



# Full wwPDB X-ray Structure Validation Report ⓘ

Oct 15, 2023 – 07:37 AM EDT

PDB ID : 8EZ4  
Title : Plasmodium falciparum M17 in complex with inhibitor 9aa  
Authors : Calic, P.P.S.; McGowan, S.; Webb, C.T.  
Deposited on : 2022-10-31  
Resolution : 1.89 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 : 2.36  
buster-report : 1.1.7 (2018)  
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) : 2.36

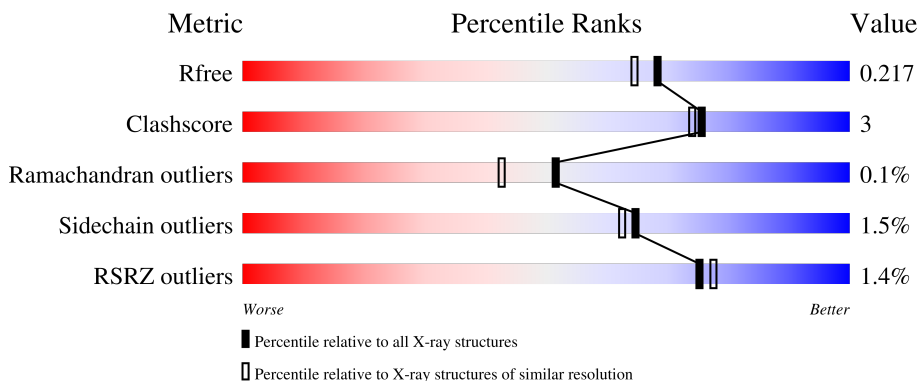
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 1.89 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                      | 6207 (1.90-1.90)                                      |
| Clashscore            | 141614                      | 6847 (1.90-1.90)                                      |
| Ramachandran outliers | 138981                      | 6760 (1.90-1.90)                                      |
| Sidechain outliers    | 138945                      | 6760 (1.90-1.90)                                      |
| RSRZ outliers         | 127900                      | 6082 (1.90-1.90)                                      |

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     | 527    | <br>91% 7%       |
| 1   | B     | 527    | <br>92% 6%       |
| 1   | C     | 527    | <br>93% 7%       |
| 1   | D     | 527    | <br>89% 9%       |
| 1   | E     | 527    | <br>90% 7%       |

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| Mol | Chain | Length | Quality of chain  |
|-----|-------|--------|---|
| 1   | F     | 527    |  91% 6% .   |
| 1   | G     | 527    |  91% 8% .   |
| 1   | H     | 527    |  94% 5% .   |
| 1   | I     | 527    |  94% 6%     |
| 1   | J     | 527    |  92% 6% .   |
| 1   | K     | 527    |  93% 5% . . |
| 1   | L     | 527    |  89% 8% .   |

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   | CO3  | A     | 708 | -         | -        | X       | -                |
| 5   | CO3  | C     | 706 | -         | -        | X       | -                |
| 5   | CO3  | G     | 706 | -         | -        | X       | -                |
| 5   | CO3  | K     | 705 | -         | -        | X       | -                |
| 5   | CO3  | L     | 706 | -         | -        | X       | -                |

## 2 Entry composition

There are 9 unique types of molecules in this entry. The entry contains 53046 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 M17 leucyl aminopeptidase.

| Mol | Chain | Residues | Atoms |      |     |     |    | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|---------|-------|
|     |       |          | Total | C    | N   | O   | S  |         |         |       |
| 1   | A     | 519      | 3993  | 2563 | 642 | 768 | 20 | 0       | 1       | 0     |
| 1   | B     | 521      | 3952  | 2542 | 641 | 749 | 20 | 0       | 0       | 0     |
| 1   | C     | 525      | 4007  | 2575 | 652 | 760 | 20 | 0       | 2       | 0     |
| 1   | D     | 522      | 3983  | 2556 | 647 | 760 | 20 | 0       | 1       | 0     |
| 1   | E     | 514      | 3917  | 2519 | 630 | 749 | 19 | 0       | 1       | 0     |
| 1   | F     | 515      | 3895  | 2502 | 626 | 748 | 19 | 0       | 1       | 0     |
| 1   | G     | 521      | 4002  | 2569 | 644 | 769 | 20 | 0       | 1       | 0     |
| 1   | H     | 522      | 3933  | 2525 | 639 | 749 | 20 | 0       | 0       | 0     |
| 1   | I     | 525      | 4017  | 2578 | 653 | 766 | 20 | 0       | 1       | 0     |
| 1   | J     | 519      | 3962  | 2545 | 643 | 754 | 20 | 0       | 0       | 0     |
| 1   | K     | 517      | 3944  | 2536 | 639 | 750 | 19 | 0       | 0       | 0     |
| 1   | L     | 512      | 3866  | 2483 | 622 | 742 | 19 | 0       | 0       | 0     |

There are 108 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment        | Reference  |
|-------|---------|----------|--------|----------------|------------|
| A     | 152     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| A     | 515     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| A     | 546     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| A     | 606     | HIS      | -      | expression tag | UNP Q8IL11 |
| A     | 607     | HIS      | -      | expression tag | UNP Q8IL11 |

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| Chain | Residue | Modelled | Actual | Comment        | Reference  |
|-------|---------|----------|--------|----------------|------------|
| A     | 608     | HIS      | -      | expression tag | UNP Q8IL11 |
| A     | 609     | HIS      | -      | expression tag | UNP Q8IL11 |
| A     | 610     | HIS      | -      | expression tag | UNP Q8IL11 |
| A     | 611     | HIS      | -      | expression tag | UNP Q8IL11 |
| B     | 152     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| B     | 515     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| B     | 546     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| B     | 606     | HIS      | -      | expression tag | UNP Q8IL11 |
| B     | 607     | HIS      | -      | expression tag | UNP Q8IL11 |
| B     | 608     | HIS      | -      | expression tag | UNP Q8IL11 |
| B     | 609     | HIS      | -      | expression tag | UNP Q8IL11 |
| B     | 610     | HIS      | -      | expression tag | UNP Q8IL11 |
| B     | 611     | HIS      | -      | expression tag | UNP Q8IL11 |
| C     | 152     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| C     | 515     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| C     | 546     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| C     | 606     | HIS      | -      | expression tag | UNP Q8IL11 |
| C     | 607     | HIS      | -      | expression tag | UNP Q8IL11 |
| C     | 608     | HIS      | -      | expression tag | UNP Q8IL11 |
| C     | 609     | HIS      | -      | expression tag | UNP Q8IL11 |
| C     | 610     | HIS      | -      | expression tag | UNP Q8IL11 |
| C     | 611     | HIS      | -      | expression tag | UNP Q8IL11 |
| D     | 152     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| D     | 515     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| D     | 546     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| D     | 606     | HIS      | -      | expression tag | UNP Q8IL11 |
| D     | 607     | HIS      | -      | expression tag | UNP Q8IL11 |
| D     | 608     | HIS      | -      | expression tag | UNP Q8IL11 |
| D     | 609     | HIS      | -      | expression tag | UNP Q8IL11 |
| D     | 610     | HIS      | -      | expression tag | UNP Q8IL11 |
| D     | 611     | HIS      | -      | expression tag | UNP Q8IL11 |
| E     | 152     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| E     | 515     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| E     | 546     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| E     | 606     | HIS      | -      | expression tag | UNP Q8IL11 |
| E     | 607     | HIS      | -      | expression tag | UNP Q8IL11 |
| E     | 608     | HIS      | -      | expression tag | UNP Q8IL11 |
| E     | 609     | HIS      | -      | expression tag | UNP Q8IL11 |
| E     | 610     | HIS      | -      | expression tag | UNP Q8IL11 |
| E     | 611     | HIS      | -      | expression tag | UNP Q8IL11 |
| F     | 152     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| F     | 515     | GLN      | ASN    | conflict       | UNP Q8IL11 |

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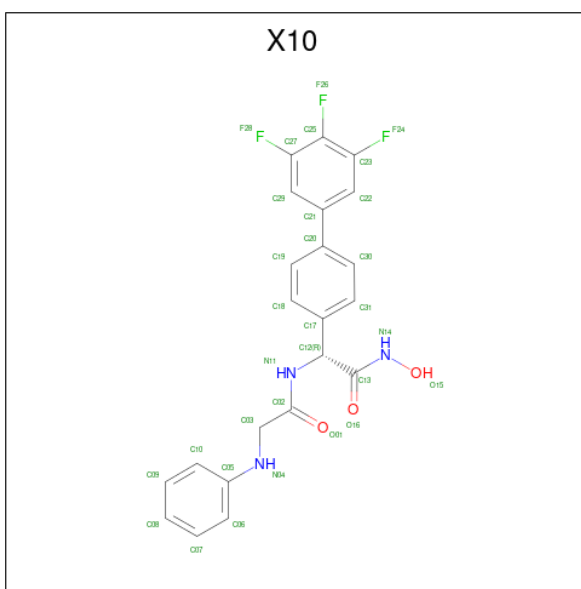
| Chain | Residue | Modelled | Actual | Comment        | Reference  |
|-------|---------|----------|--------|----------------|------------|
| F     | 546     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| F     | 606     | HIS      | -      | expression tag | UNP Q8IL11 |
| F     | 607     | HIS      | -      | expression tag | UNP Q8IL11 |
| F     | 608     | HIS      | -      | expression tag | UNP Q8IL11 |
| F     | 609     | HIS      | -      | expression tag | UNP Q8IL11 |
| F     | 610     | HIS      | -      | expression tag | UNP Q8IL11 |
| F     | 611     | HIS      | -      | expression tag | UNP Q8IL11 |
| G     | 152     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| G     | 515     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| G     | 546     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| G     | 606     | HIS      | -      | expression tag | UNP Q8IL11 |
| G     | 607     | HIS      | -      | expression tag | UNP Q8IL11 |
| G     | 608     | HIS      | -      | expression tag | UNP Q8IL11 |
| G     | 609     | HIS      | -      | expression tag | UNP Q8IL11 |
| G     | 610     | HIS      | -      | expression tag | UNP Q8IL11 |
| G     | 611     | HIS      | -      | expression tag | UNP Q8IL11 |
| H     | 152     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| H     | 515     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| H     | 546     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| H     | 606     | HIS      | -      | expression tag | UNP Q8IL11 |
| H     | 607     | HIS      | -      | expression tag | UNP Q8IL11 |
| H     | 608     | HIS      | -      | expression tag | UNP Q8IL11 |
| H     | 609     | HIS      | -      | expression tag | UNP Q8IL11 |
| H     | 610     | HIS      | -      | expression tag | UNP Q8IL11 |
| H     | 611     | HIS      | -      | expression tag | UNP Q8IL11 |
| I     | 152     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| I     | 515     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| I     | 546     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| I     | 606     | HIS      | -      | expression tag | UNP Q8IL11 |
| I     | 607     | HIS      | -      | expression tag | UNP Q8IL11 |
| I     | 608     | HIS      | -      | expression tag | UNP Q8IL11 |
| I     | 609     | HIS      | -      | expression tag | UNP Q8IL11 |
| I     | 610     | HIS      | -      | expression tag | UNP Q8IL11 |
| I     | 611     | HIS      | -      | expression tag | UNP Q8IL11 |
| J     | 152     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| J     | 515     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| J     | 546     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| J     | 606     | HIS      | -      | expression tag | UNP Q8IL11 |
| J     | 607     | HIS      | -      | expression tag | UNP Q8IL11 |
| J     | 608     | HIS      | -      | expression tag | UNP Q8IL11 |
| J     | 609     | HIS      | -      | expression tag | UNP Q8IL11 |
| J     | 610     | HIS      | -      | expression tag | UNP Q8IL11 |

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| Chain | Residue | Modelled | Actual | Comment        | Reference  |
|-------|---------|----------|--------|----------------|------------|
| J     | 611     | HIS      | -      | expression tag | UNP Q8IL11 |
| K     | 152     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| K     | 515     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| K     | 546     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| K     | 606     | HIS      | -      | expression tag | UNP Q8IL11 |
| K     | 607     | HIS      | -      | expression tag | UNP Q8IL11 |
| K     | 608     | HIS      | -      | expression tag | UNP Q8IL11 |
| K     | 609     | HIS      | -      | expression tag | UNP Q8IL11 |
| K     | 610     | HIS      | -      | expression tag | UNP Q8IL11 |
| K     | 611     | HIS      | -      | expression tag | UNP Q8IL11 |
| L     | 152     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| L     | 515     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| L     | 546     | GLN      | ASN    | conflict       | UNP Q8IL11 |
| L     | 606     | HIS      | -      | expression tag | UNP Q8IL11 |
| L     | 607     | HIS      | -      | expression tag | UNP Q8IL11 |
| L     | 608     | HIS      | -      | expression tag | UNP Q8IL11 |
| L     | 609     | HIS      | -      | expression tag | UNP Q8IL11 |
| L     | 610     | HIS      | -      | expression tag | UNP Q8IL11 |
| L     | 611     | HIS      | -      | expression tag | UNP Q8IL11 |

- Molecule 2 is N-[(1R)-2-(hydroxyamino)-2-oxo-1-(3',4',5'-trifluoro[1,1'-biphenyl]-4-yl)ethyl]-N 2-phenylglycinamide (three-letter code: X10) (formula: C<sub>22</sub>H<sub>18</sub>F<sub>3</sub>N<sub>3</sub>O<sub>3</sub>) (labeled as "Ligand of Interest" by depositor).



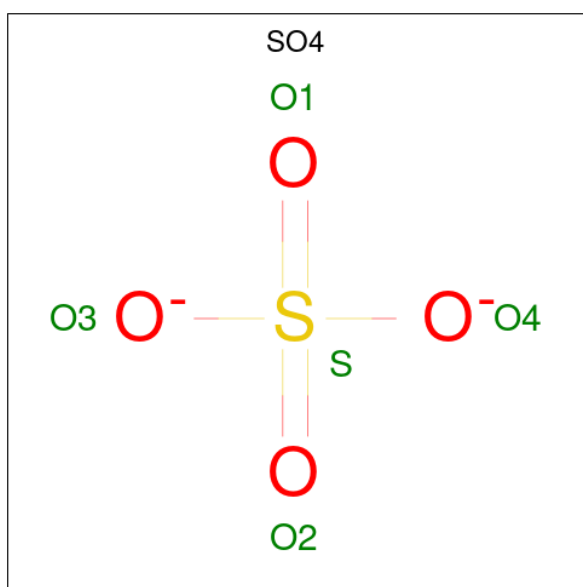
| Mol | Chain | Residues | Atoms |    |   |   |   | ZeroOcc | AltConf |
|-----|-------|----------|-------|----|---|---|---|---------|---------|
|     |       |          | Total | C  | F | N | O |         |         |
| 2   | A     | 1        | 31    | 22 | 3 | 3 | 3 | 0       | 0       |

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| Mol | Chain | Residues | Atoms       |         |        |        |        | ZeroOcc | AltConf |
|-----|-------|----------|-------------|---------|--------|--------|--------|---------|---------|
|     |       |          | Total       | C       | F      | N      | O      |         |         |
| 2   | B     | 1        | Total<br>31 | C<br>22 | F<br>3 | N<br>3 | O<br>3 | 0       | 0       |
| 2   | C     | 1        | Total<br>31 | C<br>22 | F<br>3 | N<br>3 | O<br>3 | 3       | 0       |
| 2   | D     | 1        | Total<br>31 | C<br>22 | F<br>3 | N<br>3 | O<br>3 | 1       | 0       |
| 2   | E     | 1        | Total<br>31 | C<br>22 | F<br>3 | N<br>3 | O<br>3 | 7       | 0       |
| 2   | F     | 1        | Total<br>31 | C<br>22 | F<br>3 | N<br>3 | O<br>3 | 2       | 0       |
| 2   | G     | 1        | Total<br>31 | C<br>22 | F<br>3 | N<br>3 | O<br>3 | 1       | 0       |
| 2   | H     | 1        | Total<br>31 | C<br>22 | F<br>3 | N<br>3 | O<br>3 | 5       | 0       |
| 2   | I     | 1        | Total<br>31 | C<br>22 | F<br>3 | N<br>3 | O<br>3 | 4       | 0       |
| 2   | J     | 1        | Total<br>31 | C<br>22 | F<br>3 | N<br>3 | O<br>3 | 1       | 0       |
| 2   | K     | 1        | Total<br>31 | C<br>22 | F<br>3 | N<br>3 | O<br>3 | 1       | 0       |
| 2   | L     | 1        | Total<br>31 | C<br>22 | F<br>3 | N<br>3 | O<br>3 | 1       | 0       |

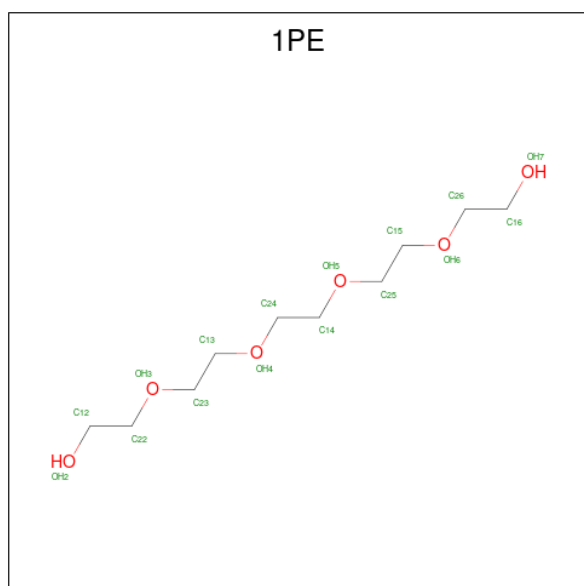
- Molecule 3 is SULFATE ION (three-letter code: SO4) (formula: O<sub>4</sub>S).





| Mol | Chain | Residues | Atoms              | ZeroOcc | AltConf |
|-----|-------|----------|--------------------|---------|---------|
| 3   | A     | 1        | Total O S<br>5 4 1 | 0       | 0       |
| 3   | A     | 1        | Total O S<br>5 4 1 | 0       | 0       |
| 3   | A     | 1        | Total O S<br>5 4 1 | 0       | 0       |
| 3   | C     | 1        | Total O S<br>5 4 1 | 0       | 0       |
| 3   | D     | 1        | Total O S<br>5 4 1 | 0       | 0       |
| 3   | E     | 1        | Total O S<br>5 4 1 | 0       | 0       |
| 3   | F     | 1        | Total O S<br>5 4 1 | 0       | 0       |
| 3   | G     | 1        | Total O S<br>5 4 1 | 0       | 0       |
| 3   | G     | 1        | Total O S<br>5 4 1 | 0       | 0       |
| 3   | H     | 1        | Total O S<br>5 4 1 | 0       | 0       |
| 3   | I     | 1        | Total O S<br>5 4 1 | 0       | 0       |
| 3   | J     | 1        | Total O S<br>5 4 1 | 0       | 0       |
| 3   | L     | 1        | Total O S<br>5 4 1 | 0       | 0       |

- Molecule 4 is PENTAETHYLENE GLYCOL (three-letter code: 1PE) (formula:  $C_{10}H_{22}O_6$ ).



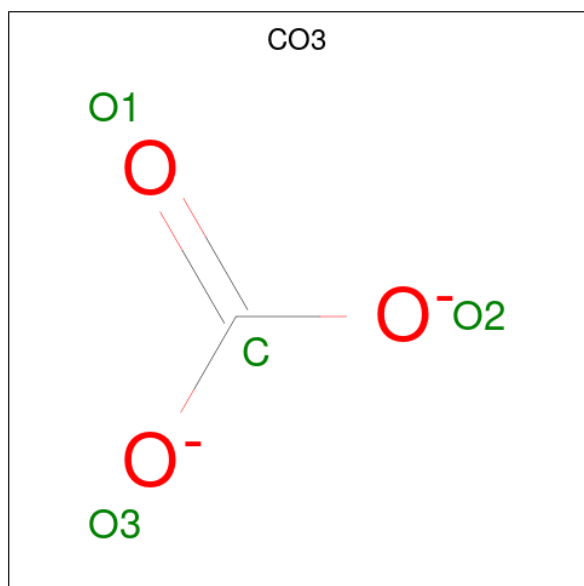
| Mol | Chain | Residues | Atoms |    |   | ZeroOcc | AltConf |
|-----|-------|----------|-------|----|---|---------|---------|
| 4   | A     | 1        | Total | C  | O | 0       | 0       |
|     |       |          | 9     | 6  | 3 |         |         |
| 4   | A     | 1        | Total | C  | O | 0       | 0       |
|     |       |          | 12    | 8  | 4 |         |         |
| 4   | A     | 1        | Total | C  | O | 0       | 0       |
|     |       |          | 13    | 8  | 5 |         |         |
| 4   | C     | 1        | Total | C  | O | 0       | 0       |
|     |       |          | 11    | 7  | 4 |         |         |
| 4   | C     | 1        | Total | C  | O | 0       | 0       |
|     |       |          | 13    | 8  | 5 |         |         |
| 4   | C     | 1        | Total | C  | O | 0       | 0       |
|     |       |          | 8     | 5  | 3 |         |         |
| 4   | D     | 1        | Total | C  | O | 0       | 0       |
|     |       |          | 10    | 6  | 4 |         |         |
| 4   | D     | 1        | Total | C  | O | 0       | 0       |
|     |       |          | 13    | 8  | 5 |         |         |
| 4   | D     | 1        | Total | C  | O | 0       | 0       |
|     |       |          | 7     | 4  | 3 |         |         |
| 4   | E     | 1        | Total | C  | O | 0       | 0       |
|     |       |          | 11    | 7  | 4 |         |         |
| 4   | E     | 1        | Total | C  | O | 0       | 0       |
|     |       |          | 13    | 8  | 5 |         |         |
| 4   | E     | 1        | Total | C  | O | 0       | 0       |
|     |       |          | 12    | 8  | 4 |         |         |
| 4   | F     | 1        | Total | C  | O | 0       | 0       |
|     |       |          | 13    | 8  | 5 |         |         |
| 4   | F     | 1        | Total | C  | O | 0       | 0       |
|     |       |          | 10    | 6  | 4 |         |         |
| 4   | F     | 1        | Total | C  | O | 0       | 0       |
|     |       |          | 7     | 4  | 3 |         |         |
| 4   | F     | 1        | Total | C  | O | 0       | 0       |
|     |       |          | 10    | 6  | 4 |         |         |
| 4   | G     | 1        | Total | C  | O | 0       | 0       |
|     |       |          | 11    | 7  | 4 |         |         |
| 4   | G     | 1        | Total | C  | O | 0       | 0       |
|     |       |          | 7     | 4  | 3 |         |         |
| 4   | H     | 1        | Total | C  | O | 0       | 0       |
|     |       |          | 7     | 4  | 3 |         |         |
| 4   | I     | 1        | Total | C  | O | 0       | 0       |
|     |       |          | 15    | 10 | 5 |         |         |
| 4   | I     | 1        | Total | C  | O | 0       | 0       |
|     |       |          | 13    | 8  | 5 |         |         |
| 4   | I     | 1        | Total | C  | O | 0       | 0       |
|     |       |          | 8     | 5  | 3 |         |         |

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| Mol | Chain | Residues | Atoms |    |   | ZeroOcc | AltConf |
|-----|-------|----------|-------|----|---|---------|---------|
| 4   | J     | 1        | Total | C  | O | 0       | 0       |
|     |       |          | 9     | 6  | 3 |         |         |
| 4   | J     | 1        | Total | C  | O | 0       | 0       |
|     |       |          | 13    | 8  | 5 |         |         |
| 4   | K     | 1        | Total | C  | O | 0       | 0       |
|     |       |          | 13    | 8  | 5 |         |         |
| 4   | K     | 1        | Total | C  | O | 0       | 0       |
|     |       |          | 11    | 7  | 4 |         |         |
| 4   | K     | 1        | Total | C  | O | 0       | 0       |
|     |       |          | 13    | 8  | 5 |         |         |
| 4   | L     | 1        | Total | C  | O | 0       | 0       |
|     |       |          | 9     | 6  | 3 |         |         |
| 4   | L     | 1        | Total | C  | O | 0       | 0       |
|     |       |          | 13    | 8  | 5 |         |         |
| 4   | L     | 1        | Total | C  | O | 0       | 0       |
|     |       |          | 16    | 10 | 6 |         |         |

- Molecule 5 is CARBONATE ION (three-letter code: CO3) (formula: CO<sub>3</sub>).



| Mol | Chain | Residues | Atoms |   |   | ZeroOcc | AltConf |
|-----|-------|----------|-------|---|---|---------|---------|
| 5   | A     | 1        | Total | C | O | 0       | 0       |
|     |       |          | 4     | 1 | 3 |         |         |
| 5   | B     | 1        | Total | C | O | 0       | 0       |
|     |       |          | 4     | 1 | 3 |         |         |
| 5   | C     | 1        | Total | C | O | 0       | 0       |
|     |       |          | 4     | 1 | 3 |         |         |

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| Mol | Chain | Residues | Atoms              | ZeroOcc | AltConf |
|-----|-------|----------|--------------------|---------|---------|
| 5   | D     | 1        | Total C O<br>4 1 3 | 0       | 0       |
| 5   | E     | 1        | Total C O<br>4 1 3 | 0       | 0       |
| 5   | F     | 1        | Total C O<br>4 1 3 | 0       | 0       |
| 5   | G     | 1        | Total C O<br>4 1 3 | 0       | 0       |
| 5   | H     | 1        | Total C O<br>4 1 3 | 0       | 0       |
| 5   | I     | 1        | Total C O<br>4 1 3 | 0       | 0       |
| 5   | J     | 1        | Total C O<br>4 1 3 | 0       | 0       |
| 5   | K     | 1        | Total C O<br>4 1 3 | 0       | 0       |
| 5   | L     | 1        | Total C O<br>4 1 3 | 0       | 0       |

- Molecule 6 is ZINC ION (three-letter code: ZN) (formula: Zn).

| Mol | Chain | Residues | Atoms           | ZeroOcc | AltConf |
|-----|-------|----------|-----------------|---------|---------|
| 6   | A     | 2        | Total Zn<br>2 2 | 0       | 0       |
| 6   | B     | 2        | Total Zn<br>2 2 | 0       | 0       |
| 6   | C     | 2        | Total Zn<br>2 2 | 0       | 0       |
| 6   | D     | 2        | Total Zn<br>2 2 | 0       | 0       |
| 6   | E     | 2        | Total Zn<br>2 2 | 0       | 0       |
| 6   | F     | 2        | Total Zn<br>2 2 | 0       | 0       |
| 6   | G     | 2        | Total Zn<br>2 2 | 0       | 0       |
| 6   | H     | 2        | Total Zn<br>2 2 | 0       | 0       |
| 6   | I     | 2        | Total Zn<br>2 2 | 0       | 0       |
| 6   | J     | 2        | Total Zn<br>2 2 | 0       | 0       |

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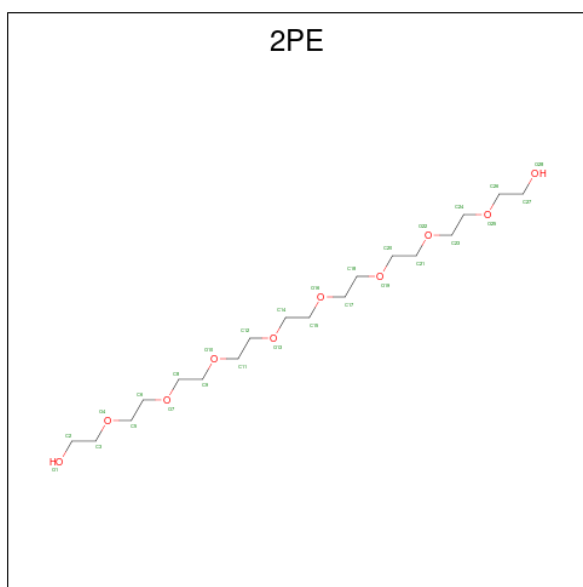
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| Mol | Chain | Residues | Atoms      |         | ZeroOcc | AltConf |
|-----|-------|----------|------------|---------|---------|---------|
| 6   | K     | 2        | Total<br>2 | Zn<br>2 | 0       | 0       |
| 6   | L     | 2        | Total<br>2 | Zn<br>2 | 0       | 0       |

- Molecule 7 is SODIUM ION (three-letter code: NA) (formula: Na).

| Mol | Chain | Residues | Atoms      |         | ZeroOcc | AltConf |
|-----|-------|----------|------------|---------|---------|---------|
| 7   | A     | 1        | Total<br>1 | Na<br>1 | 0       | 0       |
| 7   | B     | 1        | Total<br>1 | Na<br>1 | 0       | 0       |
| 7   | D     | 1        | Total<br>1 | Na<br>1 | 0       | 0       |
| 7   | F     | 1        | Total<br>1 | Na<br>1 | 0       | 0       |
| 7   | G     | 1        | Total<br>1 | Na<br>1 | 0       | 0       |
| 7   | H     | 1        | Total<br>1 | Na<br>1 | 0       | 0       |
| 7   | I     | 1        | Total<br>1 | Na<br>1 | 0       | 0       |
| 7   | J     | 1        | Total<br>1 | Na<br>1 | 0       | 0       |
| 7   | K     | 1        | Total<br>1 | Na<br>1 | 0       | 0       |

- Molecule 8 is NONAETHYLENE GLYCOL (three-letter code: 2PE) (formula: C<sub>18</sub>H<sub>38</sub>O<sub>10</sub>).



| Mol | Chain | Residues | Atoms |      | ZeroOcc | AltConf |
|-----|-------|----------|-------|------|---------|---------|
| 8   | H     | 1        | Total | C O  | 0       | 0       |
|     |       |          | 26    | 17 9 |         |         |

- Molecule 9 is water.

| Mol | Chain | Residues | Atoms |     | ZeroOcc | AltConf |
|-----|-------|----------|-------|-----|---------|---------|
| 9   | A     | 430      | Total | O   | 0       | 0       |
|     |       |          | 430   | 430 |         |         |
| 9   | B     | 349      | Total | O   | 0       | 0       |
|     |       |          | 349   | 349 |         |         |
| 9   | C     | 406      | Total | O   | 0       | 0       |
|     |       |          | 406   | 406 |         |         |
| 9   | D     | 386      | Total | O   | 0       | 0       |
|     |       |          | 386   | 386 |         |         |
| 9   | E     | 382      | Total | O   | 0       | 0       |
|     |       |          | 382   | 382 |         |         |
| 9   | F     | 371      | Total | O   | 0       | 0       |
|     |       |          | 371   | 371 |         |         |
| 9   | G     | 421      | Total | O   | 0       | 0       |
|     |       |          | 421   | 421 |         |         |
| 9   | H     | 360      | Total | O   | 0       | 0       |
|     |       |          | 360   | 360 |         |         |
| 9   | I     | 408      | Total | O   | 0       | 0       |
|     |       |          | 408   | 408 |         |         |
| 9   | J     | 413      | Total | O   | 0       | 0       |
|     |       |          | 413   | 413 |         |         |
| 9   | K     | 436      | Total | O   | 0       | 0       |
|     |       |          | 436   | 436 |         |         |

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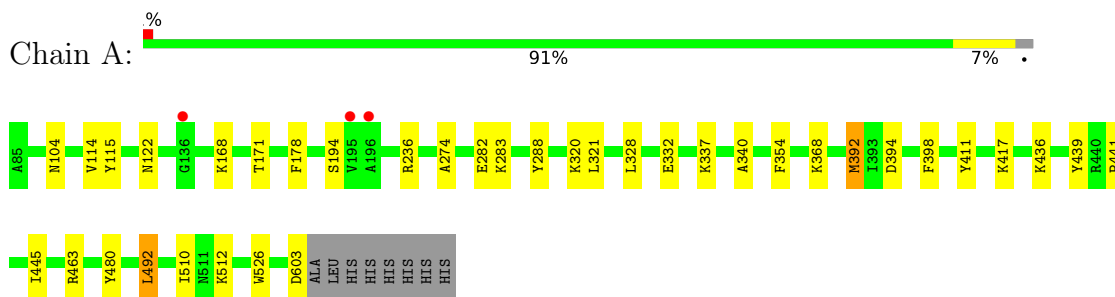
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| <b>Mol</b> | <b>Chain</b> | <b>Residues</b> | <b>Atoms</b> |          | <b>ZeroOcc</b> | <b>AltConf</b> |
|------------|--------------|-----------------|--------------|----------|----------------|----------------|
| 9          | L            | 339             | Total<br>339 | O<br>339 | 0              | 0              |

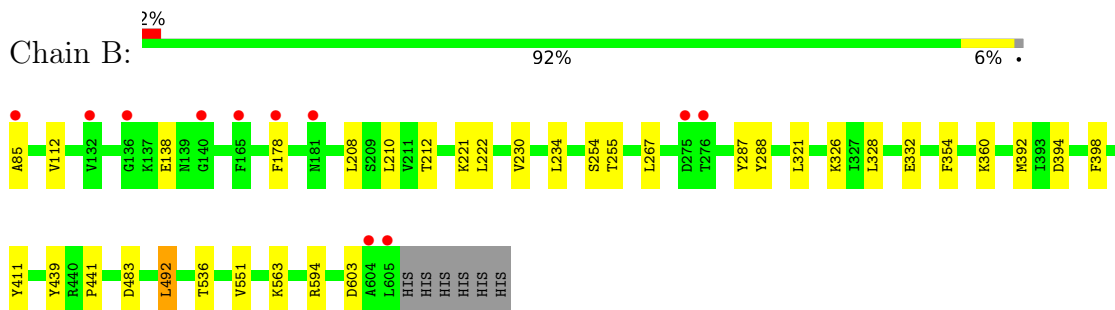
### 3 Residue-property plots [i](#)

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.

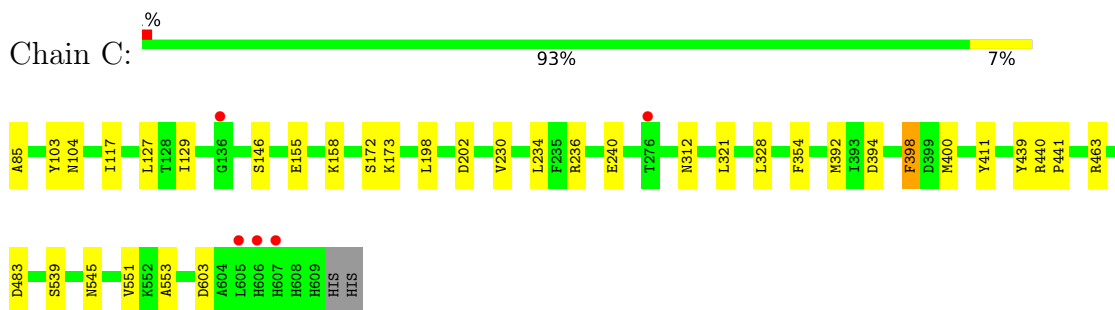
- Molecule 1: M17 leucyl aminopeptidase



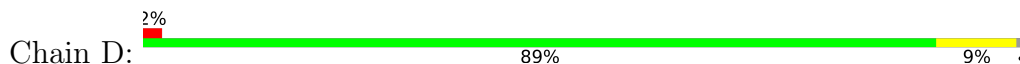
- Molecule 1: M17 leucyl aminopeptidase



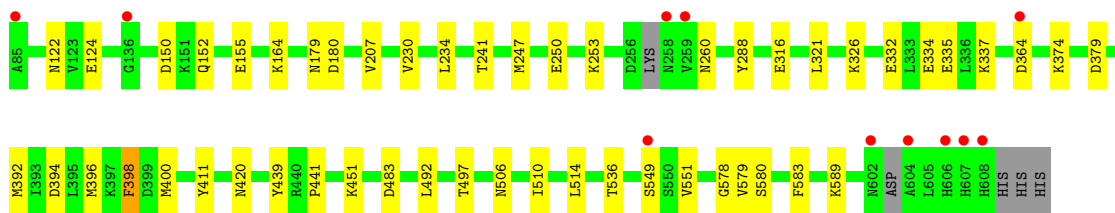
- Molecule 1: M17 leucyl aminopeptidase



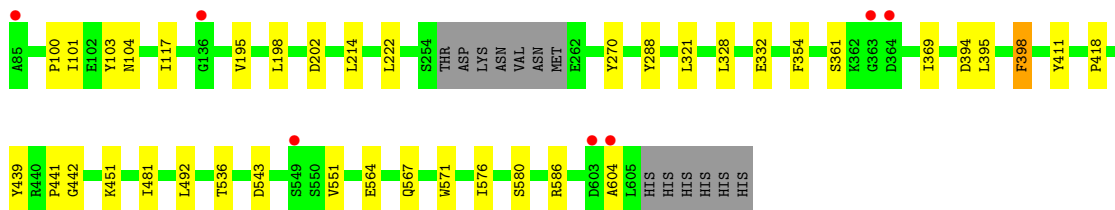
- Molecule 1: M17 leucyl aminopeptidase



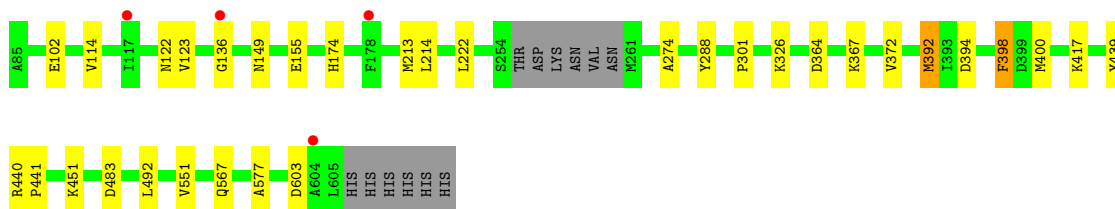
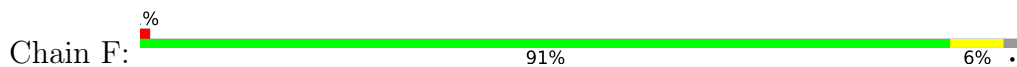




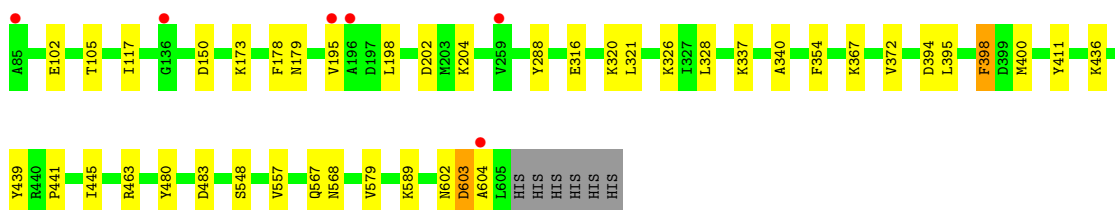
● Molecule 1: M17 leucyl aminopeptidase



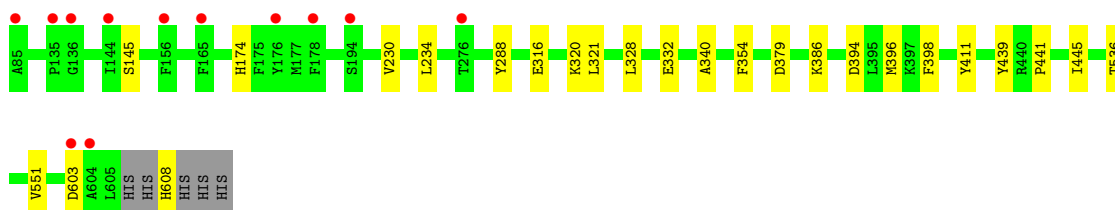
● Molecule 1: M17 leucyl aminopeptidase



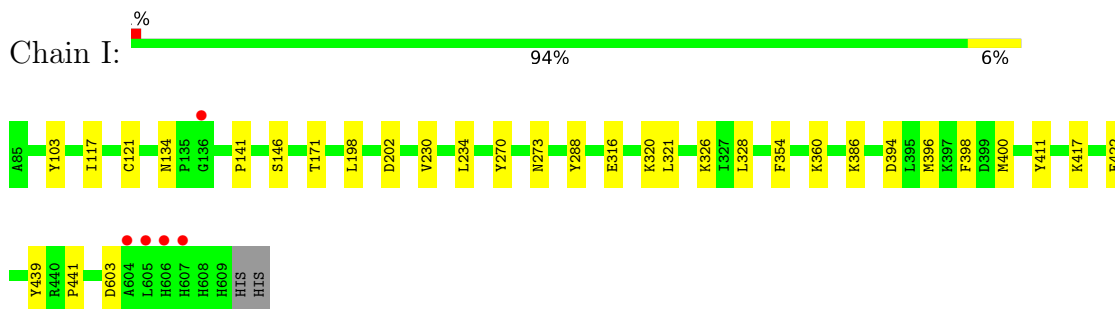
● Molecule 1: M17 leucyl aminopeptidase



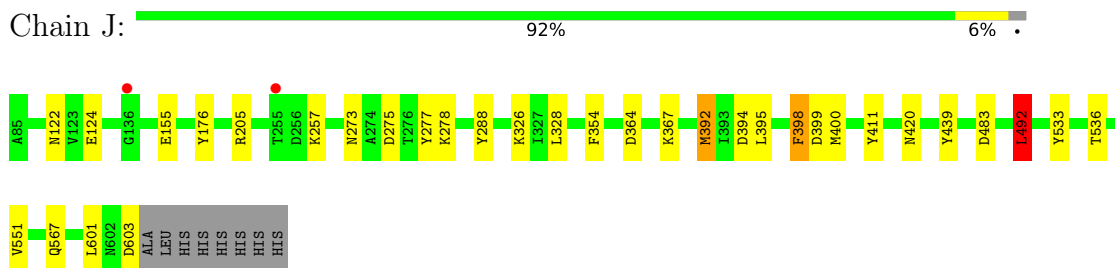
● Molecule 1: M17 leucyl aminopeptidase



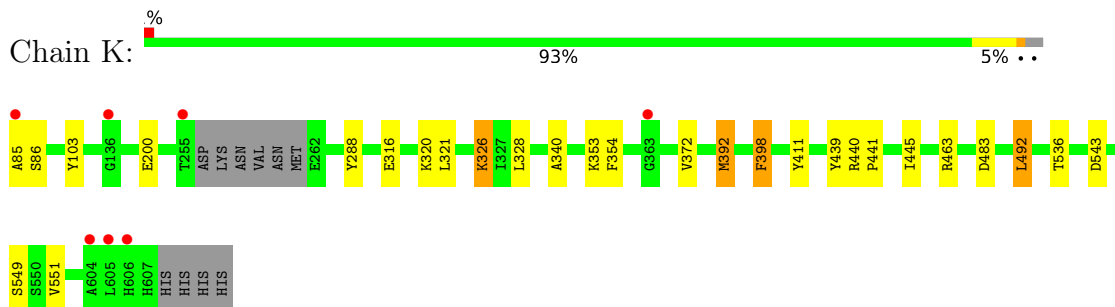
- Molecule 1: M17 leucyl aminopeptidase



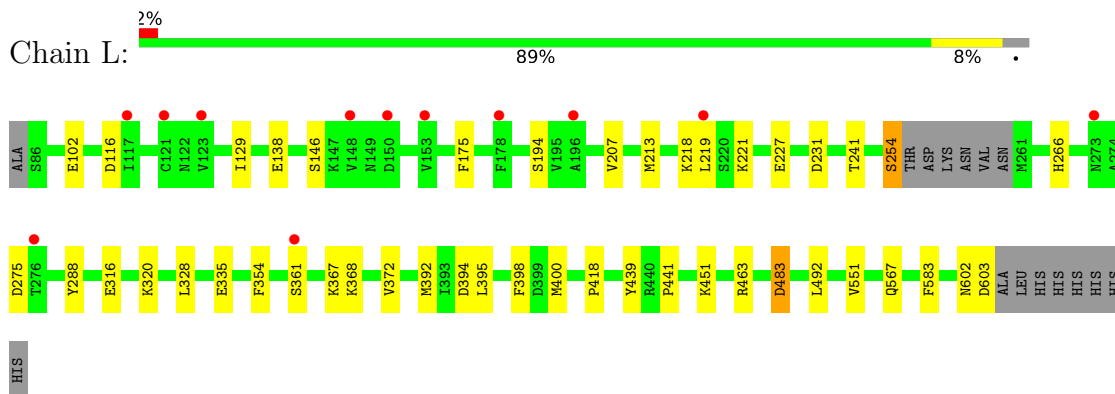
- Molecule 1: M17 leucyl aminopeptidase



- Molecule 1: M17 leucyl aminopeptidase



- Molecule 1: M17 leucyl aminopeptidase



## 4 Data and refinement statistics

| Property  | Value   | Source           |
|---|---|------------------|
| Space group   | P 21 21 21  | Depositor        |
| Cell constants<br>a, b, c, $\alpha$ , $\beta$ , $\gamma$                | 173.94Å 176.60Å 230.90Å<br>90.00° 90.00° 90.00°             | Depositor        |
| Resolution (Å)  | 48.47 – 1.89<br>48.47 – 1.89                                | Depositor<br>EDS |
| % Data completeness<br>(in resolution range)                            | 99.4 (48.47-1.89)<br>99.4 (48.47-1.89)                      | Depositor<br>EDS |
| $R_{merge}$   | (Not available)   | Depositor        |
| $R_{sym}$   | (Not available)   | Depositor        |
| $\langle I/\sigma(I) \rangle$ <sup>1</sup>                              | 1.18 (at 1.90Å)   | Xtrriage         |
| Refinement program  | PHENIX v1.20.1-4487   | Depositor        |
| R, $R_{free}$   | 0.177 , 0.216<br>0.177 , 0.217                              | Depositor<br>DCC |
| $R_{free}$ test set   | 27706 reflections (4.99%)                                   | wwPDB-VP         |
| Wilson B-factor (Å <sup>2</sup> )                                       | 24.6  | Xtrriage         |
| Anisotropy  | 0.332   | Xtrriage         |
| Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> ) | 0.34 , 46.7   | EDS              |
| L-test for twinning <sup>2</sup>  | $\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.32$ | Xtrriage         |
| Estimated twinning fraction   | 0.000 for k,h,-l  | Xtrriage         |
| $F_o, F_c$ correlation  | 0.97  | EDS              |
| Total number of atoms   | 53046   | wwPDB-VP         |
| Average B, all atoms (Å <sup>2</sup> )                                  | 27.0  | wwPDB-VP         |

Xtrriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 41.55 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 2.3219e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

<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: NA, CO3, 2PE, ZN, 1PE, SO4, X10

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     | 0.46         | 0/4074         | 0.64        | 3/5525 (0.1%)   |
| 1   | B     | 0.46         | 0/4030         | 0.64        | 2/5472 (0.0%)   |
| 1   | C     | 0.46         | 0/4095         | 0.62        | 1/5563 (0.0%)   |
| 1   | D     | 0.46         | 0/4063         | 0.64        | 2/5513 (0.0%)   |
| 1   | E     | 0.48         | 0/3997         | 0.63        | 1/5428 (0.0%)   |
| 1   | F     | 0.45         | 0/3975         | 0.61        | 1/5404 (0.0%)   |
| 1   | G     | 0.45         | 0/4083         | 0.60        | 0/5538          |
| 1   | H     | 0.44         | 0/4011         | 0.59        | 0/5452          |
| 1   | I     | 0.47         | 0/4101         | 0.62        | 2/5567 (0.0%)   |
| 1   | J     | 0.48         | 0/4040         | 0.63        | 2/5480 (0.0%)   |
| 1   | K     | 0.47         | 0/4023         | 0.64        | 2/5461 (0.0%)   |
| 1   | L     | 0.46         | 1/3943 (0.0%)  | 0.60        | 2/5362 (0.0%)   |
| All | All   | 0.46         | 1/48435 (0.0%) | 0.62        | 18/65765 (0.0%) |

All (1) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|-------|-------|-------------|----------|
| 1   | L     | 335 | GLU  | CB-CG | -5.76 | 1.41        | 1.52     |

All (18) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms     | Z      | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-----------|--------|-------------|----------|
| 1   | K     | 392 | MET  | CG-SD-CE  | -12.53 | 80.15       | 100.20   |
| 1   | C     | 392 | MET  | CG-SD-CE  | -10.36 | 83.62       | 100.20   |
| 1   | A     | 392 | MET  | CG-SD-CE  | -9.36  | 85.22       | 100.20   |
| 1   | A     | 492 | LEU  | CB-CG-CD1 | -8.57  | 96.43       | 111.00   |
| 1   | E     | 492 | LEU  | CB-CG-CD1 | -8.13  | 97.18       | 111.00   |
| 1   | B     | 563 | LYS  | CA-CB-CG  | 7.44   | 129.78      | 113.40   |
| 1   | J     | 392 | MET  | CG-SD-CE  | -7.18  | 88.72       | 100.20   |
| 1   | J     | 492 | LEU  | CA-CB-CG  | -6.58  | 100.17      | 115.30   |

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| Mol | Chain | Res | Type | Atoms     | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-----------|-------|-------------|----------|
| 1   | A     | 417 | LYS  | CA-CB-CG  | 6.18  | 127.00      | 113.40   |
| 1   | F     | 392 | MET  | CG-SD-CE  | -6.09 | 90.45       | 100.20   |
| 1   | B     | 492 | LEU  | CB-CG-CD1 | -6.01 | 100.78      | 111.00   |
| 1   | I     | 417 | LYS  | CD-CE-NZ  | -5.96 | 97.98       | 111.70   |
| 1   | K     | 492 | LEU  | CB-CG-CD1 | -5.84 | 101.08      | 111.00   |
| 1   | I     | 417 | LYS  | CA-CB-CG  | -5.56 | 101.16      | 113.40   |
| 1   | L     | 231 | ASP  | CB-CG-OD1 | 5.18  | 122.96      | 118.30   |
| 1   | D     | 392 | MET  | CG-SD-CE  | -5.15 | 91.96       | 100.20   |
| 1   | L     | 392 | MET  | CG-SD-CE  | -5.13 | 91.98       | 100.20   |
| 1   | D     | 326 | LYS  | CA-CB-CG  | 5.05  | 124.52      | 113.40   |

There are no chirality outliers.

There are no planarity outliers.

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

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

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | A     | 3993  | 0        | 3925     | 36      | 0            |
| 1   | B     | 3952  | 0        | 3867     | 21      | 0            |
| 1   | C     | 4007  | 0        | 3911     | 21      | 0            |
| 1   | D     | 3983  | 0        | 3889     | 34      | 0            |
| 1   | E     | 3917  | 0        | 3824     | 26      | 0            |
| 1   | F     | 3895  | 0        | 3770     | 24      | 0            |
| 1   | G     | 4002  | 0        | 3938     | 25      | 0            |
| 1   | H     | 3933  | 0        | 3799     | 16      | 0            |
| 1   | I     | 4017  | 0        | 3932     | 18      | 0            |
| 1   | J     | 3962  | 0        | 3891     | 24      | 0            |
| 1   | K     | 3944  | 0        | 3862     | 22      | 0            |
| 1   | L     | 3866  | 0        | 3738     | 37      | 0            |
| 2   | A     | 31    | 0        | 0        | 7       | 0            |
| 2   | B     | 31    | 0        | 0        | 2       | 0            |
| 2   | C     | 31    | 0        | 0        | 3       | 0            |
| 2   | D     | 31    | 0        | 0        | 5       | 0            |
| 2   | E     | 31    | 0        | 0        | 0       | 0            |
| 2   | F     | 31    | 0        | 0        | 4       | 0            |
| 2   | G     | 31    | 0        | 0        | 1       | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 2   | H     | 31    | 0        | 0        | 1       | 0            |
| 2   | I     | 31    | 0        | 0        | 0       | 0            |
| 2   | J     | 31    | 0        | 0        | 4       | 0            |
| 2   | K     | 31    | 0        | 0        | 7       | 0            |
| 2   | L     | 31    | 0        | 0        | 3       | 0            |
| 3   | A     | 15    | 0        | 0        | 1       | 0            |
| 3   | C     | 5     | 0        | 0        | 1       | 0            |
| 3   | D     | 5     | 0        | 0        | 0       | 0            |
| 3   | E     | 5     | 0        | 0        | 1       | 0            |
| 3   | F     | 5     | 0        | 0        | 0       | 0            |
| 3   | G     | 10    | 0        | 0        | 0       | 0            |
| 3   | H     | 5     | 0        | 0        | 0       | 0            |
| 3   | I     | 5     | 0        | 0        | 1       | 0            |
| 3   | J     | 5     | 0        | 0        | 0       | 0            |
| 3   | L     | 5     | 0        | 0        | 0       | 0            |
| 4   | A     | 34    | 0        | 40       | 7       | 0            |
| 4   | C     | 32    | 0        | 38       | 1       | 0            |
| 4   | D     | 30    | 0        | 38       | 2       | 0            |
| 4   | E     | 36    | 0        | 45       | 5       | 0            |
| 4   | F     | 40    | 0        | 52       | 2       | 0            |
| 4   | G     | 18    | 0        | 20       | 0       | 0            |
| 4   | H     | 7     | 0        | 9        | 0       | 0            |
| 4   | I     | 36    | 0        | 45       | 3       | 0            |
| 4   | J     | 22    | 0        | 25       | 2       | 0            |
| 4   | K     | 37    | 0        | 47       | 3       | 0            |
| 4   | L     | 38    | 0        | 47       | 10      | 0            |
| 5   | A     | 4     | 0        | 0        | 3       | 0            |
| 5   | B     | 4     | 0        | 0        | 0       | 0            |
| 5   | C     | 4     | 0        | 0        | 2       | 0            |
| 5   | D     | 4     | 0        | 0        | 1       | 0            |
| 5   | E     | 4     | 0        | 0        | 0       | 0            |
| 5   | F     | 4     | 0        | 0        | 0       | 0            |
| 5   | G     | 4     | 0        | 0        | 2       | 0            |
| 5   | H     | 4     | 0        | 0        | 1       | 0            |
| 5   | I     | 4     | 0        | 0        | 0       | 0            |
| 5   | J     | 4     | 0        | 0        | 1       | 0            |
| 5   | K     | 4     | 0        | 0        | 2       | 0            |
| 5   | L     | 4     | 0        | 0        | 2       | 0            |
| 6   | A     | 2     | 0        | 0        | 0       | 0            |
| 6   | B     | 2     | 0        | 0        | 0       | 0            |
| 6   | C     | 2     | 0        | 0        | 0       | 0            |
| 6   | D     | 2     | 0        | 0        | 0       | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 6   | E     | 2     | 0        | 0        | 0       | 0            |
| 6   | F     | 2     | 0        | 0        | 0       | 0            |
| 6   | G     | 2     | 0        | 0        | 0       | 0            |
| 6   | H     | 2     | 0        | 0        | 0       | 0            |
| 6   | I     | 2     | 0        | 0        | 0       | 0            |
| 6   | J     | 2     | 0        | 0        | 0       | 0            |
| 6   | K     | 2     | 0        | 0        | 0       | 0            |
| 6   | L     | 2     | 0        | 0        | 0       | 0            |
| 7   | A     | 1     | 0        | 0        | 0       | 0            |
| 7   | B     | 1     | 0        | 0        | 0       | 0            |
| 7   | D     | 1     | 0        | 0        | 0       | 0            |
| 7   | F     | 1     | 0        | 0        | 0       | 0            |
| 7   | G     | 1     | 0        | 0        | 0       | 0            |
| 7   | H     | 1     | 0        | 0        | 0       | 0            |
| 7   | I     | 1     | 0        | 0        | 0       | 0            |
| 7   | J     | 1     | 0        | 0        | 0       | 0            |
| 7   | K     | 1     | 0        | 0        | 0       | 0            |
| 8   | H     | 26    | 0        | 33       | 4       | 0            |
| 9   | A     | 430   | 0        | 0        | 7       | 0            |
| 9   | B     | 349   | 0        | 0        | 4       | 0            |
| 9   | C     | 406   | 0        | 0        | 4       | 0            |
| 9   | D     | 386   | 0        | 0        | 9       | 0            |
| 9   | E     | 382   | 0        | 0        | 4       | 0            |
| 9   | F     | 371   | 0        | 0        | 5       | 0            |
| 9   | G     | 421   | 0        | 0        | 6       | 0            |
| 9   | H     | 360   | 0        | 0        | 3       | 0            |
| 9   | I     | 408   | 0        | 0        | 2       | 0            |
| 9   | J     | 413   | 0        | 0        | 3       | 0            |
| 9   | K     | 436   | 0        | 0        | 4       | 0            |
| 9   | L     | 339   | 0        | 0        | 4       | 0            |
| All | All   | 53046 | 0        | 46785    | 299     | 0            |

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 3.

All (299) 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:G:178:PHE:HZ   | 1:J:155:GLU:HG2  | 1.24                     | 1.03              |
| 1:A:122:ASN:HD21 | 4:A:706:1PE:H251 | 1.28                     | 0.97              |
| 5:D:705:CO3:O2   | 9:D:801:HOH:O    | 1.88                     | 0.92              |

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| Atom-1             | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|------------------|--------------------------|-------------------|
| 1:A:436:LYS:NZ     | 9:A:801:HOH:O    | 1.94                     | 0.91              |
| 1:H:379:ASP:HB3    | 1:H:396:MET:HE2  | 1.51                     | 0.91              |
| 5:H:704:CO3:O3     | 9:H:801:HOH:O    | 1.86                     | 0.91              |
| 5:J:705:CO3:O3     | 9:J:801:HOH:O    | 1.87                     | 0.90              |
| 5:C:706:CO3:O1     | 9:C:801:HOH:O    | 1.91                     | 0.89              |
| 5:K:705:CO3:O2     | 9:K:801:HOH:O    | 1.91                     | 0.88              |
| 1:B:360:LYS:NZ     | 9:B:1502:HOH:O   | 2.07                     | 0.88              |
| 1:G:326:LYS:HE2    | 1:G:328:LEU:HD21 | 1.57                     | 0.86              |
| 1:D:451:LYS:HG2    | 4:D:704:1PE:H232 | 1.60                     | 0.82              |
| 1:L:316:GLU:HG3    | 4:L:704:1PE:H251 | 1.61                     | 0.81              |
| 1:E:451:LYS:HG2    | 4:E:704:1PE:H231 | 1.62                     | 0.80              |
| 1:D:492:LEU:HD11   | 2:D:701:X10:F28  | 1.71                     | 0.79              |
| 1:I:134:ASN:ND2    | 1:I:141:PRO:HD2  | 1.98                     | 0.79              |
| 1:L:602:ASN:OD1    | 9:L:801:HOH:O    | 2.01                     | 0.78              |
| 1:G:178:PHE:CZ     | 1:J:155:GLU:HG2  | 2.16                     | 0.77              |
| 1:B:332:GLU:OE2    | 9:B:1501:HOH:O   | 2.03                     | 0.77              |
| 1:D:260:ASN:OD1    | 9:D:802:HOH:O    | 2.05                     | 0.75              |
| 1:L:320:LYS:HZ1    | 4:L:704:1PE:H252 | 1.49                     | 0.75              |
| 1:J:122:ASN:OD1    | 1:J:124:GLU:HG2  | 1.87                     | 0.74              |
| 1:G:102:GLU:HG2    | 1:G:105:THR:HG22 | 1.70                     | 0.74              |
| 5:G:706:CO3:O3     | 9:G:802:HOH:O    | 2.06                     | 0.73              |
| 1:A:178:PHE:HZ     | 1:D:155:GLU:HG2  | 1.54                     | 0.72              |
| 1:J:205:ARG:NH2    | 9:J:802:HOH:O    | 2.20                     | 0.72              |
| 1:I:320:LYS:HB3    | 4:I:704:1PE:H142 | 1.71                     | 0.72              |
| 2:G:701:X10:F26    | 9:G:961:HOH:O    | 1.96                     | 0.72              |
| 1:F:102:GLU:OE1    | 9:F:802:HOH:O    | 2.10                     | 0.70              |
| 1:J:278:LYS:NZ     | 9:J:803:HOH:O    | 2.25                     | 0.70              |
| 1:F:102:GLU:OE2    | 9:F:801:HOH:O    | 2.09                     | 0.70              |
| 4:I:703:1PE:H222   | 4:I:704:1PE:H141 | 1.73                     | 0.69              |
| 1:I:360:LYS:HG2    | 1:I:422:GLU:HG3  | 1.75                     | 0.68              |
| 1:G:395:LEU:HB3    | 1:G:398:PHE:CE2  | 2.29                     | 0.68              |
| 1:K:392:MET:HE1    | 2:K:701:X10:C23  | 2.23                     | 0.68              |
| 1:E:543:ASP:HB3    | 4:E:704:1PE:H221 | 1.74                     | 0.68              |
| 1:A:332[A]:GLU:HG3 | 9:A:1148:HOH:O   | 1.94                     | 0.67              |
| 1:J:411:TYR:HE1    | 4:J:703:1PE:H132 | 1.60                     | 0.66              |
| 1:D:510:ILE:O      | 9:D:804:HOH:O    | 2.14                     | 0.66              |
| 1:D:549:SER:OG     | 9:D:803:HOH:O    | 2.14                     | 0.65              |
| 1:A:320:LYS:HZ1    | 4:A:707:1PE:H142 | 1.62                     | 0.65              |
| 1:L:395:LEU:O      | 1:L:398:PHE:HD1  | 1.80                     | 0.65              |
| 5:A:708:CO3:O1     | 9:A:803:HOH:O    | 2.14                     | 0.65              |
| 1:A:282:GLU:OE1    | 9:A:802:HOH:O    | 2.14                     | 0.64              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:394:ASP:HA   | 1:F:441:PRO:HB2  | 1.79                     | 0.64              |
| 1:B:492:LEU:HD11 | 2:B:1401:X10:C25 | 2.27                     | 0.64              |
| 1:L:361:SER:N    | 9:L:804:HOH:O    | 2.24                     | 0.63              |
| 1:C:463:ARG:NE   | 5:C:706:CO3:O3   | 2.24                     | 0.63              |
| 1:J:326:LYS:HD2  | 1:J:328:LEU:HD21 | 1.80                     | 0.63              |
| 1:K:463:ARG:NE   | 5:K:705:CO3:O3   | 2.23                     | 0.63              |
| 1:A:178:PHE:CZ   | 1:D:155:GLU:HG2  | 2.33                     | 0.62              |
| 1:I:134:ASN:HD22 | 1:I:141:PRO:HD2  | 1.64                     | 0.62              |
| 1:G:463:ARG:NH2  | 5:G:706:CO3:O2   | 2.26                     | 0.62              |
| 1:A:492:LEU:HD11 | 2:A:701:X10:C25  | 2.30                     | 0.62              |
| 1:I:316:GLU:HG3  | 4:I:703:1PE:H262 | 1.81                     | 0.62              |
| 1:E:117:ILE:HG12 | 1:E:270:TYR:HB3  | 1.81                     | 0.61              |
| 1:F:492:LEU:HD11 | 2:F:701:X10:C27  | 2.29                     | 0.61              |
| 1:D:122:ASN:OD1  | 1:D:124:GLU:HG2  | 1.99                     | 0.61              |
| 1:G:328:LEU:HB2  | 1:G:354:PHE:HB3  | 1.82                     | 0.61              |
| 1:I:328:LEU:HB2  | 1:I:354:PHE:HB3  | 1.83                     | 0.61              |
| 1:A:392:MET:HE2  | 2:A:701:X10:C27  | 2.31                     | 0.61              |
| 1:L:221:LYS:HG3  | 1:L:266:HIS:HB2  | 1.83                     | 0.61              |
| 1:K:392:MET:CE   | 2:K:701:X10:C23  | 2.79                     | 0.60              |
| 1:C:172:SER:O    | 1:C:173:LYS:HD3  | 2.00                     | 0.60              |
| 1:L:328:LEU:HB2  | 1:L:354:PHE:HB3  | 1.83                     | 0.60              |
| 1:D:583:PHE:CZ   | 2:D:701:X10:F26  | 2.44                     | 0.60              |
| 1:D:492:LEU:HD11 | 2:D:701:X10:C27  | 2.30                     | 0.60              |
| 1:F:577:ALA:O    | 2:F:701:X10:C23  | 2.50                     | 0.60              |
| 1:H:230:VAL:HG12 | 1:H:234:LEU:HD23 | 1.84                     | 0.60              |
| 1:D:316:GLU:HG3  | 4:D:703:1PE:H221 | 1.83                     | 0.60              |
| 1:A:337:LYS:NZ   | 9:A:804:HOH:O    | 2.23                     | 0.59              |
| 1:L:451:LYS:HZ1  | 4:L:705:1PE:H121 | 1.66                     | 0.59              |
| 1:J:392:MET:HE2  | 2:J:701:X10:C23  | 2.33                     | 0.59              |
| 1:L:395:LEU:O    | 1:L:398:PHE:CD1  | 2.55                     | 0.58              |
| 1:K:340:ALA:HA   | 1:K:445:ILE:HD12 | 1.84                     | 0.58              |
| 1:A:441:PRO:HB2  | 1:B:394:ASP:HA   | 1.84                     | 0.58              |
| 1:C:155:GLU:O    | 1:C:158:LYS:HG2  | 2.03                     | 0.58              |
| 1:B:328:LEU:HB2  | 1:B:354:PHE:HB3  | 1.86                     | 0.57              |
| 1:A:392:MET:CE   | 2:A:701:X10:C27  | 2.82                     | 0.57              |
| 1:D:441:PRO:HB2  | 1:E:394:ASP:HA   | 1.87                     | 0.57              |
| 1:F:417:LYS:NZ   | 9:F:806:HOH:O    | 2.37                     | 0.57              |
| 1:L:368:LYS:HD2  | 9:L:1080:HOH:O   | 2.03                     | 0.57              |
| 1:D:230:VAL:HG23 | 1:D:234:LEU:HD23 | 1.87                     | 0.57              |
| 1:K:316:GLU:HG3  | 4:K:703:1PE:H141 | 1.85                     | 0.57              |
| 1:K:328:LEU:HB2  | 1:K:354:PHE:HB3  | 1.86                     | 0.57              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:492:LEU:HD11 | 2:A:701:X10:C27  | 2.35                     | 0.56              |
| 2:H:701:X10:O15  | 9:H:801:HOH:O    | 2.17                     | 0.56              |
| 1:E:441:PRO:HB2  | 1:F:394:ASP:HA   | 1.88                     | 0.55              |
| 1:F:398:PHE:HZ   | 2:F:701:X10:C22  | 2.19                     | 0.55              |
| 1:E:332:GLU:HG3  | 9:E:1054:HOH:O   | 2.06                     | 0.55              |
| 1:A:340:ALA:HA   | 1:A:445:ILE:HD12 | 1.89                     | 0.55              |
| 1:E:100:PRO:O    | 1:E:101:ILE:HD13 | 2.07                     | 0.55              |
| 1:G:567:GLN:NE2  | 1:G:567:GLN:HA   | 2.22                     | 0.55              |
| 1:K:543:ASP:OD2  | 1:L:254:SER:HB2  | 2.07                     | 0.55              |
| 1:J:533:TYR:O    | 1:J:536:THR:HG22 | 2.07                     | 0.54              |
| 1:B:254:SER:OG   | 1:B:255:THR:N    | 2.40                     | 0.54              |
| 1:I:103:TYR:HB2  | 3:I:702:SO4:O1   | 2.07                     | 0.54              |
| 1:E:195:VAL:HG22 | 9:E:823:HOH:O    | 2.08                     | 0.54              |
| 1:J:394:ASP:HA   | 1:L:441:PRO:HB2  | 1.90                     | 0.54              |
| 1:D:332:GLU:HG3  | 9:D:1088:HOH:O   | 2.06                     | 0.54              |
| 1:J:275:ASP:HA   | 1:J:278:LYS:HE2  | 1.90                     | 0.54              |
| 1:E:536:THR:HG21 | 1:E:551:VAL:HG23 | 1.90                     | 0.54              |
| 1:A:320:LYS:HE2  | 4:A:707:1PE:H131 | 1.91                     | 0.53              |
| 1:E:567:GLN:NE2  | 4:E:704:1PE:H151 | 2.24                     | 0.53              |
| 1:J:392:MET:CE   | 2:J:701:X10:C23  | 2.87                     | 0.53              |
| 1:J:492:LEU:HD13 | 2:J:701:X10:C23  | 2.38                     | 0.53              |
| 1:D:250:GLU:OE2  | 1:D:253:LYS:HG3  | 2.09                     | 0.53              |
| 1:E:328:LEU:HB2  | 1:E:354:PHE:HB3  | 1.91                     | 0.53              |
| 1:L:463:ARG:NE   | 5:L:706:CO3:O3   | 2.35                     | 0.53              |
| 1:G:441:PRO:HB2  | 1:H:394:ASP:HA   | 1.91                     | 0.52              |
| 1:C:539:SER:HB2  | 1:C:545:ASN:OD1  | 2.10                     | 0.52              |
| 1:K:103:TYR:HB3  | 4:K:702:1PE:H142 | 1.91                     | 0.52              |
| 1:B:492:LEU:HD11 | 2:B:1401:X10:C23 | 2.39                     | 0.52              |
| 1:K:492:LEU:HD11 | 2:K:701:X10:C25  | 2.39                     | 0.52              |
| 1:K:536:THR:HG21 | 1:K:551:VAL:HG23 | 1.91                     | 0.52              |
| 1:J:567:GLN:HA   | 1:J:567:GLN:NE2  | 2.25                     | 0.52              |
| 1:C:398:PHE:HZ   | 2:C:701:X10:C22  | 2.23                     | 0.52              |
| 1:B:326:LYS:NZ   | 9:B:1508:HOH:O   | 2.42                     | 0.51              |
| 1:D:583:PHE:HZ   | 2:D:701:X10:F26  | 1.82                     | 0.51              |
| 1:F:114:VAL:HG12 | 1:F:274:ALA:HB1  | 1.93                     | 0.51              |
| 1:E:576:ILE:HD12 | 1:E:580:SER:OG   | 2.11                     | 0.51              |
| 1:L:583:PHE:CZ   | 2:L:701:X10:F26  | 2.53                     | 0.51              |
| 1:D:506:ASN:O    | 1:D:510:ILE:HD12 | 2.11                     | 0.51              |
| 2:K:701:X10:O15  | 9:K:801:HOH:O    | 2.18                     | 0.51              |
| 1:L:463:ARG:HE   | 5:L:706:CO3:C    | 2.22                     | 0.50              |
| 1:K:320:LYS:HB3  | 4:K:702:1PE:H232 | 1.93                     | 0.50              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:117:ILE:HD11 | 1:C:146:SER:OG   | 2.11                     | 0.50              |
| 1:C:551:VAL:HG12 | 1:C:553:ALA:H    | 1.76                     | 0.50              |
| 1:A:122:ASN:HB2  | 4:A:706:1PE:H232 | 1.93                     | 0.49              |
| 1:L:451:LYS:NZ   | 4:L:705:1PE:H131 | 2.27                     | 0.49              |
| 1:D:164:LYS:HE2  | 9:D:918:HOH:O    | 2.11                     | 0.49              |
| 1:A:480:TYR:OH   | 1:A:512:LYS:NZ   | 2.44                     | 0.49              |
| 1:L:129:ILE:HG13 | 1:L:213:MET:HE1  | 1.94                     | 0.49              |
| 1:B:178:PHE:HZ   | 1:F:155:GLU:HG2  | 1.78                     | 0.49              |
| 1:L:320:LYS:HD3  | 4:L:704:1PE:H122 | 1.94                     | 0.49              |
| 1:E:369:ILE:HD11 | 1:E:604:ALA:HB1  | 1.94                     | 0.48              |
| 1:I:198:LEU:HD22 | 1:I:202:ASP:HB3  | 1.96                     | 0.48              |
| 1:A:368:LYS:NZ   | 9:A:813:HOH:O    | 2.46                     | 0.48              |
| 1:A:463:ARG:HE   | 5:A:708:CO3:C    | 2.25                     | 0.48              |
| 1:K:441:PRO:HB2  | 1:L:394:ASP:HA   | 1.95                     | 0.48              |
| 1:L:361:SER:HB2  | 1:L:418:PRO:O    | 2.14                     | 0.48              |
| 9:A:1131:HOH:O   | 1:F:551:VAL:HG13 | 2.13                     | 0.48              |
| 1:G:579:VAL:O    | 1:G:589:LYS:HD2  | 2.13                     | 0.48              |
| 2:C:701:X10:N14  | 9:C:801:HOH:O    | 2.35                     | 0.48              |
| 1:B:321:LEU:HD11 | 1:B:411:TYR:HA   | 1.96                     | 0.48              |
| 1:C:328:LEU:HB2  | 1:C:354:PHE:HB3  | 1.95                     | 0.48              |
| 1:L:320:LYS:NZ   | 4:L:704:1PE:H252 | 2.23                     | 0.48              |
| 1:D:374:LYS:NZ   | 9:D:801:HOH:O    | 2.35                     | 0.47              |
| 1:I:360:LYS:HE3  | 1:I:360:LYS:HB3  | 1.75                     | 0.47              |
| 1:A:492:LEU:CD1  | 2:A:701:X10:C27  | 2.91                     | 0.47              |
| 1:B:208:LEU:O    | 1:B:212:THR:HG23 | 2.14                     | 0.47              |
| 1:H:320:LYS:NZ   | 8:H:705:2PE:H181 | 2.30                     | 0.47              |
| 1:J:364:ASP:O    | 1:J:420:ASN:HA   | 2.14                     | 0.47              |
| 1:K:85:ALA:N     | 9:K:810:HOH:O    | 2.46                     | 0.47              |
| 1:A:394:ASP:HA   | 1:C:441:PRO:HB2  | 1.97                     | 0.47              |
| 1:E:104:ASN:HB3  | 9:E:1127:HOH:O   | 2.14                     | 0.47              |
| 1:F:123:VAL:HG23 | 1:F:123:VAL:O    | 2.14                     | 0.47              |
| 1:F:567:GLN:CD   | 4:F:703:1PE:H121 | 2.35                     | 0.47              |
| 1:J:411:TYR:CE1  | 4:J:703:1PE:H132 | 2.45                     | 0.47              |
| 1:I:117:ILE:HD11 | 1:I:146:SER:OG   | 2.14                     | 0.47              |
| 1:K:85:ALA:HA    | 1:K:353:LYS:HE3  | 1.96                     | 0.47              |
| 1:K:492:LEU:HD11 | 2:K:701:X10:C23  | 2.45                     | 0.47              |
| 1:F:326:LYS:HE3  | 9:F:965:HOH:O    | 2.15                     | 0.47              |
| 1:B:230:VAL:HG12 | 1:B:234:LEU:HD23 | 1.96                     | 0.47              |
| 1:C:103:TYR:HB2  | 3:C:702:SO4:O1   | 2.15                     | 0.47              |
| 1:B:85:ALA:HB1   | 9:B:1832:HOH:O   | 2.15                     | 0.46              |
| 1:D:321:LEU:HD11 | 1:D:411:TYR:HA   | 1.96                     | 0.46              |

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| Atom-1           | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|--------------------|--------------------------|-------------------|
| 1:D:379:ASP:O    | 1:D:396:MET:HG3    | 2.15                     | 0.46              |
| 1:K:326:LYS:HE2  | 1:K:328:LEU:HD21   | 1.98                     | 0.46              |
| 1:B:178:PHE:CZ   | 1:F:155:GLU:HG2    | 2.49                     | 0.46              |
| 1:D:152:GLN:HG2  | 1:D:180:ASP:OD1    | 2.15                     | 0.46              |
| 1:A:236:ARG:HD2  | 1:A:283:LYS:HG2    | 1.98                     | 0.46              |
| 1:G:367:LYS:HG2  | 1:G:603:ASP:OD2    | 2.16                     | 0.46              |
| 4:C:703:1PE:H151 | 4:C:703:1PE:H142   | 1.70                     | 0.46              |
| 1:E:451:LYS:NZ   | 4:E:704:1PE:H122   | 2.30                     | 0.46              |
| 1:A:328:LEU:HB2  | 1:A:354:PHE:HB3    | 1.96                     | 0.46              |
| 1:C:440:ARG:HE   | 1:C:440:ARG:HB2    | 1.67                     | 0.46              |
| 1:L:583:PHE:HZ   | 2:L:701:X10:F26    | 1.89                     | 0.46              |
| 1:A:321:LEU:HD11 | 1:A:411:TYR:HA     | 1.98                     | 0.46              |
| 1:H:332:GLU:OE1  | 9:H:804:HOH:O      | 2.21                     | 0.46              |
| 1:B:536:THR:HG21 | 1:B:551:VAL:HG23   | 1.98                     | 0.45              |
| 1:E:198:LEU:HD22 | 1:E:202:ASP:HB3    | 1.98                     | 0.45              |
| 1:H:441:PRO:HB2  | 1:I:394:ASP:HA     | 1.98                     | 0.45              |
| 1:I:326:LYS:HG2  | 1:I:328:LEU:HD12   | 1.98                     | 0.45              |
| 1:D:334:GLU:O    | 1:D:337:LYS:HD3    | 2.16                     | 0.45              |
| 1:G:321:LEU:HD11 | 1:G:411:TYR:HA     | 1.97                     | 0.45              |
| 1:L:451:LYS:HZ2  | 4:L:705:1PE:C16    | 2.30                     | 0.45              |
| 1:G:372:VAL:O    | 1:G:483:ASP:HA     | 2.17                     | 0.45              |
| 1:L:451:LYS:HZ3  | 4:L:705:1PE:H131   | 1.80                     | 0.45              |
| 1:D:536:THR:HG21 | 1:D:551:VAL:HG23   | 1.99                     | 0.45              |
| 1:H:328:LEU:HB2  | 1:H:354:PHE:HB3    | 1.99                     | 0.45              |
| 1:E:321:LEU:HD11 | 1:E:411:TYR:HA     | 1.99                     | 0.45              |
| 1:A:115:TYR:CE1  | 4:A:706:1PE:H132   | 2.52                     | 0.45              |
| 1:C:85:ALA:HB3   | 1:C:312:ASN:OD1    | 2.18                     | 0.45              |
| 1:F:364:ASP:HB3  | 9:F:1043:HOH:O     | 2.16                     | 0.45              |
| 1:I:230:VAL:HG12 | 1:I:234:LEU:HD23   | 2.00                     | 0.44              |
| 1:L:567:GLN:NE2  | 4:L:705:1PE:H222   | 2.32                     | 0.44              |
| 1:H:174:HIS:HB3  | 1:L:175:PHE:CD2    | 2.52                     | 0.44              |
| 1:C:236:ARG:O    | 1:C:240:GLU:HG3    | 2.17                     | 0.44              |
| 1:G:367:LYS:HE2  | 1:G:480:TYR:CE2    | 2.52                     | 0.44              |
| 1:A:328:LEU:HD23 | 1:A:332[A]:GLU:HG2 | 1.99                     | 0.44              |
| 1:J:328:LEU:HB2  | 1:J:354:PHE:HB3    | 2.00                     | 0.44              |
| 1:A:114:VAL:HG12 | 1:A:274:ALA:HB1    | 2.00                     | 0.44              |
| 1:A:320:LYS:HZ3  | 4:A:707:1PE:H222   | 1.82                     | 0.44              |
| 1:E:451:LYS:HE3  | 1:E:564:GLU:O      | 2.17                     | 0.44              |
| 1:L:567:GLN:NE2  | 1:L:567:GLN:HA     | 2.33                     | 0.44              |
| 1:C:198:LEU:HD22 | 1:C:202:ASP:HB3    | 1.99                     | 0.44              |
| 1:G:198:LEU:HD22 | 1:G:202:ASP:HB3    | 2.00                     | 0.44              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:514:LEU:HG   | 9:D:804:HOH:O    | 2.18                     | 0.44              |
| 1:J:273:ASN:O    | 1:J:277:TYR:HD1  | 2.01                     | 0.44              |
| 1:K:440:ARG:HE   | 1:K:440:ARG:HB2  | 1.71                     | 0.44              |
| 1:H:320:LYS:HZ1  | 8:H:705:2PE:H211 | 1.82                     | 0.44              |
| 1:E:395:LEU:HB3  | 1:E:398:PHE:CE2  | 2.53                     | 0.43              |
| 1:F:174:HIS:CE1  | 1:F:213:MET:HG2  | 2.52                     | 0.43              |
| 1:E:214:LEU:HD11 | 1:E:222:LEU:HD22 | 2.00                     | 0.43              |
| 1:G:394:ASP:HA   | 1:I:441:PRO:HB2  | 2.01                     | 0.43              |
| 1:G:436:LYS:NZ   | 9:G:809:HOH:O    | 2.43                     | 0.43              |
| 1:L:451:LYS:HZ1  | 4:L:705:1PE:C12  | 2.30                     | 0.43              |
| 1:H:536:THR:HG21 | 1:H:551:VAL:HG23 | 2.00                     | 0.43              |
| 1:K:85:ALA:N     | 1:K:353:LYS:HZ2  | 2.16                     | 0.43              |
| 1:I:321:LEU:HD11 | 1:I:411:TYR:HA   | 2.00                     | 0.43              |
| 1:L:138:GLU:HA   | 1:L:194:SER:OG   | 2.19                     | 0.43              |
| 4:E:703:1PE:H231 | 4:E:703:1PE:H122 | 1.74                     | 0.43              |
| 1:L:213:MET:HE2  | 1:L:213:MET:HB2  | 1.78                     | 0.43              |
| 1:A:104:ASN:ND2  | 3:A:704:SO4:O4   | 2.40                     | 0.43              |
| 1:C:398:PHE:CZ   | 2:C:701:X10:C22  | 3.02                     | 0.43              |
| 1:C:85:ALA:HB1   | 9:C:1157:HOH:O   | 2.17                     | 0.43              |
| 8:H:705:2PE:H121 | 8:H:705:2PE:H92  | 1.63                     | 0.43              |
| 1:B:287:TYR:CD2  | 1:B:594:ARG:HG2  | 2.54                     | 0.42              |
| 1:B:326:LYS:HG2  | 1:B:328:LEU:CD1  | 2.49                     | 0.42              |
| 1:C:127:LEU:HD11 | 1:C:129:ILE:HD11 | 2.00                     | 0.42              |
| 1:D:150:ASP:OD2  | 1:D:179:ASN:HB2  | 2.19                     | 0.42              |
| 1:D:207:VAL:HG11 | 1:D:241:THR:HG22 | 2.01                     | 0.42              |
| 1:E:103:TYR:HB2  | 3:E:702:SO4:O2   | 2.19                     | 0.42              |
| 1:H:386:LYS:HE3  | 1:H:396:MET:CE   | 2.48                     | 0.42              |
| 1:A:510:ILE:HD13 | 1:A:526:TRP:NE1  | 2.34                     | 0.42              |
| 1:G:337:LYS:HA   | 1:G:337:LYS:HD3  | 1.73                     | 0.42              |
| 1:G:340:ALA:HA   | 1:G:445:ILE:HD12 | 2.02                     | 0.42              |
| 1:H:386:LYS:HE3  | 1:H:396:MET:HE1  | 2.00                     | 0.42              |
| 1:L:207:VAL:HG11 | 1:L:241:THR:HG22 | 2.01                     | 0.42              |
| 1:L:372:VAL:O    | 1:L:483:ASP:HA   | 2.19                     | 0.42              |
| 1:A:392:MET:HE1  | 2:A:701:X10:C27  | 2.48                     | 0.42              |
| 1:D:335:GLU:HG3  | 9:D:1048:HOH:O   | 2.20                     | 0.42              |
| 1:A:392:MET:HE2  | 2:A:701:X10:F28  | 2.08                     | 0.42              |
| 1:D:583:PHE:CE2  | 2:D:701:X10:F26  | 2.62                     | 0.42              |
| 1:G:150:ASP:OD2  | 1:G:179:ASN:HB2  | 2.19                     | 0.42              |
| 1:G:204:LYS:HD3  | 9:G:1124:HOH:O   | 2.20                     | 0.42              |
| 1:H:340:ALA:HA   | 1:H:445:ILE:HD12 | 2.01                     | 0.42              |
| 1:A:436:LYS:HB3  | 1:A:436:LYS:HE2  | 1.78                     | 0.42              |

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| Atom-1             | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|------------------|--------------------------|-------------------|
| 1:D:579:VAL:O      | 1:D:589:LYS:HD2  | 2.20                     | 0.42              |
| 1:D:398:PHE:CD1    | 1:D:398:PHE:C    | 2.93                     | 0.42              |
| 1:H:316:GLU:OE1    | 8:H:705:2PE:H242 | 2.19                     | 0.42              |
| 1:C:230:VAL:HG12   | 1:C:234:LEU:HD23 | 2.02                     | 0.42              |
| 1:J:601:LEU:HD23   | 1:J:601:LEU:HA   | 1.86                     | 0.42              |
| 1:A:463:ARG:NE     | 5:A:708:CO3:O3   | 2.47                     | 0.42              |
| 1:H:321:LEU:HD11   | 1:H:411:TYR:HA   | 2.00                     | 0.42              |
| 1:I:121:CYS:HA     | 1:I:270:TYR:CE2  | 2.55                     | 0.42              |
| 1:E:369:ILE:HD11   | 1:E:604:ALA:CB   | 2.50                     | 0.41              |
| 1:B:392:MET:HE2    | 1:B:392:MET:HB2  | 1.91                     | 0.41              |
| 1:L:129:ILE:HD13   | 1:L:129:ILE:HA   | 1.90                     | 0.41              |
| 1:L:492:LEU:HD21   | 2:L:701:X10:C27  | 2.49                     | 0.41              |
| 9:G:1038:HOH:O     | 1:L:551:VAL:HG13 | 2.19                     | 0.41              |
| 1:L:102:GLU:OE1    | 9:L:802:HOH:O    | 2.21                     | 0.41              |
| 1:C:104[A]:ASN:ND2 | 9:C:823:HOH:O    | 2.53                     | 0.41              |
| 1:L:146:SER:OG     | 1:L:227:GLU:OE2  | 2.26                     | 0.41              |
| 1:K:372:VAL:O      | 1:K:483:ASP:HA   | 2.21                     | 0.41              |
| 1:F:451:LYS:HG2    | 4:F:703:1PE:H132 | 2.01                     | 0.41              |
| 1:G:602:ASN:ND2    | 9:G:801:HOH:O    | 2.05                     | 0.41              |
| 9:I:1086:HOH:O     | 1:J:551:VAL:HG13 | 2.21                     | 0.41              |
| 1:B:441:PRO:HB2    | 1:C:394:ASP:HA   | 2.03                     | 0.41              |
| 1:E:442:GLY:O      | 1:F:301:PRO:HB3  | 2.20                     | 0.41              |
| 1:E:481:ILE:O      | 1:E:571:TRP:HA   | 2.21                     | 0.41              |
| 1:F:372:VAL:O      | 1:F:483:ASP:HA   | 2.20                     | 0.41              |
| 1:F:392:MET:CE     | 2:F:701:X10:C29  | 2.98                     | 0.41              |
| 1:B:112:VAL:HG22   | 1:B:267:LEU:HB3  | 2.03                     | 0.41              |
| 1:B:221:LYS:HG3    | 1:B:222:LEU:N    | 2.36                     | 0.41              |
| 1:D:364:ASP:O      | 1:D:420:ASN:HA   | 2.21                     | 0.41              |
| 1:F:122:ASN:ND2    | 1:F:149:ASN:HD22 | 2.19                     | 0.41              |
| 1:G:316:GLU:HG2    | 1:G:320:LYS:HE2  | 2.02                     | 0.41              |
| 1:J:492:LEU:CD1    | 2:J:701:X10:C23  | 2.98                     | 0.41              |
| 1:H:328:LEU:HD12   | 1:H:328:LEU:N    | 2.36                     | 0.41              |
| 1:K:392:MET:HE3    | 2:K:701:X10:C23  | 2.51                     | 0.41              |
| 2:K:701:X10:N14    | 9:K:801:HOH:O    | 2.37                     | 0.41              |
| 1:C:321:LEU:HD11   | 1:C:411:TYR:HA   | 2.03                     | 0.40              |
| 1:D:497:THR:HA     | 1:D:578:GLY:O    | 2.21                     | 0.40              |
| 1:F:214:LEU:HD21   | 1:F:222:LEU:HD22 | 2.04                     | 0.40              |
| 1:J:395:LEU:HB3    | 1:J:398:PHE:CE2  | 2.55                     | 0.40              |
| 1:K:398:PHE:CD1    | 1:K:398:PHE:C    | 2.94                     | 0.40              |
| 1:K:321:LEU:HD11   | 1:K:411:TYR:HA   | 2.02                     | 0.40              |
| 1:E:586:ARG:NH1    | 9:E:803:HOH:O    | 2.29                     | 0.40              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:173:LYS:HD2  | 1:J:176:TYR:CE1  | 2.56                     | 0.40              |
| 1:G:548:SER:HB2  | 1:G:557:VAL:HG11 | 2.02                     | 0.40              |
| 1:I:171:THR:HG21 | 9:I:1037:HOH:O   | 2.20                     | 0.40              |
| 1:I:386:LYS:HE3  | 1:I:396:MET:HE2  | 2.04                     | 0.40              |
| 1:A:168:LYS:O    | 1:A:171:THR:HG22 | 2.22                     | 0.40              |
| 1:E:361:SER:OG   | 1:E:418:PRO:O    | 2.39                     | 0.40              |
| 1:F:440:ARG:HE   | 1:F:440:ARG:HB2  | 1.77                     | 0.40              |
| 1:J:367:LYS:HE2  | 1:J:367:LYS:HB2  | 1.85                     | 0.40              |
| 1:A:122:ASN:HD22 | 4:A:706:1PE:H232 | 1.87                     | 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     | 518/527 (98%)   | 508 (98%)  | 10 (2%)  | 0        | 100         | 100 |
| 1   | B     | 519/527 (98%)   | 506 (98%)  | 12 (2%)  | 1 (0%)   | 47          | 38  |
| 1   | C     | 525/527 (100%)  | 515 (98%)  | 10 (2%)  | 0        | 100         | 100 |
| 1   | D     | 517/527 (98%)   | 510 (99%)  | 7 (1%)   | 0        | 100         | 100 |
| 1   | E     | 511/527 (97%)   | 504 (99%)  | 7 (1%)   | 0        | 100         | 100 |
| 1   | F     | 512/527 (97%)   | 502 (98%)  | 9 (2%)   | 1 (0%)   | 47          | 38  |
| 1   | G     | 520/527 (99%)   | 509 (98%)  | 10 (2%)  | 1 (0%)   | 47          | 38  |
| 1   | H     | 519/527 (98%)   | 509 (98%)  | 10 (2%)  | 0        | 100         | 100 |
| 1   | I     | 524/527 (99%)   | 516 (98%)  | 8 (2%)   | 0        | 100         | 100 |
| 1   | J     | 517/527 (98%)   | 506 (98%)  | 10 (2%)  | 1 (0%)   | 47          | 38  |
| 1   | K     | 513/527 (97%)   | 502 (98%)  | 10 (2%)  | 1 (0%)   | 47          | 38  |
| 1   | L     | 508/527 (96%)   | 498 (98%)  | 8 (2%)   | 2 (0%)   | 34          | 24  |
| All | All   | 6203/6324 (98%) | 6085 (98%) | 111 (2%) | 7 (0%)   | 51          | 42  |



All (7) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | B     | 138 | GLU  |
| 1   | L     | 218 | LYS  |
| 1   | K     | 86  | SER  |
| 1   | G     | 604 | ALA  |
| 1   | J     | 257 | LYS  |
| 1   | L     | 219 | LEU  |
| 1   | F     | 136 | GLY  |

### 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     | 428/454 (94%)   | 423 (99%)  | 5 (1%)   | 71          | 70 |
| 1   | B     | 415/454 (91%)   | 409 (99%)  | 6 (1%)   | 67          | 65 |
| 1   | C     | 424/454 (93%)   | 419 (99%)  | 5 (1%)   | 71          | 70 |
| 1   | D     | 422/454 (93%)   | 415 (98%)  | 7 (2%)   | 60          | 57 |
| 1   | E     | 414/454 (91%)   | 411 (99%)  | 3 (1%)   | 84          | 84 |
| 1   | F     | 409/454 (90%)   | 403 (98%)  | 6 (2%)   | 65          | 62 |
| 1   | G     | 429/454 (94%)   | 421 (98%)  | 8 (2%)   | 57          | 53 |
| 1   | H     | 409/454 (90%)   | 403 (98%)  | 6 (2%)   | 65          | 62 |
| 1   | I     | 428/454 (94%)   | 422 (99%)  | 6 (1%)   | 67          | 65 |
| 1   | J     | 421/454 (93%)   | 413 (98%)  | 8 (2%)   | 57          | 53 |
| 1   | K     | 418/454 (92%)   | 412 (99%)  | 6 (1%)   | 67          | 65 |
| 1   | L     | 407/454 (90%)   | 398 (98%)  | 9 (2%)   | 52          | 47 |
| All | All   | 5024/5448 (92%) | 4949 (98%) | 75 (2%)  | 65          | 62 |

All (75) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 194 | SER  |
| 1   | A     | 288 | TYR  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | A            | 398        | PHE         |
| 1          | A            | 439        | TYR         |
| 1          | A            | 603        | ASP         |
| 1          | B            | 210        | LEU         |
| 1          | B            | 288        | TYR         |
| 1          | B            | 398        | PHE         |
| 1          | B            | 439        | TYR         |
| 1          | B            | 483        | ASP         |
| 1          | B            | 603        | ASP         |
| 1          | C            | 398        | PHE         |
| 1          | C            | 400        | MET         |
| 1          | C            | 439        | TYR         |
| 1          | C            | 483        | ASP         |
| 1          | C            | 603        | ASP         |
| 1          | D            | 247        | MET         |
| 1          | D            | 288        | TYR         |
| 1          | D            | 398        | PHE         |
| 1          | D            | 400        | MET         |
| 1          | D            | 439        | TYR         |
| 1          | D            | 483        | ASP         |
| 1          | D            | 580        | SER         |
| 1          | E            | 288        | TYR         |
| 1          | E            | 398        | PHE         |
| 1          | E            | 439        | TYR         |
| 1          | F            | 288        | TYR         |
| 1          | F            | 367        | LYS         |
| 1          | F            | 398        | PHE         |
| 1          | F            | 400        | MET         |
| 1          | F            | 439        | TYR         |
| 1          | F            | 603        | ASP         |
| 1          | G            | 117        | ILE         |
| 1          | G            | 195        | VAL         |
| 1          | G            | 288        | TYR         |
| 1          | G            | 398        | PHE         |
| 1          | G            | 400        | MET         |
| 1          | G            | 439        | TYR         |
| 1          | G            | 568        | ASN         |
| 1          | G            | 603        | ASP         |
| 1          | H            | 145        | SER         |
| 1          | H            | 288        | TYR         |
| 1          | H            | 398        | PHE         |
| 1          | H            | 439        | TYR         |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | H     | 603 | ASP  |
| 1   | H     | 608 | HIS  |
| 1   | I     | 273 | ASN  |
| 1   | I     | 288 | TYR  |
| 1   | I     | 398 | PHE  |
| 1   | I     | 400 | MET  |
| 1   | I     | 439 | TYR  |
| 1   | I     | 603 | ASP  |
| 1   | J     | 288 | TYR  |
| 1   | J     | 398 | PHE  |
| 1   | J     | 399 | ASP  |
| 1   | J     | 400 | MET  |
| 1   | J     | 439 | TYR  |
| 1   | J     | 483 | ASP  |
| 1   | J     | 492 | LEU  |
| 1   | J     | 603 | ASP  |
| 1   | K     | 200 | GLU  |
| 1   | K     | 288 | TYR  |
| 1   | K     | 326 | LYS  |
| 1   | K     | 398 | PHE  |
| 1   | K     | 439 | TYR  |
| 1   | K     | 549 | SER  |
| 1   | L     | 116 | ASP  |
| 1   | L     | 254 | SER  |
| 1   | L     | 275 | ASP  |
| 1   | L     | 288 | TYR  |
| 1   | L     | 367 | LYS  |
| 1   | L     | 400 | MET  |
| 1   | L     | 439 | TYR  |
| 1   | L     | 483 | ASP  |
| 1   | L     | 603 | ASP  |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (14) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 122 | ASN  |
| 1   | A     | 149 | ASN  |
| 1   | A     | 568 | ASN  |
| 1   | C     | 607 | HIS  |
| 1   | D     | 531 | ASN  |
| 1   | E     | 567 | GLN  |
| 1   | F     | 122 | ASN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | G     | 272 | ASN  |
| 1   | G     | 567 | GLN  |
| 1   | H     | 161 | ASN  |
| 1   | I     | 273 | ASN  |
| 1   | J     | 531 | ASN  |
| 1   | J     | 567 | GLN  |
| 1   | L     | 567 | GLN  |

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

### 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

### 5.6 Ligand geometry [i](#)

Of 101 ligands modelled in this entry, 33 are monoatomic - leaving 68 for Mogul analysis.

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

| Mol | Type | Chain | Res | Link | Bond lengths |      |             | Bond angles |      |             |
|-----|------|-------|-----|------|--------------|------|-------------|-------------|------|-------------|
|     |      |       |     |      | Counts       | RMSZ | $\# Z  > 2$ | Counts      | RMSZ | $\# Z  > 2$ |
| 3   | SO4  | D     | 706 | -    | 4,4,4        | 0.16 | 0           | 6,6,6       | 0.32 | 0           |
| 5   | CO3  | D     | 705 | -    | 2,3,3        | 0.36 | 0           | 2,3,3       | 0.63 | 0           |
| 5   | CO3  | J     | 705 | -    | 2,3,3        | 0.72 | 0           | 2,3,3       | 0.91 | 0           |
| 3   | SO4  | H     | 702 | -    | 4,4,4        | 0.19 | 0           | 6,6,6       | 0.30 | 0           |
| 4   | 1PE  | G     | 705 | -    | 6,6,15       | 0.13 | 0           | 5,5,14      | 0.10 | 0           |
| 4   | 1PE  | L     | 705 | -    | 15,15,15     | 0.16 | 0           | 14,14,14    | 0.47 | 0           |
| 3   | SO4  | E     | 702 | -    | 4,4,4        | 0.13 | 0           | 6,6,6       | 0.16 | 0           |

| Mol | Type | Chain | Res  | Link | Bond lengths |       |          | Bond angles |      |          |
|-----|------|-------|------|------|--------------|-------|----------|-------------|------|----------|
|     |      |       |      |      | Counts       | RMSZ  | # Z  > 2 | Counts      | RMSZ | # Z  > 2 |
| 5   | CO3  | L     | 706  | -    | 2,3,3        | 0.82  | 0        | 2,3,3       | 0.73 | 0        |
| 5   | CO3  | A     | 708  | -    | 2,3,3        | 0.67  | 0        | 2,3,3       | 0.67 | 0        |
| 2   | X10  | G     | 701  | 6    | 33,33,33     | 1.92  | 4 (12%)  | 42,45,45    | 1.42 | 6 (14%)  |
| 2   | X10  | I     | 701  | 6    | 33,33,33     | 1.85  | 4 (12%)  | 42,45,45    | 1.51 | 7 (16%)  |
| 4   | 1PE  | E     | 703  | -    | 10,10,15     | 0.15  | 0        | 9,9,14      | 0.31 | 0        |
| 4   | 1PE  | G     | 704  | -    | 10,10,15     | 0.17  | 0        | 9,9,14      | 0.13 | 0        |
| 4   | 1PE  | I     | 704  | -    | 12,12,15     | 0.13  | 0        | 11,11,14    | 0.16 | 0        |
| 4   | 1PE  | L     | 704  | -    | 12,12,15     | 0.24  | 0        | 11,11,14    | 0.35 | 0        |
| 4   | 1PE  | D     | 702  | -    | 9,9,15       | 0.08  | 0        | 8,8,14      | 0.28 | 0        |
| 2   | X10  | F     | 701  | 6    | 33,33,33     | 1.86  | 4 (12%)  | 42,45,45    | 1.65 | 11 (26%) |
| 4   | 1PE  | E     | 705  | -    | 11,11,15     | 0.21  | 0        | 10,10,14    | 0.14 | 0        |
| 4   | 1PE  | F     | 703  | -    | 12,12,15     | 0.24  | 0        | 11,11,14    | 0.20 | 0        |
| 4   | 1PE  | J     | 703  | -    | 8,8,15       | 0.26  | 0        | 7,7,14      | 0.18 | 0        |
| 4   | 1PE  | A     | 706  | -    | 11,11,15     | 11.03 | 1 (9%)   | 10,10,14    | 2.37 | 2 (20%)  |
| 3   | SO4  | A     | 702  | -    | 4,4,4        | 0.21  | 0        | 6,6,6       | 0.16 | 0        |
| 4   | 1PE  | C     | 703  | -    | 10,10,15     | 0.23  | 0        | 9,9,14      | 0.37 | 0        |
| 5   | CO3  | C     | 706  | -    | 2,3,3        | 0.91  | 0        | 2,3,3       | 0.56 | 0        |
| 3   | SO4  | I     | 702  | -    | 4,4,4        | 0.22  | 0        | 6,6,6       | 0.14 | 0        |
| 4   | 1PE  | I     | 705  | -    | 6,6,15       | 0.17  | 0        | 5,5,14      | 0.12 | 0        |
| 5   | CO3  | E     | 706  | -    | 2,3,3        | 0.66  | 0        | 2,3,3       | 1.60 | 0        |
| 5   | CO3  | F     | 707  | -    | 2,3,3        | 0.59  | 0        | 2,3,3       | 1.92 | 1 (50%)  |
| 3   | SO4  | L     | 702  | -    | 4,4,4        | 0.32  | 0        | 6,6,6       | 0.22 | 0        |
| 4   | 1PE  | K     | 703  | -    | 10,10,15     | 0.26  | 0        | 9,9,14      | 0.17 | 0        |
| 2   | X10  | D     | 701  | 6    | 33,33,33     | 1.78  | 6 (18%)  | 42,45,45    | 1.52 | 11 (26%) |
| 2   | X10  | J     | 701  | 6    | 33,33,33     | 1.96  | 4 (12%)  | 42,45,45    | 1.71 | 9 (21%)  |
| 4   | 1PE  | J     | 704  | -    | 12,12,15     | 0.13  | 0        | 11,11,14    | 0.18 | 0        |
| 4   | 1PE  | D     | 703  | -    | 12,12,15     | 0.15  | 0        | 11,11,14    | 0.15 | 0        |
| 5   | CO3  | B     | 1402 | -    | 2,3,3        | 0.33  | 0        | 2,3,3       | 1.54 | 1 (50%)  |
| 4   | 1PE  | F     | 705  | -    | 6,6,15       | 0.23  | 0        | 5,5,14      | 0.14 | 0        |
| 3   | SO4  | A     | 703  | -    | 4,4,4        | 0.16  | 0        | 6,6,6       | 0.38 | 0        |
| 4   | 1PE  | A     | 707  | -    | 12,12,15     | 0.22  | 0        | 11,11,14    | 0.17 | 0        |
| 3   | SO4  | J     | 702  | -    | 4,4,4        | 0.16  | 0        | 6,6,6       | 0.23 | 0        |
| 4   | 1PE  | H     | 703  | -    | 6,6,15       | 0.20  | 0        | 5,5,14      | 0.16 | 0        |
| 4   | 1PE  | K     | 702  | -    | 12,12,15     | 0.19  | 0        | 11,11,14    | 0.44 | 0        |
| 5   | CO3  | H     | 704  | -    | 2,3,3        | 0.65  | 0        | 2,3,3       | 1.64 | 1 (50%)  |
| 2   | X10  | B     | 1401 | 6    | 33,33,33     | 1.96  | 5 (15%)  | 42,45,45    | 2.04 | 14 (33%) |
| 5   | CO3  | G     | 706  | -    | 2,3,3        | 0.51  | 0        | 2,3,3       | 0.97 | 0        |
| 2   | X10  | E     | 701  | 6    | 33,33,33     | 1.81  | 4 (12%)  | 42,45,45    | 1.86 | 11 (26%) |
| 4   | 1PE  | C     | 704  | -    | 12,12,15     | 0.17  | 0        | 11,11,14    | 0.18 | 0        |
| 3   | SO4  | C     | 702  | -    | 4,4,4        | 0.23  | 0        | 6,6,6       | 0.34 | 0        |

| Mol | Type | Chain | Res | Link | Bond lengths |      |          | Bond angles |      |          |
|-----|------|-------|-----|------|--------------|------|----------|-------------|------|----------|
|     |      |       |     |      | Counts       | RMSZ | # Z  > 2 | Counts      | RMSZ | # Z  > 2 |
| 8   | 2PE  | H     | 705 | -    | 25,25,27     | 0.21 | 0        | 24,24,26    | 0.16 | 0        |
| 4   | 1PE  | K     | 704 | -    | 12,12,15     | 0.22 | 0        | 11,11,14    | 0.24 | 0        |
| 2   | X10  | L     | 701 | 6    | 33,33,33     | 1.92 | 6 (18%)  | 42,45,45    | 1.32 | 6 (14%)  |
| 3   | SO4  | G     | 702 | -    | 4,4,4        | 0.18 | 0        | 6,6,6       | 0.41 | 0        |
| 4   | 1PE  | I     | 703 | -    | 14,14,15     | 0.22 | 0        | 13,13,14    | 0.23 | 0        |
| 4   | 1PE  | F     | 704 | -    | 9,9,15       | 0.06 | 0        | 8,8,14      | 0.28 | 0        |
| 2   | X10  | C     | 701 | 6    | 33,33,33     | 1.99 | 5 (15%)  | 42,45,45    | 1.87 | 13 (30%) |
| 3   | SO4  | F     | 702 | -    | 4,4,4        | 0.19 | 0        | 6,6,6       | 0.15 | 0        |
| 4   | 1PE  | L     | 703 | -    | 8,8,15       | 0.24 | 0        | 7,7,14      | 0.13 | 0        |
| 5   | CO3  | K     | 705 | -    | 2,3,3        | 0.89 | 0        | 2,3,3       | 0.76 | 0        |
| 2   | X10  | K     | 701 | 6    | 33,33,33     | 1.97 | 5 (15%)  | 42,45,45    | 1.99 | 14 (33%) |
| 4   | 1PE  | F     | 706 | -    | 9,9,15       | 0.18 | 0        | 8,8,14      | 0.10 | 0        |
| 4   | 1PE  | C     | 705 | -    | 6,6,15       | 0.19 | 0        | 5,5,14      | 0.13 | 0        |
| 3   | SO4  | G     | 703 | -    | 4,4,4        | 0.20 | 0        | 6,6,6       | 0.16 | 0        |
| 3   | SO4  | A     | 704 | -    | 4,4,4        | 0.19 | 0        | 6,6,6       | 0.17 | 0        |
| 2   | X10  | H     | 701 | 6    | 33,33,33     | 1.79 | 4 (12%)  | 42,45,45    | 1.29 | 3 (7%)   |
| 4   | 1PE  | D     | 704 | -    | 6,6,15       | 0.29 | 0        | 5,5,14      | 0.19 | 0        |
| 5   | CO3  | I     | 706 | -    | 2,3,3        | 0.64 | 0        | 2,3,3       | 1.59 | 0        |
| 2   | X10  | A     | 701 | 6    | 33,33,33     | 1.91 | 4 (12%)  | 42,45,45    | 1.74 | 11 (26%) |
| 4   | 1PE  | A     | 705 | -    | 8,8,15       | 0.26 | 0        | 7,7,14      | 0.14 | 0        |
| 4   | 1PE  | E     | 704 | -    | 12,12,15     | 0.20 | 0        | 11,11,14    | 0.26 | 0        |

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

| Mol | Type | Chain | Res | Link | Chirals | Torsions   | Rings   |
|-----|------|-------|-----|------|---------|------------|---------|
| 4   | 1PE  | G     | 705 | -    | -       | 3/4/4/13   | -       |
| 4   | 1PE  | L     | 705 | -    | -       | 7/13/13/13 | -       |
| 2   | X10  | G     | 701 | 6    | -       | 4/23/23/23 | 0/3/3/3 |
| 2   | X10  | I     | 701 | 6    | -       | 4/23/23/23 | 0/3/3/3 |
| 4   | 1PE  | E     | 703 | -    | -       | 5/8/8/13   | -       |
| 4   | 1PE  | G     | 704 | -    | -       | 2/8/8/13   | -       |
| 4   | 1PE  | I     | 704 | -    | -       | 2/10/10/13 | -       |
| 4   | 1PE  | L     | 704 | -    | -       | 9/10/10/13 | -       |
| 4   | 1PE  | D     | 702 | -    | -       | 1/7/7/13   | -       |
| 2   | X10  | F     | 701 | 6    | -       | 4/23/23/23 | 0/3/3/3 |
| 4   | 1PE  | E     | 705 | -    | -       | 2/9/9/13   | -       |

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| Mol | Type | Chain | Res  | Link | Chirals | Torsions    | Rings   |
|-----|------|-------|------|------|---------|-------------|---------|
| 4   | 1PE  | F     | 703  | -    | -       | 5/10/10/13  | -       |
| 4   | 1PE  | J     | 703  | -    | -       | 5/6/6/13    | -       |
| 4   | 1PE  | A     | 706  | -    | -       | 6/9/9/13    | -       |
| 4   | 1PE  | C     | 703  | -    | -       | 4/8/8/13    | -       |
| 4   | 1PE  | I     | 705  | -    | -       | 0/4/4/13    | -       |
| 4   | 1PE  | K     | 703  | -    | -       | 3/8/8/13    | -       |
| 2   | X10  | D     | 701  | 6    | -       | 4/23/23/23  | 0/3/3/3 |
| 2   | X10  | J     | 701  | 6    | -       | 5/23/23/23  | 0/3/3/3 |
| 4   | 1PE  | J     | 704  | -    | -       | 5/10/10/13  | -       |
| 4   | 1PE  | D     | 703  | -    | -       | 3/10/10/13  | -       |
| 4   | 1PE  | F     | 705  | -    | -       | 0/4/4/13    | -       |
| 4   | 1PE  | A     | 707  | -    | -       | 5/10/10/13  | -       |
| 4   | 1PE  | H     | 703  | -    | -       | 2/4/4/13    | -       |
| 4   | 1PE  | K     | 702  | -    | -       | 3/10/10/13  | -       |
| 2   | X10  | B     | 1401 | 6    | -       | 4/23/23/23  | 0/3/3/3 |
| 2   | X10  | E     | 701  | 6    | -       | 4/23/23/23  | 0/3/3/3 |
| 4   | 1PE  | C     | 704  | -    | -       | 2/10/10/13  | -       |
| 8   | 2PE  | H     | 705  | -    | -       | 13/23/23/25 | -       |
| 4   | 1PE  | K     | 704  | -    | -       | 2/10/10/13  | -       |
| 2   | X10  | L     | 701  | 6    | -       | 0/23/23/23  | 0/3/3/3 |
| 4   | 1PE  | I     | 703  | -    | -       | 2/12/12/13  | -       |
| 4   | 1PE  | F     | 704  | -    | -       | 1/7/7/13    | -       |
| 2   | X10  | C     | 701  | 6    | -       | 4/23/23/23  | 0/3/3/3 |
| 4   | 1PE  | L     | 703  | -    | -       | 5/6/6/13    | -       |
| 2   | X10  | K     | 701  | 6    | -       | 0/23/23/23  | 0/3/3/3 |
| 4   | 1PE  | F     | 706  | -    | -       | 3/7/7/13    | -       |
| 4   | 1PE  | C     | 705  | -    | -       | 2/4/4/13    | -       |
| 2   | X10  | H     | 701  | 6    | -       | 4/23/23/23  | 0/3/3/3 |
| 4   | 1PE  | D     | 704  | -    | -       | 4/4/4/13    | -       |
| 2   | X10  | A     | 701  | 6    | -       | 0/23/23/23  | 0/3/3/3 |
| 4   | 1PE  | A     | 705  | -    | -       | 6/6/6/13    | -       |
| 4   | 1PE  | E     | 704  | -    | -       | 8/10/10/13  | -       |

All (56) bond length outliers are listed below:

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| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|-------|---|-------------|----------|
|-----|-------|-----|------|-------|---|-------------|----------|

| Mol | Chain | Res  | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 4   | A     | 706  | 1PE  | OH4-C13 | 36.59 | 3.00        | 1.42     |
| 2   | G     | 701  | X10  | C13-N14 | 8.57  | 1.45        | 1.33     |
| 2   | C     | 701  | X10  | C13-N14 | 8.47  | 1.45        | 1.33     |
| 2   | K     | 701  | X10  | C13-N14 | 8.27  | 1.44        | 1.33     |
| 2   | J     | 701  | X10  | C13-N14 | 8.24  | 1.44        | 1.33     |
| 2   | B     | 1401 | X10  | C13-N14 | 8.18  | 1.44        | 1.33     |
| 2   | A     | 701  | X10  | C13-N14 | 7.91  | 1.44        | 1.33     |
| 2   | I     | 701  | X10  | C13-N14 | 7.87  | 1.44        | 1.33     |
| 2   | F     | 701  | X10  | C13-N14 | 7.69  | 1.44        | 1.33     |
| 2   | E     | 701  | X10  | C13-N14 | 7.56  | 1.43        | 1.33     |
| 2   | H     | 701  | X10  | C13-N14 | 7.22  | 1.43        | 1.33     |
| 2   | L     | 701  | X10  | C13-N14 | 7.20  | 1.43        | 1.33     |
| 2   | D     | 701  | X10  | C13-N14 | 5.80  | 1.41        | 1.33     |
| 2   | J     | 701  | X10  | C02-N11 | 5.61  | 1.46        | 1.34     |
| 2   | C     | 701  | X10  | C02-N11 | 5.56  | 1.45        | 1.34     |
| 2   | A     | 701  | X10  | C02-N11 | 5.51  | 1.45        | 1.34     |
| 2   | K     | 701  | X10  | C02-N11 | 5.37  | 1.45        | 1.34     |
| 2   | F     | 701  | X10  | C02-N11 | 5.35  | 1.45        | 1.34     |
| 2   | B     | 1401 | X10  | C02-N11 | 5.31  | 1.45        | 1.34     |
| 2   | H     | 701  | X10  | C02-N11 | 5.23  | 1.45        | 1.34     |
| 2   | E     | 701  | X10  | C02-N11 | 5.09  | 1.44        | 1.34     |
| 2   | I     | 701  | X10  | C02-N11 | 4.92  | 1.44        | 1.34     |
| 2   | L     | 701  | X10  | C02-N11 | 4.77  | 1.44        | 1.34     |
| 2   | G     | 701  | X10  | C02-N11 | 4.72  | 1.44        | 1.34     |
| 2   | D     | 701  | X10  | C02-N11 | 4.50  | 1.43        | 1.34     |
| 2   | D     | 701  | X10  | O16-C13 | -3.91 | 1.15        | 1.23     |
| 2   | L     | 701  | X10  | O16-C13 | -3.58 | 1.16        | 1.23     |
| 2   | D     | 701  | X10  | O01-C02 | -3.03 | 1.17        | 1.23     |
| 2   | A     | 701  | X10  | O16-C13 | -2.63 | 1.18        | 1.23     |
| 2   | A     | 701  | X10  | C05-N04 | 2.62  | 1.46        | 1.38     |
| 2   | B     | 1401 | X10  | C05-N04 | 2.61  | 1.46        | 1.38     |
| 2   | L     | 701  | X10  | O01-C02 | -2.59 | 1.18        | 1.23     |
| 2   | H     | 701  | X10  | C05-N04 | 2.56  | 1.46        | 1.38     |
| 2   | B     | 1401 | X10  | O16-C13 | -2.56 | 1.18        | 1.23     |
| 2   | K     | 701  | X10  | C05-N04 | 2.55  | 1.46        | 1.38     |
| 2   | L     | 701  | X10  | C22-C21 | -2.52 | 1.35        | 1.39     |
| 2   | C     | 701  | X10  | C05-N04 | 2.52  | 1.46        | 1.38     |
| 2   | C     | 701  | X10  | O16-C13 | -2.51 | 1.18        | 1.23     |
| 2   | J     | 701  | X10  | O01-C02 | -2.47 | 1.18        | 1.23     |
| 2   | I     | 701  | X10  | O16-C13 | -2.47 | 1.18        | 1.23     |
| 2   | H     | 701  | X10  | O01-C02 | -2.41 | 1.18        | 1.23     |

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| Mol | Chain | Res  | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 2   | L     | 701  | X10  | C05-N04 | 2.39  | 1.45        | 1.38     |
| 2   | I     | 701  | X10  | C05-N04 | 2.36  | 1.45        | 1.38     |
| 2   | J     | 701  | X10  | O16-C13 | -2.32 | 1.18        | 1.23     |
| 2   | F     | 701  | X10  | C05-N04 | 2.28  | 1.45        | 1.38     |
| 2   | D     | 701  | X10  | C22-C21 | -2.27 | 1.35        | 1.39     |
| 2   | G     | 701  | X10  | C05-N04 | 2.20  | 1.45        | 1.38     |
| 2   | C     | 701  | X10  | O01-C02 | -2.20 | 1.18        | 1.23     |
| 2   | F     | 701  | X10  | O16-C13 | -2.18 | 1.19        | 1.23     |
| 2   | K     | 701  | X10  | O16-C13 | -2.17 | 1.19        | 1.23     |
| 2   | D     | 701  | X10  | C29-C21 | -2.14 | 1.36        | 1.39     |
| 2   | E     | 701  | X10  | O01-C02 | -2.10 | 1.19        | 1.23     |
| 2   | E     | 701  | X10  | C05-N04 | 2.07  | 1.44        | 1.38     |
| 2   | B     | 1401 | X10  | O01-C02 | -2.06 | 1.19        | 1.23     |
| 2   | G     | 701  | X10  | O16-C13 | -2.05 | 1.19        | 1.23     |
| 2   | K     | 701  | X10  | O01-C02 | -2.01 | 1.19        | 1.23     |

All (121) bond angle outliers are listed below:

| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 2   | K     | 701  | X10  | C22-C21-C20 | -6.51 | 110.09      | 120.86   |
| 4   | A     | 706  | 1PE  | OH4-C13-C23 | 6.28  | 138.71      | 110.39   |
| 2   | B     | 1401 | X10  | C22-C21-C20 | -6.09 | 110.80      | 120.86   |
| 2   | C     | 701  | X10  | C29-C21-C20 | -5.54 | 111.70      | 120.86   |
| 2   | E     | 701  | X10  | C29-C21-C20 | -5.27 | 112.15      | 120.86   |
| 2   | A     | 701  | X10  | C29-C21-C20 | -5.13 | 112.38      | 120.86   |
| 2   | J     | 701  | X10  | C22-C21-C20 | -5.10 | 112.44      | 120.86   |
| 2   | C     | 701  | X10  | C22-C21-C20 | 4.55  | 128.39      | 120.86   |
| 2   | K     | 701  | X10  | C29-C21-C20 | 4.44  | 128.21      | 120.86   |
| 2   | D     | 701  | X10  | O16-C13-N14 | -4.10 | 117.96      | 123.27   |
| 4   | A     | 706  | 1PE  | C24-OH4-C13 | -4.06 | 95.68       | 113.29   |
| 2   | B     | 1401 | X10  | C19-C18-C17 | -3.88 | 117.29      | 121.20   |
| 2   | B     | 1401 | X10  | C29-C21-C20 | 3.77  | 127.10      | 120.86   |
| 2   | K     | 701  | X10  | C31-C17-C18 | 3.74  | 122.95      | 118.29   |
| 2   | I     | 701  | X10  | C17-C12-C13 | 3.73  | 116.54      | 108.16   |
| 2   | F     | 701  | X10  | C19-C20-C21 | -3.66 | 115.01      | 121.36   |
| 2   | A     | 701  | X10  | C17-C12-C13 | 3.61  | 116.27      | 108.16   |
| 2   | A     | 701  | X10  | C30-C20-C21 | -3.53 | 115.23      | 121.36   |
| 2   | H     | 701  | X10  | C19-C20-C21 | -3.51 | 115.27      | 121.36   |
| 2   | I     | 701  | X10  | C19-C18-C17 | -3.50 | 117.67      | 121.20   |
| 2   | C     | 701  | X10  | C19-C20-C21 | -3.46 | 115.37      | 121.36   |
| 2   | B     | 1401 | X10  | C31-C17-C18 | 3.45  | 122.59      | 118.29   |
| 2   | K     | 701  | X10  | C19-C20-C21 | -3.42 | 115.42      | 121.36   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 2   | J     | 701  | X10  | C29-C21-C20 | 3.39  | 126.46      | 120.86   |
| 2   | A     | 701  | X10  | C22-C21-C20 | 3.23  | 126.20      | 120.86   |
| 2   | E     | 701  | X10  | C17-C12-C13 | 3.20  | 115.36      | 108.16   |
| 2   | J     | 701  | X10  | C30-C31-C17 | -3.20 | 117.98      | 121.20   |
| 2   | B     | 1401 | X10  | C19-C20-C21 | -3.20 | 115.81      | 121.36   |
| 2   | E     | 701  | X10  | C31-C17-C18 | 3.18  | 122.26      | 118.29   |
| 2   | F     | 701  | X10  | C18-C17-C12 | -3.17 | 115.59      | 120.80   |
| 2   | B     | 1401 | X10  | F24-C23-C25 | 3.17  | 122.76      | 118.30   |
| 2   | B     | 1401 | X10  | C17-C12-C13 | 3.16  | 115.25      | 108.16   |
| 2   | E     | 701  | X10  | C19-C20-C21 | -3.15 | 115.90      | 121.36   |
| 2   | J     | 701  | X10  | C31-C17-C18 | 3.15  | 122.22      | 118.29   |
| 2   | G     | 701  | X10  | C03-N04-C05 | -3.12 | 116.34      | 122.49   |
| 2   | K     | 701  | X10  | C19-C18-C17 | -3.09 | 118.09      | 121.20   |
| 2   | C     | 701  | X10  | F28-C27-C25 | 3.08  | 122.62      | 118.30   |
| 2   | F     | 701  | X10  | C21-C29-C27 | 3.03  | 122.17      | 119.59   |
| 2   | C     | 701  | X10  | C31-C17-C18 | 2.97  | 122.00      | 118.29   |
| 2   | E     | 701  | X10  | C30-C31-C17 | -2.94 | 118.24      | 121.20   |
| 2   | A     | 701  | X10  | C31-C17-C18 | 2.93  | 121.95      | 118.29   |
| 2   | L     | 701  | X10  | C31-C17-C18 | 2.93  | 121.94      | 118.29   |
| 2   | B     | 1401 | X10  | C31-C30-C20 | -2.89 | 116.98      | 121.13   |
| 2   | E     | 701  | X10  | C22-C21-C20 | 2.84  | 125.55      | 120.86   |
| 2   | D     | 701  | X10  | C31-C17-C18 | 2.84  | 121.83      | 118.29   |
| 2   | I     | 701  | X10  | C31-C17-C18 | 2.82  | 121.81      | 118.29   |
| 2   | E     | 701  | X10  | C03-N04-C05 | -2.80 | 116.97      | 122.49   |
| 2   | C     | 701  | X10  | O16-C13-N14 | -2.77 | 119.68      | 123.27   |
| 2   | C     | 701  | X10  | C13-C12-N11 | 2.71  | 116.74      | 108.44   |
| 2   | G     | 701  | X10  | C31-C17-C12 | -2.71 | 116.35      | 120.80   |
| 2   | J     | 701  | X10  | C17-C12-C13 | 2.70  | 114.22      | 108.16   |
| 2   | I     | 701  | X10  | C19-C20-C21 | -2.69 | 116.70      | 121.36   |
| 2   | K     | 701  | X10  | C30-C31-C17 | -2.67 | 118.51      | 121.20   |
| 2   | F     | 701  | X10  | C31-C17-C18 | 2.67  | 121.62      | 118.29   |
| 2   | L     | 701  | X10  | C30-C20-C21 | -2.66 | 116.74      | 121.36   |
| 2   | I     | 701  | X10  | C22-C21-C20 | -2.63 | 116.52      | 120.86   |
| 2   | B     | 1401 | X10  | C18-C17-C12 | -2.61 | 116.51      | 120.80   |
| 2   | D     | 701  | X10  | C21-C29-C27 | 2.61  | 121.81      | 119.59   |
| 2   | G     | 701  | X10  | C30-C20-C21 | -2.60 | 116.85      | 121.36   |
| 2   | G     | 701  | X10  | C19-C18-C17 | -2.58 | 118.60      | 121.20   |
| 2   | F     | 701  | X10  | C17-C12-C13 | 2.57  | 113.93      | 108.16   |
| 2   | D     | 701  | X10  | O01-C02-N11 | -2.57 | 118.62      | 122.95   |
| 2   | E     | 701  | X10  | C29-C21-C22 | 2.54  | 122.07      | 118.31   |
| 2   | B     | 1401 | X10  | C30-C20-C19 | 2.49  | 122.56      | 117.59   |
| 2   | F     | 701  | X10  | C29-C27-C25 | -2.49 | 118.10      | 121.68   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 2   | E     | 701  | X10  | F28-C27-C25 | 2.48  | 121.78      | 118.30   |
| 2   | K     | 701  | X10  | C30-C20-C19 | 2.44  | 122.46      | 117.59   |
| 2   | L     | 701  | X10  | C30-C20-C19 | 2.42  | 122.40      | 117.59   |
| 2   | J     | 701  | X10  | C19-C20-C21 | -2.41 | 117.19      | 121.36   |
| 2   | A     | 701  | X10  | C31-C17-C12 | -2.40 | 116.87      | 120.80   |
| 2   | E     | 701  | X10  | C18-C17-C12 | -2.38 | 116.89      | 120.80   |
| 2   | E     | 701  | X10  | C30-C20-C19 | 2.38  | 122.33      | 117.59   |
| 2   | B     | 1401 | X10  | C22-C23-C25 | -2.37 | 118.27      | 121.68   |
| 5   | F     | 707  | CO3  | O2-C-O1     | -2.37 | 113.39      | 119.55   |
| 2   | B     | 1401 | X10  | C21-C29-C27 | -2.37 | 117.57      | 119.59   |
| 2   | L     | 701  | X10  | O16-C13-N14 | -2.35 | 120.22      | 123.27   |
| 2   | F     | 701  | X10  | C19-C18-C17 | -2.34 | 118.85      | 121.20   |
| 2   | H     | 701  | X10  | O01-C02-N11 | -2.31 | 119.05      | 122.95   |
| 2   | C     | 701  | X10  | C19-C18-C17 | -2.28 | 118.90      | 121.20   |
| 2   | D     | 701  | X10  | C17-C12-C13 | 2.28  | 113.29      | 108.16   |
| 2   | K     | 701  | X10  | C18-C17-C12 | -2.27 | 117.07      | 120.80   |
| 2   | F     | 701  | X10  | O01-C02-N11 | -2.27 | 119.12      | 122.95   |
| 2   | A     | 701  | X10  | C19-C18-C17 | -2.27 | 118.92      | 121.20   |
| 2   | B     | 1401 | X10  | C29-C21-C22 | 2.26  | 121.66      | 118.31   |
| 2   | C     | 701  | X10  | C30-C31-C17 | -2.26 | 118.92      | 121.20   |
| 2   | B     | 1401 | X10  | C27-C25-C23 | 2.25  | 120.91      | 118.69   |
| 2   | K     | 701  | X10  | F24-C23-C25 | 2.24  | 121.45      | 118.30   |
| 2   | A     | 701  | X10  | C30-C20-C19 | 2.23  | 122.03      | 117.59   |
| 2   | C     | 701  | X10  | C30-C20-C19 | 2.22  | 122.02      | 117.59   |
| 2   | A     | 701  | X10  | O16-C13-N14 | -2.21 | 120.40      | 123.27   |
| 2   | I     | 701  | X10  | F26-C25-C27 | 2.21  | 123.71      | 119.11   |
| 2   | D     | 701  | X10  | C19-C18-C17 | -2.19 | 118.99      | 121.20   |
| 2   | A     | 701  | X10  | C30-C31-C17 | -2.16 | 119.02      | 121.20   |
| 2   | K     | 701  | X10  | C03-N04-C05 | -2.16 | 118.23      | 122.49   |
| 2   | A     | 701  | X10  | C13-C12-N11 | 2.15  | 115.02      | 108.44   |
| 2   | C     | 701  | X10  | C18-C17-C12 | -2.15 | 117.28      | 120.80   |
| 2   | D     | 701  | X10  | C30-C20-C19 | 2.15  | 121.87      | 117.59   |
| 2   | L     | 701  | X10  | C30-C31-C17 | -2.13 | 119.05      | 121.20   |
| 2   | D     | 701  | X10  | C30-C20-C21 | -2.13 | 117.67      | 121.36   |
| 2   | G     | 701  | X10  | C31-C17-C18 | 2.12  | 120.94      | 118.29   |
| 5   | B     | 1402 | CO3  | O2-C-O1     | -2.12 | 114.05      | 119.55   |
| 2   | I     | 701  | X10  | F24-C23-C25 | -2.10 | 115.34      | 118.30   |
| 2   | K     | 701  | X10  | C17-C12-C13 | 2.10  | 112.89      | 108.16   |
| 2   | C     | 701  | X10  | C17-C12-C13 | 2.10  | 112.88      | 108.16   |
| 2   | K     | 701  | X10  | C29-C21-C22 | 2.10  | 121.41      | 118.31   |
| 2   | D     | 701  | X10  | C31-C17-C12 | -2.09 | 117.37      | 120.80   |
| 2   | D     | 701  | X10  | C03-N04-C05 | -2.09 | 118.37      | 122.49   |

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| Mol | Chain | Res | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-------------|-------|-------------|----------|
| 2   | G     | 701 | X10  | C22-C21-C20 | -2.08 | 117.42      | 120.86   |
| 5   | H     | 704 | CO3  | O3-C-O1     | -2.08 | 114.16      | 119.55   |
| 2   | F     | 701 | X10  | F26-C25-C27 | 2.07  | 123.43      | 119.11   |
| 2   | L     | 701 | X10  | C19-C18-C17 | -2.07 | 119.12      | 121.20   |
| 2   | K     | 701 | X10  | O16-C13-C12 | -2.06 | 117.06      | 120.64   |
| 2   | K     | 701 | X10  | O01-C02-N11 | -2.06 | 119.47      | 122.95   |
| 2   | C     | 701 | X10  | C03-C02-N11 | 2.06  | 121.02      | 116.10   |
| 2   | H     | 701 | X10  | C27-C25-C23 | 2.05  | 120.71      | 118.69   |
| 2   | F     | 701 | X10  | C30-C31-C17 | -2.05 | 119.13      | 121.20   |
| 2   | F     | 701 | X10  | C13-C12-N11 | 2.04  | 114.70      | 108.44   |
| 2   | J     | 701 | X10  | C19-C18-C17 | -2.04 | 119.14      | 121.20   |
| 2   | J     | 701 | X10  | C30-C20-C19 | 2.04  | 121.66      | 117.59   |
| 2   | D     | 701 | X10  | C30-C31-C17 | -2.02 | 119.17      | 121.20   |
| 2   | J     | 701 | X10  | C06-C05-C10 | 2.02  | 121.79      | 119.03   |

There are no chirality outliers.

All (157) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms           |
|-----|-------|-----|------|-----------------|
| 4   | L     | 705 | 1PE  | C14-C24-OH4-C13 |
| 8   | H     | 705 | 2PE  | C21-C20-O19-C18 |
| 2   | H     | 701 | X10  | C19-C20-C21-C29 |
| 4   | D     | 704 | 1PE  | OH4-C13-C23-OH3 |
| 2   | H     | 701 | X10  | C19-C20-C21-C22 |
| 2   | H     | 701 | X10  | C30-C20-C21-C29 |
| 2   | F     | 701 | X10  | C10-C05-N04-C03 |
| 2   | J     | 701 | X10  | C10-C05-N04-C03 |
| 2   | J     | 701 | X10  | C06-C05-N04-C03 |
| 2   | H     | 701 | X10  | C30-C20-C21-C22 |
| 4   | E     | 704 | 1PE  | OH4-C13-C23-OH3 |
| 4   | L     | 704 | 1PE  | OH4-C13-C23-OH3 |
| 4   | C     | 703 | 1PE  | OH4-C13-C23-OH3 |
| 4   | A     | 707 | 1PE  | OH4-C13-C23-OH3 |
| 4   | L     | 703 | 1PE  | OH5-C14-C24-OH4 |
| 4   | A     | 706 | 1PE  | OH4-C13-C23-OH3 |
| 4   | E     | 703 | 1PE  | OH4-C13-C23-OH3 |
| 2   | C     | 701 | X10  | C10-C05-N04-C03 |
| 2   | C     | 701 | X10  | C06-C05-N04-C03 |
| 2   | D     | 701 | X10  | C10-C05-N04-C03 |
| 2   | F     | 701 | X10  | C06-C05-N04-C03 |
| 4   | A     | 705 | 1PE  | OH4-C13-C23-OH3 |
| 4   | E     | 704 | 1PE  | C24-C14-OH5-C25 |

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| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 8   | H     | 705  | 2PE  | O10-C11-C12-O13 |
| 4   | H     | 703  | 1PE  | OH4-C13-C23-OH3 |
| 4   | A     | 705  | 1PE  | OH5-C14-C24-OH4 |
| 4   | J     | 703  | 1PE  | OH4-C13-C23-OH3 |
| 4   | F     | 706  | 1PE  | OH6-C15-C25-OH5 |
| 2   | D     | 701  | X10  | C06-C05-N04-C03 |
| 4   | J     | 704  | 1PE  | OH5-C14-C24-OH4 |
| 4   | K     | 703  | 1PE  | OH6-C15-C25-OH5 |
| 4   | L     | 703  | 1PE  | OH4-C13-C23-OH3 |
| 2   | E     | 701  | X10  | C10-C05-N04-C03 |
| 2   | G     | 701  | X10  | C10-C05-N04-C03 |
| 2   | B     | 1401 | X10  | O01-C02-C03-N04 |
| 4   | K     | 703  | 1PE  | OH5-C14-C24-OH4 |
| 4   | E     | 703  | 1PE  | OH2-C12-C22-OH3 |
| 8   | H     | 705  | 2PE  | O4-C5-C6-O7     |
| 8   | H     | 705  | 2PE  | O19-C20-C21-O22 |
| 4   | E     | 704  | 1PE  | OH5-C14-C24-OH4 |
| 2   | J     | 701  | X10  | O01-C02-C03-N04 |
| 2   | B     | 1401 | X10  | N11-C02-C03-N04 |
| 2   | E     | 701  | X10  | C06-C05-N04-C03 |
| 2   | G     | 701  | X10  | C06-C05-N04-C03 |
| 4   | F     | 703  | 1PE  | OH2-C12-C22-OH3 |
| 4   | G     | 705  | 1PE  | OH5-C14-C24-OH4 |
| 2   | J     | 701  | X10  | N11-C02-C03-N04 |
| 4   | L     | 704  | 1PE  | OH5-C14-C24-OH4 |
| 4   | G     | 704  | 1PE  | OH4-C13-C23-OH3 |
| 2   | G     | 701  | X10  | N11-C02-C03-N04 |
| 4   | F     | 706  | 1PE  | OH5-C14-C24-OH4 |
| 4   | F     | 706  | 1PE  | OH7-C16-C26-OH6 |
| 4   | I     | 704  | 1PE  | OH6-C15-C25-OH5 |
| 8   | H     | 705  | 2PE  | C9-C8-O7-C6     |
| 2   | E     | 701  | X10  | N11-C02-C03-N04 |
| 4   | J     | 703  | 1PE  | OH5-C14-C24-OH4 |
| 2   | B     | 1401 | X10  | C06-C05-N04-C03 |
| 4   | A     | 706  | 1PE  | C24-C14-OH5-C25 |
| 4   | C     | 703  | 1PE  | OH6-C15-C25-OH5 |
| 8   | H     | 705  | 2PE  | C12-C11-O10-C9  |
| 2   | G     | 701  | X10  | O01-C02-C03-N04 |
| 4   | A     | 706  | 1PE  | OH5-C14-C24-OH4 |
| 4   | K     | 702  | 1PE  | OH4-C13-C23-OH3 |
| 2   | B     | 1401 | X10  | C10-C05-N04-C03 |
| 2   | I     | 701  | X10  | C10-C05-N04-C03 |

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| Mol | Chain | Res | Type | Atoms           |
|-----|-------|-----|------|-----------------|
| 2   | C     | 701 | X10  | O01-C02-C03-N04 |
| 2   | F     | 701 | X10  | O01-C02-C03-N04 |
| 4   | E     | 705 | 1PE  | OH5-C14-C24-OH4 |
| 2   | I     | 701 | X10  | N11-C02-C03-N04 |
| 4   | A     | 707 | 1PE  | OH6-C15-C25-OH5 |
| 4   | E     | 704 | 1PE  | OH2-C12-C22-OH3 |
| 4   | L     | 704 | 1PE  | OH2-C12-C22-OH3 |
| 2   | E     | 701 | X10  | O01-C02-C03-N04 |
| 2   | I     | 701 | X10  | O01-C02-C03-N04 |
| 2   | C     | 701 | X10  | N11-C02-C03-N04 |
| 2   | F     | 701 | X10  | N11-C02-C03-N04 |
| 2   | I     | 701 | X10  | C06-C05-N04-C03 |
| 4   | D     | 703 | 1PE  | OH6-C15-C25-OH5 |
| 4   | K     | 703 | 1PE  | C14-C24-OH4-C13 |
| 4   | J     | 704 | 1PE  | OH4-C13-C23-OH3 |
| 4   | K     | 702 | 1PE  | OH5-C14-C24-OH4 |
| 4   | I     | 703 | 1PE  | OH7-C16-C26-OH6 |
| 2   | D     | 701 | X10  | O01-C02-C03-N04 |
| 2   | D     | 701 | X10  | N11-C02-C03-N04 |
| 4   | I     | 703 | 1PE  | OH5-C14-C24-OH4 |
| 8   | H     | 705 | 2PE  | O16-C17-C18-O19 |
| 4   | L     | 703 | 1PE  | C24-C14-OH5-C25 |
| 4   | F     | 704 | 1PE  | C12-C22-OH3-C23 |
| 4   | J     | 703 | 1PE  | C24-C14-OH5-C25 |
| 4   | C     | 704 | 1PE  | OH2-C12-C22-OH3 |
| 4   | D     | 702 | 1PE  | OH4-C13-C23-OH3 |
| 4   | L     | 705 | 1PE  | OH2-C12-C22-OH3 |
| 4   | A     | 705 | 1PE  | C23-C13-OH4-C24 |
| 4   | A     | 706 | 1PE  | C13-C23-OH3-C22 |
| 4   | A     | 707 | 1PE  | C14-C24-OH4-C13 |
| 4   | I     | 704 | 1PE  | C24-C14-OH5-C25 |
| 4   | L     | 705 | 1PE  | C16-C26-OH6-C15 |
| 4   | G     | 705 | 1PE  | C15-C25-OH5-C14 |
| 4   | L     | 704 | 1PE  | C24-C14-OH5-C25 |
| 4   | E     | 703 | 1PE  | C23-C13-OH4-C24 |
| 4   | L     | 704 | 1PE  | C15-C25-OH5-C14 |
| 4   | F     | 703 | 1PE  | C13-C23-OH3-C22 |
| 4   | L     | 703 | 1PE  | C23-C13-OH4-C24 |
| 4   | K     | 702 | 1PE  | C15-C25-OH5-C14 |
| 4   | F     | 703 | 1PE  | C12-C22-OH3-C23 |
| 4   | H     | 703 | 1PE  | C13-C23-OH3-C22 |
| 8   | H     | 705 | 2PE  | C23-C24-O25-C26 |

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| Mol | Chain | Res | Type | Atoms           |
|-----|-------|-----|------|-----------------|
| 4   | E     | 705 | 1PE  | OH4-C13-C23-OH3 |
| 4   | L     | 705 | 1PE  | C15-C25-OH5-C14 |
| 2   | J     | 701 | X10  | C17-C12-N11-C02 |
| 4   | E     | 704 | 1PE  | OH6-C15-C25-OH5 |
| 4   | F     | 703 | 1PE  | OH6-C15-C25-OH5 |
| 4   | J     | 704 | 1PE  | OH2-C12-C22-OH3 |
| 4   | L     | 703 | 1PE  | C13-C23-OH3-C22 |
| 4   | D     | 704 | 1PE  | C12-C22-OH3-C23 |
| 4   | F     | 703 | 1PE  | OH4-C13-C23-OH3 |
| 4   | A     | 707 | 1PE  | C12-C22-OH3-C23 |
| 4   | C     | 705 | 1PE  | OH2-C12-C22-OH3 |
| 4   | D     | 704 | 1PE  | OH2-C12-C22-OH3 |
| 4   | E     | 704 | 1PE  | C23-C13-OH4-C24 |
| 4   | L     | 705 | 1PE  | C24-C14-OH5-C25 |
| 4   | K     | 704 | 1PE  | OH4-C13-C23-OH3 |
| 4   | E     | 703 | 1PE  | C12-C22-OH3-C23 |
| 4   | A     | 705 | 1PE  | C24-C14-OH5-C25 |
| 4   | J     | 704 | 1PE  | C14-C24-OH4-C13 |
| 4   | A     | 706 | 1PE  | C23-C13-OH4-C24 |
| 4   | D     | 703 | 1PE  | C13-C23-OH3-C22 |
| 4   | A     | 706 | 1PE  | C14-C24-OH4-C13 |
| 8   | H     | 705 | 2PE  | C17-C18-O19-C20 |
| 4   | C     | 703 | 1PE  | C15-C25-OH5-C14 |
| 4   | A     | 705 | 1PE  | C14-C24-OH4-C13 |
| 4   | L     | 704 | 1PE  | C13-C23-OH3-C22 |
| 4   | D     | 704 | 1PE  | C13-C23-OH3-C22 |
| 4   | J     | 704 | 1PE  | C13-C23-OH3-C22 |
| 4   | K     | 704 | 1PE  | C12-C22-OH3-C23 |
| 4   | A     | 705 | 1PE  | C13-C23-OH3-C22 |
| 4   | L     | 704 | 1PE  | OH6-C15-C25-OH5 |
| 4   | L     | 705 | 1PE  | C13-C23-OH3-C22 |
| 4   | L     | 704 | 1PE  | C23-C13-OH4-C24 |
| 4   | G     | 705 | 1PE  | OH6-C15-C25-OH5 |
| 4   | J     | 703 | 1PE  | C14-C24-OH4-C13 |
| 4   | C     | 704 | 1PE  | OH4-C13-C23-OH3 |
| 8   | H     | 705 | 2PE  | C24-C23-O22-C21 |
| 4   | G     | 704 | 1PE  | C13-C23-OH3-C22 |
| 4   | E     | 704 | 1PE  | C12-C22-OH3-C23 |
| 4   | E     | 703 | 1PE  | C14-C24-OH4-C13 |
| 4   | A     | 707 | 1PE  | OH5-C14-C24-OH4 |
| 8   | H     | 705 | 2PE  | C6-C5-O4-C3     |
| 8   | H     | 705 | 2PE  | O13-C14-C15-O16 |

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| Mol | Chain | Res | Type | Atoms           |
|-----|-------|-----|------|-----------------|
| 4   | E     | 704 | 1PE  | C15-C25-OH5-C14 |
| 4   | C     | 705 | 1PE  | C13-C23-OH3-C22 |
| 4   | D     | 703 | 1PE  | C24-C14-OH5-C25 |
| 4   | C     | 703 | 1PE  | OH5-C14-C24-OH4 |
| 4   | L     | 704 | 1PE  | C12-C22-OH3-C23 |
| 4   | J     | 703 | 1PE  | C13-C23-OH3-C22 |
| 4   | L     | 705 | 1PE  | OH4-C13-C23-OH3 |
| 8   | H     | 705 | 2PE  | O7-C8-C9-O10    |

There are no ring outliers.

38 monomers are involved in 94 short contacts:

| Mol | Chain | Res  | Type | Clashes | Symm-Clashes |
|-----|-------|------|------|---------|--------------|
| 5   | D     | 705  | CO3  | 1       | 0            |
| 5   | J     | 705  | CO3  | 1       | 0            |
| 4   | L     | 705  | 1PE  | 6       | 0            |
| 3   | E     | 702  | SO4  | 1       | 0            |
| 5   | L     | 706  | CO3  | 2       | 0            |
| 5   | A     | 708  | CO3  | 3       | 0            |
| 2   | G     | 701  | X10  | 1       | 0            |
| 4   | E     | 703  | 1PE  | 1       | 0            |
| 4   | I     | 704  | 1PE  | 2       | 0            |
| 4   | L     | 704  | 1PE  | 4       | 0            |
| 2   | F     | 701  | X10  | 4       | 0            |
| 4   | F     | 703  | 1PE  | 2       | 0            |
| 4   | J     | 703  | 1PE  | 2       | 0            |
| 4   | A     | 706  | 1PE  | 4       | 0            |
| 4   | C     | 703  | 1PE  | 1       | 0            |
| 5   | C     | 706  | CO3  | 2       | 0            |
| 3   | I     | 702  | SO4  | 1       | 0            |
| 4   | K     | 703  | 1PE  | 1       | 0            |
| 2   | D     | 701  | X10  | 5       | 0            |
| 2   | J     | 701  | X10  | 4       | 0            |
| 4   | D     | 703  | 1PE  | 1       | 0            |
| 4   | A     | 707  | 1PE  | 3       | 0            |
| 4   | K     | 702  | 1PE  | 2       | 0            |
| 5   | H     | 704  | CO3  | 1       | 0            |
| 2   | B     | 1401 | X10  | 2       | 0            |
| 5   | G     | 706  | CO3  | 2       | 0            |
| 3   | C     | 702  | SO4  | 1       | 0            |
| 8   | H     | 705  | 2PE  | 4       | 0            |
| 2   | L     | 701  | X10  | 3       | 0            |

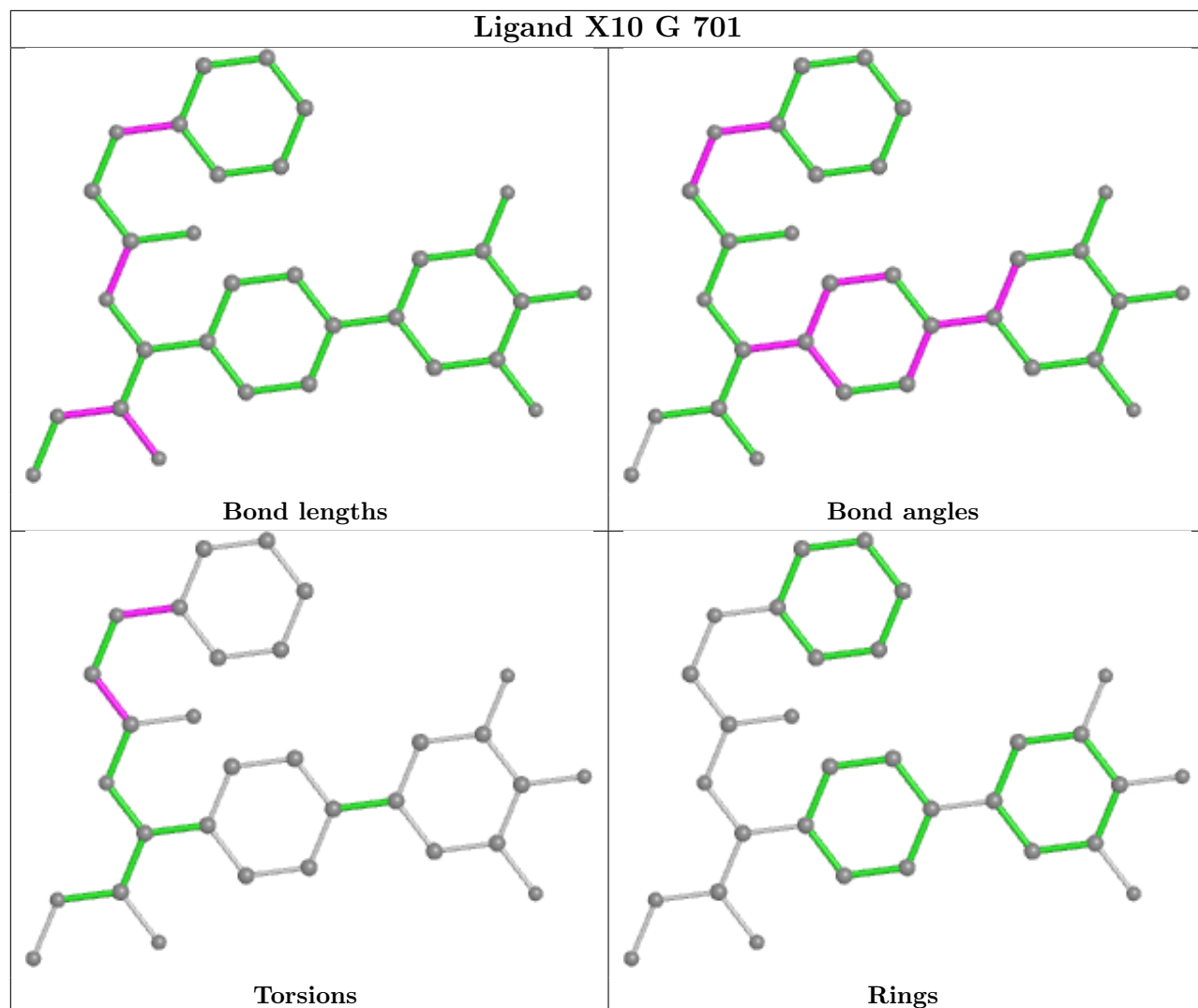
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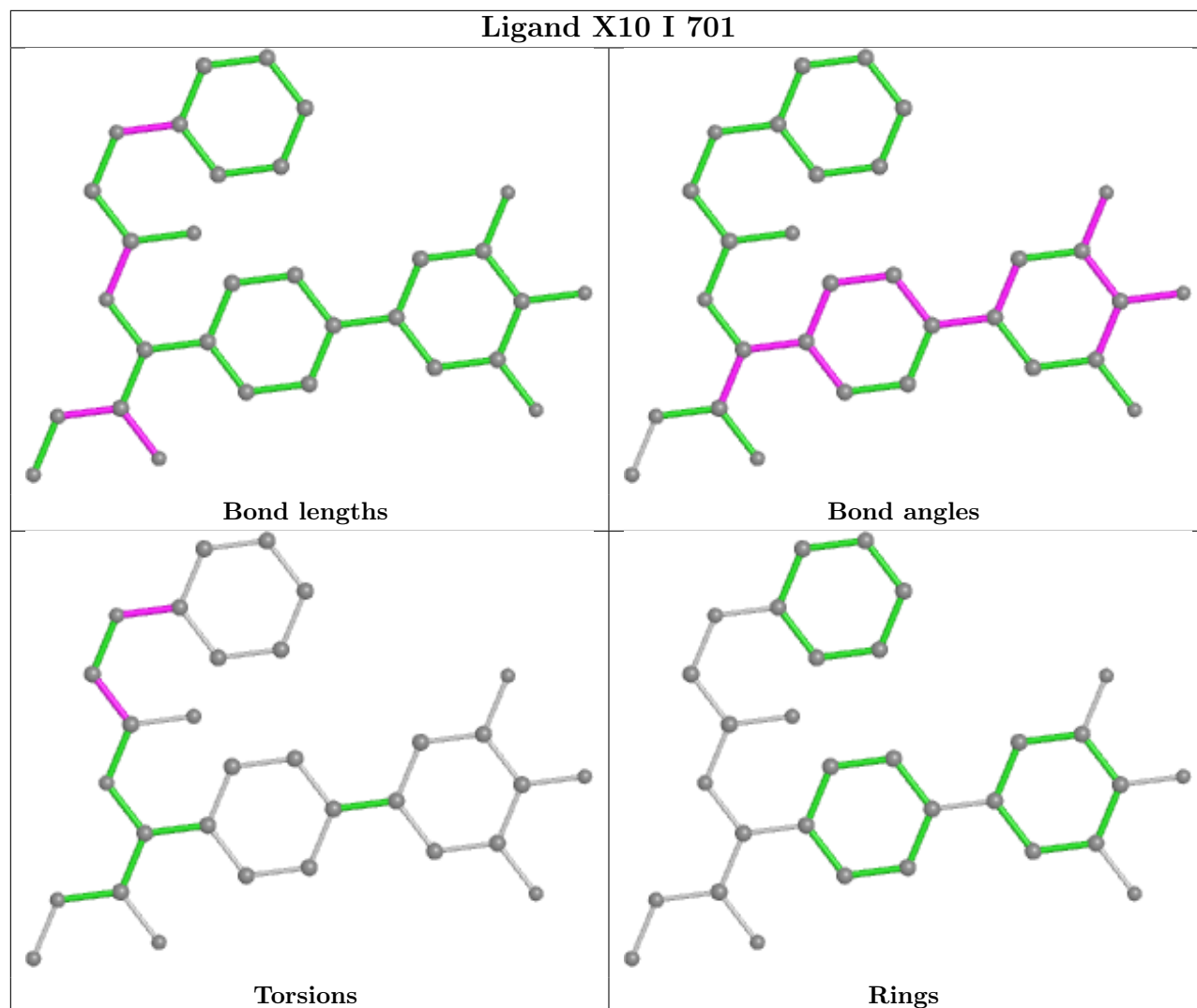
*Continued from previous page...*

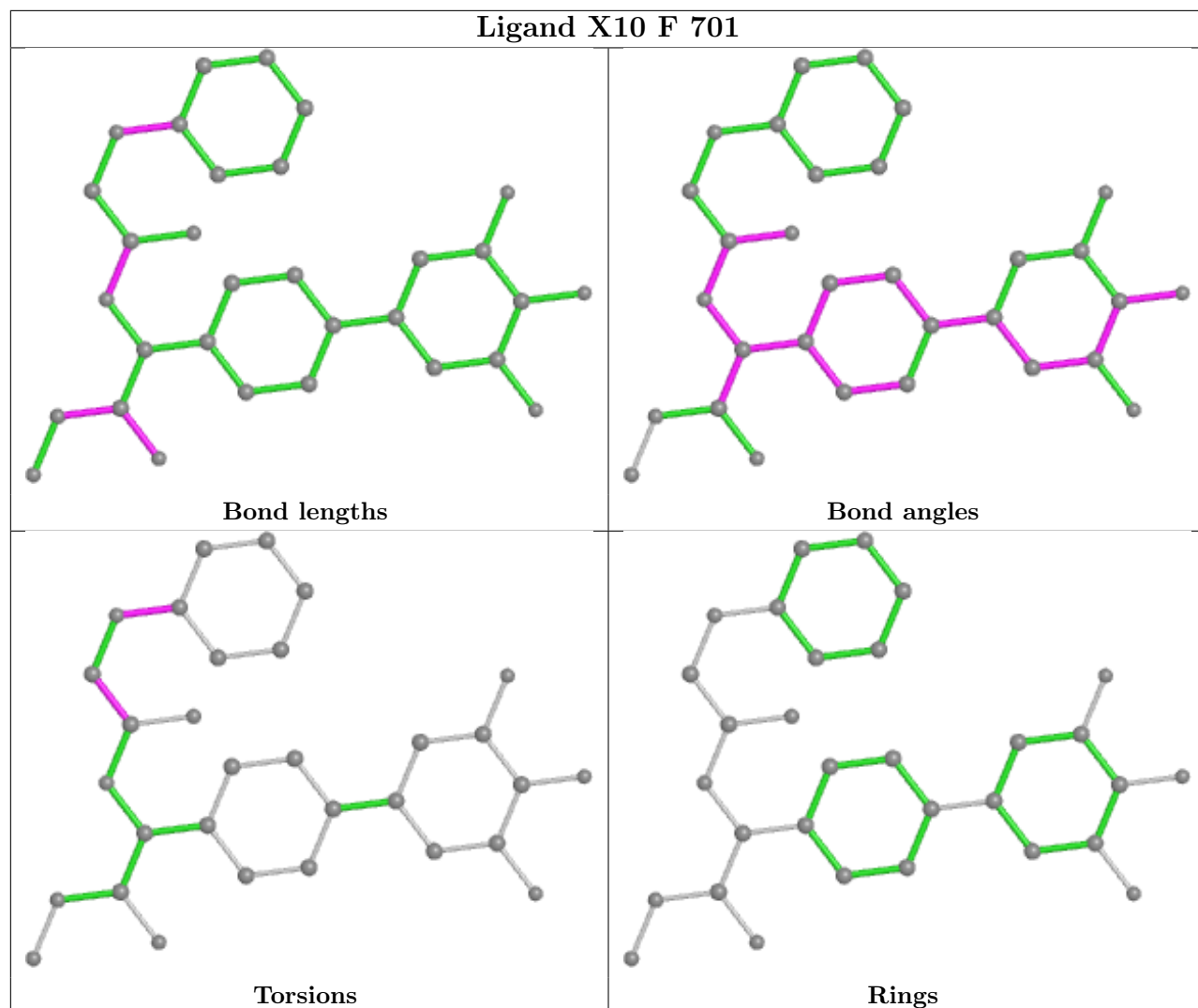
| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|-----|------|---------|--------------|
| 4   | I     | 703 | 1PE  | 2       | 0            |
| 2   | C     | 701 | X10  | 3       | 0            |
| 5   | K     | 705 | CO3  | 2       | 0            |
| 2   | K     | 701 | X10  | 7       | 0            |
| 3   | A     | 704 | SO4  | 1       | 0            |
| 2   | H     | 701 | X10  | 1       | 0            |
| 4   | D     | 704 | 1PE  | 1       | 0            |
| 2   | A     | 701 | X10  | 7       | 0            |
| 4   | E     | 704 | 1PE  | 4       | 0            |

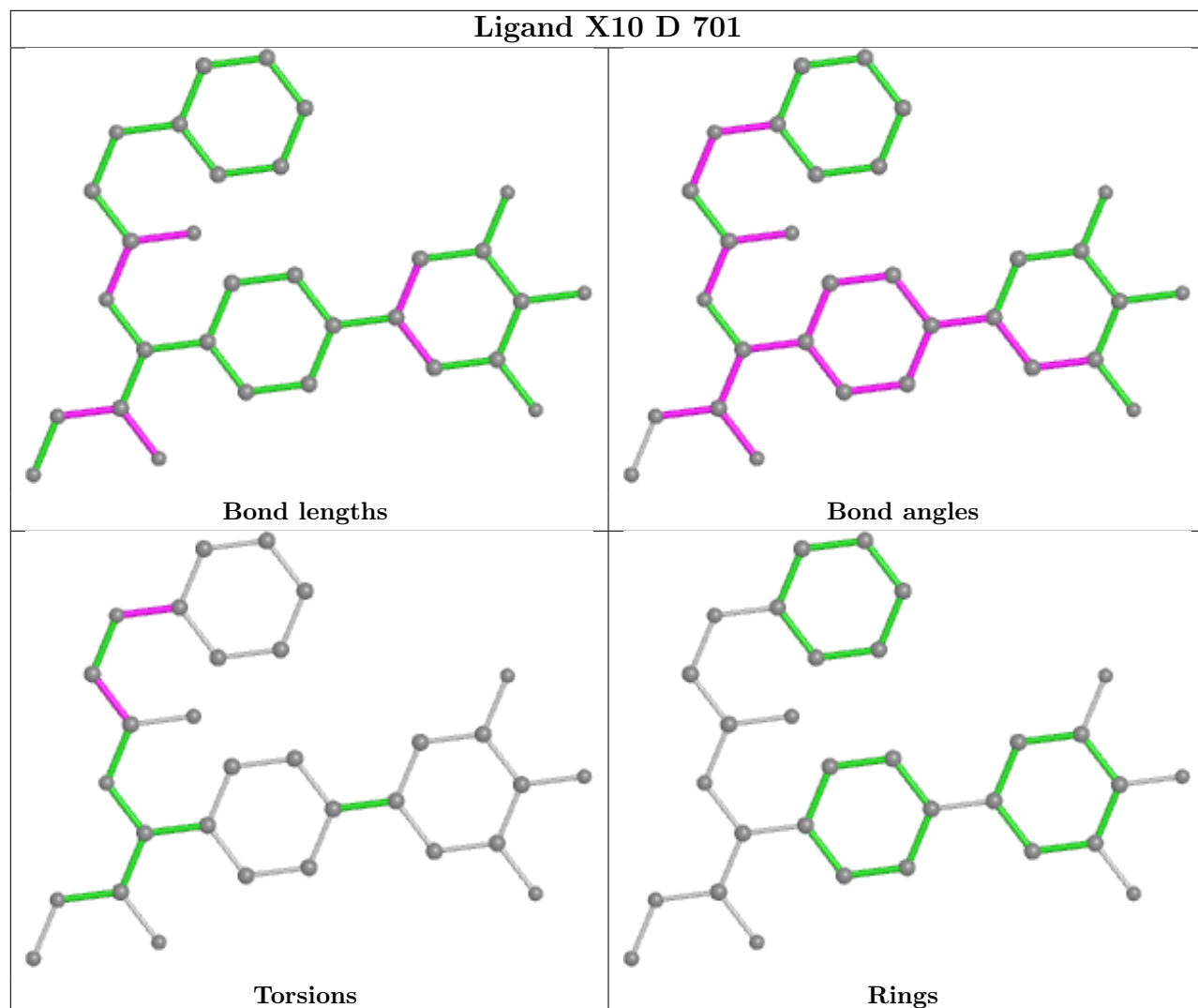
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

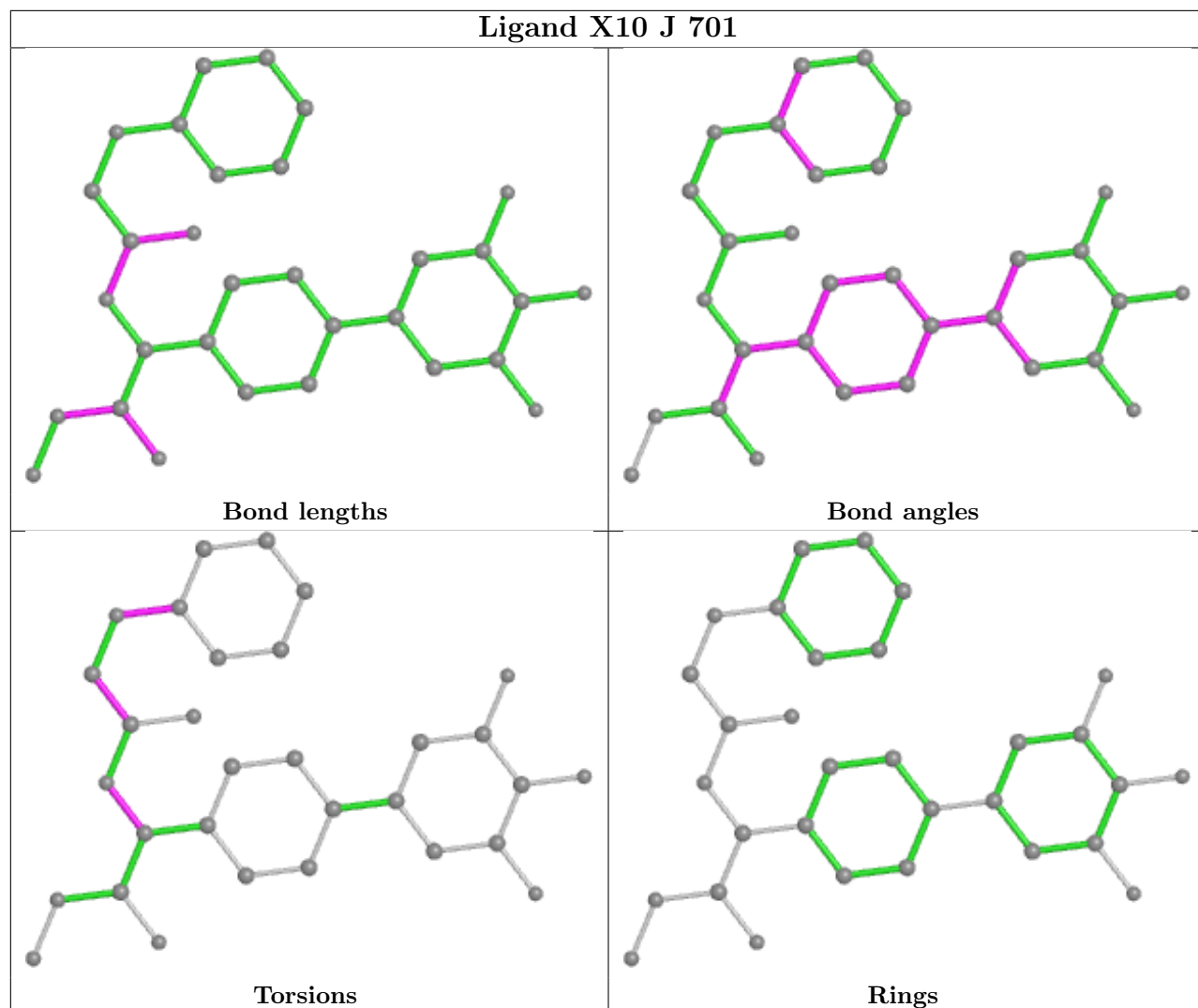


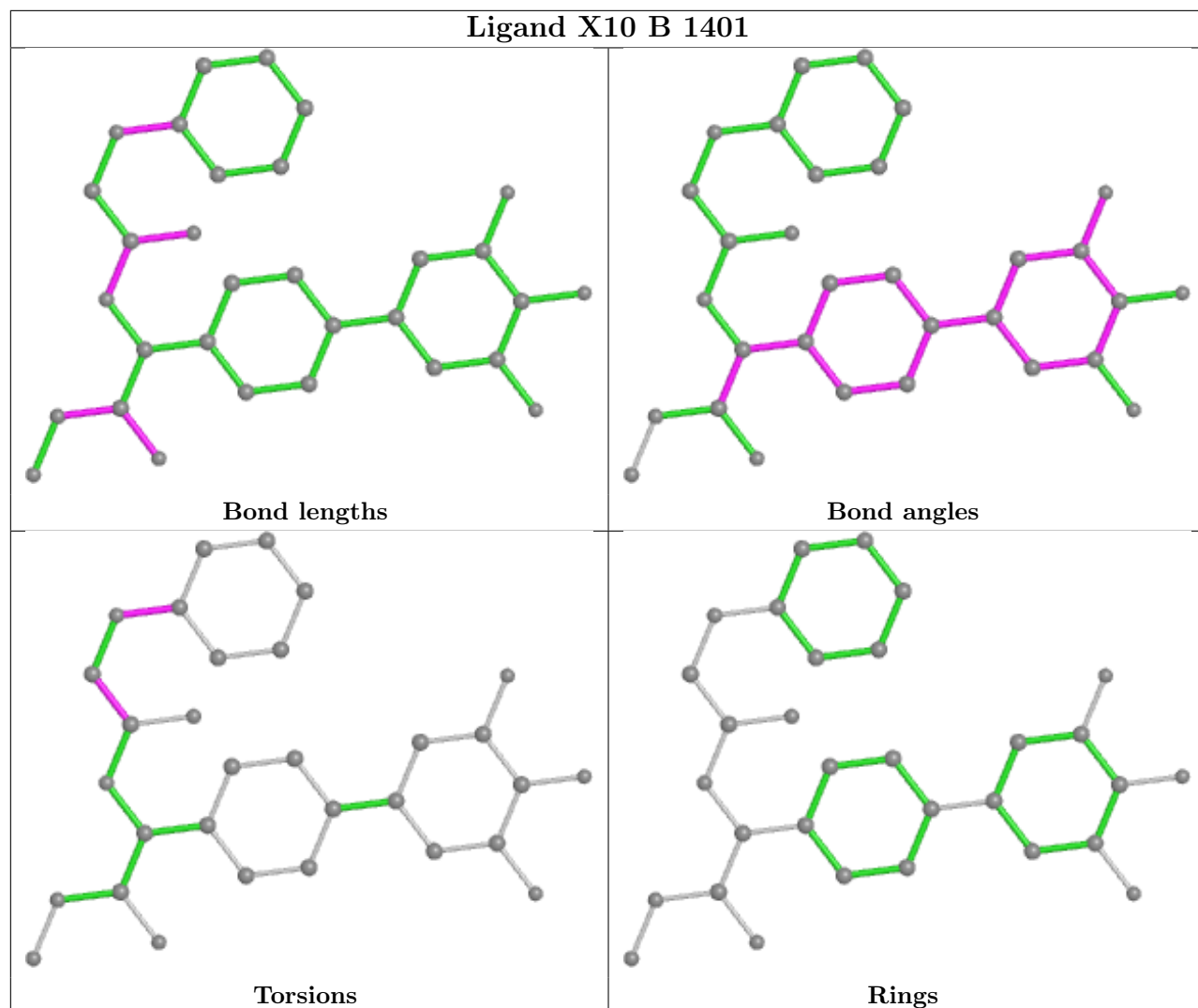


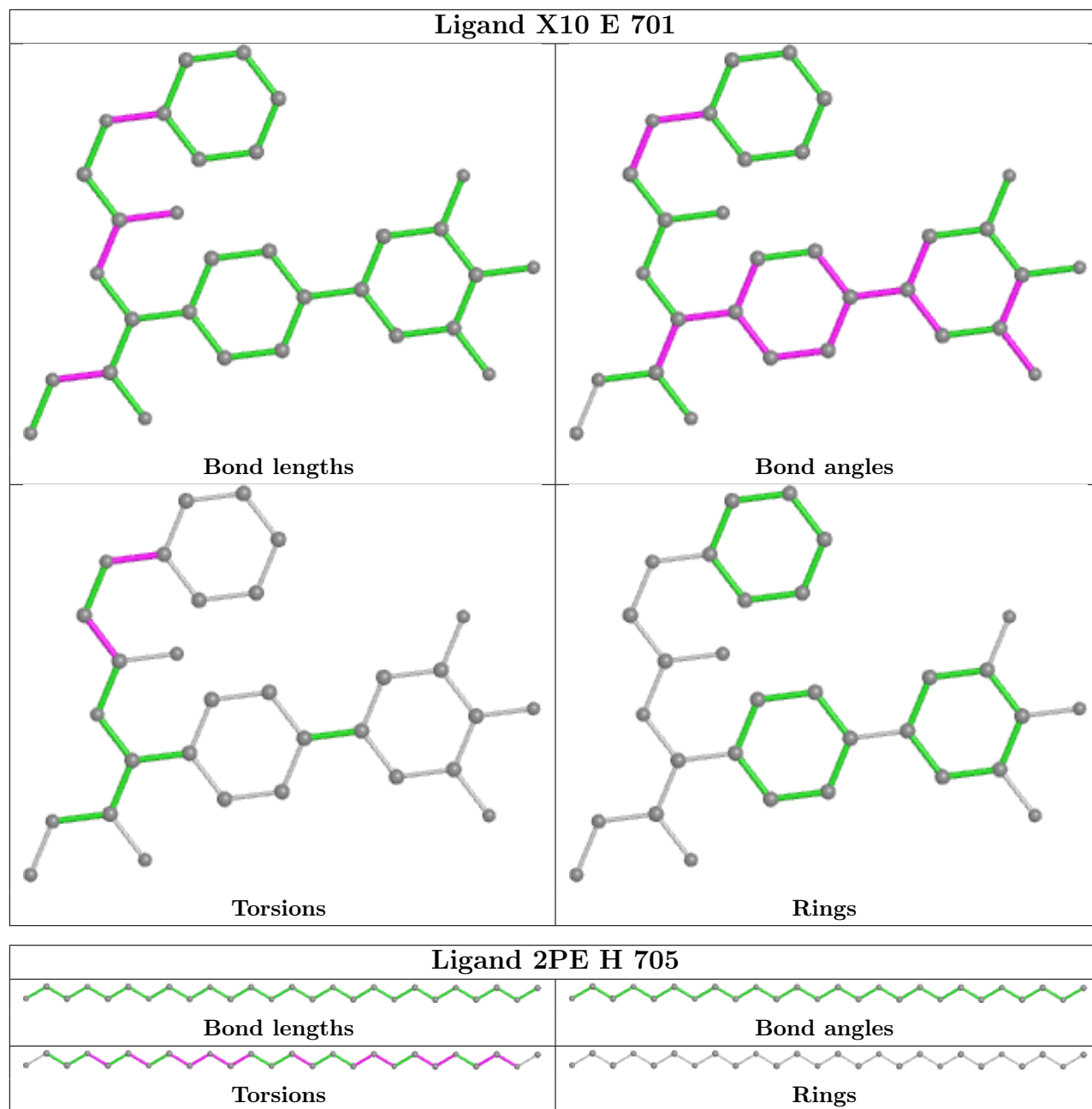


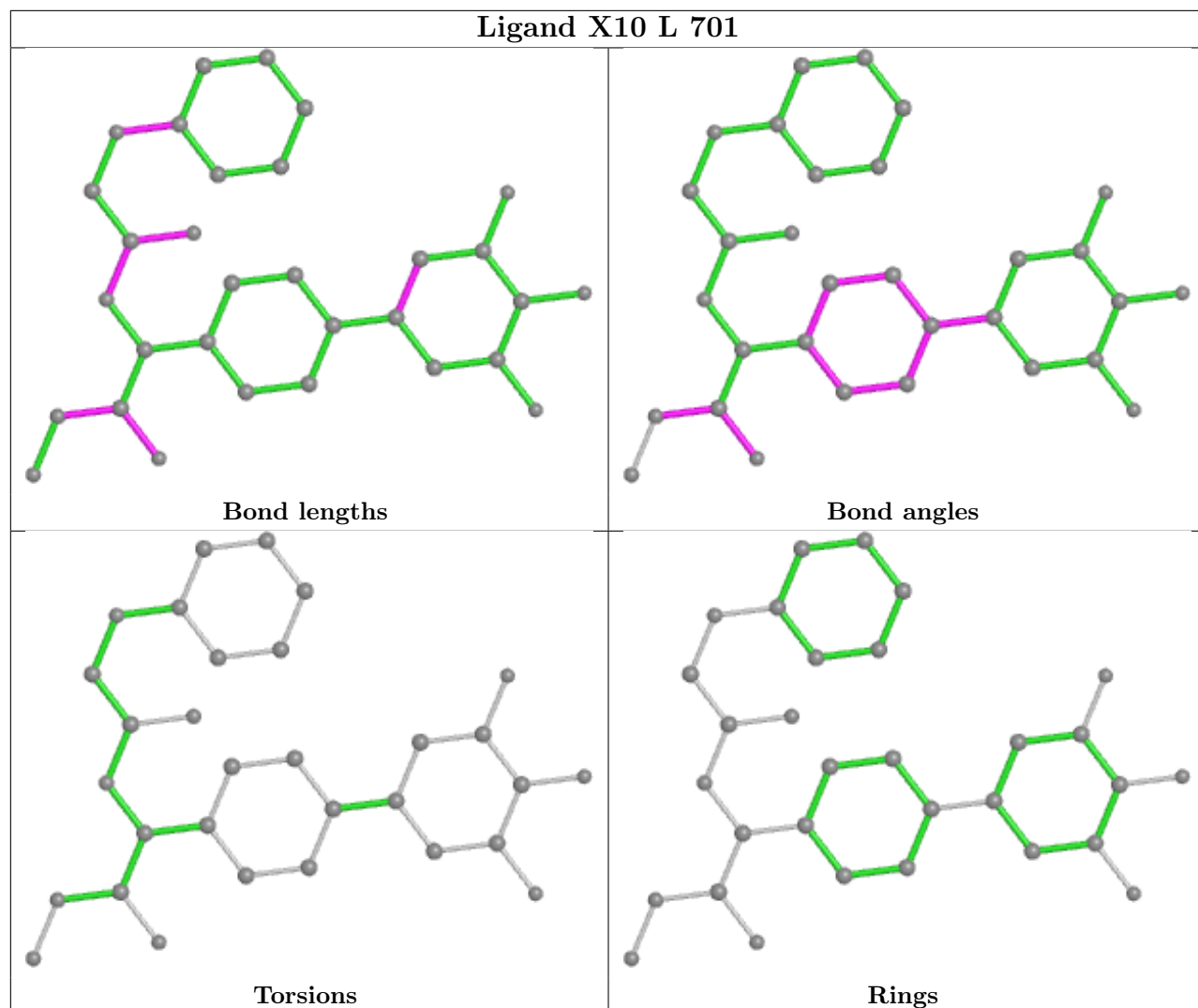




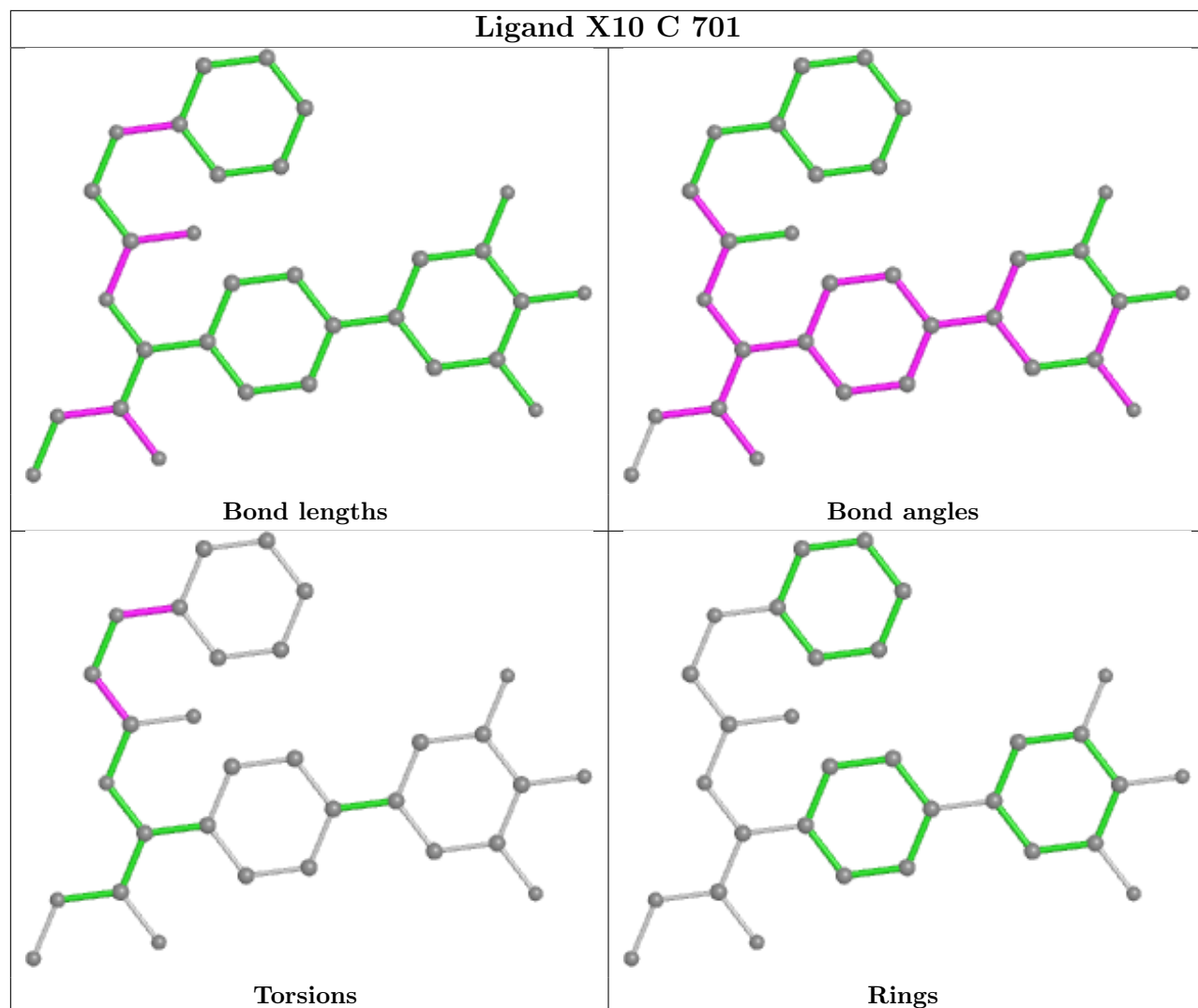


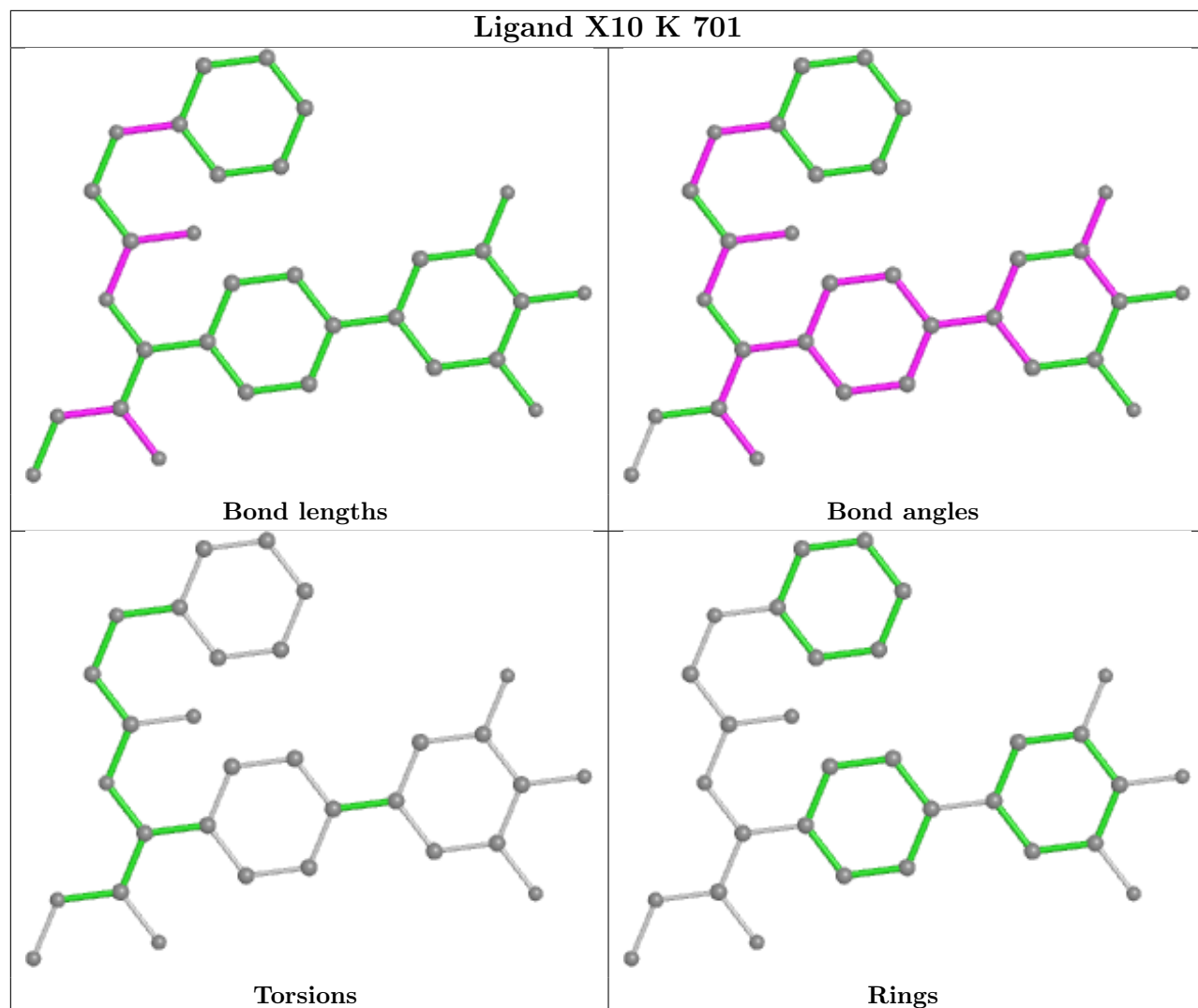


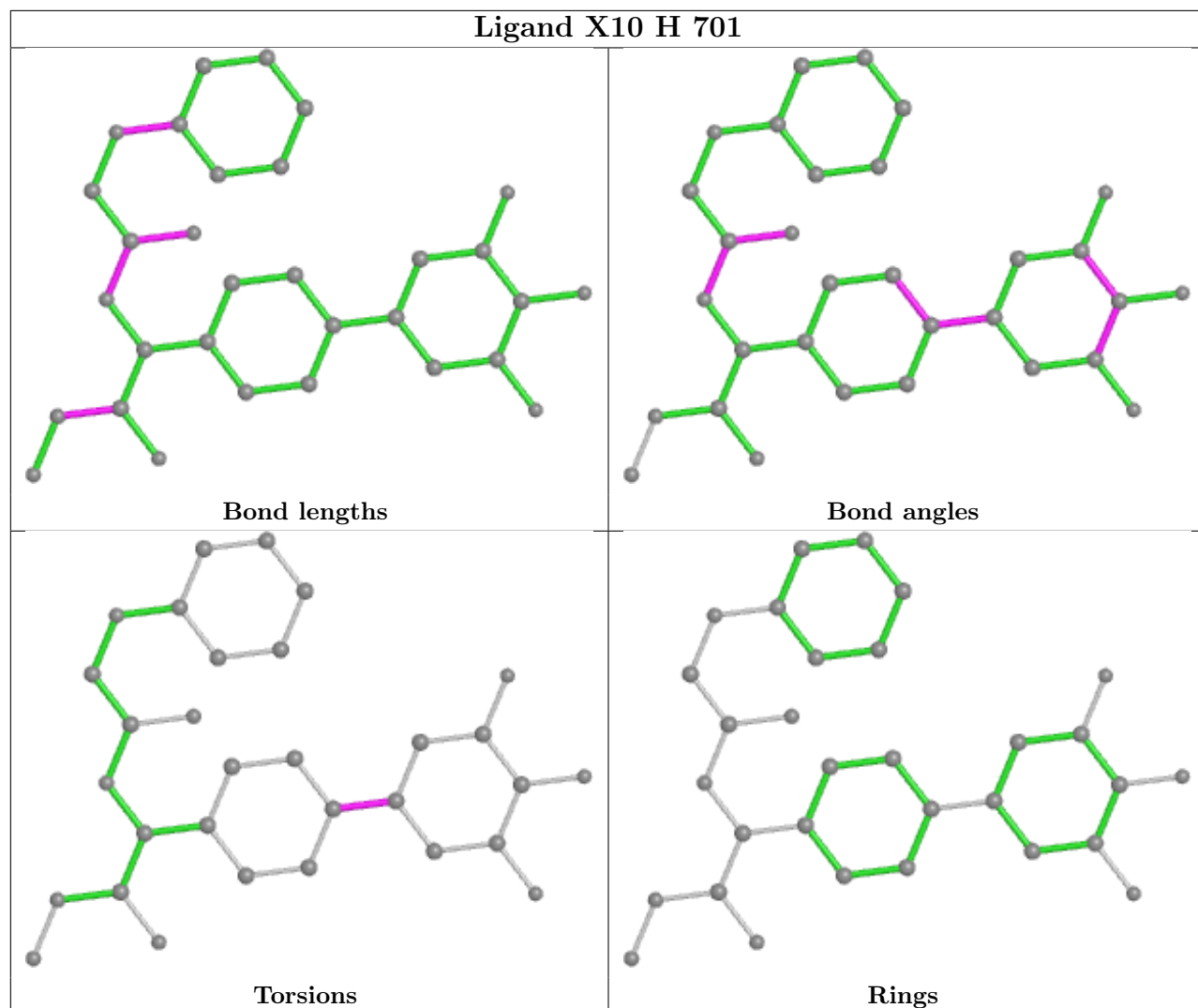


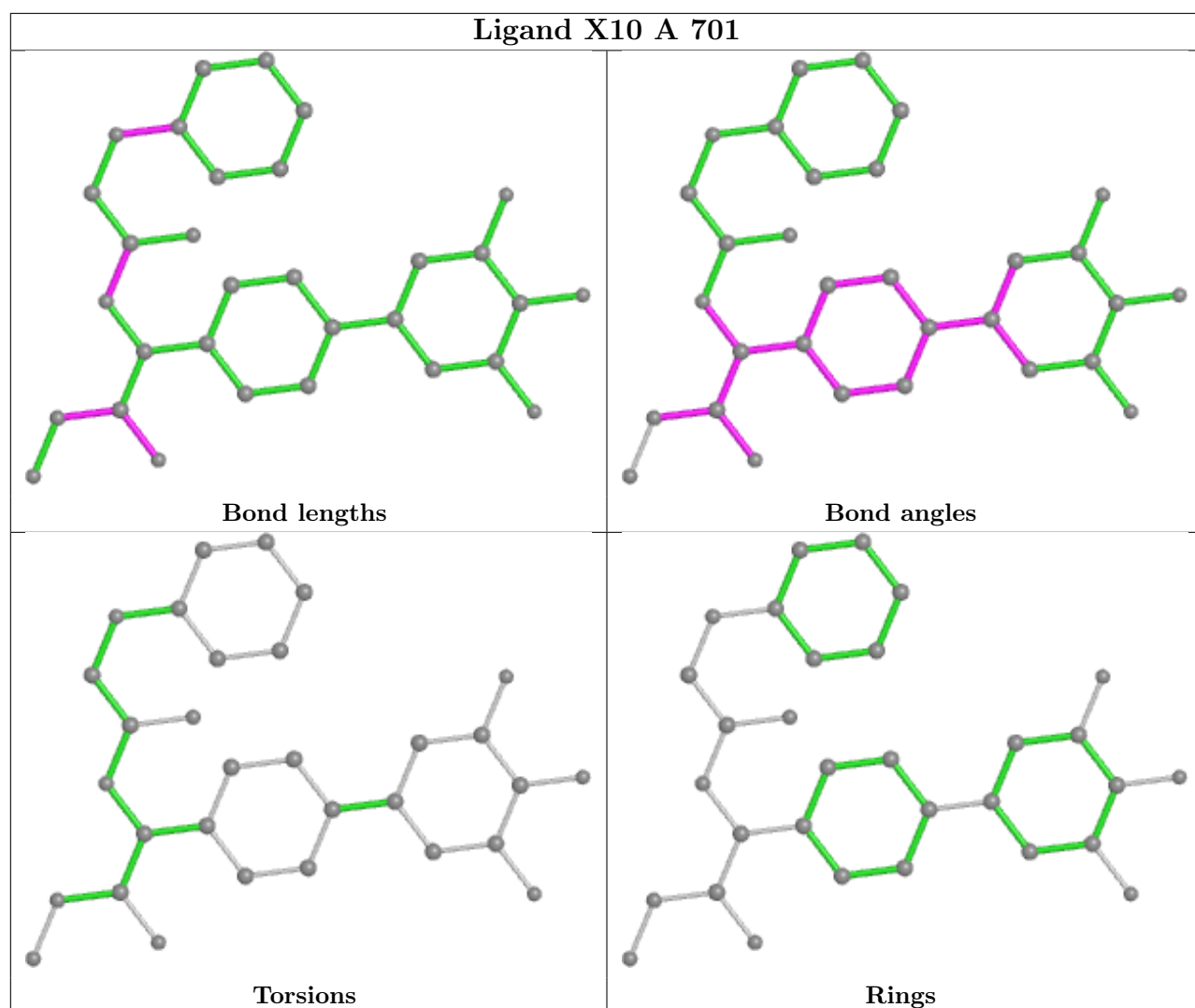












## 5.7 Other polymers [i](#)

There are no such residues in this entry.

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

There are no chain breaks in this entry.

## 6 Fit of model and data

### 6.1 Protein, DNA and RNA chains

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     | 519/527 (98%)   | -0.20  | 3 (0%) 89 90  | 18, 24, 40, 61        | 0      |
| 1   | B     | 521/527 (98%)   | -0.15  | 11 (2%) 63 66 | 18, 26, 48, 72        | 1 (0%) |
| 1   | C     | 525/527 (99%)   | -0.27  | 5 (0%) 82 84  | 18, 24, 41, 71        | 0      |
| 1   | D     | 522/527 (99%)   | -0.37  | 11 (2%) 63 66 | 18, 24, 41, 86        | 0      |
| 1   | E     | 514/527 (97%)   | -0.34  | 7 (1%) 75 77  | 18, 23, 36, 69        | 0      |
| 1   | F     | 515/527 (97%)   | -0.26  | 4 (0%) 86 87  | 19, 25, 49, 74        | 0      |
| 1   | G     | 521/527 (98%)   | -0.16  | 6 (1%) 79 81  | 18, 24, 40, 67        | 0      |
| 1   | H     | 522/527 (99%)   | -0.10  | 12 (2%) 60 63 | 19, 26, 48, 69        | 0      |
| 1   | I     | 525/527 (99%)   | -0.23  | 5 (0%) 82 84  | 18, 24, 42, 84        | 0      |
| 1   | J     | 519/527 (98%)   | -0.42  | 2 (0%) 92 93  | 17, 23, 38, 79        | 1 (0%) |
| 1   | K     | 517/527 (98%)   | -0.35  | 7 (1%) 75 77  | 17, 23, 37, 78        | 0      |
| 1   | L     | 512/527 (97%)   | -0.19  | 12 (2%) 60 63 | 18, 27, 50, 86        | 0      |
| All | All   | 6232/6324 (98%) | -0.25  | 85 (1%) 75 77 | 17, 24, 45, 86        | 2 (0%) |

All (85) RSRZ outliers are listed below:

| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 1   | H     | 604 | ALA  | 5.8  |
| 1   | K     | 255 | THR  | 5.7  |
| 1   | J     | 136 | GLY  | 4.8  |
| 1   | E     | 136 | GLY  | 4.7  |
| 1   | G     | 136 | GLY  | 4.1  |
| 1   | B     | 136 | GLY  | 4.1  |
| 1   | K     | 85  | ALA  | 4.0  |
| 1   | H     | 135 | PRO  | 4.0  |
| 1   | D     | 136 | GLY  | 4.0  |
| 1   | C     | 605 | LEU  | 4.0  |
| 1   | E     | 85  | ALA  | 3.7  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> | <b>RSRZ</b> |
|------------|--------------|------------|-------------|-------------|
| 1          | H            | 276        | THR         | 3.7         |
| 1          | K            | 136        | GLY         | 3.6         |
| 1          | I            | 607        | HIS         | 3.5         |
| 1          | F            | 178        | PHE         | 3.5         |
| 1          | B            | 132        | VAL         | 3.5         |
| 1          | I            | 604        | ALA         | 3.4         |
| 1          | G            | 195        | VAL         | 3.3         |
| 1          | K            | 605        | LEU         | 3.3         |
| 1          | D            | 607        | HIS         | 3.3         |
| 1          | D            | 259        | VAL         | 3.3         |
| 1          | L            | 117        | ILE         | 3.1         |
| 1          | A            | 136        | GLY         | 3.1         |
| 1          | B            | 604        | ALA         | 3.1         |
| 1          | D            | 606        | HIS         | 3.0         |
| 1          | B            | 85         | ALA         | 3.0         |
| 1          | H            | 144        | ILE         | 3.0         |
| 1          | G            | 196        | ALA         | 3.0         |
| 1          | A            | 195        | VAL         | 3.0         |
| 1          | D            | 85         | ALA         | 3.0         |
| 1          | B            | 178        | PHE         | 2.9         |
| 1          | E            | 603        | ASP         | 2.9         |
| 1          | F            | 604        | ALA         | 2.9         |
| 1          | L            | 148        | VAL         | 2.9         |
| 1          | L            | 123        | VAL         | 2.9         |
| 1          | D            | 604        | ALA         | 2.8         |
| 1          | C            | 607        | HIS         | 2.8         |
| 1          | H            | 156        | PHE         | 2.8         |
| 1          | E            | 549        | SER         | 2.7         |
| 1          | L            | 361        | SER         | 2.7         |
| 1          | G            | 259        | VAL         | 2.7         |
| 1          | H            | 178        | PHE         | 2.7         |
| 1          | L            | 153        | VAL         | 2.7         |
| 1          | K            | 606        | HIS         | 2.6         |
| 1          | G            | 604        | ALA         | 2.6         |
| 1          | A            | 196        | ALA         | 2.6         |
| 1          | C            | 606        | HIS         | 2.6         |
| 1          | L            | 178        | PHE         | 2.6         |
| 1          | L            | 219        | LEU         | 2.5         |
| 1          | F            | 117        | ILE         | 2.5         |
| 1          | E            | 363        | GLY         | 2.5         |
| 1          | H            | 194        | SER         | 2.5         |
| 1          | G            | 85         | ALA         | 2.5         |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 1   | I     | 136 | GLY  | 2.4  |
| 1   | B     | 276 | THR  | 2.4  |
| 1   | L     | 196 | ALA  | 2.4  |
| 1   | B     | 605 | LEU  | 2.4  |
| 1   | D     | 602 | ASN  | 2.4  |
| 1   | I     | 605 | LEU  | 2.4  |
| 1   | K     | 363 | GLY  | 2.4  |
| 1   | D     | 608 | HIS  | 2.3  |
| 1   | F     | 136 | GLY  | 2.3  |
| 1   | D     | 258 | ASN  | 2.3  |
| 1   | H     | 603 | ASP  | 2.3  |
| 1   | L     | 276 | THR  | 2.2  |
| 1   | B     | 275 | ASP  | 2.2  |
| 1   | H     | 136 | GLY  | 2.2  |
| 1   | H     | 176 | TYR  | 2.2  |
| 1   | B     | 140 | GLY  | 2.2  |
| 1   | L     | 273 | ASN  | 2.2  |
| 1   | B     | 165 | PHE  | 2.2  |
| 1   | D     | 549 | SER  | 2.2  |
| 1   | J     | 255 | THR  | 2.2  |
| 1   | H     | 85  | ALA  | 2.2  |
| 1   | E     | 364 | ASP  | 2.2  |
| 1   | I     | 606 | HIS  | 2.1  |
| 1   | C     | 276 | THR  | 2.1  |
| 1   | D     | 364 | ASP  | 2.1  |
| 1   | B     | 181 | ASN  | 2.1  |
| 1   | E     | 604 | ALA  | 2.1  |
| 1   | K     | 604 | ALA  | 2.1  |
| 1   | H     | 165 | PHE  | 2.1  |
| 1   | C     | 136 | GLY  | 2.1  |
| 1   | L     | 121 | CYS  | 2.1  |
| 1   | L     | 150 | ASP  | 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](#)

There are no monosaccharides in this entry.

## 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 |
|-----|------|-------|------|-------|------|------|----------------------------|-------|
| 6   | ZN   | A     | 709  | 1/1   | 0.69 | 0.19 | 22,22,22,22                | 1     |
| 6   | ZN   | E     | 708  | 1/1   | 0.70 | 0.12 | 21,21,21,21                | 1     |
| 4   | 1PE  | F     | 706  | 10/16 | 0.77 | 0.18 | 41,51,58,63                | 0     |
| 6   | ZN   | E     | 707  | 1/1   | 0.80 | 0.19 | 28,28,28,28                | 1     |
| 4   | 1PE  | L     | 704  | 13/16 | 0.80 | 0.16 | 38,46,56,60                | 0     |
| 2   | X10  | L     | 701  | 31/31 | 0.81 | 0.24 | 30,45,58,62                | 3     |
| 6   | ZN   | I     | 707  | 1/1   | 0.81 | 0.20 | 22,22,22,22                | 1     |
| 4   | 1PE  | A     | 707  | 13/16 | 0.82 | 0.18 | 40,54,60,64                | 0     |
| 4   | 1PE  | C     | 705  | 8/16  | 0.82 | 0.23 | 34,41,48,54                | 0     |
| 4   | 1PE  | D     | 704  | 7/16  | 0.83 | 0.21 | 31,43,49,56                | 0     |
| 4   | 1PE  | G     | 705  | 7/16  | 0.84 | 0.19 | 45,48,51,52                | 0     |
| 4   | 1PE  | I     | 705  | 8/16  | 0.85 | 0.20 | 33,46,50,50                | 0     |
| 2   | X10  | D     | 701  | 31/31 | 0.85 | 0.22 | 28,39,50,51                | 3     |
| 4   | 1PE  | F     | 705  | 7/16  | 0.85 | 0.12 | 37,46,49,52                | 0     |
| 5   | CO3  | F     | 707  | 4/4   | 0.86 | 0.24 | 18,30,35,44                | 0     |
| 2   | X10  | C     | 701  | 31/31 | 0.86 | 0.20 | 28,39,53,59                | 9     |
| 4   | 1PE  | A     | 705  | 9/16  | 0.86 | 0.14 | 31,36,47,51                | 0     |
| 4   | 1PE  | F     | 703  | 13/16 | 0.86 | 0.13 | 31,41,49,49                | 0     |
| 6   | ZN   | F     | 709  | 1/1   | 0.86 | 0.13 | 21,21,21,21                | 1     |
| 2   | X10  | B     | 1401 | 31/31 | 0.86 | 0.24 | 28,43,69,82                | 0     |
| 8   | 2PE  | H     | 705  | 26/28 | 0.86 | 0.16 | 33,52,62,71                | 0     |
| 6   | ZN   | F     | 708  | 1/1   | 0.87 | 0.21 | 26,26,26,26                | 1     |
| 4   | 1PE  | K     | 703  | 11/16 | 0.87 | 0.12 | 28,36,50,53                | 0     |
| 4   | 1PE  | L     | 705  | 16/16 | 0.88 | 0.18 | 38,46,64,67                | 0     |
| 2   | X10  | E     | 701  | 31/31 | 0.88 | 0.16 | 27,38,41,44                | 9     |
| 6   | ZN   | I     | 708  | 1/1   | 0.88 | 0.11 | 19,19,19,19                | 1     |
| 2   | X10  | I     | 701  | 31/31 | 0.88 | 0.15 | 23,37,47,54                | 5     |
| 2   | X10  | H     | 701  | 31/31 | 0.89 | 0.18 | 25,38,52,53                | 5     |
| 4   | 1PE  | K     | 704  | 13/16 | 0.89 | 0.21 | 38,43,54,56                | 0     |
| 2   | X10  | J     | 701  | 31/31 | 0.89 | 0.19 | 31,38,48,60                | 3     |
| 4   | 1PE  | E     | 704  | 13/16 | 0.89 | 0.23 | 29,44,51,52                | 0     |
| 4   | 1PE  | I     | 703  | 15/16 | 0.89 | 0.16 | 32,42,49,50                | 0     |
| 2   | X10  | K     | 701  | 31/31 | 0.89 | 0.18 | 23,40,51,62                | 3     |
| 6   | ZN   | A     | 710  | 1/1   | 0.89 | 0.13 | 18,18,18,18                | 1     |
| 4   | 1PE  | J     | 704  | 13/16 | 0.90 | 0.15 | 36,45,54,60                | 0     |
| 2   | X10  | F     | 701  | 31/31 | 0.90 | 0.16 | 28,40,58,60                | 7     |
| 2   | X10  | G     | 701  | 31/31 | 0.90 | 0.17 | 26,34,53,54                | 7     |

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| Mol | Type | Chain | Res  | Atoms | RSCC | RSR  | B-factors(Å <sup>2</sup> ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|----------------------------|-------|
| 5   | CO3  | I     | 706  | 4/4   | 0.91 | 0.17 | 18,24,27,41                | 0     |
| 4   | 1PE  | L     | 703  | 9/16  | 0.91 | 0.10 | 28,36,49,52                | 0     |
| 2   | X10  | A     | 701  | 31/31 | 0.91 | 0.16 | 27,45,54,56                | 4     |
| 4   | 1PE  | I     | 704  | 13/16 | 0.91 | 0.12 | 24,34,51,53                | 0     |
| 4   | 1PE  | D     | 703  | 13/16 | 0.91 | 0.19 | 31,46,54,58                | 0     |
| 5   | CO3  | E     | 706  | 4/4   | 0.92 | 0.18 | 18,29,39,48                | 0     |
| 4   | 1PE  | H     | 703  | 7/16  | 0.92 | 0.18 | 34,39,47,47                | 0     |
| 4   | 1PE  | A     | 706  | 12/16 | 0.92 | 0.13 | 28,40,45,47                | 0     |
| 4   | 1PE  | K     | 702  | 13/16 | 0.92 | 0.14 | 26,32,55,57                | 0     |
| 4   | 1PE  | E     | 705  | 12/16 | 0.92 | 0.15 | 38,44,46,48                | 0     |
| 5   | CO3  | A     | 708  | 4/4   | 0.92 | 0.26 | 19,31,35,43                | 4     |
| 4   | 1PE  | E     | 703  | 11/16 | 0.93 | 0.12 | 22,33,48,48                | 0     |
| 5   | CO3  | K     | 705  | 4/4   | 0.93 | 0.21 | 17,36,40,43                | 0     |
| 5   | CO3  | B     | 1402 | 4/4   | 0.93 | 0.16 | 18,27,32,36                | 0     |
| 4   | 1PE  | J     | 703  | 9/16  | 0.93 | 0.11 | 21,32,41,42                | 0     |
| 6   | ZN   | B     | 1404 | 1/1   | 0.93 | 0.23 | 74,74,74,74                | 0     |
| 4   | 1PE  | G     | 704  | 11/16 | 0.93 | 0.11 | 30,37,51,58                | 0     |
| 4   | 1PE  | C     | 704  | 13/16 | 0.94 | 0.13 | 36,41,46,48                | 0     |
| 5   | CO3  | C     | 706  | 4/4   | 0.94 | 0.16 | 17,26,37,41                | 0     |
| 3   | SO4  | G     | 702  | 5/5   | 0.95 | 0.09 | 34,43,59,61                | 0     |
| 6   | ZN   | D     | 707  | 1/1   | 0.95 | 0.07 | 21,21,21,21                | 1     |
| 3   | SO4  | G     | 703  | 5/5   | 0.95 | 0.22 | 55,59,70,77                | 0     |
| 4   | 1PE  | C     | 703  | 11/16 | 0.95 | 0.11 | 29,33,47,53                | 0     |
| 5   | CO3  | J     | 705  | 4/4   | 0.95 | 0.24 | 17,17,44,48                | 4     |
| 3   | SO4  | I     | 702  | 5/5   | 0.95 | 0.37 | 45,52,64,69                | 0     |
| 5   | CO3  | L     | 706  | 4/4   | 0.95 | 0.36 | 16,34,43,48                | 0     |
| 3   | SO4  | C     | 702  | 5/5   | 0.95 | 0.23 | 21,32,39,42                | 5     |
| 6   | ZN   | L     | 707  | 1/1   | 0.95 | 0.06 | 27,27,27,27                | 1     |
| 5   | CO3  | D     | 705  | 4/4   | 0.95 | 0.19 | 17,17,30,39                | 4     |
| 3   | SO4  | J     | 702  | 5/5   | 0.96 | 0.17 | 27,34,36,38                | 5     |
| 4   | 1PE  | F     | 704  | 10/16 | 0.96 | 0.08 | 26,35,45,47                | 0     |
| 3   | SO4  | E     | 702  | 5/5   | 0.96 | 0.15 | 28,29,40,41                | 5     |
| 5   | CO3  | H     | 704  | 4/4   | 0.96 | 0.14 | 18,23,34,45                | 0     |
| 6   | ZN   | B     | 1403 | 1/1   | 0.97 | 0.28 | 58,58,58,58                | 0     |
| 5   | CO3  | G     | 706  | 4/4   | 0.97 | 0.26 | 18,18,50,53                | 0     |
| 6   | ZN   | G     | 708  | 1/1   | 0.97 | 0.07 | 20,20,20,20                | 1     |
| 6   | ZN   | C     | 707  | 1/1   | 0.97 | 0.09 | 22,22,22,22                | 1     |
| 4   | 1PE  | D     | 702  | 10/16 | 0.97 | 0.08 | 27,31,44,49                | 0     |
| 6   | ZN   | J     | 706  | 1/1   | 0.97 | 0.06 | 23,23,23,23                | 1     |
| 6   | ZN   | K     | 706  | 1/1   | 0.97 | 0.10 | 19,19,19,19                | 1     |
| 6   | ZN   | K     | 707  | 1/1   | 0.97 | 0.08 | 19,19,19,19                | 1     |
| 3   | SO4  | A     | 703  | 5/5   | 0.97 | 0.07 | 33,40,58,61                | 0     |

*Continued on next page...*

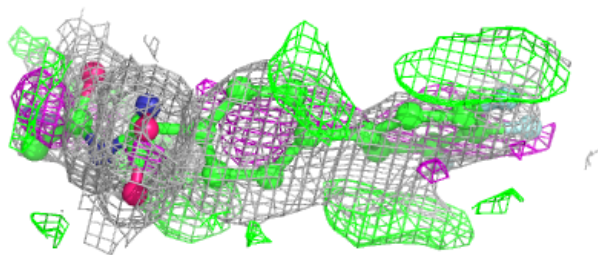
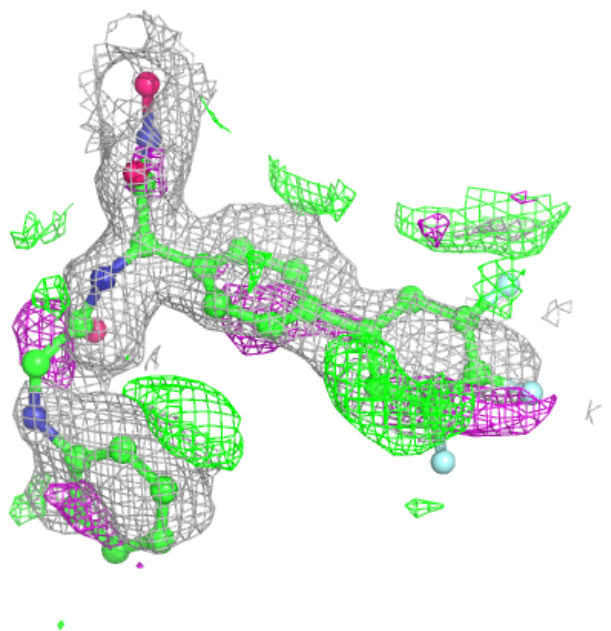
*Continued from previous page...*

| Mol | Type | Chain | Res  | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|-----------------------------|-------|
| 3   | SO4  | F     | 702  | 5/5   | 0.97 | 0.26 | 53,60,65,76                 | 0     |
| 6   | ZN   | G     | 707  | 1/1   | 0.98 | 0.08 | 25,25,25,25                 | 1     |
| 3   | SO4  | A     | 704  | 5/5   | 0.98 | 0.16 | 25,35,37,39                 | 5     |
| 6   | ZN   | H     | 706  | 1/1   | 0.98 | 0.04 | 22,22,22,22                 | 1     |
| 6   | ZN   | D     | 708  | 1/1   | 0.98 | 0.04 | 19,19,19,19                 | 1     |
| 7   | NA   | F     | 710  | 1/1   | 0.98 | 0.07 | 23,23,23,23                 | 0     |
| 7   | NA   | G     | 709  | 1/1   | 0.98 | 0.10 | 22,22,22,22                 | 0     |
| 6   | ZN   | C     | 708  | 1/1   | 0.98 | 0.06 | 18,18,18,18                 | 1     |
| 3   | SO4  | H     | 702  | 5/5   | 0.99 | 0.07 | 19,19,19,21                 | 0     |
| 6   | ZN   | H     | 707  | 1/1   | 0.99 | 0.06 | 19,19,19,19                 | 1     |
| 3   | SO4  | A     | 702  | 5/5   | 0.99 | 0.08 | 18,18,21,22                 | 0     |
| 6   | ZN   | L     | 708  | 1/1   | 0.99 | 0.09 | 19,19,19,19                 | 1     |
| 7   | NA   | A     | 711  | 1/1   | 0.99 | 0.07 | 25,25,25,25                 | 0     |
| 7   | NA   | D     | 709  | 1/1   | 0.99 | 0.08 | 22,22,22,22                 | 0     |
| 3   | SO4  | D     | 706  | 5/5   | 0.99 | 0.09 | 19,20,21,25                 | 0     |
| 3   | SO4  | L     | 702  | 5/5   | 0.99 | 0.07 | 17,19,20,22                 | 0     |
| 7   | NA   | H     | 708  | 1/1   | 0.99 | 0.05 | 23,23,23,23                 | 0     |
| 7   | NA   | I     | 709  | 1/1   | 0.99 | 0.06 | 20,20,20,20                 | 0     |
| 7   | NA   | J     | 708  | 1/1   | 0.99 | 0.08 | 21,21,21,21                 | 0     |
| 7   | NA   | K     | 708  | 1/1   | 0.99 | 0.09 | 21,21,21,21                 | 0     |
| 6   | ZN   | J     | 707  | 1/1   | 0.99 | 0.03 | 21,21,21,21                 | 1     |
| 7   | NA   | B     | 1405 | 1/1   | 1.00 | 0.04 | 23,23,23,23                 | 0     |

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

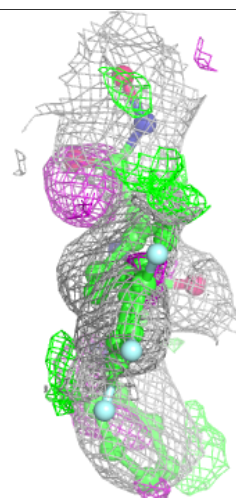
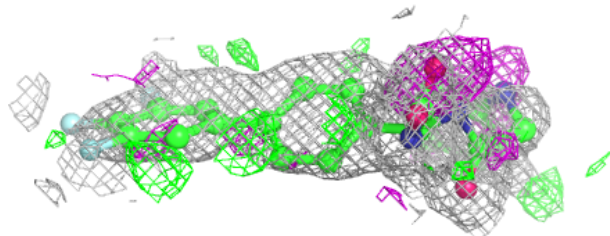
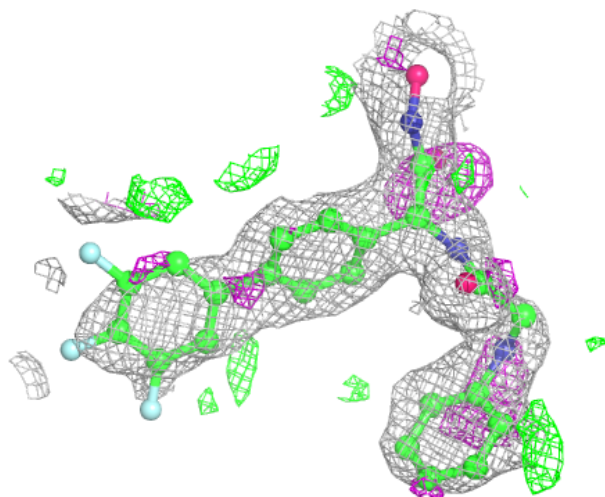
**Electron density around X10 L 701:**

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



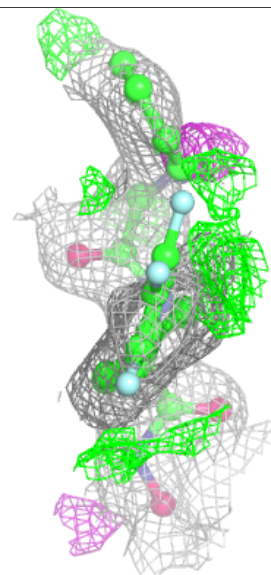
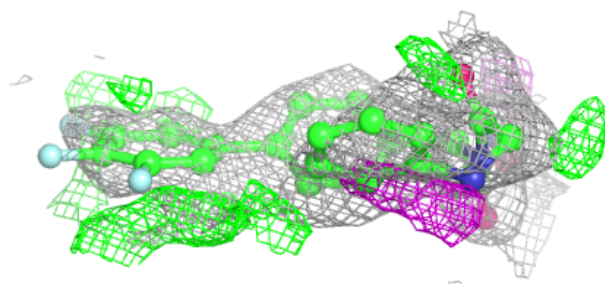
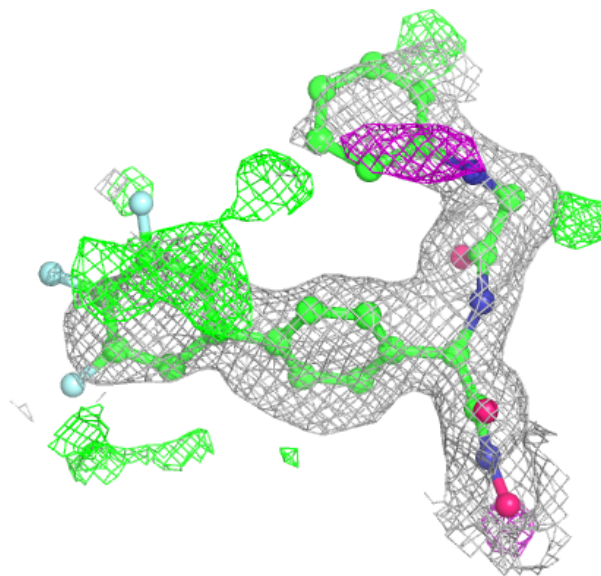
**Electron density around X10 D 701:**

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



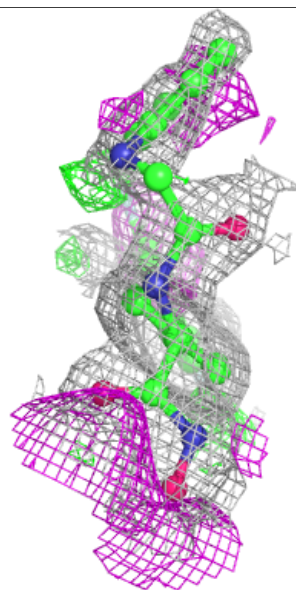
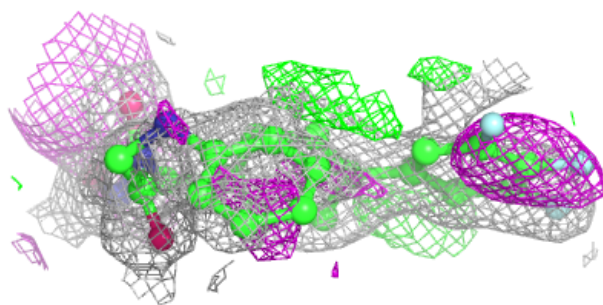
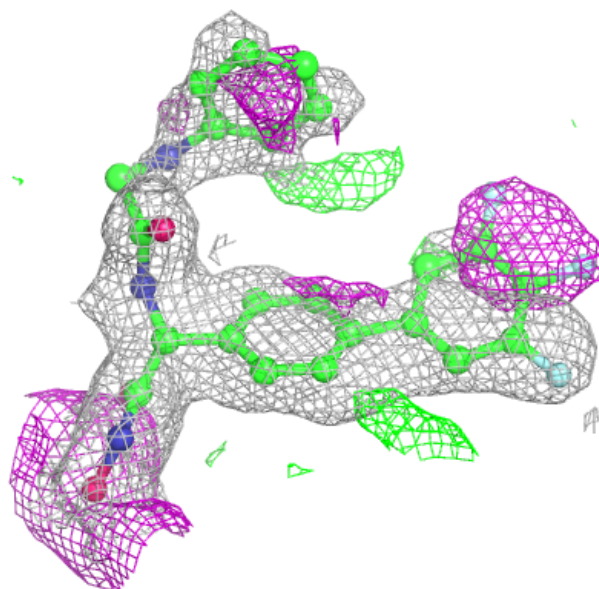
**Electron density around X10 C 701:**

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



**Electron density around X10 B 1401:**

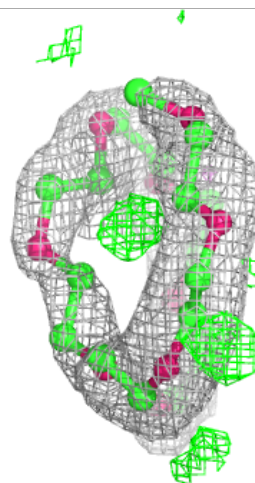
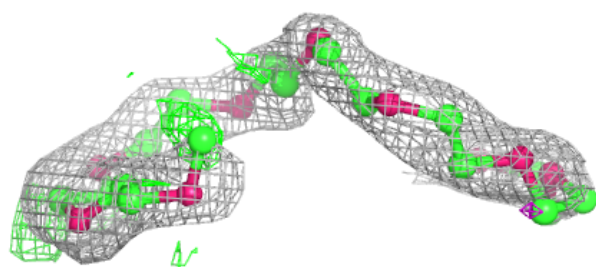
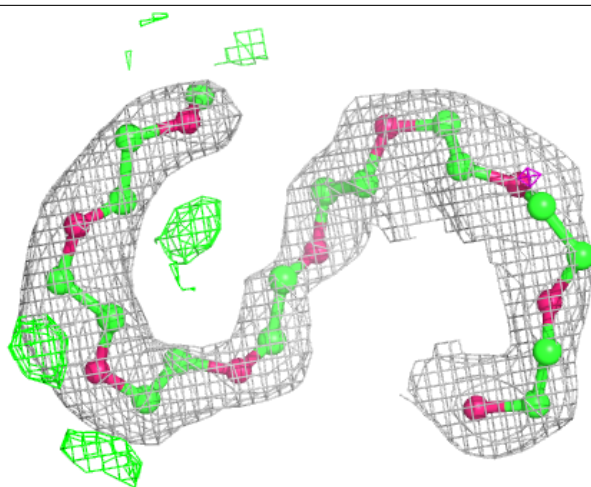
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)





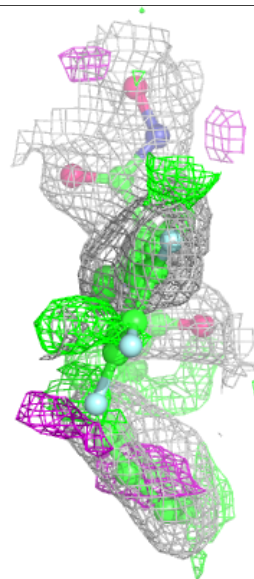
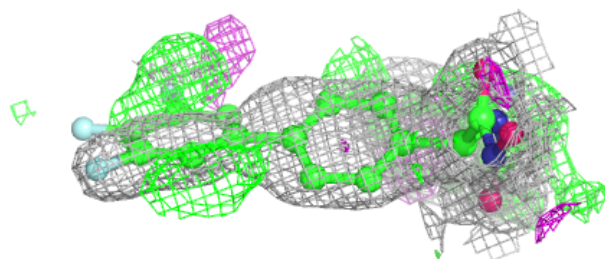
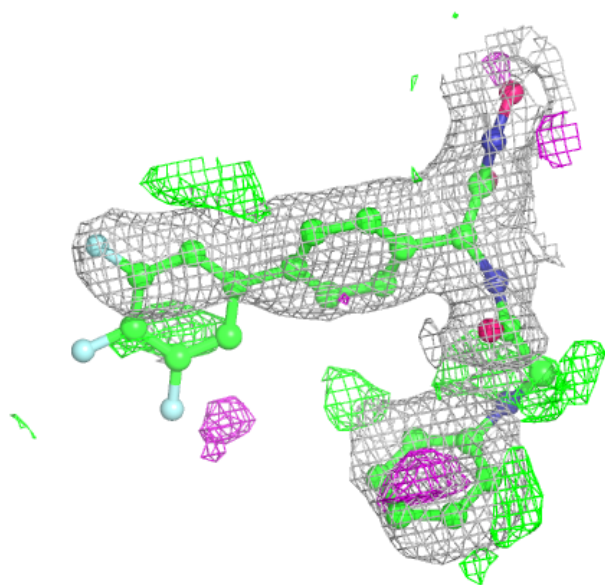
**Electron density around 2PE H 705:**

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



**Electron density around X10 E 701:**

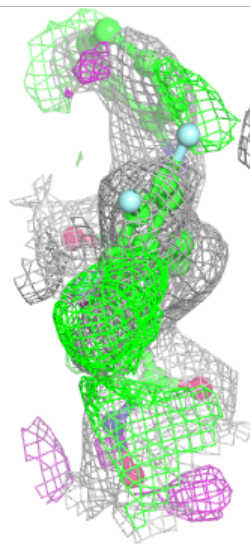
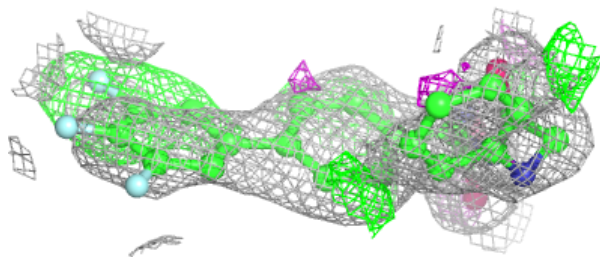
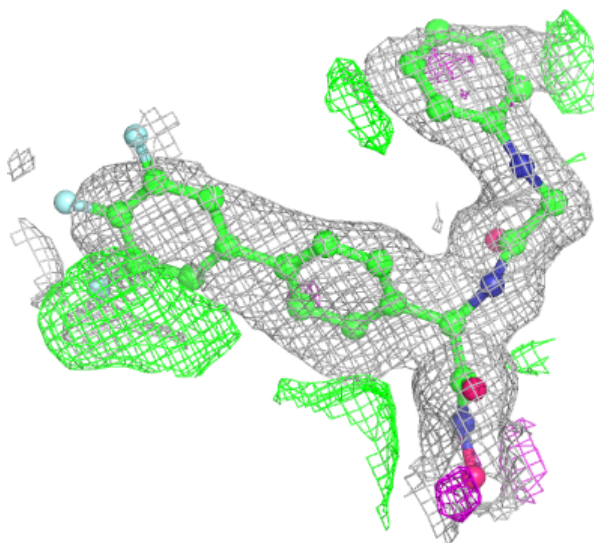
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)





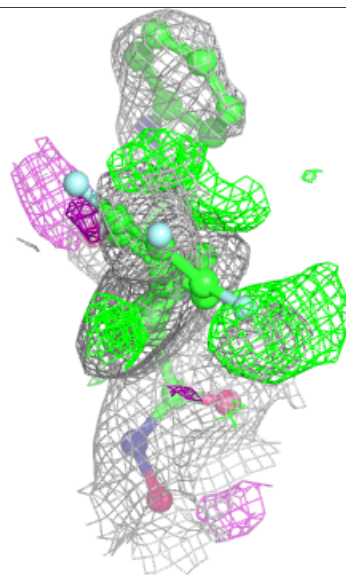
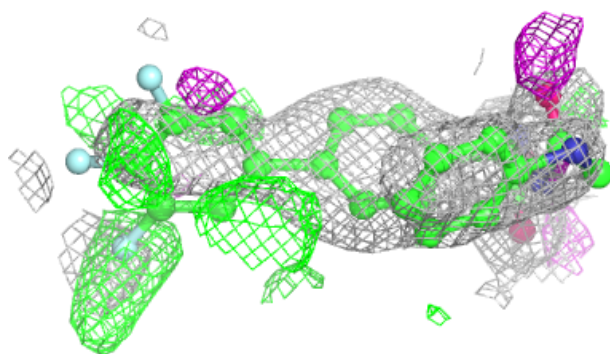
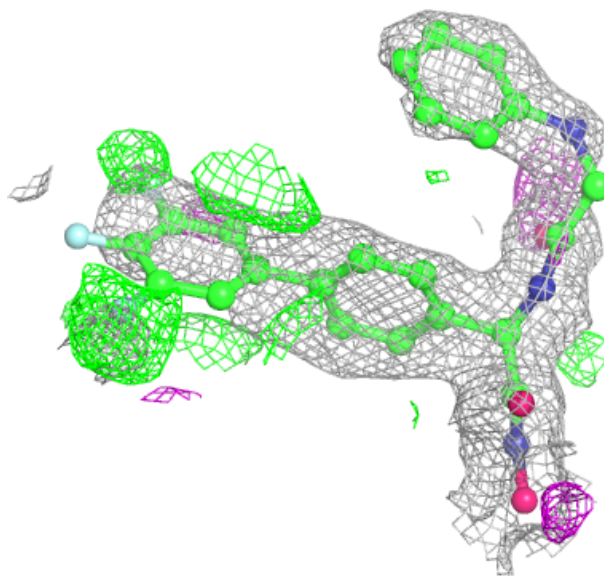
**Electron density around X10 I 701:**

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



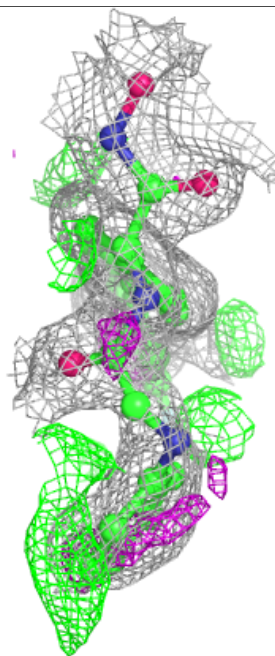
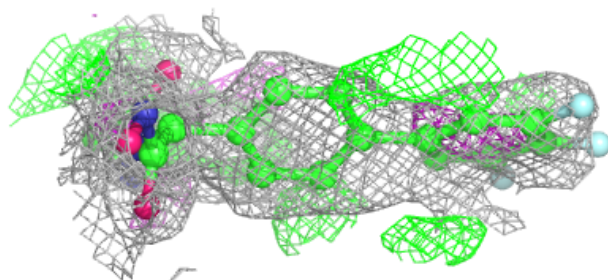
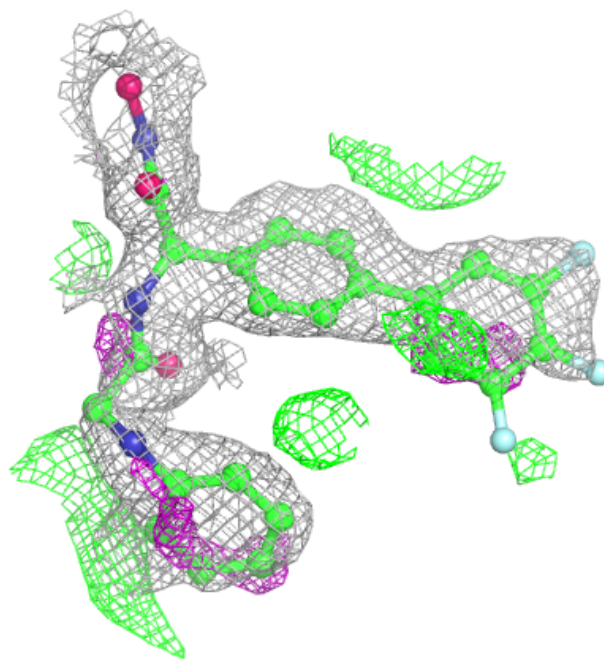
**Electron density around X10 H 701:**

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



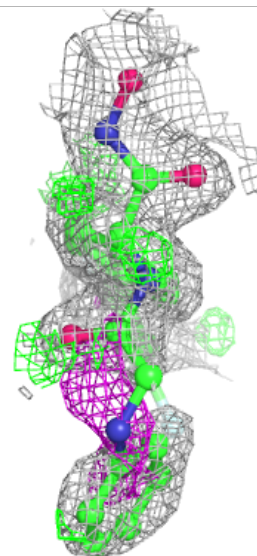
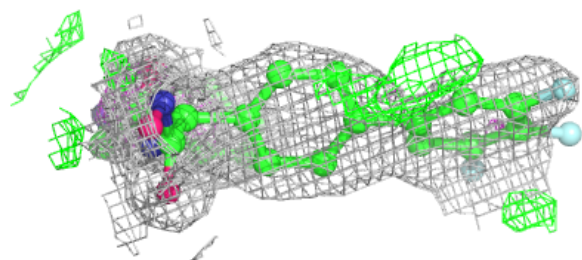
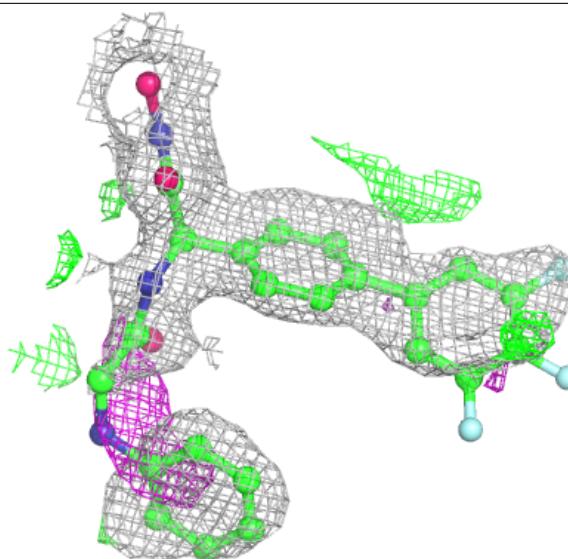
**Electron density around X10 J 701:**

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



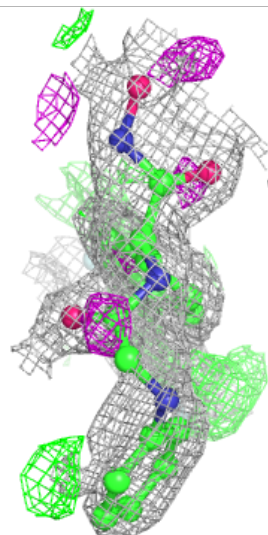
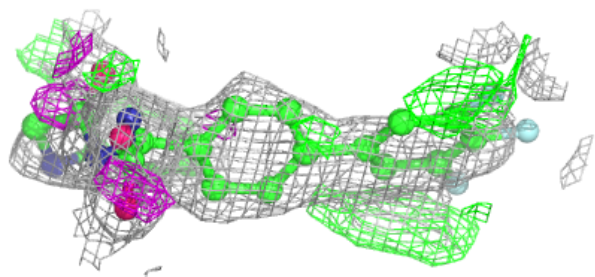
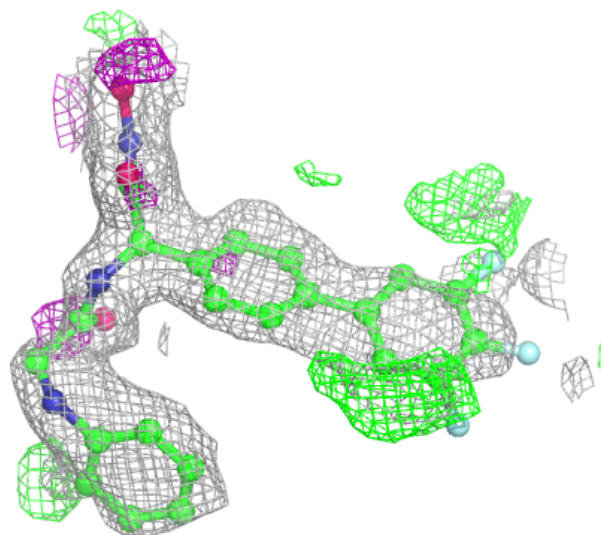
**Electron density around X10 K 701:**

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



**Electron density around X10 F 701:**

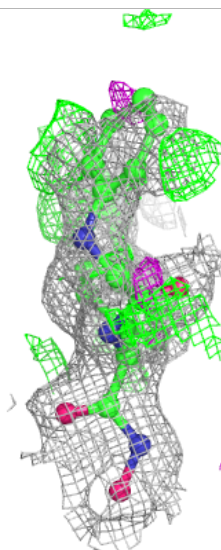
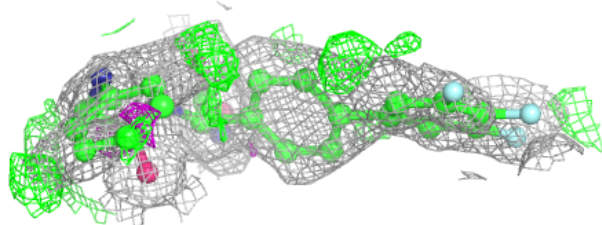
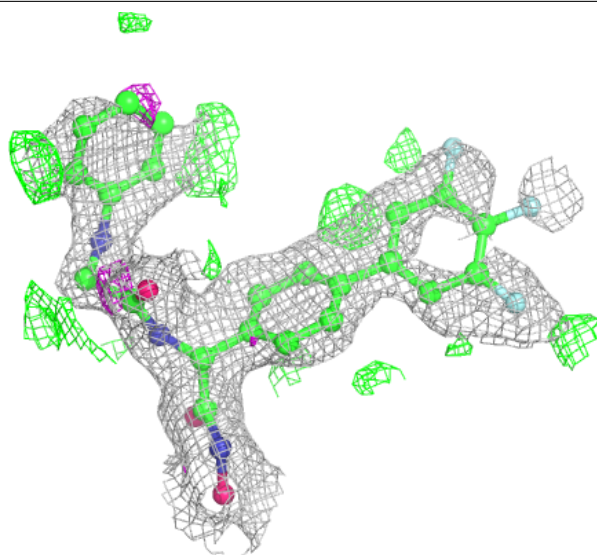
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)

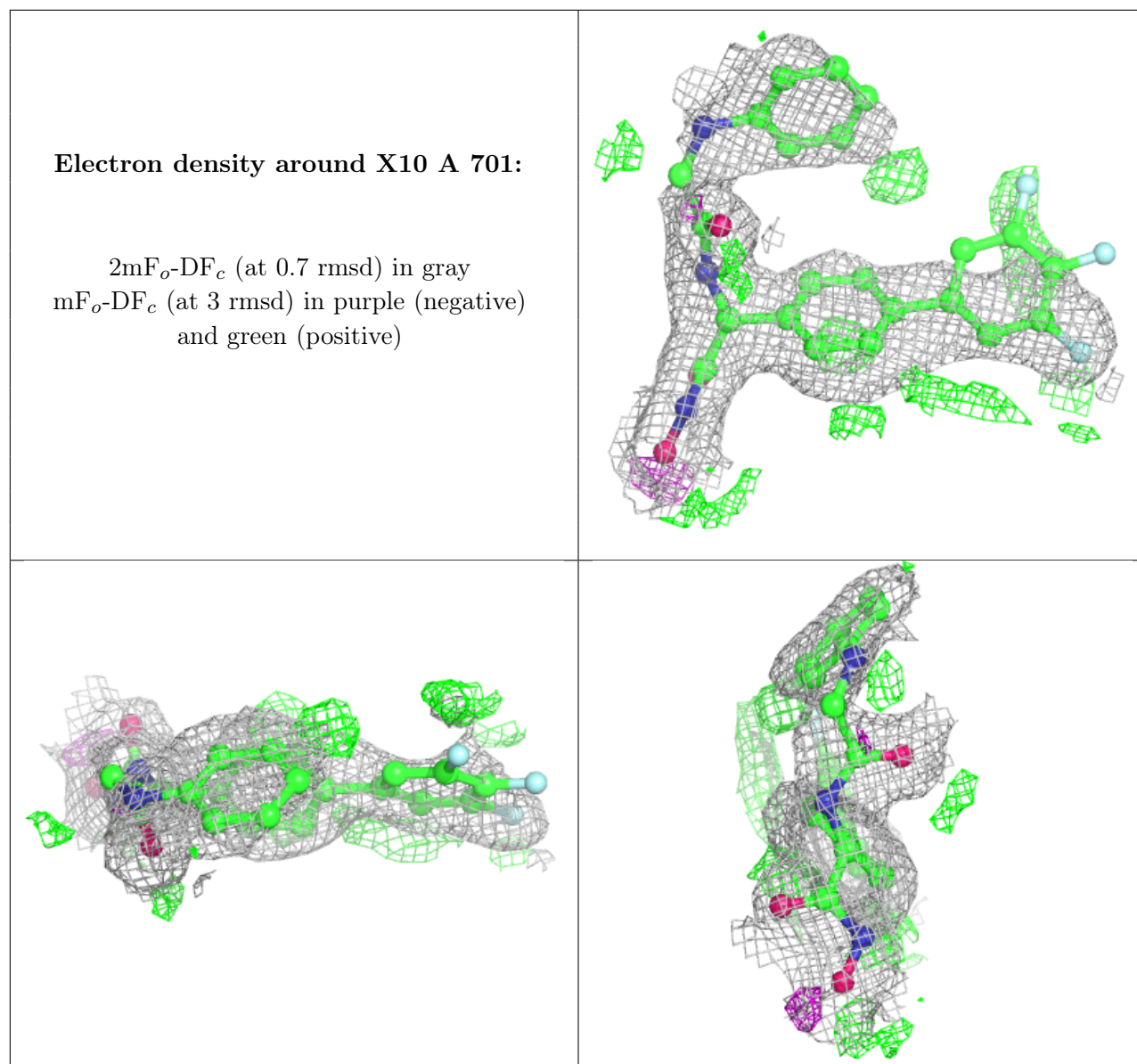




**Electron density around X10 G 701:**

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





## 6.5 Other polymers [i](#)

There are no such residues in this entry.