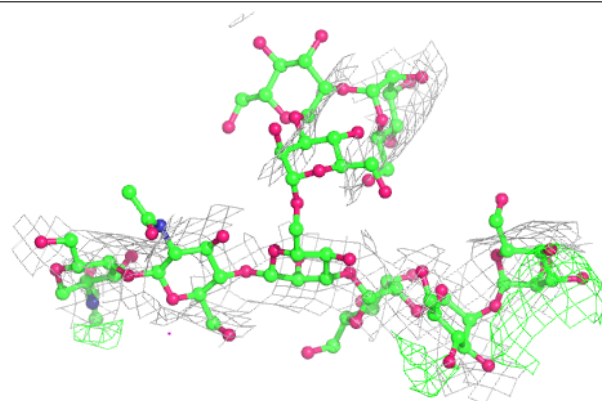


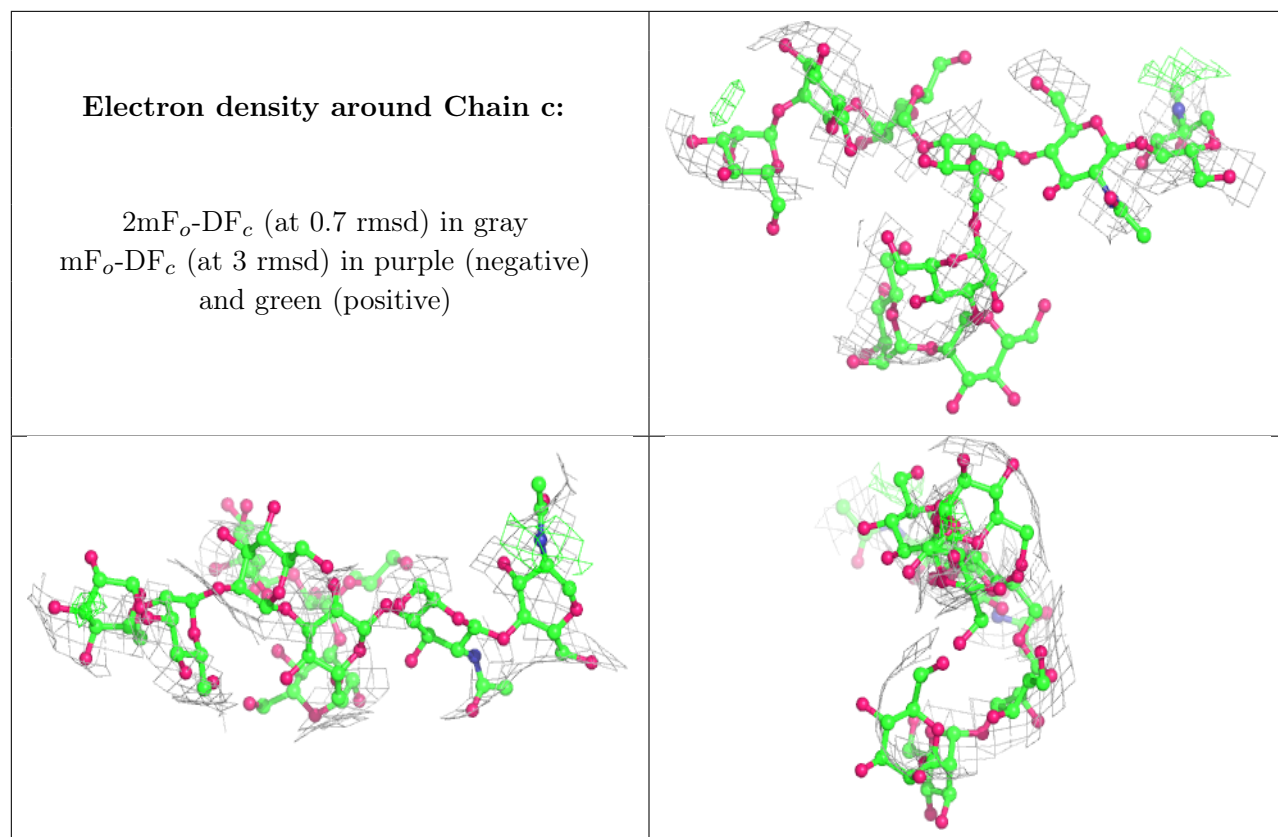
**Electron density around Chain Q:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)

**Electron density around Chain W:**

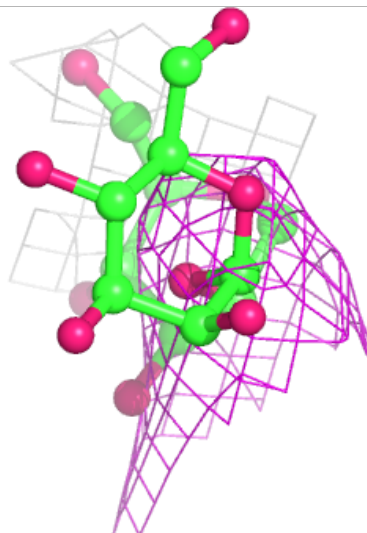
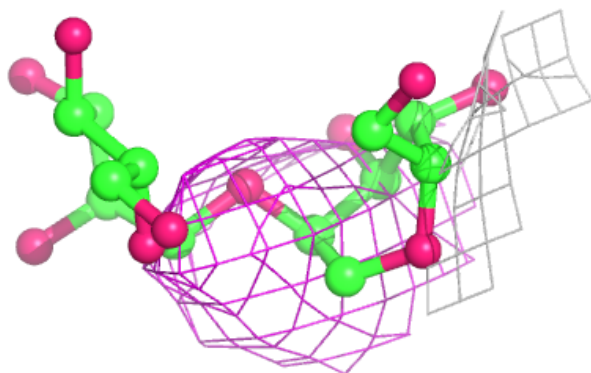
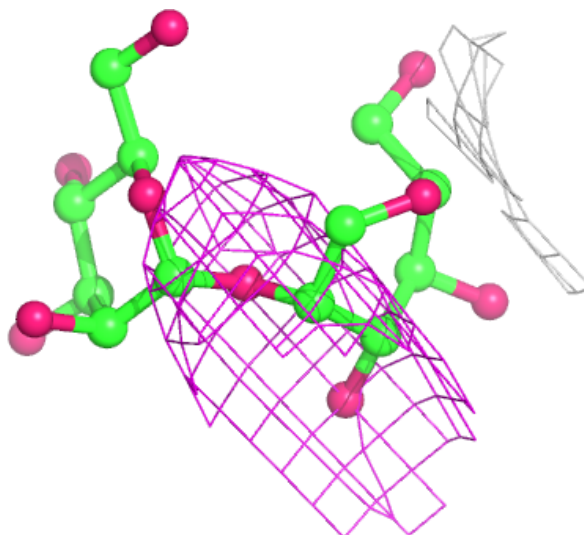
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)





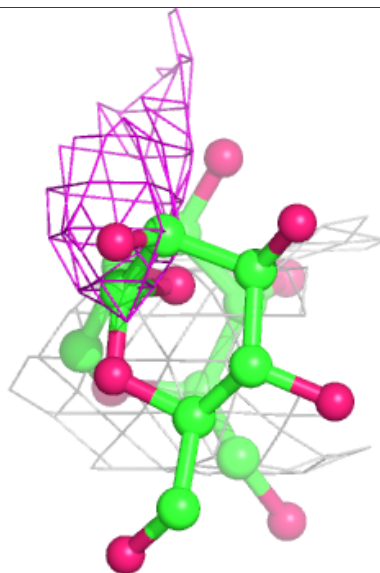
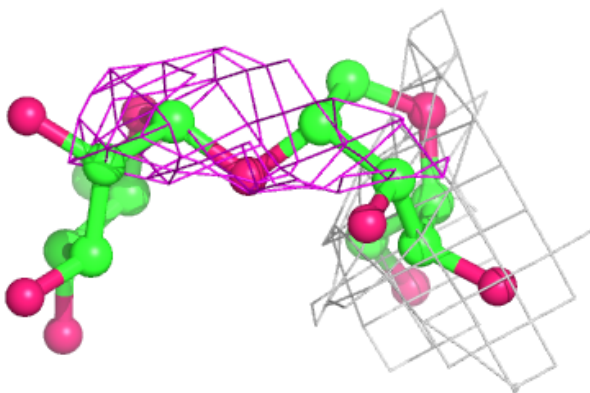
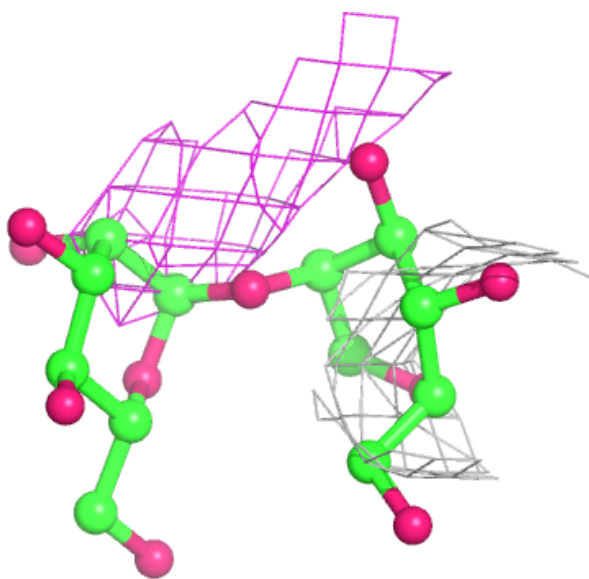
**Electron density around Chain R:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)

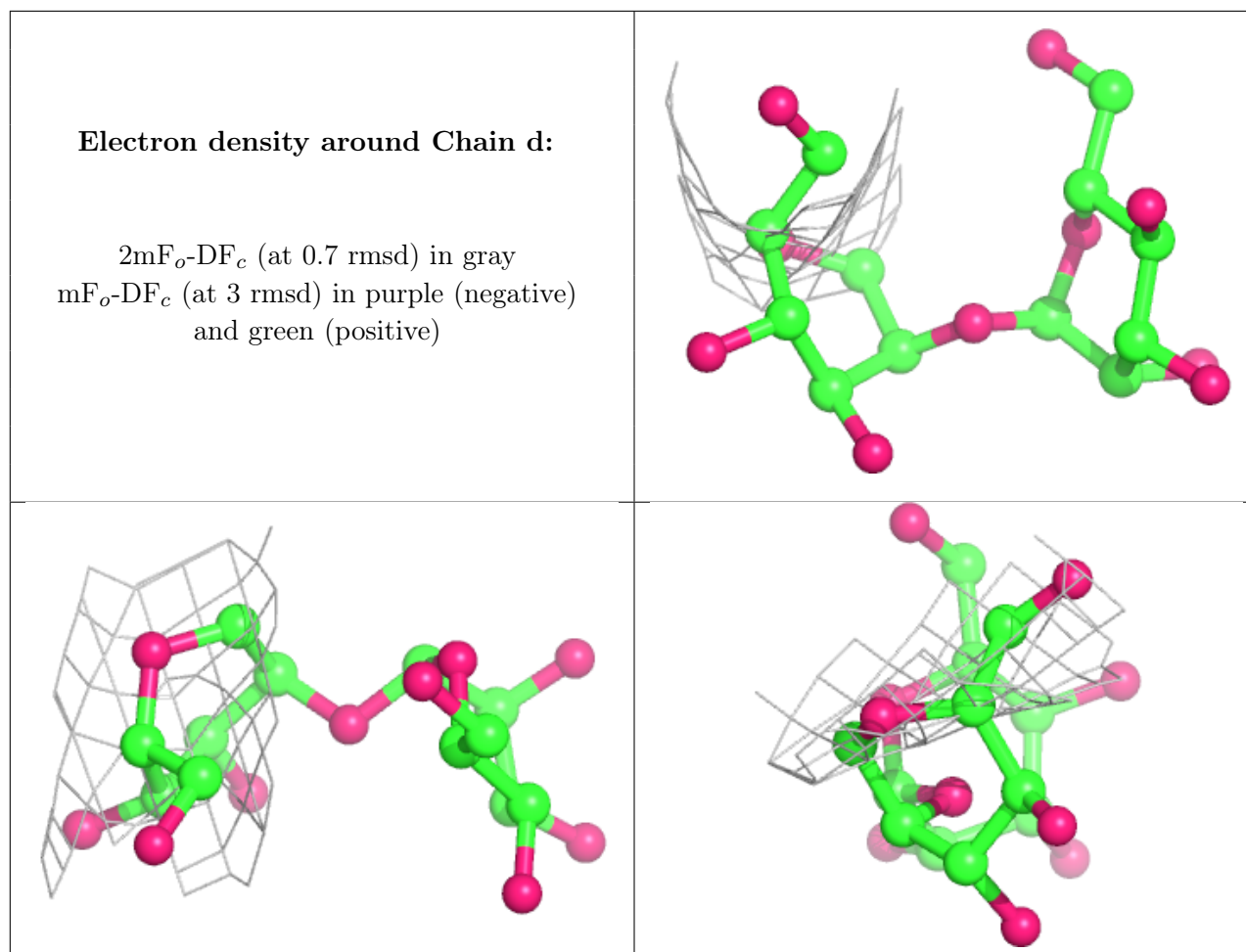


**Electron density around Chain X:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)







## 6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95<sup>th</sup> percentile and maximum values of B factors of atoms in the group. The column labelled 'Q<0.9' lists the number of atoms with occupancy less than 0.9.

| Mol | Type | Chain | Res  | Atoms | RSCC | RSR  | B-factors(Å <sup>2</sup> ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|----------------------------|-------|
| 8   | NAG  | A     | 1392 | 14/15 | 0.17 | 0.93 | 386,386,386,386            | 0     |
| 8   | NAG  | E     | 1295 | 14/15 | 0.25 | 0.70 | 356,356,356,356            | 0     |
| 8   | NAG  | I     | 1160 | 14/15 | 0.26 | 1.07 | 362,362,362,362            | 0     |
| 8   | NAG  | A     | 1088 | 14/15 | 0.38 | 0.69 | 474,474,474,474            | 0     |
| 8   | NAG  | E     | 1392 | 14/15 | 0.39 | 0.78 | 305,305,305,305            | 0     |
| 8   | NAG  | I     | 1088 | 14/15 | 0.40 | 0.75 | 503,503,503,503            | 0     |
| 8   | NAG  | A     | 1295 | 14/15 | 0.40 | 0.61 | 330,330,330,330            | 0     |
| 8   | NAG  | I     | 1392 | 14/15 | 0.44 | 0.68 | 345,345,345,345            | 0     |
| 8   | NAG  | E     | 1160 | 14/15 | 0.49 | 0.69 | 245,245,245,245            | 0     |
| 8   | NAG  | A     | 1448 | 14/15 | 0.54 | 0.61 | 279,279,279,279            | 0     |

*Continued on next page...*

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| Mol | Type | Chain | Res  | Atoms | RSCC | RSR  | B-factors(Å <sup>2</sup> ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|----------------------------|-------|
| 8   | NAG  | E     | 1448 | 14/15 | 0.56 | 0.54 | 361,361,361,361            | 0     |
| 8   | NAG  | I     | 1295 | 14/15 | 0.58 | 0.44 | 323,323,323,323            | 0     |
| 8   | NAG  | I     | 1355 | 14/15 | 0.59 | 0.35 | 266,266,266,266            | 0     |
| 8   | NAG  | E     | 1088 | 14/15 | 0.61 | 0.64 | 486,486,486,486            | 0     |
| 8   | NAG  | I     | 1448 | 14/15 | 0.63 | 0.49 | 287,287,287,287            | 0     |
| 8   | NAG  | I     | 1234 | 14/15 | 0.65 | 0.46 | 345,345,345,345            | 0     |
| 8   | NAG  | E     | 1386 | 14/15 | 0.67 | 0.67 | 427,427,427,427            | 0     |
| 8   | NAG  | A     | 1386 | 14/15 | 0.69 | 0.58 | 356,356,356,356            | 0     |
| 8   | NAG  | E     | 1234 | 14/15 | 0.71 | 0.49 | 405,405,405,405            | 0     |
| 8   | NAG  | A     | 1160 | 14/15 | 0.71 | 0.56 | 267,267,267,267            | 0     |
| 8   | NAG  | E     | 1355 | 14/15 | 0.73 | 0.34 | 411,411,411,411            | 0     |
| 8   | NAG  | I     | 1386 | 14/15 | 0.73 | 0.50 | 331,331,331,331            | 0     |
| 8   | NAG  | A     | 1355 | 14/15 | 0.76 | 0.40 | 238,238,238,238            | 0     |
| 8   | NAG  | E     | 1276 | 14/15 | 0.80 | 0.43 | 313,313,313,313            | 0     |
| 8   | NAG  | I     | 1197 | 14/15 | 0.83 | 0.23 | 304,304,304,304            | 0     |
| 8   | NAG  | E     | 1197 | 14/15 | 0.84 | 0.33 | 288,288,288,288            | 0     |
| 8   | NAG  | A     | 1197 | 14/15 | 0.85 | 0.27 | 302,302,302,302            | 0     |
| 8   | NAG  | A     | 1234 | 14/15 | 0.88 | 0.28 | 431,431,431,431            | 0     |
| 8   | NAG  | A     | 1276 | 14/15 | 0.90 | 0.30 | 288,288,288,288            | 0     |
| 8   | NAG  | I     | 1276 | 14/15 | 0.91 | 0.37 | 281,281,281,281            | 0     |

## 6.5 Other polymers [\(i\)](#)

There are no such residues in this entry.