



# Full wwPDB X-ray Structure Validation Report ⓘ

Jun 25, 2024 – 10:07 AM EDT

PDB ID : 8UAR  
Title : Rhodococcus ruber Alcohol Dehydrogenase NADH Biomimetic Complex -  
Compound 4b  
Authors : Wilson, L.A.; Schenk, G.; Guddat, L.W.; Scott, C.  
Deposited on : 2023-09-22  
Resolution : 2.99 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 : 2.37.1  
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) : 2.37.1

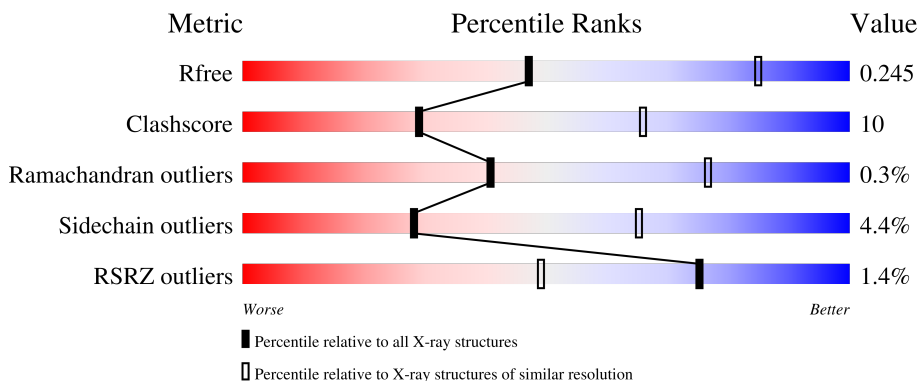
# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.99 Å.

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



| Metric                | Whole archive<br>(#Entries) | Similar resolution<br>(#Entries, resolution range(Å)) |
|-----------------------|-----------------------------|---|
| $R_{free}$            | 130704                      | 2092 (3.00-3.00)                                      |
| Clashscore            | 141614                      | 2416 (3.00-3.00)                                      |
| Ramachandran outliers | 138981                      | 2333 (3.00-3.00)                                      |
| Sidechain outliers    | 138945                      | 2336 (3.00-3.00)                                      |
| RSRZ outliers         | 127900                      | 1990 (3.00-3.00)                                      |

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     | 365    | <br>79% 15% . .  |
| 1   | B     | 365    | <br>76% 18% . .  |
| 1   | C     | 365    | <br>76% 17% . .  |
| 1   | D     | 365    | <br>78% 17% . .  |
| 1   | E     | 365    | <br>78% 17% . .  |

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| Mol | Chain | Length | Quality of chain             |
|-----|-------|--------|------------------------------|
| 1   | F     | 365    | <p>%</p> <p>75% 18% • 5%</p> |
| 1   | G     | 365    | <p>%</p> <p>81% 13% • •</p>  |
| 1   | H     | 365    | <p>2%</p> <p>77% 17% • •</p> |
| 1   | I     | 365    | <p>%</p> <p>74% 20% • •</p>  |
| 1   | J     | 365    | <p>2%</p> <p>65% 28% • •</p> |
| 1   | K     | 365    | <p>2%</p> <p>71% 23% • •</p> |
| 1   | L     | 365    | <p>2%</p> <p>69% 26% • •</p> |

## 2 Entry composition [i](#)

There are 6 unique types of molecules in this entry. The entry contains 30414 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 *Rhodococcus ruber* ADH.

| Mol | Chain | Residues | Atoms |      |     |     |    | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|---------|-------|
|     |       |          | Total | C    | N   | O   | S  |         |         |       |
| 1   | A     | 352      | 2526  | 1594 | 445 | 475 | 12 | 0       | 0       | 0     |
| 1   | B     | 349      | 2511  | 1583 | 444 | 472 | 12 | 0       | 1       | 0     |
| 1   | C     | 349      | 2504  | 1578 | 442 | 472 | 12 | 0       | 0       | 0     |
| 1   | D     | 351      | 2518  | 1588 | 444 | 474 | 12 | 0       | 0       | 0     |
| 1   | E     | 349      | 2504  | 1578 | 442 | 472 | 12 | 0       | 0       | 0     |
| 1   | F     | 348      | 2493  | 1572 | 438 | 471 | 12 | 0       | 0       | 0     |
| 1   | G     | 350      | 2511  | 1583 | 443 | 473 | 12 | 0       | 0       | 0     |
| 1   | H     | 350      | 2511  | 1583 | 443 | 473 | 12 | 0       | 0       | 0     |
| 1   | I     | 349      | 2504  | 1578 | 442 | 472 | 12 | 0       | 0       | 0     |
| 1   | J     | 349      | 2504  | 1578 | 442 | 472 | 12 | 0       | 0       | 0     |
| 1   | K     | 349      | 2504  | 1578 | 442 | 472 | 12 | 0       | 0       | 0     |
| 1   | L     | 349      | 2504  | 1578 | 442 | 472 | 12 | 0       | 0       | 0     |

- Molecule 2 is ZINC ION (three-letter code: ZN) (formula: Zn).

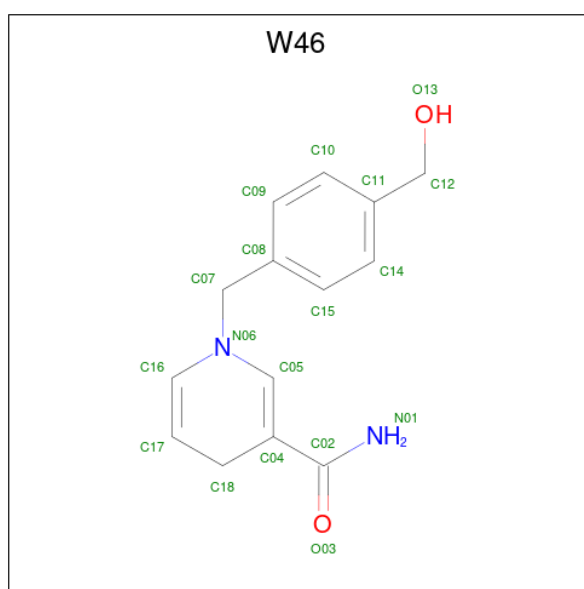
| Mol | Chain | Residues | Atoms |    | ZeroOcc | AltConf |
|-----|-------|----------|-------|----|---------|---------|
| 2   | A     | 2        | Total | Zn | 0       | 0       |
|     |       |          | 2     | 2  |         |         |
| 2   | B     | 2        | Total | Zn | 0       | 0       |
|     |       |          | 2     | 2  |         |         |

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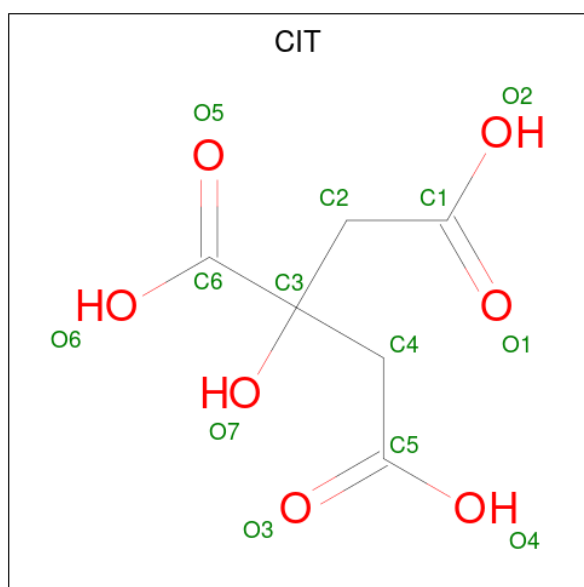
| Mol | Chain | Residues | Atoms           | ZeroOcc | AltConf |
|-----|-------|----------|-----------------|---------|---------|
| 2   | C     | 2        | Total Zn<br>2 2 | 0       | 0       |
| 2   | D     | 2        | Total Zn<br>2 2 | 0       | 0       |
| 2   | E     | 2        | Total Zn<br>2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

- Molecule 3 is 1-[[4-(hydroxymethyl)phenyl]methyl]-1,4-dihydropyridine-3-carboxamide (three-letter code: W46) (formula: C<sub>14</sub>H<sub>16</sub>N<sub>2</sub>O<sub>2</sub>) (labeled as "Ligand of Interest" by depositor).



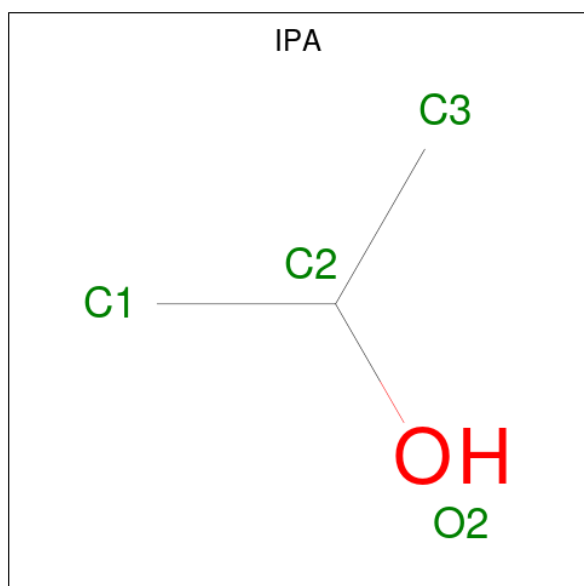
| Mol | Chain | Residues | Atoms |    |   |   | ZeroOcc | AltConf |
|-----|-------|----------|-------|----|---|---|---------|---------|
| 3   | A     | 1        | Total | C  | N | O | 0       | 0       |
|     |       |          | 18    | 14 | 2 | 2 |         |         |
| 3   | B     | 1        | Total | C  | N | O | 0       | 0       |
|     |       |          | 18    | 14 | 2 | 2 |         |         |
| 3   | C     | 1        | Total | C  | N | O | 0       | 0       |
|     |       |          | 18    | 14 | 2 | 2 |         |         |
| 3   | D     | 1        | Total | C  | N | O | 0       | 0       |
|     |       |          | 18    | 14 | 2 | 2 |         |         |
| 3   | E     | 1        | Total | C  | N | O | 0       | 0       |
|     |       |          | 18    | 14 | 2 | 2 |         |         |
| 3   | F     | 1        | Total | C  | N | O | 0       | 0       |
|     |       |          | 18    | 14 | 2 | 2 |         |         |
| 3   | H     | 1        | Total | C  | N | O | 0       | 0       |
|     |       |          | 18    | 14 | 2 | 2 |         |         |
| 3   | I     | 1        | Total | C  | N | O | 0       | 0       |
|     |       |          | 18    | 14 | 2 | 2 |         |         |
| 3   | J     | 1        | Total | C  | N | O | 0       | 0       |
|     |       |          | 18    | 14 | 2 | 2 |         |         |
| 3   | K     | 1        | Total | C  | N | O | 0       | 0       |
|     |       |          | 18    | 14 | 2 | 2 |         |         |
| 3   | L     | 1        | Total | C  | N | O | 0       | 0       |
|     |       |          | 18    | 14 | 2 | 2 |         |         |

- Molecule 4 is CITRIC ACID (three-letter code: CIT) (formula:  $C_6H_8O_7$ ) (labeled as "Ligand of Interest" by depositor).



| Mol | Chain | Residues | Atoms |   |   | ZeroOcc | AltConf |
|-----|-------|----------|-------|---|---|---------|---------|
| 4   | B     | 1        | Total | C | O | 0       | 0       |
|     |       |          | 13    | 6 | 7 |         |         |
| 4   | H     | 1        | Total | C | O | 0       | 0       |
|     |       |          | 13    | 6 | 7 |         |         |
| 4   | I     | 1        | Total | C | O | 0       | 0       |
|     |       |          | 13    | 6 | 7 |         |         |
| 4   | K     | 1        | Total | C | O | 0       | 0       |
|     |       |          | 13    | 6 | 7 |         |         |
| 4   | L     | 1        | Total | C | O | 0       | 0       |
|     |       |          | 13    | 6 | 7 |         |         |

- Molecule 5 is ISOPROPYL ALCOHOL (three-letter code: IPA) (formula: C<sub>3</sub>H<sub>8</sub>O).



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

- Molecule 6 is water.

| Mol | Chain | Residues | Atoms |   | ZeroOcc | AltConf |
|-----|-------|----------|-------|---|---------|---------|
| 6   | A     | 1        | Total | O | 0       | 0       |
|     |       |          | 1     | 1 |         |         |
| 6   | C     | 2        | Total | O | 0       | 0       |
|     |       |          | 2     | 2 |         |         |
| 6   | D     | 3        | Total | O | 0       | 0       |
|     |       |          | 3     | 3 |         |         |
| 6   | E     | 2        | Total | O | 0       | 0       |
|     |       |          | 2     | 2 |         |         |

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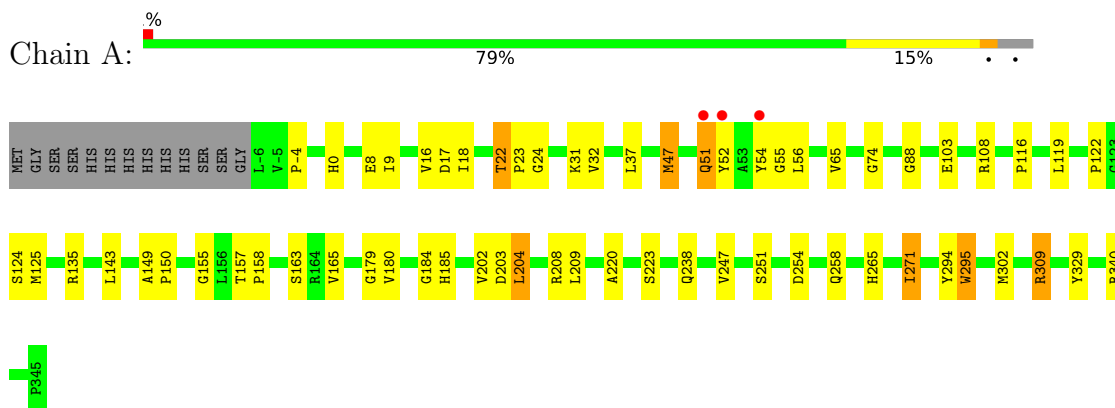
| <b>Mol</b> | <b>Chain</b> | <b>Residues</b> | <b>Atoms</b>   | <b>ZeroOcc</b> | <b>AltConf</b> |
|------------|--------------|-----------------|----------------|----------------|----------------|
| 6          | F            | 2               | Total O<br>2 2 | 0              | 0              |
| 6          | G            | 9               | Total O<br>9 9 | 0              | 0              |
| 6          | H            | 3               | Total O<br>3 3 | 0              | 0              |
| 6          | K            | 6               | Total O<br>6 6 | 0              | 0              |
| 6          | L            | 1               | Total O<br>1 1 | 0              | 0              |



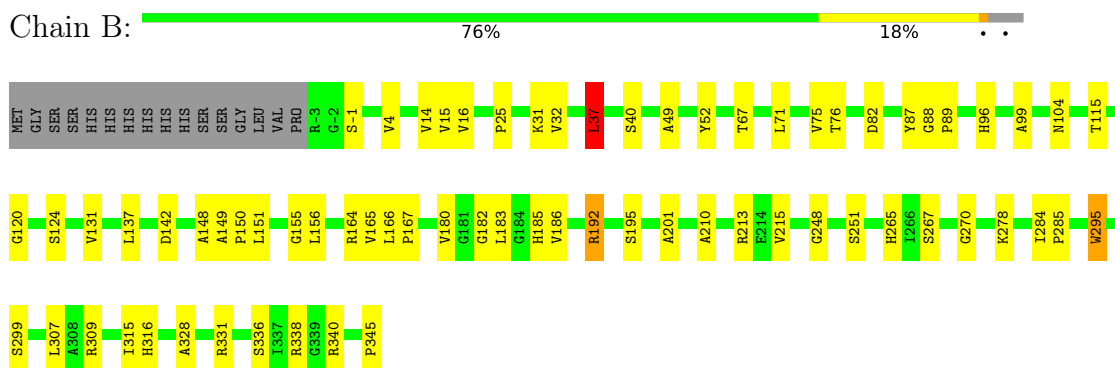
### 3 Residue-property plots i

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.

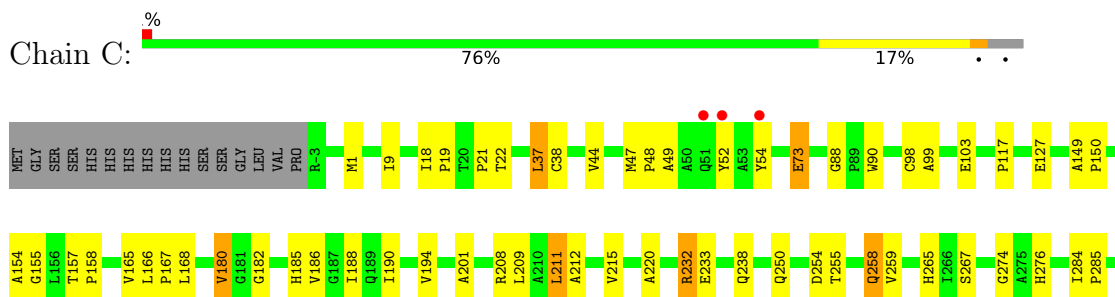
- Molecule 1: *Rhodococcus ruber* ADH



- Molecule 1: *Rhodococcus ruber* ADH

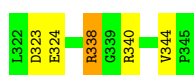
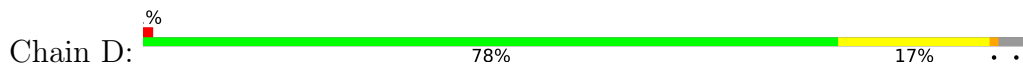


- Molecule 1: *Rhodococcus ruber* ADH

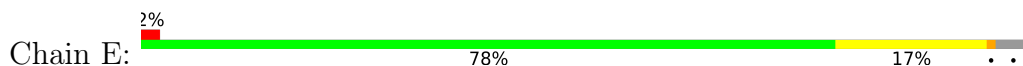




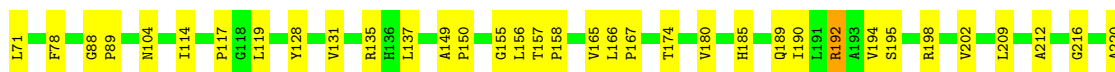
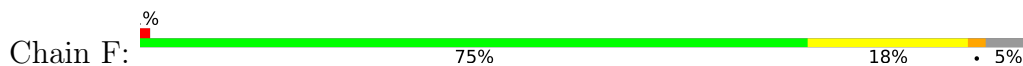
- Molecule 1: *Rhodococcus ruber* ADH



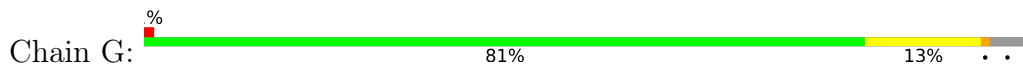
- Molecule 1: *Rhodococcus ruber* ADH



- Molecule 1: *Rhodococcus ruber* ADH



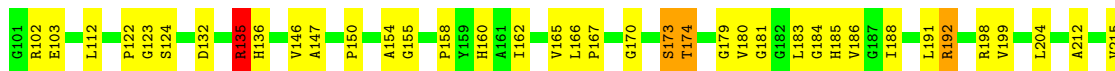
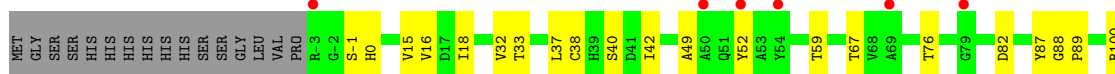
- Molecule 1: *Rhodococcus ruber* ADH



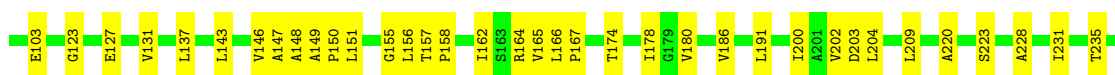
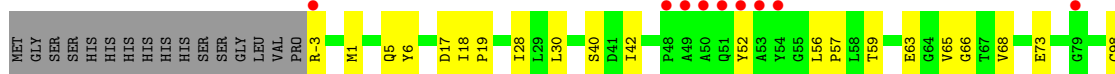




- Molecule 1: Rhodococcus ruber ADH



- Molecule 1: Rhodococcus ruber ADH



## 4 Data and refinement statistics

| Property  | Value   | Source           |
|---|---|------------------|
| Space group   | P 1 21 1  | Depositor        |
| Cell constants<br>a, b, c, $\alpha$ , $\beta$ , $\gamma$                | 78.30Å 158.18Å 272.94Å<br>90.00° 91.05° 90.00°              | Depositor        |
| Resolution (Å)  | 49.18 – 2.99<br>49.18 – 2.99                                | Depositor<br>EDS |
| % Data completeness<br>(in resolution range)                            | 99.4 (49.18-2.99)<br>99.4 (49.18-2.99)                      | Depositor<br>EDS |
| $R_{merge}$   | 0.15  | Depositor        |
| $R_{sym}$   | (Not available)   | Depositor        |
| $\langle I/\sigma(I) \rangle$ <sup>1</sup>                              | 1.85 (at 3.01Å)   | Xtrriage         |
| Refinement program  | REFMAC 5.8.0419   | Depositor        |
| R, $R_{free}$   | 0.193 , 0.246<br>0.194 , 0.245                              | Depositor<br>DCC |
| $R_{free}$ test set   | 2006 reflections (1.50%)                                    | wwPDB-VP         |
| Wilson B-factor (Å <sup>2</sup> )                                       | 42.8  | Xtrriage         |
| Anisotropy  | 0.279   | Xtrriage         |
| Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> ) | 0.32 , 39.2   | EDS              |
| L-test for twinning <sup>2</sup>  | $\langle  L  \rangle = 0.48$ , $\langle L^2 \rangle = 0.31$ | Xtrriage         |
| Estimated twinning fraction   | 0.019 for h,-k,-l   | Xtrriage         |
| $F_o, F_c$ correlation  | 0.93  | EDS              |
| Total number of atoms   | 30414   | wwPDB-VP         |
| Average B, all atoms (Å <sup>2</sup> )                                  | 40.0  | wwPDB-VP         |

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 7.17% of the height of the origin peak. No significant pseudotranslation is detected.*

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

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

## 5 Model quality

### 5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: IPA, ZN, CIT, W46

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     | 0.42         | 0/2579  | 0.93        | 4/3522 (0.1%)   |
| 1   | B     | 0.42         | 0/2567  | 0.95        | 8/3504 (0.2%)   |
| 1   | C     | 0.39         | 0/2556  | 0.90        | 5/3489 (0.1%)   |
| 1   | D     | 0.41         | 0/2571  | 0.93        | 3/3511 (0.1%)   |
| 1   | E     | 0.40         | 0/2556  | 0.88        | 2/3489 (0.1%)   |
| 1   | F     | 0.39         | 0/2545  | 0.89        | 4/3475 (0.1%)   |
| 1   | G     | 0.42         | 0/2564  | 0.92        | 5/3500 (0.1%)   |
| 1   | H     | 0.40         | 0/2564  | 0.90        | 3/3500 (0.1%)   |
| 1   | I     | 0.39         | 0/2556  | 0.86        | 1/3489 (0.0%)   |
| 1   | J     | 0.38         | 0/2556  | 0.92        | 9/3489 (0.3%)   |
| 1   | K     | 0.39         | 0/2556  | 0.88        | 3/3489 (0.1%)   |
| 1   | L     | 0.37         | 0/2556  | 0.89        | 3/3489 (0.1%)   |
| All | All   | 0.40         | 0/30726 | 0.91        | 50/41946 (0.1%) |

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

| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 1   | C     | 0                   | 1                   |
| 1   | D     | 0                   | 2                   |
| 1   | E     | 0                   | 1                   |
| 1   | H     | 0                   | 1                   |
| All | All   | 0                   | 5                   |

There are no bond length outliers.

All (50) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms      | Z      | Observed(°) | Ideal(°) |
|-----|-------|-----|------|------------|--------|-------------|----------|
| 1   | B     | 164 | ARG  | NE-CZ-NH2  | -11.49 | 114.55      | 120.30   |
| 1   | L     | 338 | ARG  | NE-CZ-NH1  | 10.46  | 125.53      | 120.30   |
| 1   | L     | 338 | ARG  | CD-NE-CZ   | 9.48   | 136.87      | 123.60   |
| 1   | G     | 37  | LEU  | CB-CG-CD2  | -8.18  | 97.10       | 111.00   |
| 1   | J     | 164 | ARG  | NE-CZ-NH1  | -8.13  | 116.23      | 120.30   |
| 1   | C     | 37  | LEU  | CB-CG-CD2  | -7.93  | 97.51       | 111.00   |
| 1   | L     | 164 | ARG  | NE-CZ-NH2  | -7.66  | 116.47      | 120.30   |
| 1   | C     | 309 | ARG  | NE-CZ-NH2  | -7.51  | 116.54      | 120.30   |
| 1   | D     | -3  | ARG  | CD-NE-CZ   | 7.15   | 133.60      | 123.60   |
| 1   | D     | 47  | MET  | CG-SD-CE   | 6.87   | 111.19      | 100.20   |
| 1   | G     | 345 | PRO  | CA-C-O     | -6.86  | 103.74      | 120.20   |
| 1   | A     | 47  | MET  | CG-SD-CE   | 6.76   | 111.02      | 100.20   |
| 1   | A     | 238 | GLN  | CB-CA-C    | 6.75   | 123.90      | 110.40   |
| 1   | D     | 302 | MET  | CG-SD-CE   | -6.70  | 89.48       | 100.20   |
| 1   | B     | 37  | LEU  | CB-CG-CD2  | -6.53  | 99.90       | 111.00   |
| 1   | B     | 345 | PRO  | CA-C-O     | -6.49  | 104.62      | 120.20   |
| 1   | F     | 319 | THR  | CA-CB-OG1  | -6.31  | 95.75       | 109.00   |
| 1   | K     | 0   | HIS  | CB-CA-C    | -6.13  | 98.14       | 110.40   |
| 1   | C     | 73  | GLU  | CB-CG-CD   | -5.94  | 98.15       | 114.20   |
| 1   | C     | 168 | LEU  | CB-CG-CD1  | -5.90  | 100.97      | 111.00   |
| 1   | F     | 47  | MET  | CG-SD-CE   | 5.87   | 109.59      | 100.20   |
| 1   | H     | 100 | ARG  | NE-CZ-NH2  | -5.71  | 117.44      | 120.30   |
| 1   | J     | 47  | MET  | CG-SD-CE   | 5.66   | 109.25      | 100.20   |
| 1   | J     | 100 | ARG  | NE-CZ-NH2  | -5.65  | 117.47      | 120.30   |
| 1   | H     | 204 | LEU  | CB-CG-CD2  | 5.65   | 120.61      | 111.00   |
| 1   | J     | 183 | LEU  | CB-CG-CD1  | 5.64   | 120.59      | 111.00   |
| 1   | J     | 302 | MET  | CG-SD-CE   | 5.56   | 109.10      | 100.20   |
| 1   | C     | 319 | THR  | CA-CB-OG1  | -5.55  | 97.34       | 109.00   |
| 1   | J     | 100 | ARG  | NE-CZ-NH1  | 5.44   | 123.02      | 120.30   |
| 1   | E     | 47  | MET  | CG-SD-CE   | 5.44   | 108.90      | 100.20   |
| 1   | B     | 307 | LEU  | CB-CG-CD1  | -5.40  | 101.82      | 111.00   |
| 1   | A     | 143 | LEU  | CB-CG-CD1  | -5.39  | 101.83      | 111.00   |
| 1   | B     | 142 | ASP  | CB-CA-C    | 5.38   | 121.16      | 110.40   |
| 1   | F     | 312 | ARG  | CB-CG-CD   | 5.36   | 125.53      | 111.60   |
| 1   | B     | 164 | ARG  | NH1-CZ-NH2 | 5.29   | 125.22      | 119.40   |
| 1   | J     | 164 | ARG  | NH1-CZ-NH2 | 5.29   | 125.22      | 119.40   |
| 1   | J     | 100 | ARG  | CD-NE-CZ   | 5.27   | 130.98      | 123.60   |
| 1   | H     | 238 | GLN  | CB-CA-C    | 5.24   | 120.89      | 110.40   |
| 1   | B     | 164 | ARG  | CD-NE-CZ   | 5.22   | 130.90      | 123.60   |
| 1   | J     | 164 | ARG  | CD-NE-CZ   | 5.22   | 130.90      | 123.60   |
| 1   | F     | 302 | MET  | CG-SD-CE   | 5.17   | 108.48      | 100.20   |
| 1   | A     | 309 | ARG  | NE-CZ-NH1  | 5.16   | 122.88      | 120.30   |
| 1   | E     | 37  | LEU  | CB-CG-CD2  | -5.15  | 102.24      | 111.00   |

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| Mol | Chain | Res | Type | Atoms     | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-----------|-------|-------------|----------|
| 1   | B     | 76  | THR  | CA-CB-OG1 | -5.12 | 98.25       | 109.00   |
| 1   | I     | 108 | ARG  | CD-NE-CZ  | 5.09  | 130.72      | 123.60   |
| 1   | K     | 100 | ARG  | CA-CB-CG  | 5.07  | 124.55      | 113.40   |
| 1   | G     | 309 | ARG  | NE-CZ-NH2 | -5.05 | 117.78      | 120.30   |
| 1   | G     | 312 | ARG  | CD-NE-CZ  | 5.03  | 130.63      | 123.60   |
| 1   | G     | 48  | PRO  | N-CD-CG   | -5.02 | 95.67       | 103.20   |
| 1   | K     | 135 | ARG  | NE-CZ-NH1 | 5.01  | 122.80      | 120.30   |

There are no chirality outliers.

All (5) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group     |
|-----|-------|-----|------|-----------|
| 1   | C     | 309 | ARG  | Sidechain |
| 1   | D     | 213 | ARG  | Sidechain |
| 1   | D     | 338 | ARG  | Sidechain |
| 1   | E     | 208 | ARG  | Sidechain |
| 1   | H     | 338 | ARG  | Sidechain |

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

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

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | A     | 2526  | 0        | 2520     | 36      | 0            |
| 1   | B     | 2511  | 0        | 2500     | 42      | 0            |
| 1   | C     | 2504  | 0        | 2493     | 51      | 0            |
| 1   | D     | 2518  | 0        | 2509     | 51      | 1            |
| 1   | E     | 2504  | 0        | 2493     | 43      | 1            |
| 1   | F     | 2493  | 0        | 2480     | 47      | 0            |
| 1   | G     | 2511  | 0        | 2500     | 42      | 0            |
| 1   | H     | 2511  | 0        | 2500     | 41      | 0            |
| 1   | I     | 2504  | 0        | 2494     | 50      | 0            |
| 1   | J     | 2504  | 0        | 2494     | 78      | 0            |
| 1   | K     | 2504  | 0        | 2493     | 56      | 0            |
| 1   | L     | 2504  | 0        | 2493     | 61      | 0            |
| 2   | A     | 2     | 0        | 0        | 0       | 0            |
| 2   | B     | 2     | 0        | 0        | 0       | 0            |
| 2   | C     | 2     | 0        | 0        | 0       | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 2   | D     | 2     | 0        | 0        | 0       | 0            |
| 2   | E     | 2     | 0        | 0        | 0       | 0            |
| 2   | F     | 2     | 0        | 0        | 0       | 0            |
| 2   | G     | 2     | 0        | 0        | 0       | 0            |
| 2   | H     | 2     | 0        | 0        | 0       | 0            |
| 2   | I     | 2     | 0        | 0        | 0       | 0            |
| 2   | J     | 2     | 0        | 0        | 0       | 0            |
| 2   | K     | 2     | 0        | 0        | 0       | 0            |
| 2   | L     | 2     | 0        | 0        | 0       | 0            |
| 3   | A     | 18    | 0        | 0        | 1       | 0            |
| 3   | B     | 18    | 0        | 0        | 1       | 0            |
| 3   | C     | 18    | 0        | 0        | 0       | 0            |
| 3   | D     | 18    | 0        | 0        | 0       | 0            |
| 3   | E     | 18    | 0        | 0        | 1       | 0            |
| 3   | F     | 18    | 0        | 0        | 0       | 0            |
| 3   | H     | 18    | 0        | 0        | 0       | 0            |
| 3   | I     | 18    | 0        | 0        | 0       | 0            |
| 3   | J     | 18    | 0        | 0        | 1       | 0            |
| 3   | K     | 18    | 0        | 0        | 0       | 0            |
| 3   | L     | 18    | 0        | 0        | 4       | 0            |
| 4   | B     | 13    | 0        | 5        | 2       | 0            |
| 4   | H     | 13    | 0        | 5        | 0       | 0            |
| 4   | I     | 13    | 0        | 5        | 1       | 0            |
| 4   | K     | 13    | 0        | 5        | 1       | 0            |
| 4   | L     | 13    | 0        | 5        | 3       | 0            |
| 5   | B     | 4     | 0        | 8        | 0       | 0            |
| 6   | A     | 1     | 0        | 0        | 0       | 0            |
| 6   | C     | 2     | 0        | 0        | 0       | 0            |
| 6   | D     | 3     | 0        | 0        | 0       | 0            |
| 6   | E     | 2     | 0        | 0        | 0       | 0            |
| 6   | F     | 2     | 0        | 0        | 0       | 0            |
| 6   | G     | 9     | 0        | 0        | 0       | 0            |
| 6   | H     | 3     | 0        | 0        | 0       | 0            |
| 6   | K     | 6     | 0        | 0        | 0       | 0            |
| 6   | L     | 1     | 0        | 0        | 0       | 0            |
| All | All   | 30414 | 0        | 30002    | 578     | 1            |

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

All (578) 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:F:209:LEU:HD22 | 1:F:220:ALA:HB1  | 1.41                     | 1.03              |
| 1:D:42:ILE:HD12  | 1:D:43:PHE:N     | 1.75                     | 1.01              |
| 1:E:45:MET:CE    | 1:E:60:LEU:HD11  | 1.92                     | 0.98              |
| 1:E:45:MET:HE2   | 1:E:60:LEU:HD11  | 1.44                     | 0.97              |
| 1:E:318:GLU:OE2  | 1:E:331:ARG:NH1  | 1.99                     | 0.95              |
| 1:J:125:MET:HE3  | 1:J:329:TYR:HE2  | 1.32                     | 0.94              |
| 1:L:316:HIS:HB3  | 1:L:338:ARG:HH11 | 1.39                     | 0.87              |
| 1:B:316:HIS:HB3  | 1:B:338:ARG:NH1  | 1.90                     | 0.85              |
| 1:J:125:MET:HE3  | 1:J:329:TYR:CE2  | 2.11                     | 0.85              |
| 1:C:232:ARG:NH1  | 1:C:258:GLN:O    | 2.11                     | 0.83              |
| 1:F:150:PRO:HB3  | 1:F:340:ARG:HG2  | 1.58                     | 0.82              |
| 1:K:180:VAL:HG11 | 1:K:212:ALA:HB2  | 1.61                     | 0.82              |
| 1:C:211:LEU:HD12 | 1:C:212:ALA:H    | 1.46                     | 0.81              |
| 1:I:105:TYR:OH   | 1:I:160:HIS:HE1  | 1.64                     | 0.80              |
| 1:J:48:PRO:O     | 1:J:50:ALA:N     | 2.15                     | 0.80              |
| 1:E:52:TYR:HE1   | 1:E:55:GLY:H     | 1.30                     | 0.80              |
| 1:E:18:ILE:HB    | 1:E:19:PRO:HD2   | 1.63                     | 0.80              |
| 1:I:209:LEU:HD22 | 1:I:220:ALA:HB1  | 1.64                     | 0.79              |
| 1:K:340:ARG:HG2  | 1:K:340:ARG:HH11 | 1.47                     | 0.78              |
| 1:G:206:ASP:OD1  | 1:G:222:LYS:NZ   | 2.15                     | 0.78              |
| 1:C:211:LEU:HD12 | 1:C:212:ALA:N    | 2.00                     | 0.76              |
| 1:I:180:VAL:HG11 | 1:I:212:ALA:HB2  | 1.67                     | 0.75              |
| 1:C:211:LEU:CD1  | 1:C:212:ALA:N    | 2.49                     | 0.75              |
| 1:G:230:ALA:O    | 1:G:234:LEU:HD12 | 1.87                     | 0.75              |
| 1:J:45:MET:HE1   | 1:J:60:LEU:HD11  | 1.68                     | 0.74              |
| 1:I:190:ILE:O    | 1:I:194:VAL:HG22 | 1.88                     | 0.74              |
| 1:J:0:HIS:NE2    | 1:J:17:ASP:O     | 2.19                     | 0.74              |
| 1:C:190:ILE:O    | 1:C:194:VAL:HG22 | 1.89                     | 0.73              |
| 1:C:1:MET:CE     | 1:C:21:PRO:HD3   | 2.19                     | 0.73              |
| 1:J:18:ILE:HB    | 1:J:19:PRO:HD2   | 1.70                     | 0.72              |
| 1:B:316:HIS:HB3  | 1:B:338:ARG:HH11 | 1.53                     | 0.72              |
| 1:E:45:MET:CE    | 1:E:60:LEU:CD1   | 2.68                     | 0.72              |
| 1:K:170:GLY:O    | 1:K:173:SER:OG   | 2.07                     | 0.71              |
| 1:H:-3:ARG:NH1   | 1:H:-3:ARG:HB3   | 2.06                     | 0.71              |
| 1:G:180:VAL:HG12 | 1:G:180:VAL:O    | 1.90                     | 0.71              |
| 1:D:271:ILE:HD12 | 1:D:271:ILE:H    | 1.54                     | 0.70              |
| 1:E:116:PRO:HG2  | 1:E:119:LEU:HB2  | 1.73                     | 0.70              |
| 1:E:99:ALA:HB3   | 1:K:302:MET:CE   | 2.22                     | 0.69              |
| 1:E:99:ALA:CB    | 1:K:302:MET:CE   | 2.71                     | 0.69              |
| 1:C:90:TRP:CZ2   | 1:C:117:PRO:HG3  | 2.26                     | 0.69              |
| 1:J:16:VAL:HG12  | 1:J:18:ILE:HG23  | 1.73                     | 0.69              |
| 1:D:321:THR:HG22 | 1:D:324:GLU:CG   | 2.22                     | 0.69              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:208:ARG:HA   | 1:C:211:LEU:HG   | 1.75                     | 0.69              |
| 1:D:124:SER:HA   | 1:D:129:MET:HE2  | 1.76                     | 0.68              |
| 1:D:90:TRP:CZ2   | 1:D:117:PRO:HG3  | 2.28                     | 0.68              |
| 1:E:204:LEU:HD23 | 1:E:223:SER:HB3  | 1.75                     | 0.68              |
| 1:J:118:GLY:O    | 1:J:119:LEU:HD23 | 1.94                     | 0.68              |
| 1:J:18:ILE:HB    | 1:J:19:PRO:CD    | 2.23                     | 0.68              |
| 1:I:116:PRO:HG2  | 1:I:119:LEU:HB2  | 1.76                     | 0.68              |
| 1:I:180:VAL:HG12 | 1:I:180:VAL:O    | 1.93                     | 0.67              |
| 1:H:202:VAL:HG21 | 1:H:231:ILE:HD11 | 1.75                     | 0.67              |
| 1:G:180:VAL:HG11 | 1:G:212:ALA:HB2  | 1.76                     | 0.67              |
| 1:A:9:ILE:HG13   | 1:A:56:LEU:HD11  | 1.77                     | 0.67              |
| 1:D:271:ILE:HD12 | 1:D:271:ILE:N    | 2.09                     | 0.67              |
| 1:D:321:THR:HG22 | 1:D:324:GLU:HG3  | 1.76                     | 0.67              |
| 1:B:331:ARG:NH1  | 1:B:336:SER:O    | 2.28                     | 0.66              |
| 1:G:230:ALA:O    | 1:G:234:LEU:CD1  | 2.43                     | 0.66              |
| 1:F:230:ALA:O    | 1:F:234:LEU:HD13 | 1.96                     | 0.65              |
| 1:L:316:HIS:HB3  | 1:L:338:ARG:NH1  | 2.10                     | 0.65              |
| 1:E:45:MET:HE1   | 1:E:60:LEU:HD11  | 1.76                     | 0.65              |
| 1:G:165:VAL:HG11 | 1:G:265:HIS:CG   | 2.32                     | 0.65              |
| 1:A:8:GLU:HA     | 1:A:8:GLU:OE1    | 1.95                     | 0.65              |
| 1:C:180:VAL:CG1  | 1:C:211:LEU:HD11 | 2.27                     | 0.65              |
| 1:K:192:ARG:HD2  | 1:K:216:GLY:O    | 1.97                     | 0.65              |
| 1:I:12:GLU:CG    | 1:I:13:PRO:HD2   | 2.26                     | 0.64              |
| 1:H:321:THR:OG1  | 1:H:324:GLU:HG3  | 1.96                     | 0.64              |
| 1:F:227:ALA:O    | 1:F:231:ILE:HG13 | 1.98                     | 0.64              |
| 1:E:99:ALA:CB    | 1:K:302:MET:HE1  | 2.29                     | 0.63              |
| 1:D:42:ILE:HD12  | 1:D:43:PHE:H     | 1.62                     | 0.63              |
| 1:L:157:THR:HB   | 1:L:158:PRO:HD3  | 1.81                     | 0.63              |
| 1:J:5:GLN:NE2    | 1:J:57:PRO:HB2   | 2.12                     | 0.63              |
| 1:J:322:LEU:HD22 | 1:J:345:PRO:HA   | 1.80                     | 0.62              |
| 1:E:157:THR:HB   | 1:E:158:PRO:HD3  | 1.82                     | 0.62              |
| 1:J:286:PHE:HD1  | 1:J:286:PHE:N    | 1.97                     | 0.62              |
| 1:F:180:VAL:HG11 | 1:F:212:ALA:HB2  | 1.82                     | 0.62              |
| 1:F:9:ILE:CD1    | 1:F:56:LEU:HD11  | 2.28                     | 0.62              |
| 1:F:9:ILE:HD12   | 1:F:56:LEU:HD11  | 1.81                     | 0.62              |
| 1:I:12:GLU:HG3   | 1:I:13:PRO:HD2   | 1.81                     | 0.62              |
| 1:B:156:LEU:HD23 | 1:B:295:TRP:CD1  | 2.35                     | 0.62              |
| 1:I:316:HIS:HB2  | 1:I:339:GLY:HA3  | 1.81                     | 0.61              |
| 1:J:130:ILE:HD12 | 1:J:130:ILE:O    | 1.99                     | 0.61              |
| 1:C:1:MET:HE1    | 1:C:21:PRO:HD3   | 1.81                     | 0.61              |
| 1:G:340:ARG:HG3  | 1:G:340:ARG:HH11 | 1.65                     | 0.61              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:316:HIS:ND1  | 1:B:338:ARG:NH1  | 2.47                     | 0.61              |
| 1:D:-2:GLY:O     | 1:D:-1:SER:HB3   | 1.99                     | 0.61              |
| 1:I:186:VAL:O    | 1:I:190:ILE:HG13 | 2.01                     | 0.61              |
| 1:D:209:LEU:HD22 | 1:D:220:ALA:HB1  | 1.83                     | 0.61              |
| 1:F:47:MET:HE3   | 1:F:52:TYR:HB2   | 1.81                     | 0.61              |
| 1:I:321:THR:HG22 | 1:I:324:GLU:HG3  | 1.82                     | 0.61              |
| 1:K:174:THR:HG23 | 1:K:198:ARG:HB3  | 1.83                     | 0.61              |
| 1:B:309:ARG:HG2  | 1:B:309:ARG:HH11 | 1.66                     | 0.60              |
| 1:C:157:THR:HB   | 1:C:158:PRO:HD3  | 1.84                     | 0.60              |
| 1:J:322:LEU:HD23 | 1:J:322:LEU:H    | 1.67                     | 0.60              |
| 1:L:318:GLU:OE1  | 1:L:337:ILE:HG23 | 2.02                     | 0.60              |
| 1:L:278:LYS:HD3  | 4:L:503:CIT:O1   | 2.01                     | 0.60              |
| 1:I:255:THR:O    | 1:I:259:VAL:HG22 | 2.02                     | 0.60              |
| 1:L:147:ALA:O    | 1:L:150:PRO:HD2  | 2.02                     | 0.60              |
| 1:G:340:ARG:HG3  | 1:G:340:ARG:NH1  | 2.15                     | 0.59              |
| 1:J:286:PHE:N    | 1:J:286:PHE:CD1  | 2.68                     | 0.59              |
| 1:B:149:ALA:HB3  | 1:B:150:PRO:HD3  | 1.84                     | 0.59              |
| 1:A:103:GLU:OE2  | 1:A:135:ARG:HD2  | 2.03                     | 0.59              |
| 1:J:14:VAL:HG13  | 1:J:16:VAL:HG23  | 1.85                     | 0.59              |
| 1:K:278:LYS:HE2  | 4:K:401:CIT:O5   | 2.02                     | 0.59              |
| 1:C:331:ARG:HH11 | 1:C:331:ARG:HG3  | 1.67                     | 0.59              |
| 1:E:69:ALA:O     | 1:E:80:VAL:CG2   | 2.50                     | 0.59              |
| 1:C:52:TYR:CZ    | 1:C:54:TYR:HB2   | 2.38                     | 0.59              |
| 1:F:174:THR:HG23 | 1:F:198:ARG:HB3  | 1.84                     | 0.59              |
| 1:L:156:LEU:HD23 | 1:L:295:TRP:CD1  | 2.38                     | 0.58              |
| 1:L:286:PHE:CD1  | 1:L:286:PHE:N    | 2.70                     | 0.58              |
| 1:H:-4:PRO:HB3   | 1:H:29:LEU:HD21  | 1.85                     | 0.58              |
| 1:C:1:MET:HE2    | 1:C:21:PRO:HD3   | 1.83                     | 0.58              |
| 1:H:-3:ARG:NH1   | 1:H:-3:ARG:CB    | 2.67                     | 0.58              |
| 1:A:0:HIS:HB2    | 1:G:324:GLU:OE1  | 2.04                     | 0.58              |
| 1:L:276:HIS:CE1  | 4:L:503:CIT:O5   | 2.57                     | 0.58              |
| 1:H:56:LEU:C     | 1:H:56:LEU:HD12  | 2.24                     | 0.58              |
| 1:H:47:MET:SD    | 1:H:51:GLN:O     | 2.62                     | 0.57              |
| 1:C:37:LEU:HD21  | 1:C:328:ALA:HB1  | 1.86                     | 0.57              |
| 1:K:42:ILE:CD1   | 1:K:332:LEU:HD23 | 2.33                     | 0.57              |
| 1:D:165:VAL:HG11 | 1:D:265:HIS:CG   | 2.39                     | 0.57              |
| 1:F:157:THR:HB   | 1:F:158:PRO:HD3  | 1.86                     | 0.57              |
| 1:J:182:GLY:HA3  | 1:J:340:ARG:HH12 | 1.70                     | 0.57              |
| 1:H:147:ALA:O    | 1:H:150:PRO:HD2  | 2.05                     | 0.57              |
| 1:H:202:VAL:CG2  | 1:H:231:ILE:HD11 | 2.35                     | 0.57              |
| 1:K:42:ILE:HD11  | 1:K:332:LEU:HD23 | 1.87                     | 0.57              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:209:LEU:HD22 | 1:C:220:ALA:HB1  | 1.86                     | 0.56              |
| 1:L:28:ILE:HD12  | 1:L:137:LEU:HD12 | 1.86                     | 0.56              |
| 1:C:212:ALA:HA   | 1:C:215:VAL:HG22 | 1.87                     | 0.56              |
| 1:F:192:ARG:HD2  | 1:F:216:GLY:O    | 2.05                     | 0.56              |
| 1:F:271:ILE:HD13 | 1:I:281:PHE:HB2  | 1.87                     | 0.56              |
| 1:J:154:ALA:HA   | 1:J:183:LEU:HD12 | 1.86                     | 0.56              |
| 1:F:271:ILE:HD13 | 1:I:281:PHE:CB   | 2.35                     | 0.56              |
| 1:K:165:VAL:HG11 | 1:K:265:HIS:CG   | 2.41                     | 0.56              |
| 1:L:204:LEU:HD12 | 1:L:223:SER:HB3  | 1.87                     | 0.56              |
| 1:B:165:VAL:HG11 | 1:B:265:HIS:CG   | 2.40                     | 0.56              |
| 1:A:271:ILE:HD12 | 1:A:271:ILE:H    | 1.70                     | 0.56              |
| 1:L:151:LEU:CD1  | 1:L:308:ALA:HB2  | 2.36                     | 0.56              |
| 1:K:188:ILE:HG23 | 1:K:199:VAL:HG11 | 1.87                     | 0.56              |
| 1:L:28:ILE:HD12  | 1:L:137:LEU:CD1  | 2.35                     | 0.56              |
| 1:G:135:ARG:NH1  | 1:G:135:ARG:HG2  | 2.21                     | 0.55              |
| 1:H:-3:ARG:HB3   | 1:H:-3:ARG:CZ    | 2.36                     | 0.55              |
| 1:L:18:ILE:HB    | 1:L:19:PRO:CD    | 2.35                     | 0.55              |
| 1:L:274:GLY:O    | 1:L:276:HIS:HD2  | 1.88                     | 0.55              |
| 1:F:135:ARG:O    | 1:F:298:ARG:HD3  | 2.07                     | 0.55              |
| 1:I:47:MET:HE2   | 1:I:51:GLN:HB2   | 1.86                     | 0.55              |
| 1:B:278:LYS:HE2  | 4:B:503:CIT:H22  | 1.88                     | 0.55              |
| 1:L:42:ILE:HG12  | 1:L:332:LEU:HD23 | 1.89                     | 0.55              |
| 1:G:37:LEU:N     | 1:G:37:LEU:HD12  | 2.22                     | 0.55              |
| 1:A:108:ARG:HH11 | 1:A:108:ARG:HG2  | 1.71                     | 0.55              |
| 1:L:166:LEU:N    | 1:L:167:PRO:CD   | 2.70                     | 0.55              |
| 1:D:16:VAL:HG23  | 1:D:18:ILE:HG23  | 1.88                     | 0.55              |
| 1:E:227:ALA:O    | 1:E:231:ILE:HG13 | 2.07                     | 0.55              |
| 1:F:278:LYS:HE2  | 4:I:503:CIT:H21  | 1.87                     | 0.55              |
| 1:L:165:VAL:HG11 | 1:L:265:HIS:CG   | 2.41                     | 0.55              |
| 1:D:16:VAL:CG2   | 1:D:18:ILE:HG23  | 2.36                     | 0.55              |
| 1:B:278:LYS:CE   | 4:B:503:CIT:H22  | 2.36                     | 0.55              |
| 1:B:166:LEU:N    | 1:B:167:PRO:CD   | 2.71                     | 0.54              |
| 1:F:190:ILE:O    | 1:F:194:VAL:HG22 | 2.07                     | 0.54              |
| 1:H:132:ASP:OD1  | 1:H:136:HIS:ND1  | 2.40                     | 0.54              |
| 1:I:333:ARG:HH11 | 1:I:333:ARG:HG2  | 1.71                     | 0.54              |
| 1:L:178:ILE:HG21 | 1:L:252:THR:HB   | 1.88                     | 0.54              |
| 1:C:331:ARG:HG3  | 1:C:331:ARG:NH1  | 2.22                     | 0.54              |
| 1:F:31:LYS:HG3   | 1:F:128:TYR:CE2  | 2.43                     | 0.54              |
| 1:J:205:ASP:CB   | 1:J:207:ASP:OD1  | 2.56                     | 0.54              |
| 1:F:185:HIS:O    | 1:F:189:GLN:HG3  | 2.07                     | 0.54              |
| 1:L:155:GLY:HA2  | 1:L:186:VAL:HG11 | 1.90                     | 0.54              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:K:147:ALA:O    | 1:K:150:PRO:HD2  | 2.08                     | 0.54              |
| 1:J:254:ASP:O    | 1:J:258:GLN:HG3  | 2.08                     | 0.54              |
| 1:B:4:VAL:HG22   | 1:B:15:VAL:HG22  | 1.90                     | 0.54              |
| 1:H:156:LEU:HG   | 1:H:296:GLY:HA3  | 1.90                     | 0.54              |
| 1:C:211:LEU:CD1  | 1:C:212:ALA:HB2  | 2.37                     | 0.54              |
| 1:F:37:LEU:HD12  | 1:F:341:GLY:O    | 2.07                     | 0.54              |
| 1:K:154:ALA:HA   | 1:K:183:LEU:CD1  | 2.38                     | 0.54              |
| 1:F:155:GLY:O    | 1:F:158:PRO:HD2  | 2.09                     | 0.53              |
| 1:K:33:THR:O     | 1:K:344:VAL:HG13 | 2.09                     | 0.53              |
| 1:A:16:VAL:HG23  | 1:A:18:ILE:HG23  | 1.91                     | 0.53              |
| 1:C:302:MET:CE   | 1:D:99:ALA:CB    | 2.87                     | 0.53              |
| 1:B:210:ALA:O    | 1:B:213:ARG:HB2  | 2.08                     | 0.53              |
| 1:C:180:VAL:CG1  | 1:C:180:VAL:O    | 2.57                     | 0.53              |
| 1:F:89:PRO:HD3   | 1:F:295:TRP:CD2  | 2.44                     | 0.53              |
| 1:H:87:TYR:CE2   | 1:H:89:PRO:HD2   | 2.44                     | 0.53              |
| 1:D:149:ALA:HB3  | 1:D:150:PRO:HD3  | 1.91                     | 0.53              |
| 1:C:340:ARG:HH11 | 1:C:340:ARG:HG2  | 1.73                     | 0.53              |
| 1:E:40:SER:HB3   | 3:E:503:W46:C15  | 2.38                     | 0.53              |
| 1:G:320:PHE:CD2  | 1:G:328:ALA:HB2  | 2.44                     | 0.53              |
| 1:L:202:VAL:HG21 | 1:L:231:ILE:HD11 | 1.89                     | 0.53              |
| 1:H:37:LEU:N     | 1:H:37:LEU:HD12  | 2.24                     | 0.52              |
| 1:J:91:GLY:O     | 1:J:135:ARG:NH2  | 2.43                     | 0.52              |
| 1:J:155:GLY:O    | 1:J:158:PRO:HD2  | 2.09                     | 0.52              |
| 1:J:265:HIS:HD2  | 1:J:289:SER:OG   | 1.91                     | 0.52              |
| 1:L:228:ALA:HA   | 1:L:259:VAL:CG1  | 2.39                     | 0.52              |
| 1:K:340:ARG:HG2  | 1:K:340:ARG:NH1  | 2.17                     | 0.52              |
| 1:K:204:LEU:O    | 1:K:222:LYS:NZ   | 2.42                     | 0.52              |
| 1:A:149:ALA:HB3  | 1:A:150:PRO:HD3  | 1.90                     | 0.52              |
| 1:D:-3:ARG:HA    | 1:D:-3:ARG:NE    | 2.25                     | 0.52              |
| 1:F:45:MET:HE3   | 1:F:60:LEU:HD21  | 1.90                     | 0.52              |
| 1:I:18:ILE:HB    | 1:I:19:PRO:HD2   | 1.92                     | 0.52              |
| 1:K:186:VAL:HG13 | 1:K:313:LEU:HD22 | 1.91                     | 0.52              |
| 1:K:318:GLU:OE2  | 1:K:331:ARG:NH2  | 2.43                     | 0.52              |
| 1:C:166:LEU:N    | 1:C:167:PRO:CD   | 2.73                     | 0.52              |
| 1:E:1:MET:HB2    | 1:E:127:GLU:HB2  | 1.91                     | 0.52              |
| 1:G:180:VAL:O    | 1:G:180:VAL:CG1  | 2.58                     | 0.52              |
| 1:I:321:THR:CG2  | 1:I:324:GLU:HG3  | 2.39                     | 0.52              |
| 1:L:286:PHE:N    | 1:L:286:PHE:HD1  | 2.07                     | 0.52              |
| 1:A:125:MET:HE3  | 1:A:329:TYR:HE2  | 1.74                     | 0.51              |
| 1:F:9:ILE:HG21   | 1:F:49:ALA:HB2   | 1.92                     | 0.51              |
| 1:L:18:ILE:HB    | 1:L:19:PRO:HD2   | 1.92                     | 0.51              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:189:GLN:OE1  | 1:D:313:LEU:HA   | 2.10                     | 0.51              |
| 1:H:25:PRO:HA    | 1:H:73:GLU:HB2   | 1.93                     | 0.51              |
| 1:L:5:GLN:OE1    | 1:L:57:PRO:HB2   | 2.09                     | 0.51              |
| 1:C:211:LEU:HD13 | 1:C:212:ALA:N    | 2.24                     | 0.51              |
| 1:H:203:ASP:OD1  | 1:H:204:LEU:HD22 | 2.11                     | 0.51              |
| 1:I:157:THR:HB   | 1:I:158:PRO:HD3  | 1.93                     | 0.51              |
| 1:K:331:ARG:HD2  | 1:K:336:SER:OG   | 2.11                     | 0.51              |
| 1:A:155:GLY:O    | 1:A:158:PRO:HD2  | 2.10                     | 0.51              |
| 1:J:180:VAL:HG12 | 1:J:180:VAL:O    | 2.10                     | 0.51              |
| 1:B:131:VAL:HG21 | 1:B:137:LEU:HD21 | 1.93                     | 0.51              |
| 1:C:208:ARG:CA   | 1:C:211:LEU:HG   | 2.41                     | 0.51              |
| 1:H:5:GLN:OE1    | 1:H:57:PRO:HB2   | 2.10                     | 0.51              |
| 1:J:143:LEU:O    | 1:J:145:PRO:HD3  | 2.10                     | 0.51              |
| 1:L:204:LEU:CD1  | 1:L:223:SER:HB3  | 2.39                     | 0.51              |
| 1:L:271:ILE:HD13 | 3:L:504:W46:O13  | 2.11                     | 0.51              |
| 1:B:180:VAL:HG11 | 1:B:201:ALA:HB1  | 1.92                     | 0.51              |
| 1:I:180:VAL:O    | 1:I:180:VAL:CG1  | 2.58                     | 0.51              |
| 1:J:8:GLU:HA     | 1:J:56:LEU:HD13  | 1.93                     | 0.50              |
| 1:G:149:ALA:HB3  | 1:G:150:PRO:HD3  | 1.93                     | 0.50              |
| 1:H:-4:PRO:HB3   | 1:H:29:LEU:CD2   | 2.41                     | 0.50              |
| 1:L:235:THR:O    | 1:L:238:GLN:HB2  | 2.10                     | 0.50              |
| 1:L:162:ILE:HD13 | 1:L:191:LEU:HG   | 1.94                     | 0.50              |
| 1:H:166:LEU:N    | 1:H:167:PRO:CD   | 2.74                     | 0.50              |
| 1:K:15:VAL:HG21  | 1:K:323:ASP:HA   | 1.93                     | 0.50              |
| 1:E:69:ALA:O     | 1:E:80:VAL:HG21  | 2.12                     | 0.50              |
| 1:I:89:PRO:HB3   | 1:I:295:TRP:CE3  | 2.46                     | 0.50              |
| 1:C:305:VAL:HG12 | 1:C:309:ARG:HD3  | 1.94                     | 0.50              |
| 1:J:31:LYS:HB3   | 1:J:67:THR:HG22  | 1.92                     | 0.50              |
| 1:K:132:ASP:OD1  | 1:K:136:HIS:ND1  | 2.43                     | 0.50              |
| 1:H:71:LEU:HD11  | 1:H:78:PHE:O     | 2.12                     | 0.50              |
| 1:D:-5:VAL:O     | 1:D:128:TYR:CE2  | 2.65                     | 0.49              |
| 1:I:42:ILE:HG23  | 1:I:333:ARG:NH1  | 2.27                     | 0.49              |
| 1:G:151:LEU:HD11 | 1:G:308:ALA:HB2  | 1.93                     | 0.49              |
| 1:H:180:VAL:O    | 1:H:180:VAL:HG12 | 2.11                     | 0.49              |
| 1:E:45:MET:HE1   | 1:E:60:LEU:CD1   | 2.36                     | 0.49              |
| 1:J:327:ALA:HA   | 1:J:330:ARG:HD2  | 1.93                     | 0.49              |
| 1:H:5:GLN:NE2    | 1:H:18:ILE:HD13  | 2.28                     | 0.49              |
| 1:H:185:HIS:CD2  | 1:H:215:VAL:HG11 | 2.47                     | 0.49              |
| 1:J:205:ASP:HB3  | 1:J:207:ASP:OD1  | 2.12                     | 0.49              |
| 1:A:47:MET:HB3   | 1:A:51:GLN:HB3   | 1.95                     | 0.49              |
| 1:C:185:HIS:NE2  | 1:C:215:VAL:HG11 | 2.27                     | 0.49              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:H:26:GLY:HA2   | 1:H:75:VAL:HG22  | 1.94                     | 0.49              |
| 1:D:193:ALA:HA   | 1:D:312:ARG:NH2  | 2.27                     | 0.49              |
| 1:J:180:VAL:HG11 | 1:J:212:ALA:HB2  | 1.95                     | 0.49              |
| 1:A:65:VAL:HG13  | 1:A:149:ALA:HA   | 1.93                     | 0.49              |
| 1:A:294:TYR:HA   | 3:A:503:W46:N01  | 2.28                     | 0.49              |
| 1:D:42:ILE:HD12  | 1:D:42:ILE:C     | 2.32                     | 0.49              |
| 1:E:99:ALA:HB2   | 1:K:302:MET:HE1  | 1.94                     | 0.49              |
| 1:L:131:VAL:HG21 | 1:L:137:LEU:HD21 | 1.95                     | 0.49              |
| 1:A:309:ARG:HH11 | 1:A:309:ARG:HG2  | 1.78                     | 0.48              |
| 1:B:284:ILE:HG12 | 1:B:285:PRO:HD2  | 1.95                     | 0.48              |
| 1:E:131:VAL:HG21 | 1:E:137:LEU:HD21 | 1.96                     | 0.48              |
| 1:F:271:ILE:CD1  | 1:I:281:PHE:HB2  | 2.43                     | 0.48              |
| 1:I:5:GLN:HA     | 1:I:58:LEU:O     | 2.12                     | 0.48              |
| 1:I:105:TYR:OH   | 1:I:160:HIS:CE1  | 2.54                     | 0.48              |
| 1:I:316:HIS:HB3  | 1:I:338:ARG:HH21 | 1.76                     | 0.48              |
| 1:J:90:TRP:CZ2   | 1:J:117:PRO:HG3  | 2.48                     | 0.48              |
| 1:D:124:SER:HA   | 1:D:129:MET:CE   | 2.43                     | 0.48              |
| 1:D:205:ASP:HB3  | 1:D:208:ARG:CG   | 2.43                     | 0.48              |
| 1:F:192:ARG:HD2  | 1:F:216:GLY:HA3  | 1.94                     | 0.48              |
| 1:L:324:GLU:O    | 1:L:325:GLY:C    | 2.51                     | 0.48              |
| 1:D:157:THR:HB   | 1:D:158:PRO:HD3  | 1.95                     | 0.48              |
| 1:I:179:GLY:O    | 1:I:184:GLY:HA3  | 2.13                     | 0.48              |
| 1:A:180:VAL:HG12 | 1:A:180:VAL:O    | 2.12                     | 0.48              |
| 1:E:52:TYR:HE1   | 1:E:55:GLY:N     | 2.06                     | 0.48              |
| 1:F:247:VAL:HB   | 1:F:252:THR:HG21 | 1.95                     | 0.48              |
| 1:K:88:GLY:HA3   | 1:K:295:TRP:CZ2  | 2.48                     | 0.48              |
| 1:J:202:VAL:HG22 | 1:J:221:VAL:HG22 | 1.95                     | 0.48              |
| 1:L:143:LEU:HD23 | 1:L:148:ALA:HB2  | 1.95                     | 0.48              |
| 1:A:22:THR:HG22  | 1:A:23:PRO:HD2   | 1.96                     | 0.48              |
| 1:C:1:MET:HB2    | 1:C:127:GLU:HB2  | 1.95                     | 0.48              |
| 1:G:90:TRP:CD1   | 1:G:136:HIS:ND1  | 2.81                     | 0.48              |
| 1:I:316:HIS:HB3  | 1:I:338:ARG:NH2  | 2.29                     | 0.48              |
| 1:J:0:HIS:CE1    | 1:J:17:ASP:O     | 2.66                     | 0.48              |
| 1:F:165:VAL:HG11 | 1:F:265:HIS:CG   | 2.49                     | 0.47              |
| 1:I:8:GLU:O      | 1:I:11:SER:HB3   | 2.14                     | 0.47              |
| 1:L:265:HIS:HD2  | 1:L:289:SER:OG   | 1.96                     | 0.47              |
| 1:E:9:ILE:HG12   | 1:E:56:LEU:HD11  | 1.96                     | 0.47              |
| 1:G:317:THR:HA   | 1:G:340:ARG:O    | 2.14                     | 0.47              |
| 1:I:88:GLY:O     | 1:I:117:PRO:HD2  | 2.14                     | 0.47              |
| 1:K:321:THR:HG22 | 1:K:324:GLU:CD   | 2.35                     | 0.47              |
| 1:B:115:THR:HB   | 1:B:120:GLY:HA3  | 1.94                     | 0.47              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:232:ARG:NH1  | 1:C:259:VAL:HA   | 2.29                     | 0.47              |
| 1:J:149:ALA:HB3  | 1:J:150:PRO:HD3  | 1.96                     | 0.47              |
| 1:B:166:LEU:N    | 1:B:167:PRO:HD2  | 2.30                     | 0.47              |
| 1:C:180:VAL:HG21 | 1:C:201:ALA:HB1  | 1.97                     | 0.47              |
| 1:F:202:VAL:HA   | 1:F:221:VAL:O    | 2.15                     | 0.47              |
| 1:H:260:VAL:O    | 1:H:285:PRO:HG2  | 2.15                     | 0.47              |
| 1:I:321:THR:HG22 | 1:I:324:GLU:CG   | 2.44                     | 0.47              |
| 1:J:26:GLY:HA2   | 1:J:75:VAL:CG2   | 2.45                     | 0.47              |
| 1:J:37:LEU:HB3   | 1:J:332:LEU:HD22 | 1.96                     | 0.47              |
| 1:L:276:HIS:HE1  | 4:L:503:CIT:O5   | 1.97                     | 0.47              |
| 1:A:209:LEU:HD22 | 1:A:220:ALA:HB1  | 1.96                     | 0.47              |
| 1:B:87:TYR:CZ    | 1:B:89:PRO:HG2   | 2.49                     | 0.47              |
| 1:F:166:LEU:N    | 1:F:167:PRO:CD   | 2.76                     | 0.47              |
| 1:D:2:LYS:NZ     | 1:D:323:ASP:OD2  | 2.48                     | 0.47              |
| 1:G:158:PRO:HB3  | 1:G:246:PHE:CE1  | 2.49                     | 0.47              |
| 1:J:16:VAL:HG12  | 1:J:18:ILE:CG2   | 2.41                     | 0.47              |
| 1:J:37:LEU:HD11  | 1:J:343:VAL:HG23 | 1.97                     | 0.47              |
| 1:C:274:GLY:O    | 1:C:276:HIS:HD2  | 1.98                     | 0.47              |
| 1:D:59:THR:HB    | 1:D:123:GLY:H    | 1.79                     | 0.47              |
| 1:E:322:LEU:CD1  | 1:E:345:PRO:HB3  | 2.45                     | 0.47              |
| 1:I:231:ILE:HB   | 1:I:259:VAL:HG11 | 1.96                     | 0.47              |
| 1:J:86:VAL:HG21  | 1:J:129:MET:HE1  | 1.96                     | 0.47              |
| 1:J:205:ASP:HB2  | 1:J:207:ASP:OD1  | 2.15                     | 0.47              |
| 1:C:52:TYR:CE1   | 1:C:54:TYR:CD2   | 3.02                     | 0.47              |
| 1:C:165:VAL:HG11 | 1:C:265:HIS:CG   | 2.50                     | 0.47              |
| 1:D:188:ILE:HG23 | 1:D:199:VAL:HG11 | 1.96                     | 0.47              |
| 1:F:71:LEU:HD11  | 1:F:78:PHE:O     | 2.15                     | 0.47              |
| 1:G:165:VAL:HG11 | 1:G:265:HIS:CD2  | 2.49                     | 0.47              |
| 1:D:166:LEU:N    | 1:D:167:PRO:CD   | 2.78                     | 0.47              |
| 1:D:205:ASP:HB3  | 1:D:208:ARG:HG3  | 1.97                     | 0.47              |
| 1:F:18:ILE:HB    | 1:F:19:PRO:CD    | 2.45                     | 0.47              |
| 1:A:116:PRO:HG2  | 1:A:119:LEU:HB2  | 1.97                     | 0.46              |
| 1:G:151:LEU:HD11 | 1:G:308:ALA:CB   | 2.45                     | 0.46              |
| 1:J:16:VAL:CG1   | 1:J:18:ILE:HG23  | 2.44                     | 0.46              |
| 1:L:40:SER:CB    | 3:L:504:W46:C15  | 2.93                     | 0.46              |
| 1:D:-4:PRO:HG3   | 1:D:70:GLU:HB2   | 1.96                     | 0.46              |
| 1:H:-3:ARG:CB    | 1:H:-3:ARG:HH11  | 2.28                     | 0.46              |
| 1:H:87:TYR:CZ    | 1:H:89:PRO:HD2   | 2.51                     | 0.46              |
| 1:J:239:GLY:O    | 1:J:261:ALA:HB2  | 2.14                     | 0.46              |
| 1:J:340:ARG:HG2  | 1:J:340:ARG:HH11 | 1.79                     | 0.46              |
| 1:D:-5:VAL:H2    | 1:D:-4:PRO:HD3   | 1.80                     | 0.46              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:37:LEU:HD12  | 1:G:37:LEU:H     | 1.79                     | 0.46              |
| 1:J:41:ASP:O     | 1:J:45:MET:HG3   | 2.14                     | 0.46              |
| 1:L:1:MET:HA     | 1:L:127:GLU:OE2  | 2.15                     | 0.46              |
| 1:C:9:ILE:HD13   | 1:C:49:ALA:HA    | 1.97                     | 0.46              |
| 1:D:98:CYS:SG    | 1:D:103:GLU:HG3  | 2.55                     | 0.46              |
| 1:J:188:ILE:HG21 | 1:J:215:VAL:HG23 | 1.98                     | 0.46              |
| 1:B:248:GLY:HA3  | 1:B:270:GLY:O    | 2.15                     | 0.46              |
| 1:H:260:VAL:HG11 | 1:H:266:ILE:HD11 | 1.97                     | 0.46              |
| 1:I:156:LEU:HD11 | 1:I:296:GLY:HA3  | 1.97                     | 0.46              |
| 1:I:248:GLY:O    | 1:I:272:HIS:HB2  | 2.16                     | 0.46              |
| 1:B:165:VAL:HG11 | 1:B:265:HIS:CD2  | 2.51                     | 0.46              |
| 1:B:316:HIS:CB   | 1:B:338:ARG:NH1  | 2.71                     | 0.46              |
| 1:D:165:VAL:HG11 | 1:D:265:HIS:ND1  | 2.31                     | 0.46              |
| 1:D:271:ILE:N    | 1:D:271:ILE:CD1  | 2.76                     | 0.46              |
| 1:C:180:VAL:HG11 | 1:C:211:LEU:HD11 | 1.97                     | 0.46              |
| 1:F:230:ALA:O    | 1:F:233:GLU:HB3  | 2.16                     | 0.46              |
| 1:D:276:HIS:HB3  | 1:E:283:MET:HE1  | 1.97                     | 0.46              |
| 1:F:25:PRO:HG2   | 1:L:73:GLU:HG3   | 1.97                     | 0.46              |
| 1:H:157:THR:HB   | 1:H:158:PRO:HD3  | 1.97                     | 0.46              |
| 1:K:32:VAL:HG11  | 1:K:124:SER:O    | 2.16                     | 0.46              |
| 1:A:157:THR:HB   | 1:A:158:PRO:HD3  | 1.97                     | 0.46              |
| 1:K:146:VAL:HG11 | 1:K:319:THR:HG22 | 1.98                     | 0.46              |
| 1:D:309:ARG:HG2  | 1:D:309:ARG:HH11 | 1.81                     | 0.46              |
| 1:E:99:ALA:HB3   | 1:K:302:MET:HE1  | 1.93                     | 0.45              |
| 1:G:160:HIS:HB2  | 1:G:300:GLU:OE1  | 2.15                     | 0.45              |
| 1:G:179:GLY:O    | 1:G:184:GLY:HA3  | 2.16                     | 0.45              |
| 1:J:324:GLU:O    | 1:J:327:ALA:HB3  | 2.17                     | 0.45              |
| 1:L:271:ILE:CD1  | 3:L:504:W46:O13  | 2.64                     | 0.45              |
| 1:A:-4:PRO:HG3   | 1:A:31:LYS:HE2   | 1.99                     | 0.45              |
| 1:A:202:VAL:HG12 | 1:A:223:SER:HB3  | 1.99                     | 0.45              |
| 1:D:340:ARG:HG2  | 1:D:340:ARG:HH11 | 1.81                     | 0.45              |
| 1:G:221:VAL:HG21 | 1:G:230:ALA:CB   | 2.46                     | 0.45              |
| 1:I:307:LEU:HB3  | 1:I:313:LEU:HD13 | 1.99                     | 0.45              |
| 1:J:157:THR:HB   | 1:J:158:PRO:HD3  | 1.97                     | 0.45              |
| 1:J:162:ILE:HD13 | 1:J:191:LEU:HG   | 1.99                     | 0.45              |
| 1:E:18:ILE:HB    | 1:E:19:PRO:CD    | 2.41                     | 0.45              |
| 1:L:323:ASP:O    | 1:L:326:PRO:HD2  | 2.17                     | 0.45              |
| 1:C:37:LEU:HD21  | 1:C:328:ALA:CB   | 2.46                     | 0.45              |
| 1:G:158:PRO:HB3  | 1:G:246:PHE:CZ   | 2.51                     | 0.45              |
| 1:G:320:PHE:CG   | 1:G:328:ALA:HB2  | 2.52                     | 0.45              |
| 1:J:29:LEU:HA    | 1:J:129:MET:O    | 2.16                     | 0.45              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:K:243:VAL:HG11 | 1:K:256:ALA:CB   | 2.46                     | 0.45              |
| 1:L:260:VAL:O    | 1:L:285:PRO:HG2  | 2.17                     | 0.45              |
| 1:B:14:VAL:HG13  | 1:B:16:VAL:HG13  | 1.98                     | 0.45              |
| 1:B:37:LEU:HD12  | 1:B:37:LEU:N     | 2.31                     | 0.45              |
| 1:C:88:GLY:HA3   | 1:C:295:TRP:CH2  | 2.52                     | 0.45              |
| 1:F:156:LEU:HD23 | 1:F:295:TRP:CD1  | 2.52                     | 0.45              |
| 1:L:40:SER:HB2   | 3:L:504:W46:C14  | 2.47                     | 0.45              |
| 1:A:52:TYR:CZ    | 1:A:54:TYR:HB2   | 2.51                     | 0.45              |
| 1:C:211:LEU:HD13 | 1:C:212:ALA:HB2  | 1.97                     | 0.45              |
| 1:D:202:VAL:HG12 | 1:D:223:SER:HB2  | 1.98                     | 0.45              |
| 1:J:166:LEU:N    | 1:J:167:PRO:CD   | 2.79                     | 0.45              |
| 1:J:298:ARG:O    | 1:J:302:MET:HG3  | 2.17                     | 0.45              |
| 1:L:98:CYS:SG    | 1:L:103:GLU:HG2  | 2.57                     | 0.45              |
| 1:F:131:VAL:HG21 | 1:F:137:LEU:HD21 | 1.99                     | 0.45              |
| 1:K:272:HIS:O    | 1:K:273:ALA:C    | 2.55                     | 0.45              |
| 1:L:209:LEU:HD22 | 1:L:220:ALA:HB1  | 1.99                     | 0.45              |
| 1:D:91:GLY:HA3   | 1:D:103:GLU:HG2  | 1.98                     | 0.45              |
| 1:H:49:ALA:O     | 1:H:52:TYR:HB3   | 2.17                     | 0.45              |
| 1:I:254:ASP:O    | 1:I:258:GLN:HG3  | 2.17                     | 0.45              |
| 1:K:186:VAL:CG1  | 1:K:313:LEU:HD22 | 2.47                     | 0.45              |
| 1:K:102:ARG:HG2  | 1:K:102:ARG:HH11 | 1.81                     | 0.44              |
| 1:L:59:THR:HB    | 1:L:123:GLY:H    | 1.82                     | 0.44              |
| 1:D:-5:VAL:HG21  | 1:D:31:LYS:HZ2   | 1.81                     | 0.44              |
| 1:J:52:TYR:CZ    | 1:J:54:TYR:HB2   | 2.52                     | 0.44              |
| 1:J:131:VAL:HG21 | 1:J:137:LEU:HD21 | 1.98                     | 0.44              |
| 1:J:183:LEU:HB3  | 1:J:246:PHE:CD1  | 2.52                     | 0.44              |
| 1:K:38:CYS:SG    | 1:K:40:SER:OG    | 2.75                     | 0.44              |
| 1:C:284:ILE:HG12 | 1:C:285:PRO:HD2  | 1.99                     | 0.44              |
| 1:I:165:VAL:HG11 | 1:I:265:HIS:CG   | 2.52                     | 0.44              |
| 1:I:233:GLU:OE2  | 1:I:233:GLU:HA   | 2.18                     | 0.44              |
| 1:L:65:VAL:HG12  | 1:L:66:GLY:N     | 2.33                     | 0.44              |
| 1:L:146:VAL:HG13 | 1:L:342:VAL:HG11 | 1.99                     | 0.44              |
| 1:B:151:LEU:HD23 | 1:B:315:ILE:HD11 | 1.98                     | 0.44              |
| 1:G:190:ILE:O    | 1:G:194:VAL:HG22 | 2.17                     | 0.44              |
| 1:C:250:GLN:NE2  | 1:C:254:ASP:OD1  | 2.47                     | 0.44              |
| 1:E:46:ASP:OD1   | 1:E:333:ARG:NH2  | 2.34                     | 0.44              |
| 1:I:37:LEU:N     | 1:I:37:LEU:HD23  | 2.33                     | 0.44              |
| 1:K:67:THR:HA    | 1:K:82:ASP:O     | 2.18                     | 0.44              |
| 1:L:180:VAL:HG12 | 1:L:180:VAL:O    | 2.18                     | 0.44              |
| 1:A:179:GLY:O    | 1:A:184:GLY:HA3  | 2.18                     | 0.44              |
| 1:C:47:MET:HA    | 1:C:48:PRO:HD3   | 1.86                     | 0.44              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:104:ASN:OD1  | 1:F:104:ASN:N    | 2.51                     | 0.44              |
| 1:G:324:GLU:O    | 1:G:327:ALA:HB3  | 2.18                     | 0.44              |
| 1:I:42:ILE:HD12  | 1:I:333:ARG:HG3  | 1.99                     | 0.44              |
| 1:J:272:HIS:O    | 1:J:275:ALA:HB3  | 2.18                     | 0.44              |
| 1:J:281:PHE:HB3  | 1:J:282:PHE:HD1  | 1.82                     | 0.44              |
| 1:K:179:GLY:O    | 1:K:184:GLY:HA3  | 2.18                     | 0.44              |
| 1:K:180:VAL:HG12 | 1:K:180:VAL:O    | 2.18                     | 0.44              |
| 1:I:102:ARG:HA   | 1:I:297:THR:HG22 | 1.99                     | 0.43              |
| 1:K:331:ARG:O    | 1:K:336:SER:HB3  | 2.17                     | 0.43              |
| 1:L:291:VAL:HG13 | 1:L:293:PRO:HD3  | 2.00                     | 0.43              |
| 1:E:62:HIS:HA    | 1:E:117:PRO:O    | 2.18                     | 0.43              |
| 1:E:99:ALA:HB3   | 1:K:302:MET:HE3  | 1.99                     | 0.43              |
| 1:E:322:LEU:HD12 | 1:E:345:PRO:HB3  | 2.00                     | 0.43              |
| 1:F:62:HIS:HA    | 1:F:117:PRO:O    | 2.18                     | 0.43              |
| 1:F:52:TYR:CE1   | 1:F:56:LEU:HG    | 2.53                     | 0.43              |
| 1:G:156:LEU:HD11 | 1:G:296:GLY:HA3  | 2.00                     | 0.43              |
| 1:H:2:LYS:N      | 1:H:127:GLU:OE2  | 2.42                     | 0.43              |
| 1:I:166:LEU:N    | 1:I:167:PRO:CD   | 2.81                     | 0.43              |
| 1:J:37:LEU:HD21  | 1:J:328:ALA:HB1  | 2.00                     | 0.43              |
| 1:A:37:LEU:HD23  | 1:A:329:TYR:CZ   | 2.53                     | 0.43              |
| 1:F:6:TYR:CZ     | 1:F:45:MET:HB3   | 2.54                     | 0.43              |
| 1:F:54:TYR:O     | 1:F:54:TYR:CG    | 2.70                     | 0.43              |
| 1:J:150:PRO:O    | 1:J:154:ALA:N    | 2.45                     | 0.43              |
| 1:K:59:THR:HB    | 1:K:123:GLY:H    | 1.84                     | 0.43              |
| 1:K:185:HIS:NE2  | 1:K:215:VAL:HG11 | 2.33                     | 0.43              |
| 1:H:265:HIS:HE1  | 1:H:291:VAL:HG12 | 1.83                     | 0.43              |
| 1:I:272:HIS:O    | 1:I:273:ALA:C    | 2.55                     | 0.43              |
| 1:J:18:ILE:CB    | 1:J:19:PRO:CD    | 2.92                     | 0.43              |
| 1:J:26:GLY:HA2   | 1:J:75:VAL:HG22  | 2.00                     | 0.43              |
| 1:J:207:ASP:O    | 1:J:211:LEU:HD13 | 2.18                     | 0.43              |
| 1:B:185:HIS:NE2  | 1:B:215:VAL:HG11 | 2.33                     | 0.43              |
| 1:D:321:THR:HG22 | 1:D:324:GLU:CD   | 2.37                     | 0.43              |
| 1:E:209:LEU:HD22 | 1:E:220:ALA:HB1  | 2.01                     | 0.43              |
| 1:G:202:VAL:HA   | 1:G:221:VAL:O    | 2.18                     | 0.43              |
| 1:L:6:TYR:O      | 1:L:56:LEU:HD22  | 2.19                     | 0.43              |
| 1:K:150:PRO:O    | 1:K:154:ALA:N    | 2.52                     | 0.43              |
| 1:A:165:VAL:HG11 | 1:A:265:HIS:CG   | 2.54                     | 0.43              |
| 1:D:39:HIS:O     | 1:D:42:ILE:HG13  | 2.19                     | 0.43              |
| 1:D:190:ILE:O    | 1:D:194:VAL:HG22 | 2.19                     | 0.43              |
| 1:F:4:VAL:HG22   | 1:F:15:VAL:HG22  | 2.01                     | 0.43              |
| 1:D:268:VAL:HB   | 1:D:292:THR:HG22 | 1.99                     | 0.43              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:E:166:LEU:N    | 1:E:167:PRO:CD   | 2.81                     | 0.43              |
| 1:E:322:LEU:HG   | 1:E:345:PRO:HB3  | 2.01                     | 0.43              |
| 1:J:324:GLU:O    | 1:J:325:GLY:C    | 2.57                     | 0.43              |
| 1:A:254:ASP:O    | 1:A:258:GLN:HG3  | 2.19                     | 0.43              |
| 1:C:344:VAL:O    | 1:C:344:VAL:HG12 | 2.19                     | 0.43              |
| 1:F:18:ILE:HB    | 1:F:19:PRO:HD2   | 2.01                     | 0.43              |
| 1:J:14:VAL:HG22  | 1:J:15:VAL:N     | 2.34                     | 0.43              |
| 1:K:192:ARG:HH11 | 1:K:192:ARG:HB3  | 1.84                     | 0.43              |
| 1:L:324:GLU:O    | 1:L:327:ALA:N    | 2.51                     | 0.43              |
| 1:A:302:MET:CE   | 1:B:99:ALA:HB3   | 2.49                     | 0.42              |
| 1:E:165:VAL:HG11 | 1:E:265:HIS:CG   | 2.54                     | 0.42              |
| 1:I:149:ALA:N    | 1:I:150:PRO:CD   | 2.82                     | 0.42              |
| 1:J:39:HIS:CE1   | 1:J:42:ILE:HD11  | 2.54                     | 0.42              |
| 1:B:40:SER:OG    | 3:B:504:W46:C15  | 2.68                     | 0.42              |
| 1:C:302:MET:HE1  | 1:D:99:ALA:HB2   | 2.01                     | 0.42              |
| 1:I:59:THR:HB    | 1:I:123:GLY:H    | 1.84                     | 0.42              |
| 1:L:251:SER:O    | 1:L:254:ASP:HB2  | 2.18                     | 0.42              |
| 1:L:263:ASP:HA   | 1:L:287:GLY:O    | 2.18                     | 0.42              |
| 1:C:180:VAL:HG22 | 1:C:188:ILE:HD11 | 2.02                     | 0.42              |
| 1:L:272:HIS:O    | 1:L:273:ALA:C    | 2.58                     | 0.42              |
| 1:C:99:ALA:HB2   | 1:D:302:MET:HE1  | 2.00                     | 0.42              |
| 1:K:146:VAL:HG13 | 1:K:342:VAL:HG11 | 2.01                     | 0.42              |
| 1:A:0:HIS:HE1    | 1:G:319:THR:O    | 2.03                     | 0.42              |
| 1:A:302:MET:CE   | 1:B:99:ALA:CB    | 2.97                     | 0.42              |
| 1:B:148:ALA:HA   | 1:B:151:LEU:HD12 | 2.02                     | 0.42              |
| 1:B:183:LEU:HD12 | 1:B:183:LEU:N    | 2.34                     | 0.42              |
| 1:C:98:CYS:SG    | 1:C:103:GLU:HG3  | 2.60                     | 0.42              |
| 1:C:155:GLY:HA2  | 1:C:186:VAL:HG11 | 2.00                     | 0.42              |
| 1:G:155:GLY:HA2  | 1:G:186:VAL:HG11 | 2.02                     | 0.42              |
| 1:H:179:GLY:HA3  | 1:H:247:VAL:HG23 | 2.02                     | 0.42              |
| 1:K:166:LEU:N    | 1:K:167:PRO:CD   | 2.83                     | 0.42              |
| 1:C:18:ILE:HB    | 1:C:19:PRO:HD2   | 2.02                     | 0.42              |
| 1:E:268:VAL:HB   | 1:E:292:THR:HG22 | 2.00                     | 0.42              |
| 1:K:103:GLU:OE2  | 1:K:135:ARG:HD2  | 2.19                     | 0.42              |
| 1:K:162:ILE:HD13 | 1:K:191:LEU:HG   | 2.02                     | 0.42              |
| 1:A:88:GLY:HA3   | 1:A:295:TRP:CZ2  | 2.55                     | 0.42              |
| 1:F:88:GLY:HA3   | 1:F:295:TRP:CZ2  | 2.54                     | 0.42              |
| 1:G:135:ARG:HG2  | 1:G:135:ARG:HH11 | 1.84                     | 0.42              |
| 1:H:26:GLY:HA2   | 1:H:75:VAL:CG2   | 2.50                     | 0.42              |
| 1:J:71:LEU:HD22  | 1:J:75:VAL:HG12  | 2.01                     | 0.42              |
| 1:A:203:ASP:OD1  | 1:A:204:LEU:N    | 2.48                     | 0.42              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:42:ILE:CD1   | 1:G:332:LEU:HG   | 2.50                     | 0.42              |
| 1:K:16:VAL:HG12  | 1:K:18:ILE:HG23  | 2.02                     | 0.42              |
| 1:K:112:LEU:CD1  | 1:K:112:LEU:N    | 2.83                     | 0.42              |
| 1:E:272:HIS:O    | 1:E:273:ALA:C    | 2.57                     | 0.42              |
| 1:H:156:LEU:CD1  | 1:H:296:GLY:HA3  | 2.50                     | 0.42              |
| 1:J:153:ASP:OD1  | 3:J:503:W46:C16  | 2.68                     | 0.42              |
| 1:J:37:LEU:HD21  | 1:J:328:ALA:CB   | 2.50                     | 0.41              |
| 1:J:185:HIS:NE2  | 1:J:215:VAL:HG11 | 2.35                     | 0.41              |
| 1:K:49:ALA:O     | 1:K:52:TYR:HB3   | 2.20                     | 0.41              |
| 1:L:42:ILE:CG1   | 1:L:332:LEU:HD23 | 2.50                     | 0.41              |
| 1:L:284:ILE:HG12 | 1:L:285:PRO:HD2  | 2.01                     | 0.41              |
| 1:B:192:ARG:HA   | 1:B:192:ARG:CZ   | 2.49                     | 0.41              |
| 1:A:74:GLY:HA3   | 1:B:25:PRO:HB2   | 2.03                     | 0.41              |
| 1:D:39:HIS:O     | 1:D:42:ILE:CD1   | 2.68                     | 0.41              |
| 1:K:155:GLY:O    | 1:K:158:PRO:HD2  | 2.21                     | 0.41              |
| 1:H:264:GLY:O    | 1:H:288:ALA:HA   | 2.20                     | 0.41              |
| 1:J:45:MET:HE1   | 1:J:60:LEU:CD1   | 2.46                     | 0.41              |
| 1:J:68:VAL:O     | 1:J:81:GLY:N     | 2.46                     | 0.41              |
| 1:J:151:LEU:HD23 | 1:J:315:ILE:HD11 | 2.02                     | 0.41              |
| 1:A:47:MET:HB2   | 1:A:52:TYR:HB2   | 2.02                     | 0.41              |
| 1:B:32:VAL:HG11  | 1:B:124:SER:O    | 2.20                     | 0.41              |
| 1:B:88:GLY:HA3   | 1:B:295:TRP:CZ2  | 2.54                     | 0.41              |
| 1:F:45:MET:HE3   | 1:F:60:LEU:CD2   | 2.51                     | 0.41              |
| 1:G:37:LEU:CD1   | 1:G:341:GLY:O    | 2.68                     | 0.41              |
| 1:H:318:GLU:OE2  | 1:H:331:ARG:NH1  | 2.46                     | 0.41              |
| 1:I:229:ASP:O    | 1:I:232:ARG:HB2  | 2.21                     | 0.41              |
| 1:J:205:ASP:O    | 1:J:208:ARG:HB2  | 2.21                     | 0.41              |
| 1:B:49:ALA:O     | 1:B:52:TYR:HB3   | 2.20                     | 0.41              |
| 1:B:67:THR:HA    | 1:B:82:ASP:O     | 2.20                     | 0.41              |
| 1:B:155:GLY:HA2  | 1:B:186:VAL:HG11 | 2.03                     | 0.41              |
| 1:D:-3:ARG:HA    | 1:D:-3:ARG:CZ    | 2.50                     | 0.41              |
| 1:G:128:TYR:CD1  | 1:G:128:TYR:N    | 2.89                     | 0.41              |
| 1:I:232:ARG:O    | 1:I:237:GLY:N    | 2.49                     | 0.41              |
| 1:I:333:ARG:HG2  | 1:I:333:ARG:NH1  | 2.34                     | 0.41              |
| 1:J:13:PRO:HG3   | 1:J:45:MET:CE    | 2.50                     | 0.41              |
| 1:J:157:THR:N    | 1:J:158:PRO:CD   | 2.83                     | 0.41              |
| 1:L:30:LEU:HD23  | 1:L:68:VAL:HA    | 2.01                     | 0.41              |
| 1:L:149:ALA:HB3  | 1:L:150:PRO:HD3  | 2.02                     | 0.41              |
| 1:B:104:ASN:OD1  | 1:B:104:ASN:N    | 2.54                     | 0.41              |
| 1:E:324:GLU:O    | 1:E:325:GLY:C    | 2.59                     | 0.41              |
| 1:J:14:VAL:CG1   | 1:J:16:VAL:HG23  | 2.51                     | 0.41              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:K:321:THR:HG22 | 1:K:324:GLU:CG   | 2.50                     | 0.41              |
| 1:L:174:THR:CG2  | 1:L:200:ILE:HD12 | 2.51                     | 0.41              |
| 1:G:324:GLU:O    | 1:G:325:GLY:C    | 2.59                     | 0.41              |
| 1:A:179:GLY:HA3  | 1:A:247:VAL:HG23 | 2.01                     | 0.41              |
| 1:E:18:ILE:CB    | 1:E:19:PRO:HD2   | 2.42                     | 0.41              |
| 1:E:67:THR:HA    | 1:E:82:ASP:O     | 2.21                     | 0.41              |
| 1:F:14:VAL:HG23  | 1:F:16:VAL:HG13  | 2.03                     | 0.41              |
| 1:G:62:HIS:HA    | 1:G:117:PRO:O    | 2.20                     | 0.41              |
| 1:G:221:VAL:HG21 | 1:G:230:ALA:HB1  | 2.03                     | 0.41              |
| 1:G:295:TRP:HB3  | 1:G:296:GLY:H    | 1.66                     | 0.41              |
| 1:G:298:ARG:H    | 1:G:298:ARG:HG3  | 1.69                     | 0.41              |
| 1:H:12:GLU:HB3   | 1:H:13:PRO:HD2   | 2.02                     | 0.41              |
| 1:K:291:VAL:HG13 | 1:K:293:PRO:HD3  | 2.01                     | 0.41              |
| 1:D:33:THR:O     | 1:D:344:VAL:HG13 | 2.21                     | 0.41              |
| 1:E:205:ASP:HB3  | 1:E:208:ARG:HB2  | 2.02                     | 0.41              |
| 1:F:149:ALA:HB3  | 1:F:150:PRO:HD3  | 2.03                     | 0.41              |
| 1:H:178:ILE:HB   | 1:H:245:ASP:HA   | 2.03                     | 0.41              |
| 1:H:307:LEU:HD23 | 1:H:307:LEU:HA   | 1.90                     | 0.41              |
| 1:L:203:ASP:O    | 1:L:223:SER:N    | 2.52                     | 0.41              |
| 1:A:302:MET:HE1  | 1:B:96:HIS:HA    | 2.03                     | 0.40              |
| 1:C:149:ALA:HB3  | 1:C:150:PRO:HD3  | 2.03                     | 0.40              |
| 1:C:154:ALA:O    | 1:C:158:PRO:HG2  | 2.20                     | 0.40              |
| 1:D:47:MET:HA    | 1:D:48:PRO:HD3   | 1.90                     | 0.40              |
| 1:E:135:ARG:O    | 1:E:298:ARG:CD   | 2.69                     | 0.40              |
| 1:L:42:ILE:HD12  | 1:L:333:ARG:HG3  | 2.04                     | 0.40              |
| 1:C:52:TYR:OH    | 1:C:54:TYR:HB2   | 2.20                     | 0.40              |
| 1:G:340:ARG:HH11 | 1:G:340:ARG:CG   | 2.30                     | 0.40              |
| 1:J:83:ALA:HB1   | 1:J:140:ILE:HD11 | 2.02                     | 0.40              |
| 1:B:37:LEU:HD21  | 1:B:328:ALA:HB1  | 2.01                     | 0.40              |
| 1:B:71:LEU:HD22  | 1:B:75:VAL:HG12  | 2.03                     | 0.40              |
| 1:D:202:VAL:HG21 | 1:D:231:ILE:HD11 | 2.03                     | 0.40              |
| 1:I:206:ASP:OD1  | 1:I:222:LYS:HE2  | 2.21                     | 0.40              |
| 1:K:327:ALA:HA   | 1:K:330:ARG:NH1  | 2.36                     | 0.40              |
| 1:A:32:VAL:HG11  | 1:A:124:SER:O    | 2.21                     | 0.40              |
| 1:D:88:GLY:O     | 1:D:116:PRO:HB3  | 2.20                     | 0.40              |
| 1:E:185:HIS:CE1  | 1:E:189:GLN:NE2  | 2.89                     | 0.40              |
| 1:I:90:TRP:CE2   | 1:I:117:PRO:HD3  | 2.56                     | 0.40              |
| 1:J:24:GLY:N     | 1:J:27:GLU:OE1   | 2.45                     | 0.40              |
| 1:J:324:GLU:O    | 1:J:328:ALA:N    | 2.52                     | 0.40              |
| 1:K:87:TYR:CE1   | 1:K:89:PRO:HD2   | 2.57                     | 0.40              |
| 1:K:160:HIS:HB2  | 1:K:300:GLU:OE1  | 2.21                     | 0.40              |

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| Atom-1          | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|-----------------|--------------------------|-------------------|
| 1:L:28:ILE:CG2  | 1:L:68:VAL:HG13 | 2.51                     | 0.40              |
| 1:F:30:LEU:HD23 | 1:F:68:VAL:HA   | 2.04                     | 0.40              |
| 1:H:144:ASP:HA  | 1:H:145:PRO:HD3 | 1.98                     | 0.40              |

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

| Atom-1          | Atom-2                 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|------------------------|--------------------------|-------------------|
| 1:D:338:ARG:NH2 | 1:E:324:GLU:OE1[1_455] | 2.06                     | 0.14              |

## 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     | 350/365 (96%)   | 330 (94%)  | 18 (5%)  | 2 (1%)   | 25          | 64  |
| 1   | B     | 348/365 (95%)   | 328 (94%)  | 19 (6%)  | 1 (0%)   | 41          | 76  |
| 1   | C     | 347/365 (95%)   | 331 (95%)  | 15 (4%)  | 1 (0%)   | 41          | 76  |
| 1   | D     | 349/365 (96%)   | 327 (94%)  | 21 (6%)  | 1 (0%)   | 41          | 76  |
| 1   | E     | 347/365 (95%)   | 327 (94%)  | 18 (5%)  | 2 (1%)   | 25          | 64  |
| 1   | F     | 346/365 (95%)   | 329 (95%)  | 17 (5%)  | 0        | 100         | 100 |
| 1   | G     | 348/365 (95%)   | 327 (94%)  | 20 (6%)  | 1 (0%)   | 41          | 76  |
| 1   | H     | 348/365 (95%)   | 329 (94%)  | 19 (6%)  | 0        | 100         | 100 |
| 1   | I     | 347/365 (95%)   | 327 (94%)  | 18 (5%)  | 2 (1%)   | 25          | 64  |
| 1   | J     | 347/365 (95%)   | 315 (91%)  | 30 (9%)  | 2 (1%)   | 25          | 64  |
| 1   | K     | 347/365 (95%)   | 331 (95%)  | 15 (4%)  | 1 (0%)   | 41          | 76  |
| 1   | L     | 347/365 (95%)   | 324 (93%)  | 23 (7%)  | 0        | 100         | 100 |
| All | All   | 4171/4380 (95%) | 3925 (94%) | 233 (6%) | 13 (0%)  | 41          | 76  |



All (13) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | J     | 49  | ALA  |
| 1   | B     | 182 | GLY  |
| 1   | E     | 24  | GLY  |
| 1   | K     | 181 | GLY  |
| 1   | D     | 225 | ALA  |
| 1   | J     | 325 | GLY  |
| 1   | C     | 182 | GLY  |
| 1   | I     | 182 | GLY  |
| 1   | A     | 24  | GLY  |
| 1   | E     | 180 | VAL  |
| 1   | G     | 325 | GLY  |
| 1   | A     | 55  | GLY  |
| 1   | I     | 181 | 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     | 254/265 (96%)   | 242 (95%)  | 12 (5%)  | 26          | 63 |
| 1   | B     | 252/265 (95%)   | 242 (96%)  | 10 (4%)  | 31          | 68 |
| 1   | C     | 251/265 (95%)   | 236 (94%)  | 15 (6%)  | 19          | 53 |
| 1   | D     | 253/265 (96%)   | 250 (99%)  | 3 (1%)   | 71          | 90 |
| 1   | E     | 251/265 (95%)   | 243 (97%)  | 8 (3%)   | 39          | 74 |
| 1   | F     | 250/265 (94%)   | 237 (95%)  | 13 (5%)  | 23          | 59 |
| 1   | G     | 252/265 (95%)   | 243 (96%)  | 9 (4%)   | 35          | 70 |
| 1   | H     | 252/265 (95%)   | 242 (96%)  | 10 (4%)  | 31          | 68 |
| 1   | I     | 251/265 (95%)   | 238 (95%)  | 13 (5%)  | 23          | 59 |
| 1   | J     | 251/265 (95%)   | 237 (94%)  | 14 (6%)  | 21          | 56 |
| 1   | K     | 251/265 (95%)   | 234 (93%)  | 17 (7%)  | 16          | 48 |
| 1   | L     | 251/265 (95%)   | 242 (96%)  | 9 (4%)   | 35          | 70 |
| All | All   | 3019/3180 (95%) | 2886 (96%) | 133 (4%) | 28          | 65 |

All (133) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 17  | ASP  |
| 1   | A     | 22  | THR  |
| 1   | A     | 51  | GLN  |
| 1   | A     | 122 | PRO  |
| 1   | A     | 163 | SER  |
| 1   | A     | 185 | HIS  |
| 1   | A     | 204 | LEU  |
| 1   | A     | 208 | ARG  |
| 1   | A     | 251 | SER  |
| 1   | A     | 271 | ILE  |
| 1   | A     | 295 | TRP  |
| 1   | A     | 340 | ARG  |
| 1   | B     | -1  | SER  |
| 1   | B     | 31  | LYS  |
| 1   | B     | 37  | LEU  |
| 1   | B     | 192 | ARG  |
| 1   | B     | 195 | SER  |
| 1   | B     | 251 | SER  |
| 1   | B     | 267 | SER  |
| 1   | B     | 295 | TRP  |
| 1   | B     | 299 | SER  |
| 1   | B     | 340 | ARG  |
| 1   | C     | 22  | THR  |
| 1   | C     | 38  | CYS  |
| 1   | C     | 44  | VAL  |
| 1   | C     | 73  | GLU  |
| 1   | C     | 180 | VAL  |
| 1   | C     | 211 | LEU  |
| 1   | C     | 232 | ARG  |
| 1   | C     | 233 | GLU  |
| 1   | C     | 238 | GLN  |
| 1   | C     | 255 | THR  |
| 1   | C     | 258 | GLN  |
| 1   | C     | 267 | SER  |
| 1   | C     | 295 | TRP  |
| 1   | C     | 299 | SER  |
| 1   | C     | 312 | ARG  |
| 1   | D     | 267 | SER  |
| 1   | D     | 271 | ILE  |
| 1   | D     | 295 | TRP  |
| 1   | E     | 73  | GLU  |
| 1   | E     | 80  | VAL  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | E            | 84         | VAL         |
| 1          | E            | 107        | THR         |
| 1          | E            | 251        | SER         |
| 1          | E            | 255        | THR         |
| 1          | E            | 267        | SER         |
| 1          | E            | 295        | TRP         |
| 1          | F            | 37         | LEU         |
| 1          | F            | 38         | CYS         |
| 1          | F            | 45         | MET         |
| 1          | F            | 54         | TYR         |
| 1          | F            | 65         | VAL         |
| 1          | F            | 114        | ILE         |
| 1          | F            | 119        | LEU         |
| 1          | F            | 192        | ARG         |
| 1          | F            | 195        | SER         |
| 1          | F            | 295        | TRP         |
| 1          | F            | 302        | MET         |
| 1          | F            | 312        | ARG         |
| 1          | F            | 340        | ARG         |
| 1          | G            | -1         | SER         |
| 1          | G            | 37         | LEU         |
| 1          | G            | 119        | LEU         |
| 1          | G            | 267        | SER         |
| 1          | G            | 295        | TRP         |
| 1          | G            | 298        | ARG         |
| 1          | G            | 299        | SER         |
| 1          | G            | 319        | THR         |
| 1          | G            | 340        | ARG         |
| 1          | H            | -3         | ARG         |
| 1          | H            | 47         | MET         |
| 1          | H            | 89         | PRO         |
| 1          | H            | 116        | PRO         |
| 1          | H            | 122        | PRO         |
| 1          | H            | 124        | SER         |
| 1          | H            | 205        | ASP         |
| 1          | H            | 238        | GLN         |
| 1          | H            | 313        | LEU         |
| 1          | H            | 340        | ARG         |
| 1          | I            | 11         | SER         |
| 1          | I            | 37         | LEU         |
| 1          | I            | 39         | HIS         |
| 1          | I            | 51         | GLN         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | I            | 76         | THR         |
| 1          | I            | 211        | LEU         |
| 1          | I            | 259        | VAL         |
| 1          | I            | 267        | SER         |
| 1          | I            | 295        | TRP         |
| 1          | I            | 298        | ARG         |
| 1          | I            | 299        | SER         |
| 1          | I            | 312        | ARG         |
| 1          | I            | 340        | ARG         |
| 1          | J            | 8          | GLU         |
| 1          | J            | 44         | VAL         |
| 1          | J            | 51         | GLN         |
| 1          | J            | 67         | THR         |
| 1          | J            | 86         | VAL         |
| 1          | J            | 125        | MET         |
| 1          | J            | 204        | LEU         |
| 1          | J            | 223        | SER         |
| 1          | J            | 251        | SER         |
| 1          | J            | 267        | SER         |
| 1          | J            | 271        | ILE         |
| 1          | J            | 295        | TRP         |
| 1          | J            | 317        | THR         |
| 1          | J            | 322        | LEU         |
| 1          | K            | -1         | SER         |
| 1          | K            | 37         | LEU         |
| 1          | K            | 76         | THR         |
| 1          | K            | 122        | PRO         |
| 1          | K            | 135        | ARG         |
| 1          | K            | 173        | SER         |
| 1          | K            | 174        | THR         |
| 1          | K            | 192        | ARG         |
| 1          | K            | 238        | GLN         |
| 1          | K            | 241        | THR         |
| 1          | K            | 267        | SER         |
| 1          | K            | 295        | TRP         |
| 1          | K            | 298        | ARG         |
| 1          | K            | 299        | SER         |
| 1          | K            | 319        | THR         |
| 1          | K            | 321        | THR         |
| 1          | K            | 340        | ARG         |
| 1          | L            | -3         | ARG         |
| 1          | L            | 17         | ASP         |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | L     | 52  | TYR  |
| 1   | L     | 63  | GLU  |
| 1   | L     | 255 | THR  |
| 1   | L     | 267 | SER  |
| 1   | L     | 292 | THR  |
| 1   | L     | 295 | TRP  |
| 1   | L     | 340 | ARG  |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (11) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | C     | 96  | HIS  |
| 1   | C     | 276 | HIS  |
| 1   | D     | 276 | HIS  |
| 1   | F     | 258 | GLN  |
| 1   | H     | 276 | HIS  |
| 1   | I     | 160 | HIS  |
| 1   | I     | 265 | HIS  |
| 1   | J     | 5   | GLN  |
| 1   | J     | 265 | HIS  |
| 1   | L     | 265 | HIS  |
| 1   | L     | 276 | HIS  |

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

### 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

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

Of 41 ligands modelled in this entry, 24 are monoatomic - leaving 17 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   | W46  | F     | 503 | -    | 19,19,19     | 4.35 | 12 (63%) | 18,25,25    | 2.67 | 7 (38%)  |
| 4   | CIT  | I     | 503 | -    | 12,12,12     | 1.35 | 1 (8%)   | 17,17,17    | 1.15 | 1 (5%)   |
| 3   | W46  | D     | 503 | -    | 19,19,19     | 4.13 | 12 (63%) | 18,25,25    | 2.25 | 7 (38%)  |
| 4   | CIT  | K     | 401 | -    | 12,12,12     | 1.14 | 1 (8%)   | 17,17,17    | 1.54 | 2 (11%)  |
| 3   | W46  | L     | 504 | -    | 19,19,19     | 4.05 | 11 (57%) | 18,25,25    | 2.25 | 8 (44%)  |
| 3   | W46  | C     | 503 | -    | 19,19,19     | 4.52 | 12 (63%) | 18,25,25    | 2.61 | 8 (44%)  |
| 3   | W46  | K     | 404 | -    | 19,19,19     | 4.59 | 12 (63%) | 18,25,25    | 2.80 | 6 (33%)  |
| 3   | W46  | E     | 503 | -    | 19,19,19     | 4.36 | 14 (73%) | 18,25,25    | 2.83 | 7 (38%)  |
| 4   | CIT  | B     | 503 | -    | 12,12,12     | 1.19 | 1 (8%)   | 17,17,17    | 1.63 | 2 (11%)  |
| 4   | CIT  | L     | 503 | -    | 12,12,12     | 1.13 | 1 (8%)   | 17,17,17    | 1.40 | 2 (11%)  |
| 3   | W46  | J     | 503 | -    | 19,19,19     | 4.51 | 12 (63%) | 18,25,25    | 2.83 | 7 (38%)  |
| 3   | W46  | A     | 503 | -    | 19,19,19     | 4.31 | 11 (57%) | 18,25,25    | 2.32 | 4 (22%)  |
| 4   | CIT  | H     | 503 | -    | 12,12,12     | 1.19 | 1 (8%)   | 17,17,17    | 1.46 | 2 (11%)  |
| 3   | W46  | H     | 504 | -    | 19,19,19     | 4.35 | 12 (63%) | 18,25,25    | 1.81 | 4 (22%)  |
| 3   | W46  | I     | 504 | -    | 19,19,19     | 4.21 | 10 (52%) | 18,25,25    | 2.32 | 4 (22%)  |
| 5   | IPA  | B     | 505 | -    | 3,3,3        | 0.86 | 0        | 3,3,3       | 0.33 | 0        |
| 3   | W46  | B     | 504 | -    | 19,19,19     | 4.15 | 10 (52%) | 18,25,25    | 2.57 | 5 (27%)  |

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   |
|-----|------|-------|-----|------|---------|------------|---------|
| 3   | W46  | F     | 503 | -    | -       | 1/9/20/20  | 0/2/2/2 |
| 4   | CIT  | I     | 503 | -    | -       | 8/16/16/16 | -       |
| 3   | W46  | D     | 503 | -    | -       | 0/9/20/20  | 0/2/2/2 |
| 4   | CIT  | K     | 401 | -    | -       | 8/16/16/16 | -       |
| 3   | W46  | L     | 504 | -    | -       | 3/9/20/20  | 0/2/2/2 |
| 3   | W46  | C     | 503 | -    | -       | 0/9/20/20  | 0/2/2/2 |
| 3   | W46  | K     | 404 | -    | -       | 0/9/20/20  | 0/2/2/2 |

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| Mol | Type | Chain | Res | Link | Chirals | Torsions    | Rings   |
|-----|------|-------|-----|------|---------|-------------|---------|
| 3   | W46  | E     | 503 | -    | -       | 0/9/20/20   | 0/2/2/2 |
| 4   | CIT  | B     | 503 | -    | -       | 7/16/16/16  | -       |
| 4   | CIT  | L     | 503 | -    | -       | 0/16/16/16  | -       |
| 3   | W46  | J     | 503 | -    | -       | 0/9/20/20   | 0/2/2/2 |
| 3   | W46  | A     | 503 | -    | -       | 1/9/20/20   | 0/2/2/2 |
| 4   | CIT  | H     | 503 | -    | -       | 10/16/16/16 | -       |
| 3   | W46  | H     | 504 | -    | -       | 0/9/20/20   | 0/2/2/2 |
| 3   | W46  | I     | 504 | -    | -       | 0/9/20/20   | 0/2/2/2 |
| 3   | W46  | B     | 504 | -    | -       | 0/9/20/20   | 0/2/2/2 |

All (133) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|---------|-------|-------------|----------|
| 3   | C     | 503 | W46  | C16-C17 | 13.64 | 1.57        | 1.33     |
| 3   | J     | 503 | W46  | C16-C17 | 13.57 | 1.57        | 1.33     |
| 3   | K     | 404 | W46  | C16-C17 | 13.35 | 1.57        | 1.33     |
| 3   | F     | 503 | W46  | C16-C17 | 12.78 | 1.56        | 1.33     |
| 3   | H     | 504 | W46  | C16-C17 | 12.72 | 1.56        | 1.33     |
| 3   | A     | 503 | W46  | C16-C17 | 12.72 | 1.56        | 1.33     |
| 3   | D     | 503 | W46  | C16-C17 | 12.69 | 1.56        | 1.33     |
| 3   | I     | 504 | W46  | C16-C17 | 12.51 | 1.55        | 1.33     |
| 3   | B     | 504 | W46  | C16-C17 | 12.42 | 1.55        | 1.33     |
| 3   | L     | 504 | W46  | C16-C17 | 12.33 | 1.55        | 1.33     |
| 3   | E     | 503 | W46  | C16-C17 | 12.33 | 1.55        | 1.33     |
| 3   | K     | 404 | W46  | C02-N01 | 6.72  | 1.51        | 1.33     |
| 3   | B     | 504 | W46  | C02-N01 | 6.60  | 1.51        | 1.33     |
| 3   | J     | 503 | W46  | C02-N01 | 6.24  | 1.50        | 1.33     |
| 3   | E     | 503 | W46  | C05-C04 | 6.22  | 1.52        | 1.34     |
| 3   | D     | 503 | W46  | C02-N01 | 6.17  | 1.49        | 1.33     |
| 3   | F     | 503 | W46  | C02-N01 | 6.15  | 1.49        | 1.33     |
| 3   | I     | 504 | W46  | C02-N01 | 6.14  | 1.49        | 1.33     |
| 3   | J     | 503 | W46  | C05-C04 | 6.09  | 1.52        | 1.34     |
| 3   | F     | 503 | W46  | C05-C04 | 6.08  | 1.52        | 1.34     |
| 3   | E     | 503 | W46  | C02-N01 | 5.88  | 1.49        | 1.33     |
| 3   | H     | 504 | W46  | C02-N01 | 5.86  | 1.49        | 1.33     |
| 3   | C     | 503 | W46  | C05-C04 | 5.83  | 1.51        | 1.34     |
| 3   | C     | 503 | W46  | C02-N01 | 5.82  | 1.48        | 1.33     |
| 3   | K     | 404 | W46  | C05-C04 | 5.74  | 1.51        | 1.34     |
| 3   | H     | 504 | W46  | C05-C04 | 5.66  | 1.50        | 1.34     |
| 3   | L     | 504 | W46  | C02-N01 | 5.64  | 1.48        | 1.33     |
| 3   | A     | 503 | W46  | C05-C04 | 5.63  | 1.50        | 1.34     |
| 3   | B     | 504 | W46  | C05-C04 | 5.60  | 1.50        | 1.34     |

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| Mol | Chain | Res | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|---------|-------|-------------|----------|
| 3   | A     | 503 | W46  | C07-C08 | 5.51  | 1.61        | 1.51     |
| 3   | A     | 503 | W46  | C18-C04 | 5.37  | 1.60        | 1.49     |
| 3   | I     | 504 | W46  | C05-C04 | 5.37  | 1.50        | 1.34     |
| 3   | A     | 503 | W46  | C16-N06 | 5.26  | 1.47        | 1.36     |
| 3   | H     | 504 | W46  | C07-C08 | 5.26  | 1.60        | 1.51     |
| 3   | J     | 503 | W46  | C16-N06 | 5.19  | 1.47        | 1.36     |
| 3   | K     | 404 | W46  | C16-N06 | 5.19  | 1.47        | 1.36     |
| 3   | E     | 503 | W46  | C16-N06 | 5.13  | 1.47        | 1.36     |
| 3   | C     | 503 | W46  | C16-N06 | 5.11  | 1.47        | 1.36     |
| 3   | C     | 503 | W46  | C07-C08 | 5.08  | 1.60        | 1.51     |
| 3   | H     | 504 | W46  | C16-N06 | 5.07  | 1.47        | 1.36     |
| 3   | A     | 503 | W46  | C02-N01 | 5.04  | 1.46        | 1.33     |
| 3   | K     | 404 | W46  | C07-C08 | 4.98  | 1.60        | 1.51     |
| 3   | L     | 504 | W46  | C05-C04 | 4.96  | 1.48        | 1.34     |
| 3   | F     | 503 | W46  | C07-C08 | 4.92  | 1.60        | 1.51     |
| 3   | E     | 503 | W46  | C07-C08 | 4.89  | 1.60        | 1.51     |
| 3   | K     | 404 | W46  | C18-C04 | 4.82  | 1.59        | 1.49     |
| 3   | L     | 504 | W46  | C16-N06 | 4.77  | 1.46        | 1.36     |
| 3   | I     | 504 | W46  | C07-C08 | 4.70  | 1.59        | 1.51     |
| 3   | B     | 504 | W46  | C07-C08 | 4.62  | 1.59        | 1.51     |
| 3   | I     | 504 | W46  | C18-C04 | 4.60  | 1.59        | 1.49     |
| 3   | F     | 503 | W46  | C16-N06 | 4.59  | 1.46        | 1.36     |
| 3   | I     | 504 | W46  | C16-N06 | 4.58  | 1.46        | 1.36     |
| 3   | D     | 503 | W46  | C07-C08 | 4.57  | 1.59        | 1.51     |
| 3   | C     | 503 | W46  | C18-C04 | 4.57  | 1.58        | 1.49     |
| 3   | D     | 503 | W46  | C05-C04 | 4.55  | 1.47        | 1.34     |
| 3   | F     | 503 | W46  | C18-C04 | 4.45  | 1.58        | 1.49     |
| 3   | J     | 503 | W46  | C18-C04 | 4.42  | 1.58        | 1.49     |
| 3   | L     | 504 | W46  | C07-C08 | 4.33  | 1.59        | 1.51     |
| 3   | B     | 504 | W46  | C16-N06 | 4.29  | 1.45        | 1.36     |
| 3   | J     | 503 | W46  | C07-C08 | 4.22  | 1.59        | 1.51     |
| 3   | E     | 503 | W46  | C14-C11 | -4.19 | 1.29        | 1.38     |
| 3   | D     | 503 | W46  | C16-N06 | 4.11  | 1.45        | 1.36     |
| 3   | K     | 404 | W46  | C14-C11 | -3.98 | 1.30        | 1.38     |
| 3   | D     | 503 | W46  | C15-C08 | 3.90  | 1.47        | 1.38     |
| 3   | H     | 504 | W46  | C18-C04 | 3.87  | 1.57        | 1.49     |
| 3   | D     | 503 | W46  | C18-C04 | 3.80  | 1.57        | 1.49     |
| 3   | H     | 504 | W46  | C14-C11 | -3.76 | 1.30        | 1.38     |
| 3   | E     | 503 | W46  | C18-C04 | 3.75  | 1.57        | 1.49     |
| 3   | B     | 504 | W46  | C14-C11 | -3.67 | 1.30        | 1.38     |
| 3   | F     | 503 | W46  | C15-C08 | 3.64  | 1.46        | 1.38     |
| 3   | J     | 503 | W46  | C15-C08 | 3.57  | 1.46        | 1.38     |

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| Mol | Chain | Res | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|---------|-------|-------------|----------|
| 3   | B     | 504 | W46  | C18-C04 | 3.55  | 1.56        | 1.49     |
| 3   | C     | 503 | W46  | C14-C11 | -3.54 | 1.31        | 1.38     |
| 3   | K     | 404 | W46  | C02-C04 | 3.51  | 1.56        | 1.48     |
| 3   | K     | 404 | W46  | C15-C08 | 3.47  | 1.46        | 1.38     |
| 3   | L     | 504 | W46  | C14-C11 | -3.46 | 1.31        | 1.38     |
| 3   | A     | 503 | W46  | C14-C11 | -3.42 | 1.31        | 1.38     |
| 3   | I     | 504 | W46  | C18-C17 | 3.41  | 1.57        | 1.48     |
| 3   | J     | 503 | W46  | C14-C11 | -3.37 | 1.31        | 1.38     |
| 3   | L     | 504 | W46  | C18-C04 | 3.36  | 1.56        | 1.49     |
| 3   | H     | 504 | W46  | C18-C17 | 3.22  | 1.57        | 1.48     |
| 3   | H     | 504 | W46  | C15-C08 | 3.21  | 1.45        | 1.38     |
| 3   | I     | 504 | W46  | C14-C11 | -3.11 | 1.32        | 1.38     |
| 4   | I     | 503 | CIT  | C3-C6   | 3.08  | 1.56        | 1.53     |
| 3   | C     | 503 | W46  | C15-C08 | 3.02  | 1.45        | 1.38     |
| 3   | C     | 503 | W46  | C18-C17 | 3.01  | 1.56        | 1.48     |
| 3   | J     | 503 | W46  | C18-C17 | 2.98  | 1.56        | 1.48     |
| 3   | E     | 503 | W46  | C07-N06 | 2.97  | 1.53        | 1.47     |
| 3   | L     | 504 | W46  | O03-C02 | -2.93 | 1.17        | 1.24     |
| 3   | L     | 504 | W46  | C15-C08 | 2.90  | 1.45        | 1.38     |
| 3   | F     | 503 | W46  | C14-C11 | -2.84 | 1.32        | 1.38     |
| 3   | D     | 503 | W46  | O03-C02 | -2.84 | 1.17        | 1.24     |
| 3   | E     | 503 | W46  | C15-C08 | 2.82  | 1.44        | 1.38     |
| 3   | F     | 503 | W46  | O03-C02 | -2.74 | 1.18        | 1.24     |
| 3   | J     | 503 | W46  | C09-C08 | -2.74 | 1.32        | 1.38     |
| 3   | B     | 504 | W46  | C02-C04 | 2.73  | 1.54        | 1.48     |
| 3   | D     | 503 | W46  | C18-C17 | 2.72  | 1.56        | 1.48     |
| 3   | K     | 404 | W46  | C09-C08 | -2.71 | 1.33        | 1.38     |
| 3   | A     | 503 | W46  | O03-C02 | -2.66 | 1.18        | 1.24     |
| 3   | A     | 503 | W46  | C18-C17 | 2.66  | 1.55        | 1.48     |
| 3   | E     | 503 | W46  | C02-C04 | 2.65  | 1.54        | 1.48     |
| 3   | J     | 503 | W46  | C10-C11 | 2.64  | 1.44        | 1.38     |
| 3   | E     | 503 | W46  | C09-C08 | -2.63 | 1.33        | 1.38     |
| 3   | H     | 504 | W46  | O03-C02 | -2.63 | 1.18        | 1.24     |
| 3   | B     | 504 | W46  | C18-C17 | 2.61  | 1.55        | 1.48     |
| 3   | C     | 503 | W46  | C15-C14 | -2.59 | 1.34        | 1.38     |
| 3   | C     | 503 | W46  | C05-N06 | 2.59  | 1.42        | 1.37     |
| 3   | K     | 404 | W46  | C18-C17 | 2.58  | 1.55        | 1.48     |
| 3   | L     | 504 | W46  | C18-C17 | 2.57  | 1.55        | 1.48     |
| 3   | F     | 503 | W46  | C02-C04 | 2.55  | 1.54        | 1.48     |
| 3   | I     | 504 | W46  | C15-C08 | 2.54  | 1.44        | 1.38     |
| 3   | F     | 503 | W46  | C09-C08 | -2.52 | 1.33        | 1.38     |
| 3   | L     | 504 | W46  | C09-C08 | -2.50 | 1.33        | 1.38     |

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| Mol | Chain | Res | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|---------|-------|-------------|----------|
| 3   | F     | 503 | W46  | C18-C17 | 2.44  | 1.55        | 1.48     |
| 3   | I     | 504 | W46  | C02-C04 | 2.44  | 1.53        | 1.48     |
| 3   | J     | 503 | W46  | O03-C02 | -2.43 | 1.18        | 1.24     |
| 3   | E     | 503 | W46  | O03-C02 | -2.42 | 1.18        | 1.24     |
| 4   | K     | 401 | CIT  | C3-C6   | 2.40  | 1.55        | 1.53     |
| 3   | B     | 504 | W46  | C15-C14 | -2.40 | 1.34        | 1.38     |
| 3   | E     | 503 | W46  | C18-C17 | 2.39  | 1.55        | 1.48     |
| 4   | B     | 503 | CIT  | C3-C6   | 2.38  | 1.55        | 1.53     |
| 3   | H     | 504 | W46  | C09-C08 | -2.38 | 1.33        | 1.38     |
| 3   | C     | 503 | W46  | O03-C02 | -2.35 | 1.18        | 1.24     |
| 3   | A     | 503 | W46  | C15-C08 | 2.30  | 1.43        | 1.38     |
| 4   | L     | 503 | CIT  | C3-C6   | 2.28  | 1.55        | 1.53     |
| 4   | H     | 503 | CIT  | C3-C6   | 2.24  | 1.55        | 1.53     |
| 3   | D     | 503 | W46  | C14-C11 | -2.24 | 1.34        | 1.38     |
| 3   | H     | 504 | W46  | C15-C14 | -2.23 | 1.34        | 1.38     |
| 3   | A     | 503 | W46  | C09-C08 | -2.19 | 1.34        | 1.38     |
| 3   | K     | 404 | W46  | C15-C14 | -2.16 | 1.34        | 1.38     |
| 3   | D     | 503 | W46  | C09-C08 | -2.09 | 1.34        | 1.38     |
| 3   | D     | 503 | W46  | C10-C11 | 2.07  | 1.43        | 1.38     |
| 3   | E     | 503 | W46  | C05-N06 | 2.03  | 1.40        | 1.37     |

All (76) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-------------|-------|-------------|----------|
| 3   | J     | 503 | W46  | C08-C07-N06 | -8.65 | 95.40       | 112.41   |
| 3   | K     | 404 | W46  | O13-C12-C11 | -6.79 | 87.03       | 112.03   |
| 3   | B     | 504 | W46  | C08-C07-N06 | -6.56 | 99.51       | 112.41   |
| 3   | E     | 503 | W46  | C08-C07-N06 | -6.40 | 99.83       | 112.41   |
| 3   | A     | 503 | W46  | O13-C12-C11 | -6.34 | 88.68       | 112.03   |
| 3   | E     | 503 | W46  | O13-C12-C11 | -6.27 | 88.95       | 112.03   |
| 3   | F     | 503 | W46  | C08-C07-N06 | -6.09 | 100.44      | 112.41   |
| 3   | K     | 404 | W46  | C08-C07-N06 | -5.92 | 100.78      | 112.41   |
| 3   | I     | 504 | W46  | C08-C07-N06 | -5.87 | 100.88      | 112.41   |
| 3   | C     | 503 | W46  | C08-C07-N06 | -5.77 | 101.07      | 112.41   |
| 3   | C     | 503 | W46  | O13-C12-C11 | -5.09 | 93.27       | 112.03   |
| 3   | L     | 504 | W46  | C08-C07-N06 | -5.07 | 102.44      | 112.41   |
| 3   | L     | 504 | W46  | O13-C12-C11 | -4.99 | 93.67       | 112.03   |
| 3   | A     | 503 | W46  | C08-C07-N06 | -4.91 | 102.76      | 112.41   |
| 3   | C     | 503 | W46  | C14-C11-C10 | 4.81  | 125.72      | 118.17   |
| 3   | F     | 503 | W46  | O13-C12-C11 | -4.77 | 94.46       | 112.03   |
| 3   | B     | 504 | W46  | C09-C10-C11 | -4.66 | 114.61      | 121.03   |
| 4   | B     | 503 | CIT  | O5-C6-C3    | -4.53 | 115.84      | 122.25   |

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| Mol | Chain | Res | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-------------|-------|-------------|----------|
| 3   | I     | 504 | W46  | O13-C12-C11 | -4.52 | 95.38       | 112.03   |
| 3   | K     | 404 | W46  | C15-C14-C11 | -4.44 | 114.92      | 121.03   |
| 3   | D     | 503 | W46  | C14-C11-C10 | 4.28  | 124.90      | 118.17   |
| 3   | K     | 404 | W46  | C14-C11-C10 | 4.18  | 124.73      | 118.17   |
| 3   | J     | 503 | W46  | O13-C12-C11 | -4.13 | 96.82       | 112.03   |
| 3   | F     | 503 | W46  | C14-C11-C10 | 4.11  | 124.62      | 118.17   |
| 3   | I     | 504 | W46  | C14-C11-C10 | 4.02  | 124.49      | 118.17   |
| 3   | H     | 504 | W46  | O13-C12-C11 | -3.93 | 97.56       | 112.03   |
| 3   | B     | 504 | W46  | C14-C11-C10 | 3.89  | 124.28      | 118.17   |
| 4   | L     | 503 | CIT  | O5-C6-C3    | -3.87 | 116.78      | 122.25   |
| 3   | H     | 504 | W46  | C08-C07-N06 | -3.82 | 104.91      | 112.41   |
| 4   | K     | 401 | CIT  | O5-C6-C3    | -3.81 | 116.86      | 122.25   |
| 3   | F     | 503 | W46  | C15-C14-C11 | -3.78 | 115.83      | 121.03   |
| 3   | F     | 503 | W46  | C04-C02-N01 | 3.74  | 124.30      | 117.67   |
| 3   | B     | 504 | W46  | O13-C12-C11 | -3.70 | 98.40       | 112.03   |
| 3   | E     | 503 | W46  | C07-N06-C05 | 3.68  | 124.15      | 120.34   |
| 4   | B     | 503 | CIT  | O6-C6-C3    | 3.68  | 119.44      | 113.05   |
| 3   | D     | 503 | W46  | C08-C07-N06 | -3.68 | 105.18      | 112.41   |
| 3   | I     | 504 | W46  | C09-C10-C11 | -3.67 | 115.97      | 121.03   |
| 3   | J     | 503 | W46  | C15-C14-C11 | -3.67 | 115.98      | 121.03   |
| 3   | D     | 503 | W46  | O03-C02-C04 | -3.66 | 114.00      | 120.90   |
| 3   | E     | 503 | W46  | C15-C14-C11 | -3.65 | 116.01      | 121.03   |
| 3   | A     | 503 | W46  | C14-C11-C10 | 3.44  | 123.58      | 118.17   |
| 3   | A     | 503 | W46  | C09-C10-C11 | -3.43 | 116.30      | 121.03   |
| 3   | L     | 504 | W46  | C14-C11-C10 | 3.40  | 123.51      | 118.17   |
| 4   | H     | 503 | CIT  | O5-C6-C3    | -3.29 | 117.59      | 122.25   |
| 3   | E     | 503 | W46  | C14-C11-C10 | 3.25  | 123.28      | 118.17   |
| 3   | D     | 503 | W46  | C15-C14-C11 | -3.22 | 116.60      | 121.03   |
| 3   | D     | 503 | W46  | C04-C02-N01 | 3.21  | 123.37      | 117.67   |
| 3   | C     | 503 | W46  | C09-C10-C11 | -3.17 | 116.66      | 121.03   |
| 3   | H     | 504 | W46  | C14-C11-C10 | 3.13  | 123.08      | 118.17   |
| 3   | C     | 503 | W46  | C15-C14-C11 | -3.07 | 116.80      | 121.03   |
| 4   | K     | 401 | CIT  | O6-C6-C3    | 2.80  | 117.91      | 113.05   |
| 3   | J     | 503 | W46  | O03-C02-C04 | -2.71 | 115.80      | 120.90   |
| 3   | H     | 504 | W46  | C15-C14-C11 | -2.70 | 117.32      | 121.03   |
| 3   | B     | 504 | W46  | C07-N06-C05 | 2.67  | 123.10      | 120.34   |
| 4   | H     | 503 | CIT  | O6-C6-C3    | 2.67  | 117.68      | 113.05   |
| 3   | E     | 503 | W46  | C16-N06-C05 | -2.63 | 111.86      | 118.19   |
| 3   | J     | 503 | W46  | C14-C11-C10 | 2.63  | 122.30      | 118.17   |
| 4   | L     | 503 | CIT  | O6-C6-C3    | 2.59  | 117.55      | 113.05   |
| 3   | D     | 503 | W46  | O13-C12-C11 | -2.56 | 102.62      | 112.03   |
| 3   | J     | 503 | W46  | C10-C09-C08 | -2.52 | 117.56      | 121.03   |

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| Mol | Chain | Res | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-------------|-------|-------------|----------|
| 3   | F     | 503 | W46  | C07-N06-C05 | 2.48  | 122.91      | 120.34   |
| 3   | J     | 503 | W46  | C04-C02-N01 | 2.39  | 121.91      | 117.67   |
| 3   | C     | 503 | W46  | C12-C11-C14 | -2.35 | 112.95      | 120.88   |
| 3   | C     | 503 | W46  | C07-C08-C15 | -2.28 | 116.49      | 120.77   |
| 3   | L     | 504 | W46  | O03-C02-C04 | -2.27 | 116.61      | 120.90   |
| 3   | F     | 503 | W46  | O03-C02-C04 | -2.24 | 116.68      | 120.90   |
| 3   | K     | 404 | W46  | C07-N06-C16 | 2.16  | 124.50      | 120.27   |
| 3   | L     | 504 | W46  | C09-C10-C11 | -2.15 | 118.07      | 121.03   |
| 3   | L     | 504 | W46  | C15-C14-C11 | -2.14 | 118.08      | 121.03   |
| 3   | K     | 404 | W46  | C14-C15-C08 | 2.13  | 123.95      | 121.03   |
| 3   | L     | 504 | W46  | C07-N06-C16 | 2.10  | 124.38      | 120.27   |
| 3   | L     | 504 | W46  | C04-C02-N01 | 2.09  | 121.38      | 117.67   |
| 3   | D     | 503 | W46  | C09-C10-C11 | -2.07 | 118.18      | 121.03   |
| 4   | I     | 503 | CIT  | O6-C6-C3    | 2.05  | 116.61      | 113.05   |
| 3   | C     | 503 | W46  | C07-C08-C09 | 2.04  | 124.61      | 120.77   |
| 3   | E     | 503 | W46  | C14-C15-C08 | 2.01  | 123.80      | 121.03   |

There are no chirality outliers.

All (38) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms           |
|-----|-------|-----|------|-----------------|
| 3   | L     | 504 | W46  | N01-C02-C04-C05 |
| 3   | L     | 504 | W46  | O03-C02-C04-C05 |
| 4   | B     | 503 | CIT  | C1-C2-C3-O7     |
| 4   | B     | 503 | CIT  | C1-C2-C3-C4     |
| 4   | B     | 503 | CIT  | O7-C3-C6-O5     |
| 4   | B     | 503 | CIT  | O7-C3-C6-O6     |
| 4   | B     | 503 | CIT  | C4-C3-C6-O5     |
| 4   | B     | 503 | CIT  | C4-C3-C6-O6     |
| 4   | H     | 503 | CIT  | C1-C2-C3-O7     |
| 4   | H     | 503 | CIT  | O7-C3-C6-O5     |
| 4   | H     | 503 | CIT  | O7-C3-C6-O6     |
| 4   | H     | 503 | CIT  | C4-C3-C6-O5     |
| 4   | H     | 503 | CIT  | C4-C3-C6-O6     |
| 4   | I     | 503 | CIT  | O7-C3-C6-O5     |
| 4   | I     | 503 | CIT  | O7-C3-C6-O6     |
| 4   | I     | 503 | CIT  | C4-C3-C6-O5     |
| 4   | I     | 503 | CIT  | C4-C3-C6-O6     |
| 4   | K     | 401 | CIT  | C2-C3-C4-C5     |
| 4   | K     | 401 | CIT  | C6-C3-C4-C5     |
| 4   | B     | 503 | CIT  | C1-C2-C3-C6     |
| 4   | H     | 503 | CIT  | C1-C2-C3-C4     |

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| Mol | Chain | Res | Type | Atoms           |
|-----|-------|-----|------|-----------------|
| 4   | H     | 503 | CIT  | C1-C2-C3-C6     |
| 4   | K     | 401 | CIT  | O7-C3-C4-C5     |
| 4   | H     | 503 | CIT  | C6-C3-C4-C5     |
| 4   | K     | 401 | CIT  | C2-C3-C6-O5     |
| 4   | K     | 401 | CIT  | C2-C3-C6-O6     |
| 4   | K     | 401 | CIT  | C4-C3-C6-O5     |
| 4   | K     | 401 | CIT  | C4-C3-C6-O6     |
| 4   | H     | 503 | CIT  | O7-C3-C4-C5     |
| 4   | I     | 503 | CIT  | C1-C2-C3-O7     |
| 4   | K     | 401 | CIT  | O7-C3-C6-O6     |
| 4   | H     | 503 | CIT  | C2-C3-C4-C5     |
| 4   | I     | 503 | CIT  | C2-C3-C6-O6     |
| 4   | I     | 503 | CIT  | C3-C4-C5-O3     |
| 4   | I     | 503 | CIT  | C3-C4-C5-O4     |
| 3   | A     | 503 | W46  | C10-C11-C12-O13 |
| 3   | F     | 503 | W46  | C10-C11-C12-O13 |
| 3   | L     | 504 | W46  | C14-C11-C12-O13 |

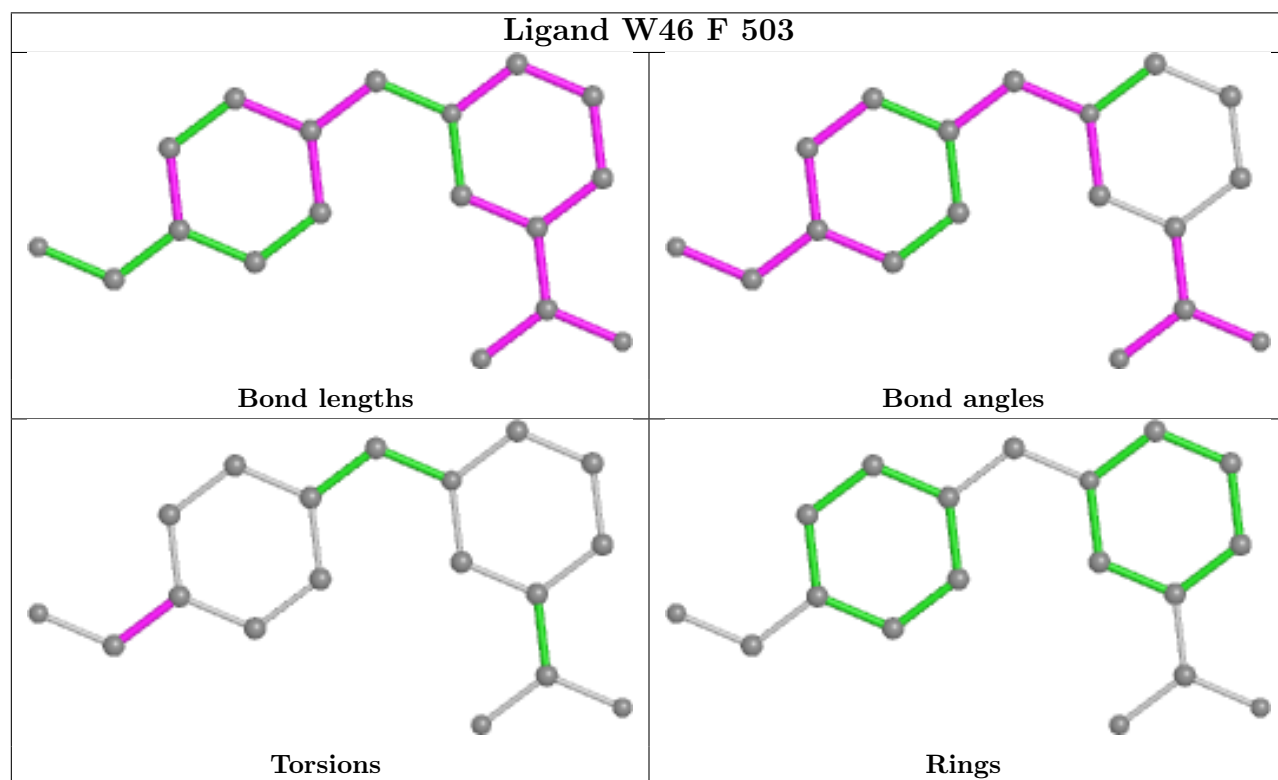
There are no ring outliers.

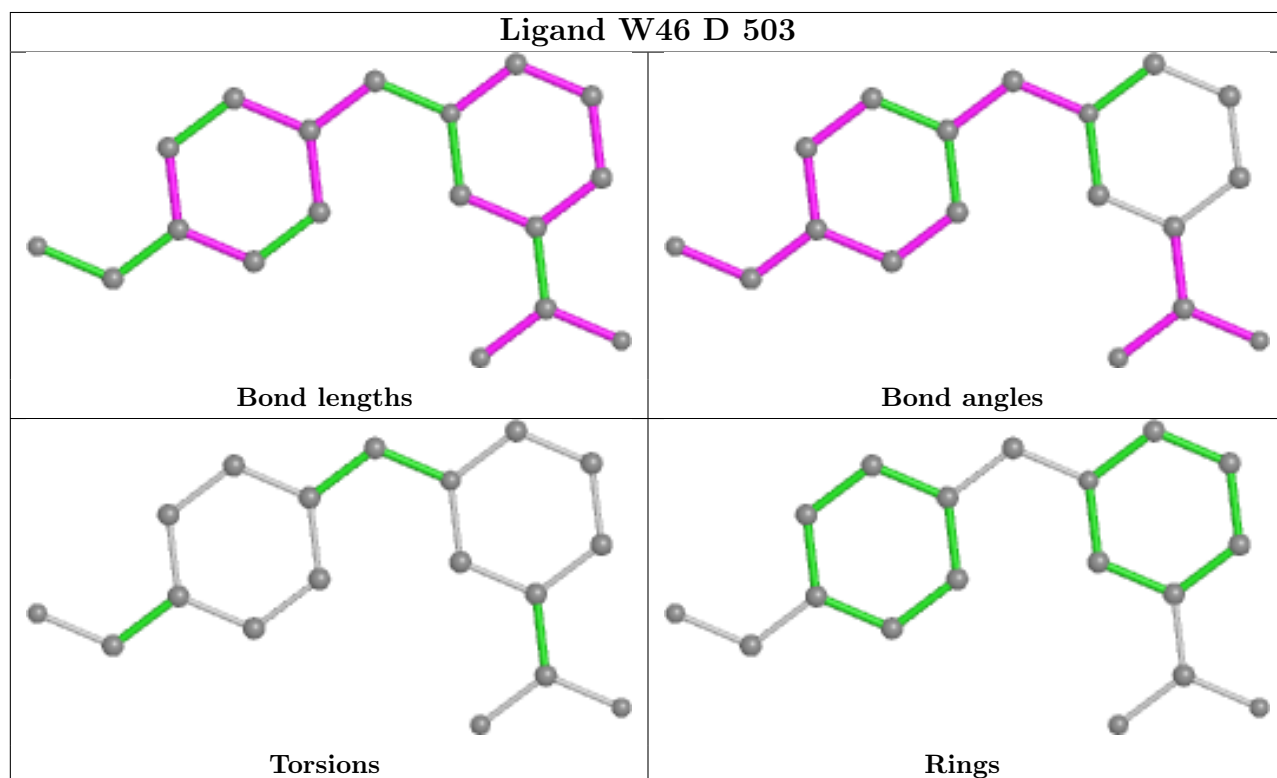
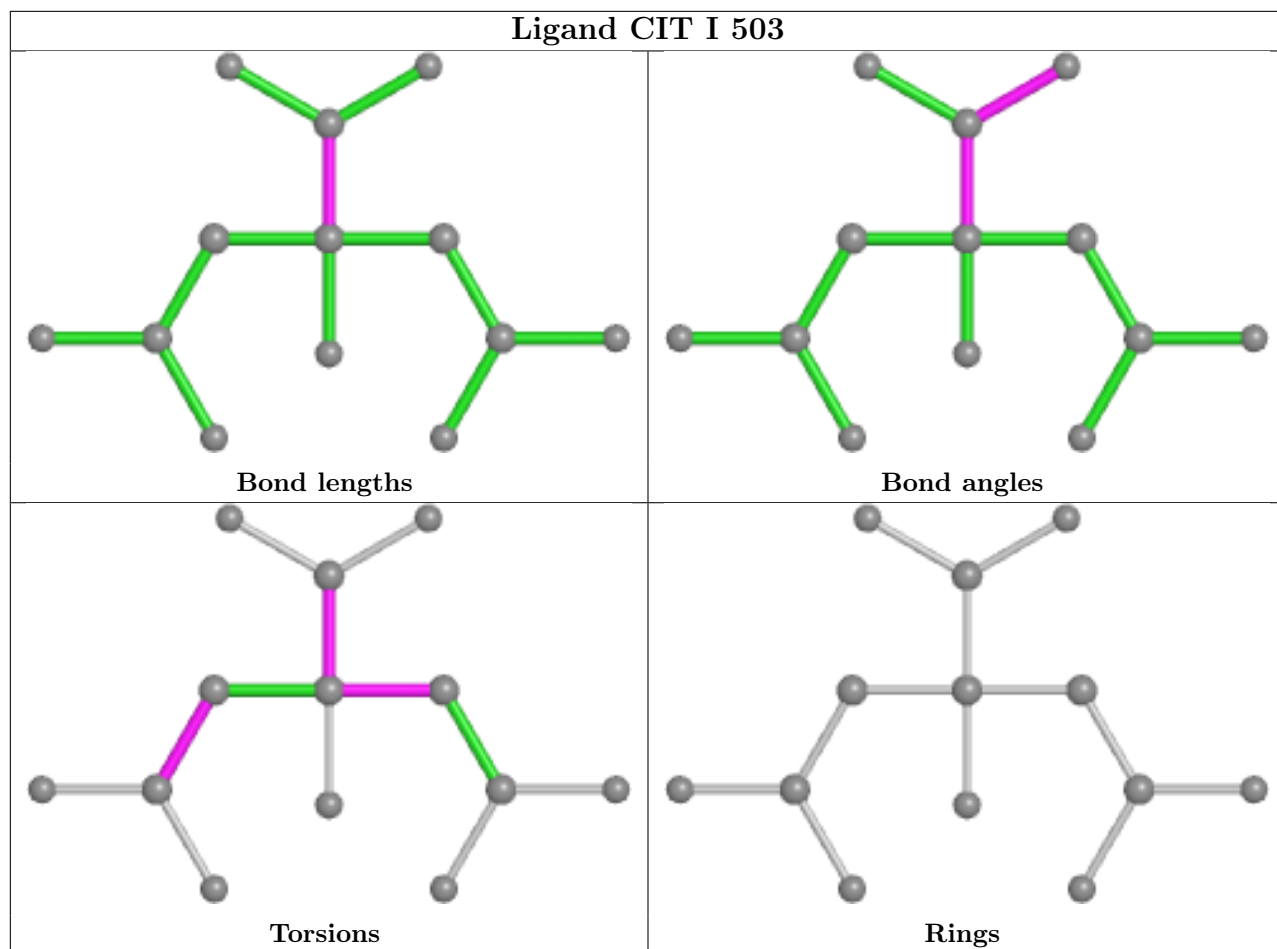
9 monomers are involved in 15 short contacts:

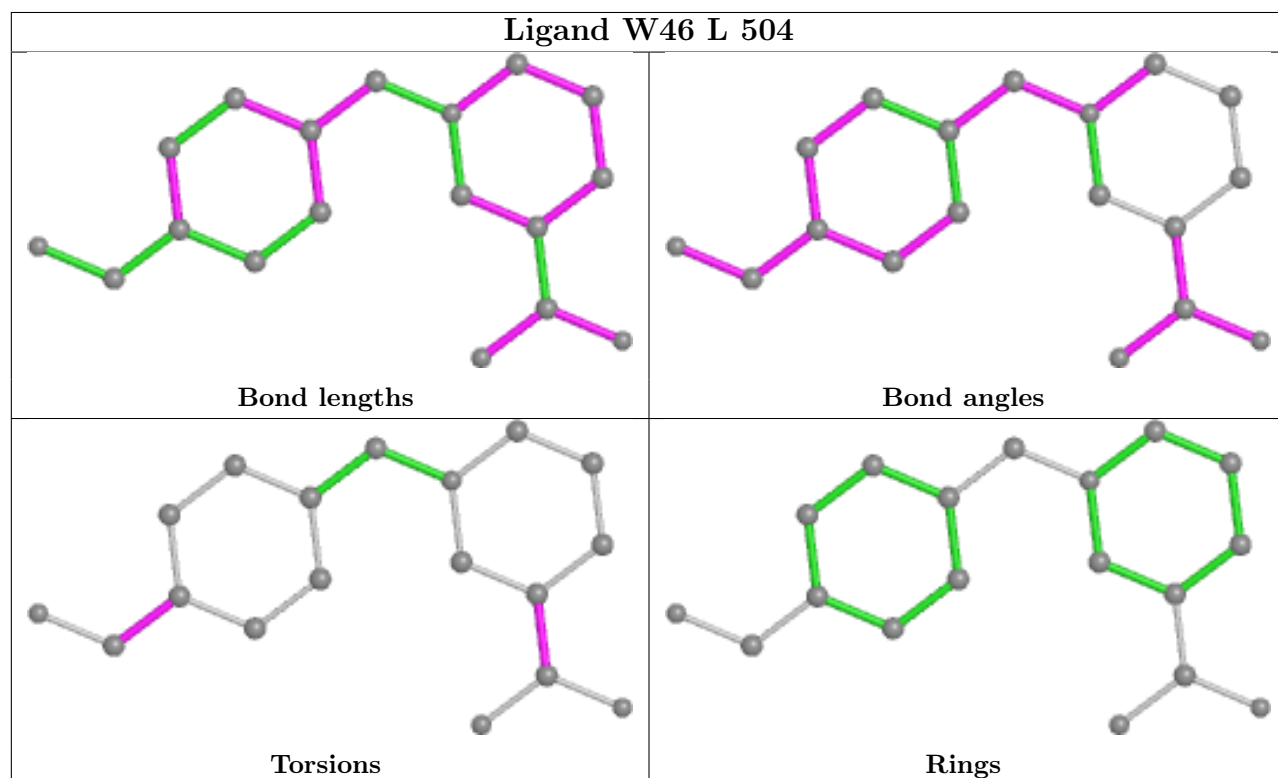
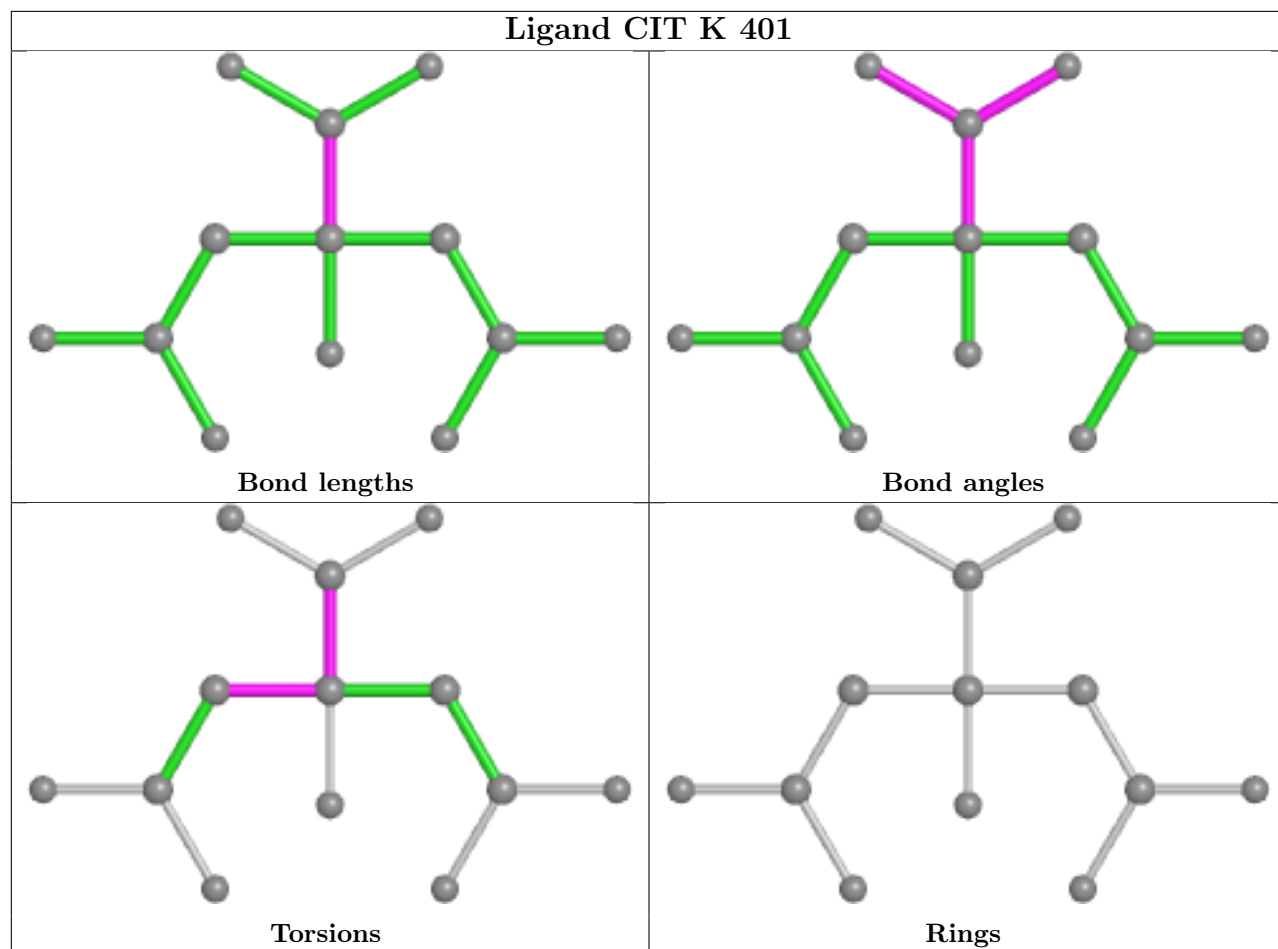
| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|-----|------|---------|--------------|
| 4   | I     | 503 | CIT  | 1       | 0            |
| 4   | K     | 401 | CIT  | 1       | 0            |
| 3   | L     | 504 | W46  | 4       | 0            |
| 3   | E     | 503 | W46  | 1       | 0            |
| 4   | B     | 503 | CIT  | 2       | 0            |
| 4   | L     | 503 | CIT  | 3       | 0            |
| 3   | J     | 503 | W46  | 1       | 0            |
| 3   | A     | 503 | W46  | 1       | 0            |
| 3   | B     | 504 | W46  | 1       | 0            |

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier.

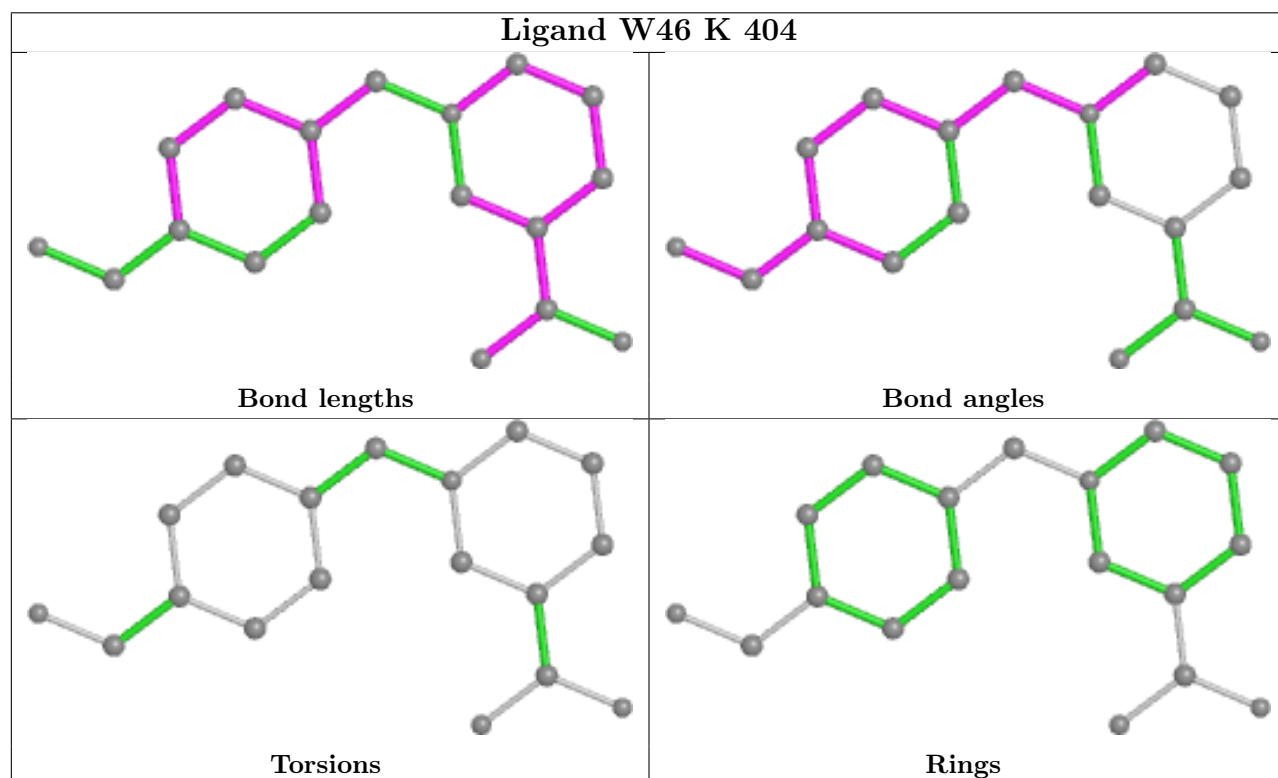
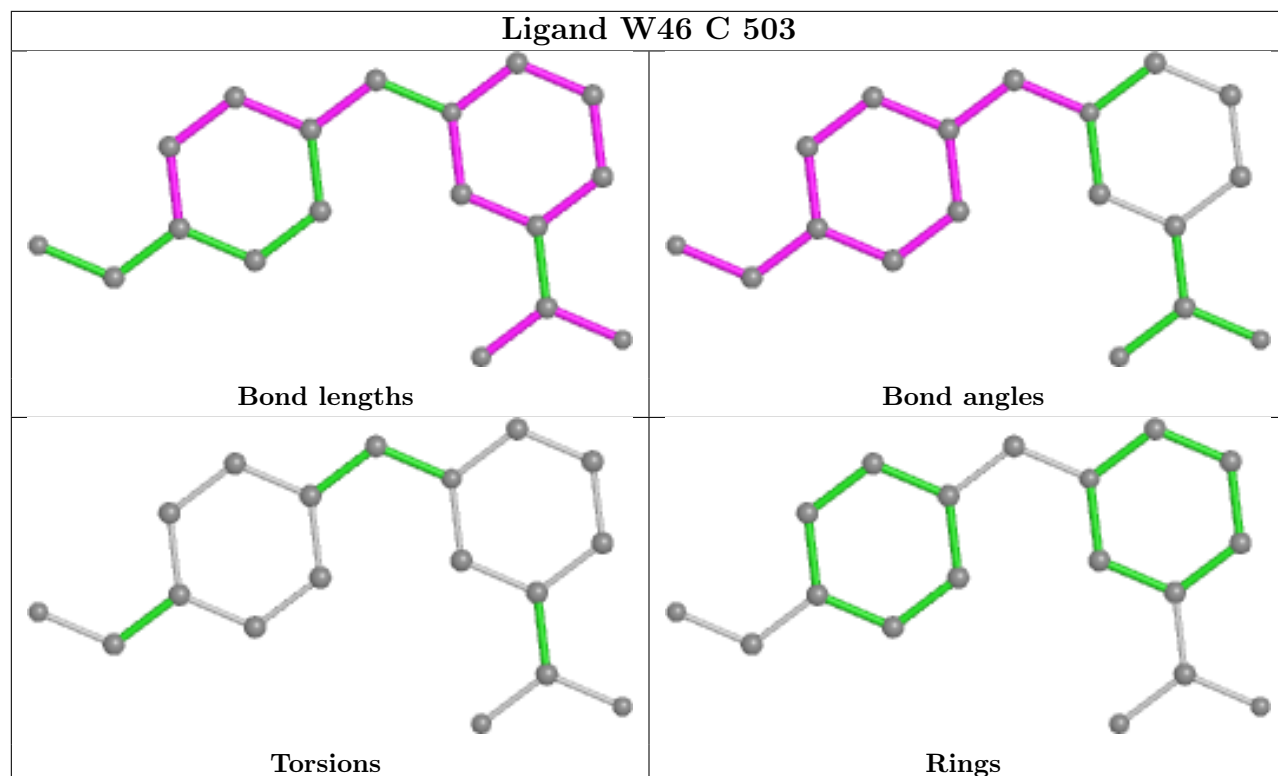
The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

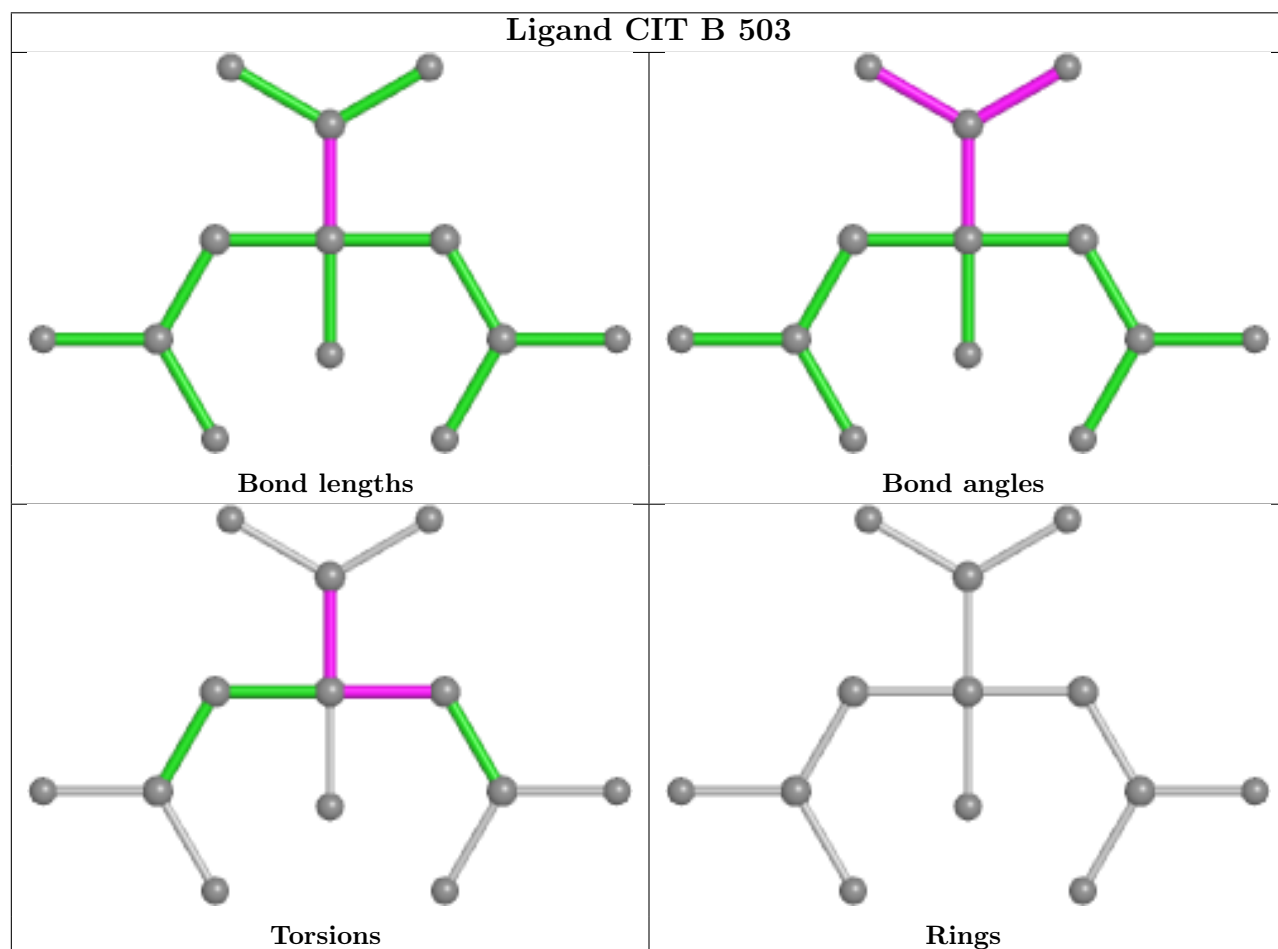
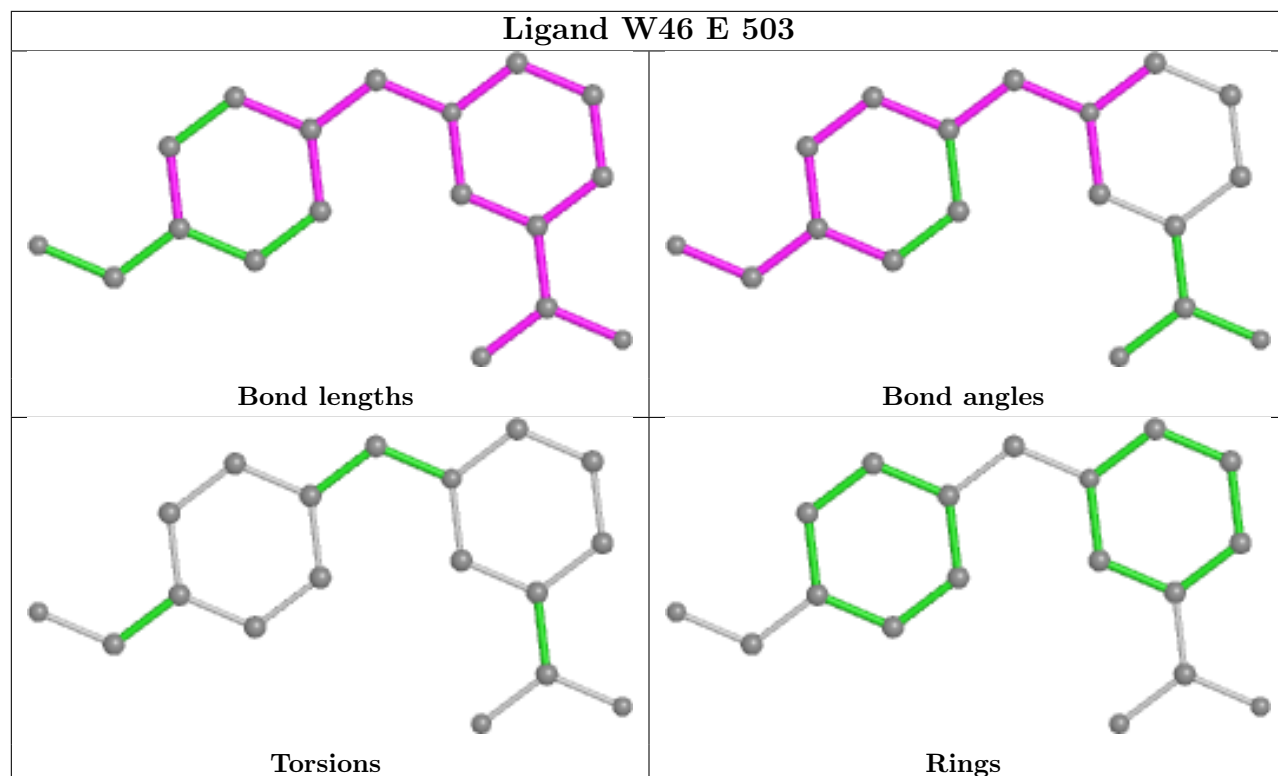


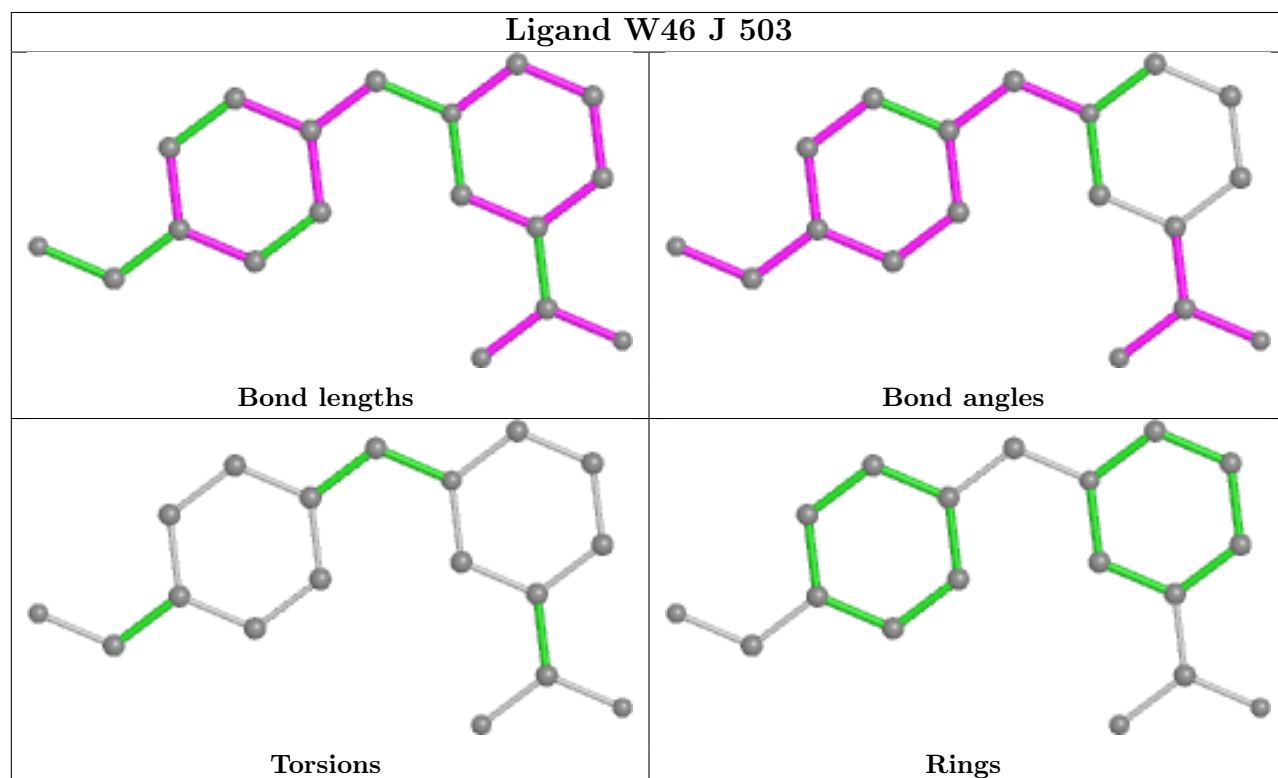
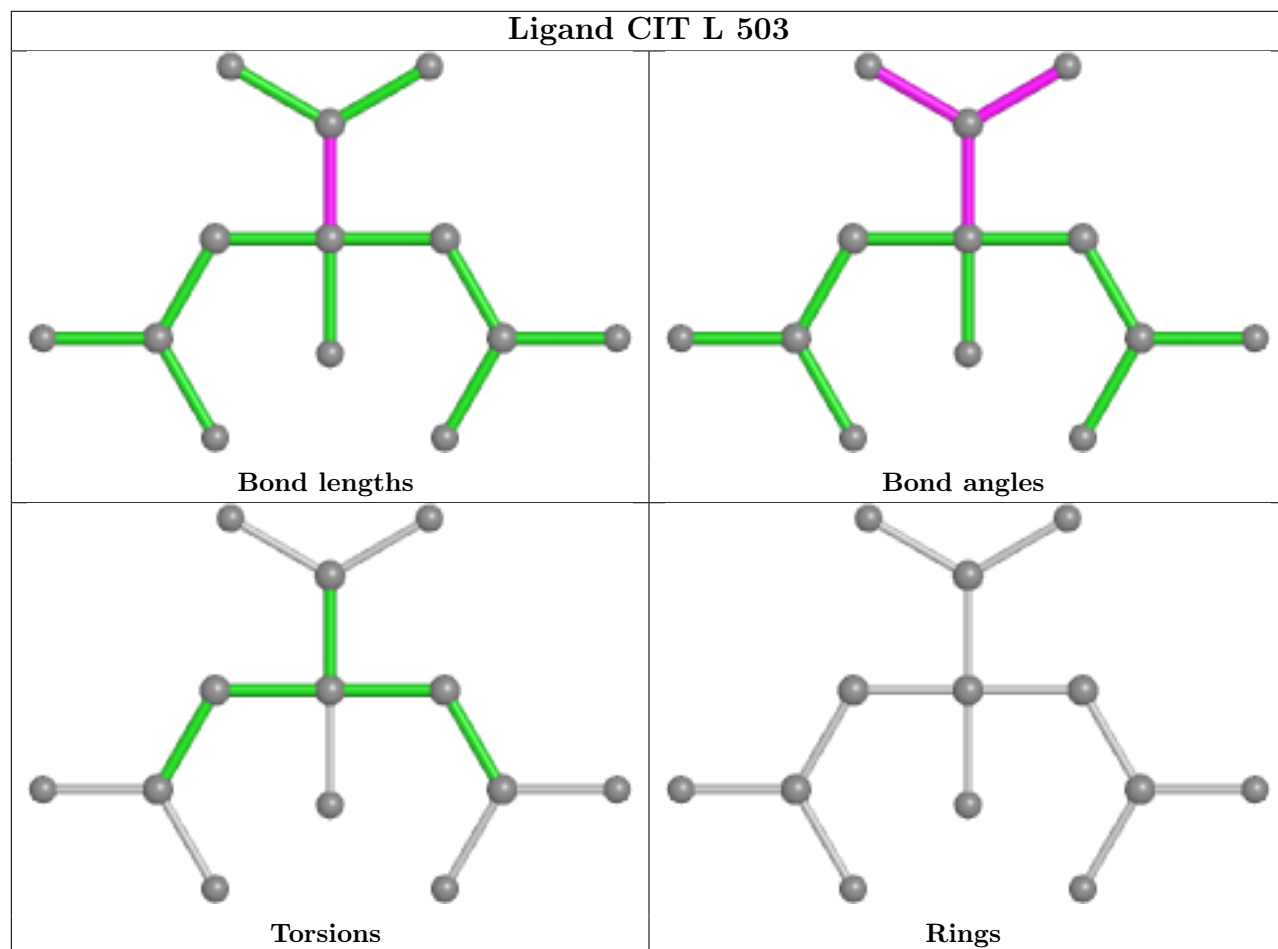


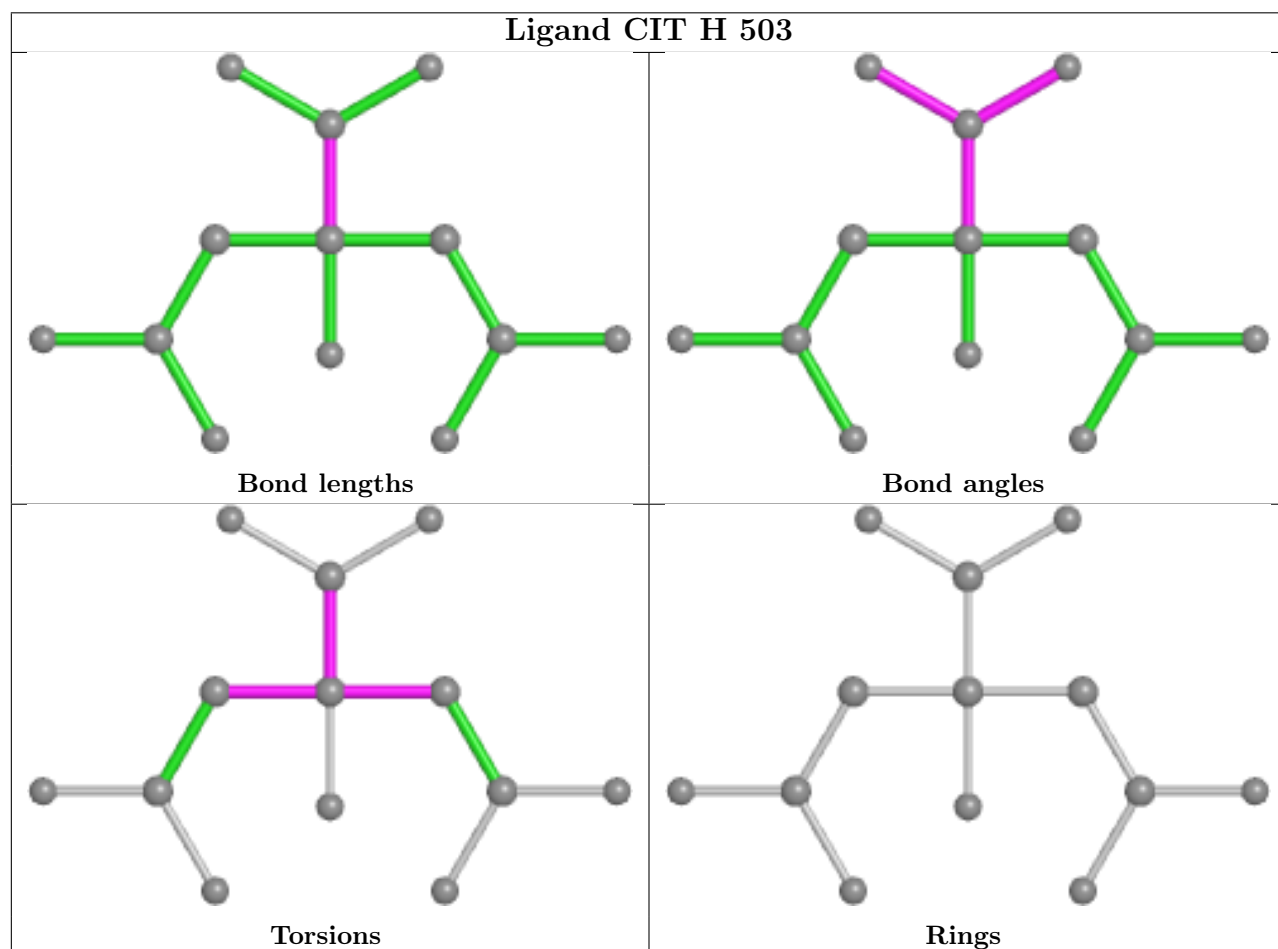
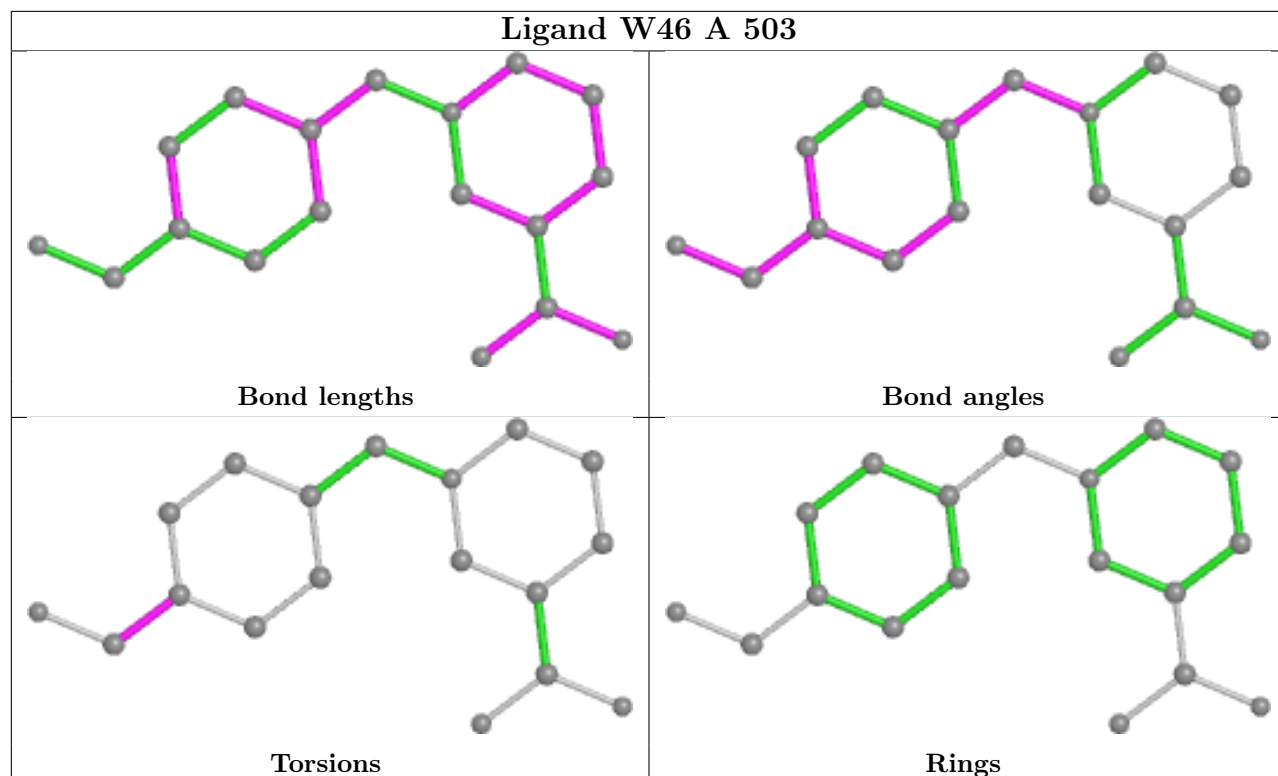


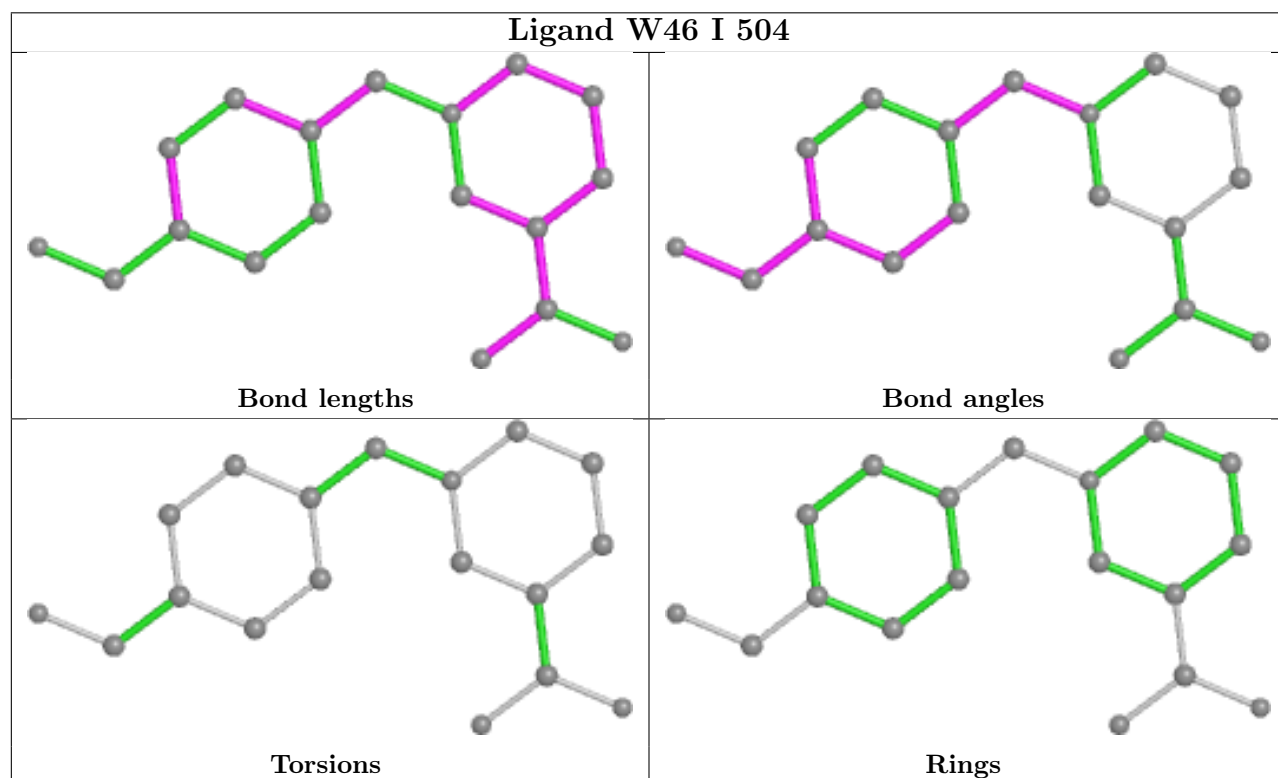
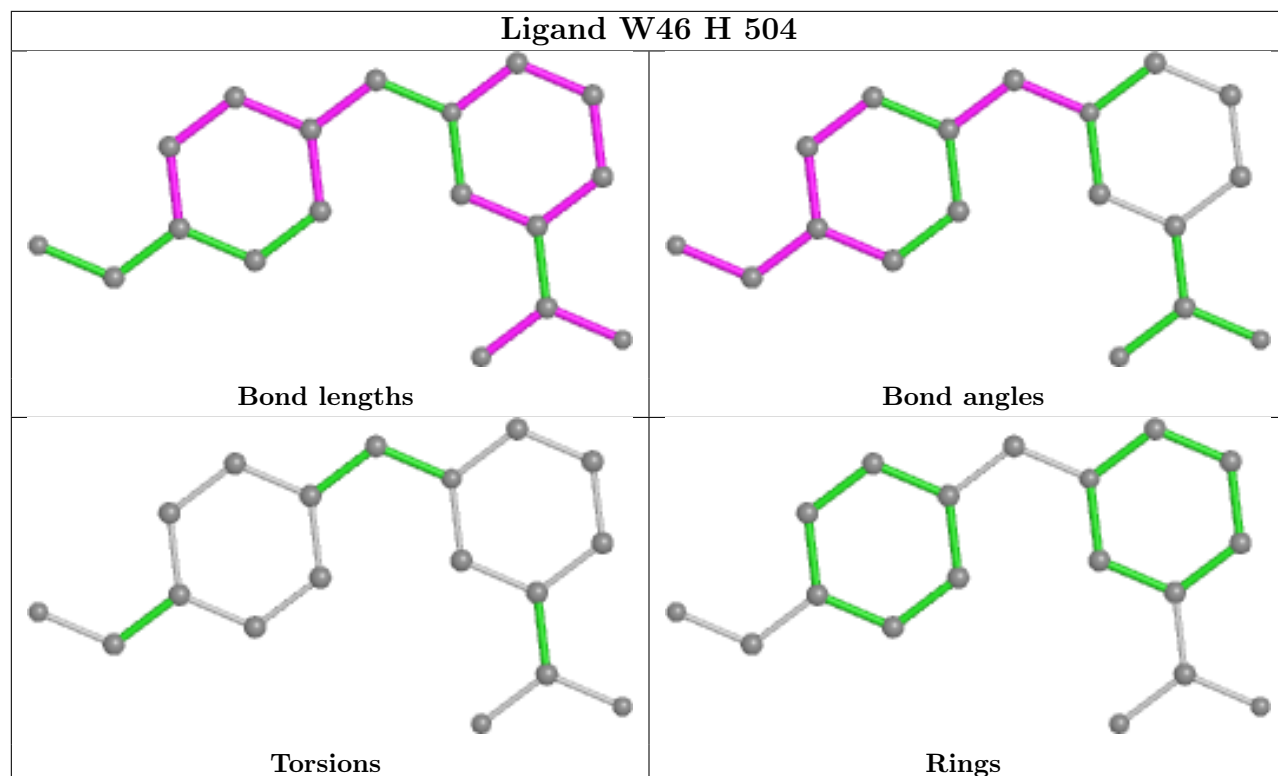


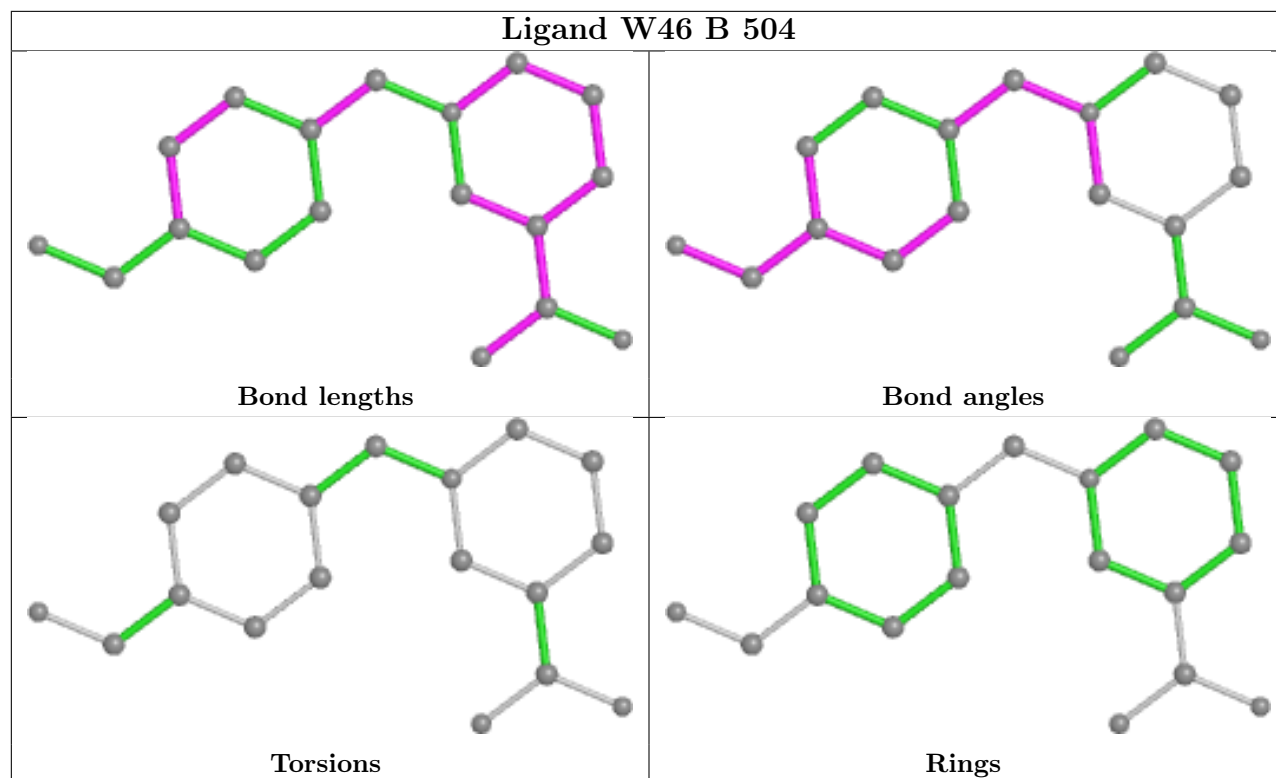












## 5.7 Other polymers [i](#)

There are no such residues in this entry.

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

There are no chain breaks in this entry.

## 6 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     | 352/365 (96%)   | -0.55  | 3 (0%) 84 63  | 13, 26, 59, 96        | 0     |
| 1   | B     | 349/365 (95%)   | -0.51  | 0 100 100     | 13, 26, 55, 80        | 0     |
| 1   | C     | 349/365 (95%)   | -0.38  | 4 (1%) 80 56  | 16, 33, 69, 123       | 0     |
| 1   | D     | 351/365 (96%)   | -0.47  | 4 (1%) 80 56  | 15, 30, 60, 101       | 0     |
| 1   | E     | 349/365 (95%)   | -0.38  | 8 (2%) 60 31  | 16, 35, 65, 106       | 0     |
| 1   | F     | 348/365 (95%)   | -0.31  | 2 (0%) 89 72  | 24, 39, 73, 109       | 0     |
| 1   | G     | 350/365 (95%)   | -0.49  | 2 (0%) 89 72  | 12, 26, 53, 92        | 0     |
| 1   | H     | 350/365 (95%)   | -0.44  | 8 (2%) 60 31  | 13, 30, 67, 110       | 0     |
| 1   | I     | 349/365 (95%)   | -0.25  | 5 (1%) 75 49  | 22, 43, 77, 116       | 0     |
| 1   | J     | 349/365 (95%)   | -0.13  | 7 (2%) 65 36  | 22, 48, 91, 150       | 0     |
| 1   | K     | 349/365 (95%)   | -0.25  | 6 (1%) 70 41  | 19, 40, 76, 108       | 0     |
| 1   | L     | 349/365 (95%)   | -0.20  | 9 (2%) 56 27  | 21, 46, 78, 123       | 0     |
| All | All   | 4194/4380 (95%) | -0.36  | 58 (1%) 75 49 | 12, 35, 73, 150       | 0     |

All (58) RSRZ outliers are listed below:

| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 1   | D     | -5  | VAL  | 9.2  |
| 1   | J     | 52  | TYR  | 6.0  |
| 1   | C     | 52  | TYR  | 5.4  |
| 1   | J     | 54  | TYR  | 5.1  |
| 1   | D     | -4  | PRO  | 5.1  |
| 1   | L     | 50  | ALA  | 4.4  |
| 1   | L     | 53  | ALA  | 4.1  |
| 1   | L     | 51  | GLN  | 3.8  |
| 1   | E     | 50  | ALA  | 3.8  |
| 1   | G     | -4  | PRO  | 3.7  |
| 1   | H     | -4  | PRO  | 3.6  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> | <b>RSRZ</b> |
|------------|--------------|------------|-------------|-------------|
| 1          | L            | 52         | TYR         | 3.6         |
| 1          | L            | -3         | ARG         | 3.4         |
| 1          | E            | 54         | TYR         | 3.3         |
| 1          | D            | -3         | ARG         | 3.2         |
| 1          | E            | 48         | PRO         | 3.2         |
| 1          | H            | 51         | GLN         | 3.2         |
| 1          | C            | 54         | TYR         | 3.2         |
| 1          | J            | 55         | GLY         | 3.1         |
| 1          | L            | 54         | TYR         | 3.1         |
| 1          | I            | 52         | TYR         | 3.0         |
| 1          | H            | 52         | TYR         | 2.9         |
| 1          | K            | 52         | TYR         | 2.9         |
| 1          | G            | 211        | LEU         | 2.9         |
| 1          | E            | 49         | ALA         | 2.8         |
| 1          | H            | 50         | ALA         | 2.8         |
| 1          | E            | 51         | GLN         | 2.8         |
| 1          | K            | -3         | ARG         | 2.8         |
| 1          | K            | 50         | ALA         | 2.7         |
| 1          | E            | 52         | TYR         | 2.7         |
| 1          | H            | 53         | ALA         | 2.7         |
| 1          | C            | 51         | GLN         | 2.6         |
| 1          | I            | 53         | ALA         | 2.5         |
| 1          | L            | 49         | ALA         | 2.5         |
| 1          | E            | 53         | ALA         | 2.5         |
| 1          | L            | 48         | PRO         | 2.4         |
| 1          | H            | 48         | PRO         | 2.4         |
| 1          | D            | 54         | TYR         | 2.4         |
| 1          | J            | 53         | ALA         | 2.4         |
| 1          | A            | 51         | GLN         | 2.4         |
| 1          | H            | 54         | TYR         | 2.3         |
| 1          | K            | 54         | TYR         | 2.3         |
| 1          | F            | 53         | ALA         | 2.2         |
| 1          | J            | 48         | PRO         | 2.2         |
| 1          | L            | 79         | GLY         | 2.2         |
| 1          | I            | 316        | HIS         | 2.2         |
| 1          | I            | 54         | TYR         | 2.2         |
| 1          | J            | 25         | PRO         | 2.2         |
| 1          | H            | 49         | ALA         | 2.2         |
| 1          | E            | -3         | ARG         | 2.1         |
| 1          | I            | -3         | ARG         | 2.1         |
| 1          | A            | 52         | TYR         | 2.1         |
| 1          | J            | 69         | ALA         | 2.1         |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 1   | K     | 69  | ALA  | 2.1  |
| 1   | F     | 54  | TYR  | 2.1  |
| 1   | A     | 54  | TYR  | 2.0  |
| 1   | C     | 338 | ARG  | 2.0  |
| 1   | K     | 79  | GLY  | 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 |
|-----|------|-------|-----|-------|------|------|----------------------------|-------|
| 4   | CIT  | I     | 503 | 13/13 | 0.85 | 0.29 | 63,79,88,88                | 0     |
| 4   | CIT  | K     | 401 | 13/13 | 0.85 | 0.25 | 63,89,98,101               | 0     |
| 4   | CIT  | L     | 503 | 13/13 | 0.86 | 0.31 | 80,93,105,108              | 0     |
| 4   | CIT  | B     | 503 | 13/13 | 0.89 | 0.22 | 67,72,77,81                | 0     |
| 3   | W46  | J     | 503 | 18/18 | 0.92 | 0.21 | 44,61,75,75                | 0     |
| 3   | W46  | C     | 503 | 18/18 | 0.92 | 0.24 | 36,46,71,87                | 0     |
| 4   | CIT  | H     | 503 | 13/13 | 0.92 | 0.27 | 70,78,88,101               | 0     |
| 3   | W46  | K     | 404 | 18/18 | 0.94 | 0.21 | 39,47,51,56                | 0     |
| 3   | W46  | L     | 504 | 18/18 | 0.94 | 0.18 | 44,50,60,61                | 0     |
| 3   | W46  | D     | 503 | 18/18 | 0.94 | 0.20 | 32,38,60,83                | 0     |
| 3   | W46  | E     | 503 | 18/18 | 0.94 | 0.19 | 35,43,50,52                | 0     |
| 3   | W46  | F     | 503 | 18/18 | 0.94 | 0.20 | 37,45,54,55                | 0     |
| 3   | W46  | I     | 504 | 18/18 | 0.94 | 0.20 | 56,61,72,78                | 0     |
| 3   | W46  | B     | 504 | 18/18 | 0.94 | 0.21 | 33,38,56,77                | 0     |
| 5   | IPA  | B     | 505 | 4/4   | 0.94 | 0.18 | 25,26,28,29                | 0     |
| 3   | W46  | A     | 503 | 18/18 | 0.95 | 0.21 | 36,44,53,68                | 0     |
| 3   | W46  | H     | 504 | 18/18 | 0.95 | 0.26 | 42,54,73,88                | 0     |
| 2   | ZN   | J     | 502 | 1/1   | 0.97 | 0.06 | 95,95,95,95                | 0     |

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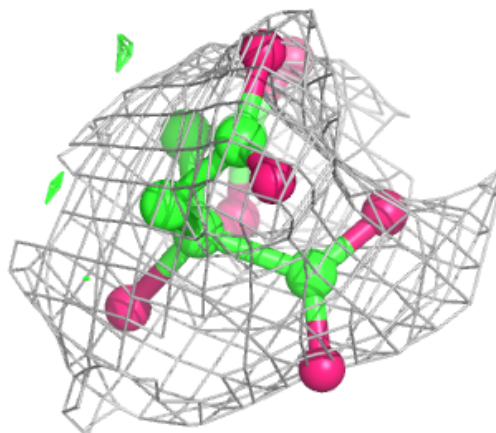
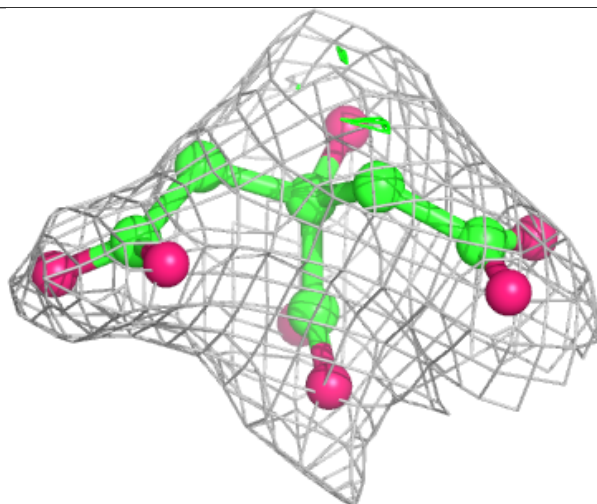
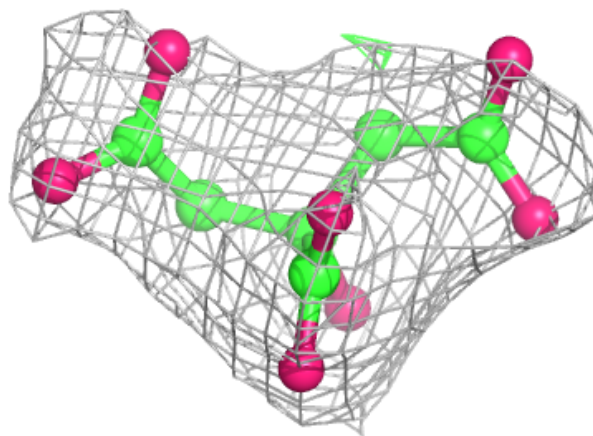
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| Mol | Type | Chain | Res | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|-----|-------|------|------|-----------------------------|-------|
| 2   | ZN   | L     | 502 | 1/1   | 0.98 | 0.08 | 73,73,73,73                 | 0     |
| 2   | ZN   | I     | 502 | 1/1   | 0.98 | 0.07 | 57,57,57,57                 | 0     |
| 2   | ZN   | A     | 502 | 1/1   | 0.98 | 0.06 | 61,61,61,61                 | 0     |
| 2   | ZN   | D     | 501 | 1/1   | 0.99 | 0.08 | 31,31,31,31                 | 0     |
| 2   | ZN   | D     | 502 | 1/1   | 0.99 | 0.07 | 44,44,44,44                 | 0     |
| 2   | ZN   | E     | 501 | 1/1   | 0.99 | 0.08 | 40,40,40,40                 | 0     |
| 2   | ZN   | E     | 502 | 1/1   | 0.99 | 0.07 | 49,49,49,49                 | 0     |
| 2   | ZN   | F     | 501 | 1/1   | 0.99 | 0.09 | 50,50,50,50                 | 0     |
| 2   | ZN   | F     | 502 | 1/1   | 0.99 | 0.07 | 48,48,48,48                 | 0     |
| 2   | ZN   | H     | 501 | 1/1   | 0.99 | 0.08 | 23,23,23,23                 | 0     |
| 2   | ZN   | H     | 502 | 1/1   | 0.99 | 0.07 | 52,52,52,52                 | 0     |
| 2   | ZN   | I     | 501 | 1/1   | 0.99 | 0.07 | 38,38,38,38                 | 0     |
| 2   | ZN   | A     | 501 | 1/1   | 0.99 | 0.09 | 30,30,30,30                 | 0     |
| 2   | ZN   | B     | 502 | 1/1   | 0.99 | 0.07 | 39,39,39,39                 | 0     |
| 2   | ZN   | K     | 402 | 1/1   | 0.99 | 0.07 | 35,35,35,35                 | 0     |
| 2   | ZN   | K     | 403 | 1/1   | 0.99 | 0.05 | 53,53,53,53                 | 0     |
| 2   | ZN   | L     | 501 | 1/1   | 0.99 | 0.08 | 42,42,42,42                 | 0     |
| 2   | ZN   | C     | 501 | 1/1   | 0.99 | 0.09 | 41,41,41,41                 | 0     |
| 2   | ZN   | C     | 502 | 1/1   | 0.99 | 0.07 | 56,56,56,56                 | 0     |
| 2   | ZN   | B     | 501 | 1/1   | 1.00 | 0.10 | 28,28,28,28                 | 0     |
| 2   | ZN   | J     | 501 | 1/1   | 1.00 | 0.08 | 34,34,34,34                 | 0     |
| 2   | ZN   | G     | 501 | 1/1   | 1.00 | 0.09 | 28,28,28,28                 | 0     |
| 2   | ZN   | G     | 502 | 1/1   | 1.00 | 0.07 | 30,30,30,30                 | 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.

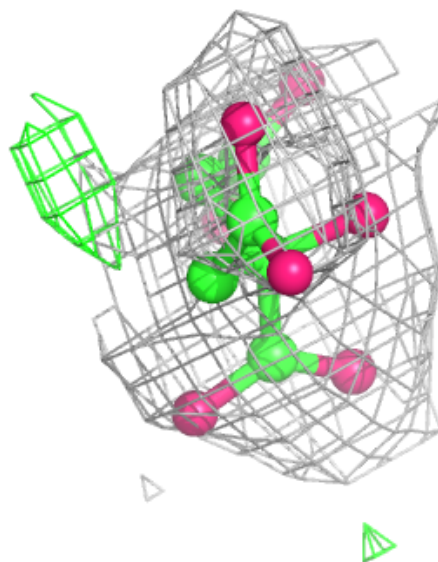
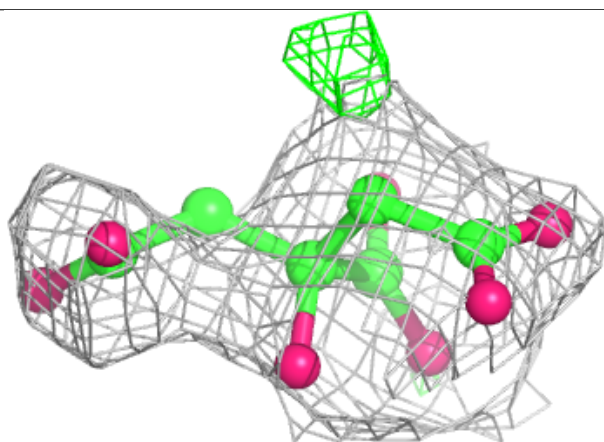
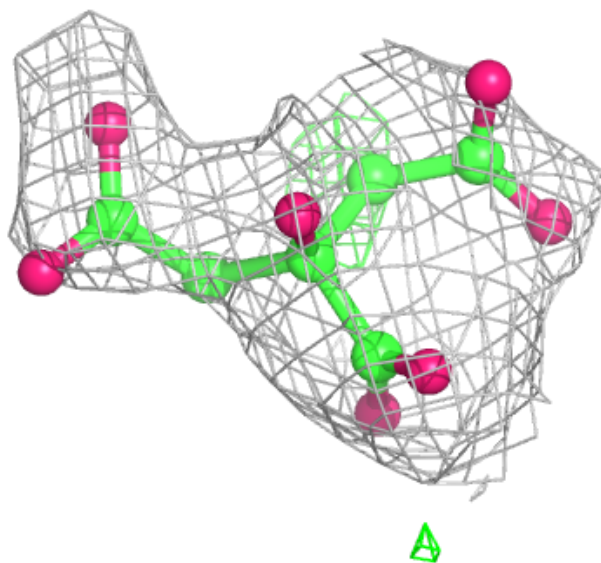
**Electron density around CIT I 503:**

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



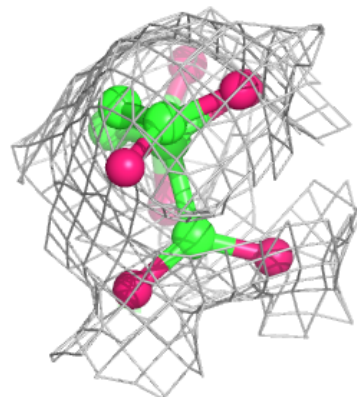
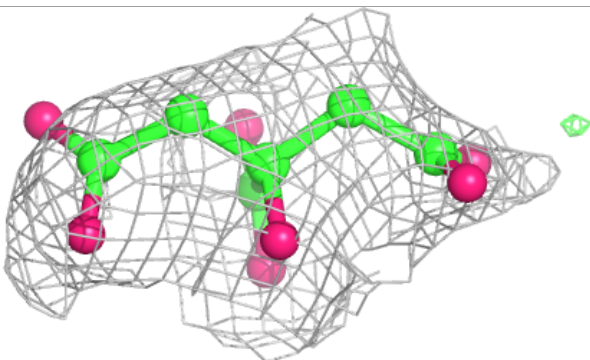
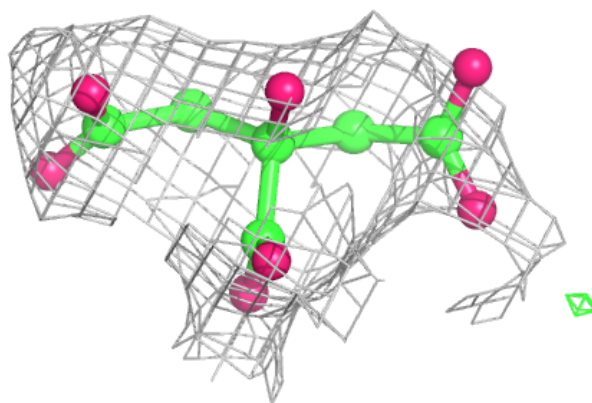
**Electron density around CIT K 401:**

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

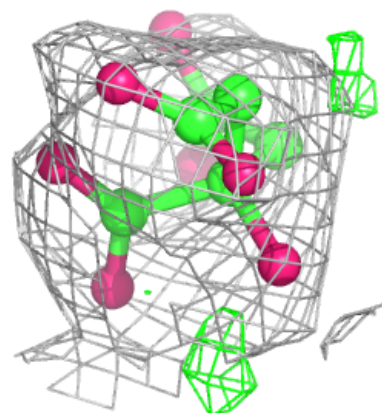
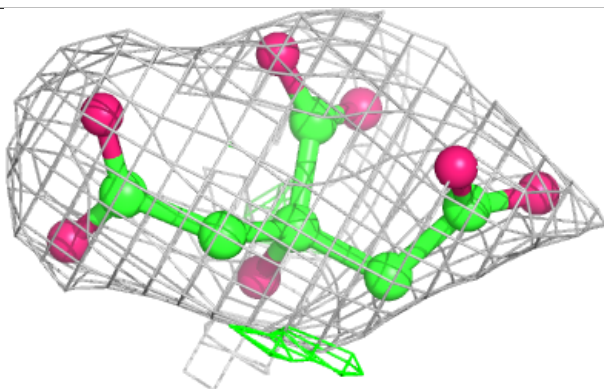
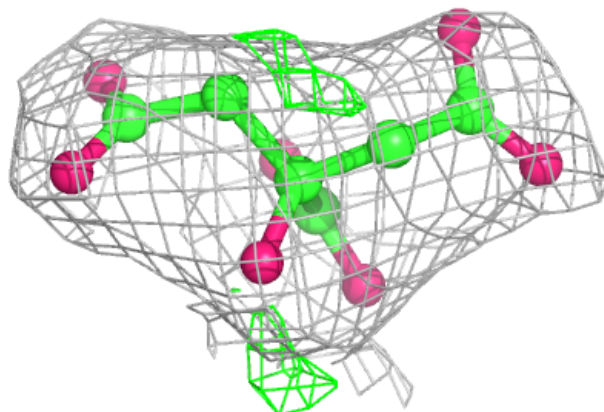


**Electron density around CIT L 503:**

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

**Electron density around CIT B 503:**

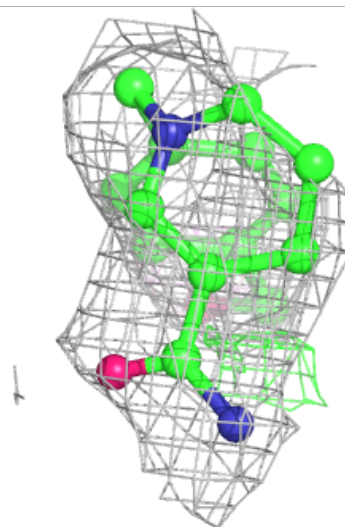
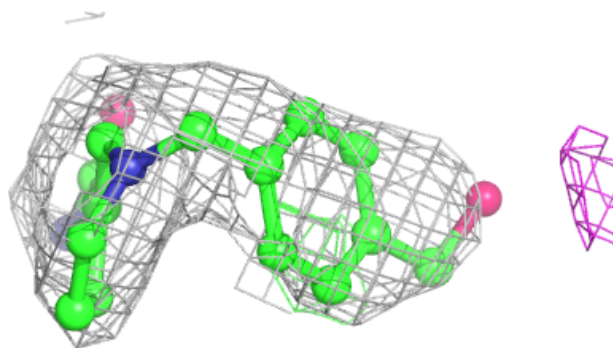
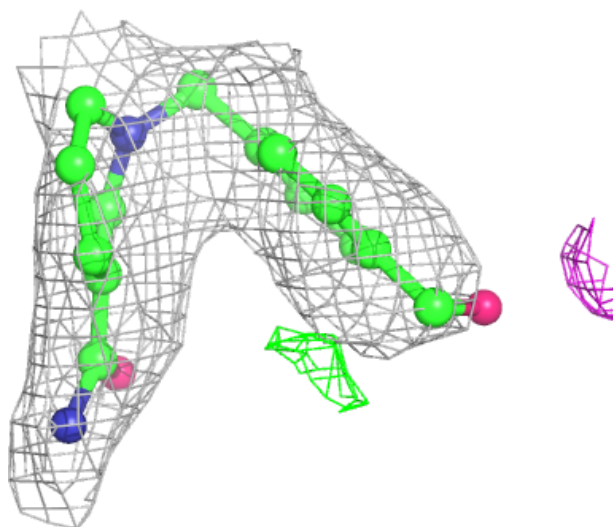
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)





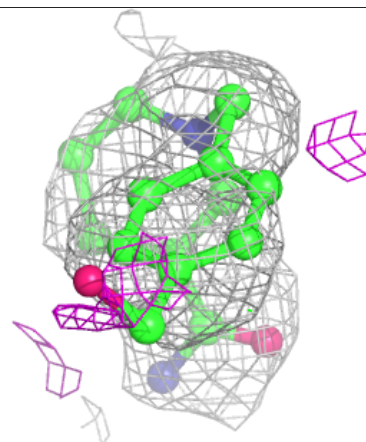
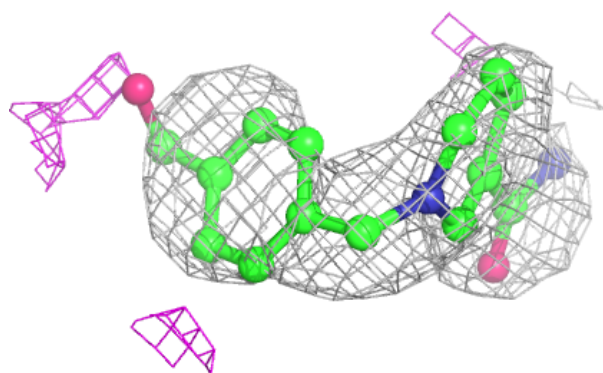
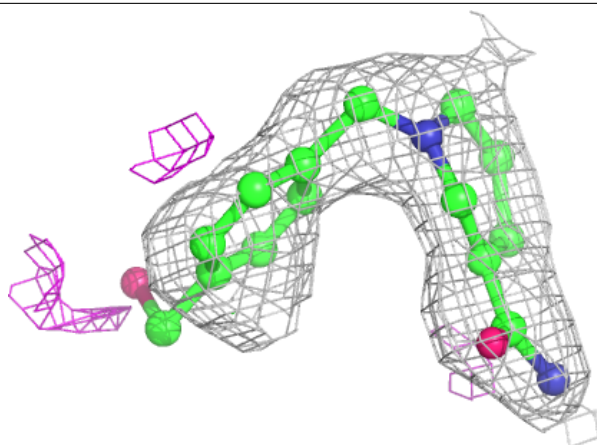
**Electron density around W46 J 503:**

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



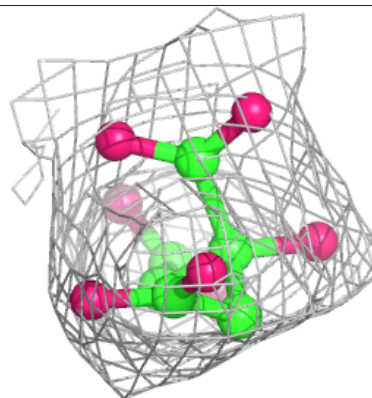
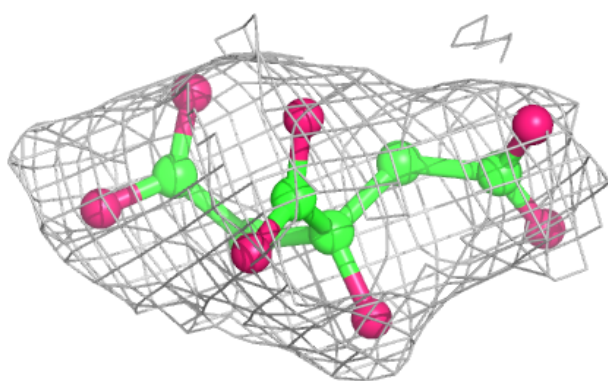
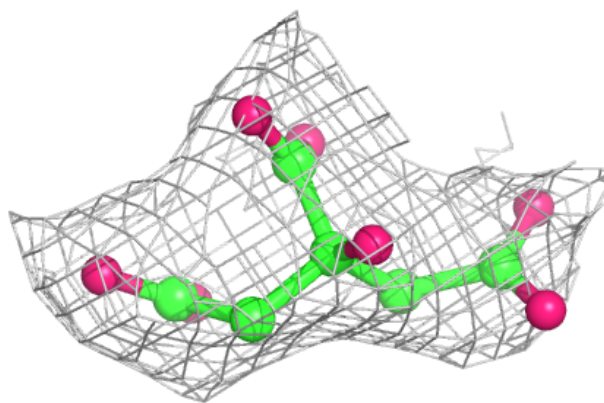
**Electron density around W46 C 503:**

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

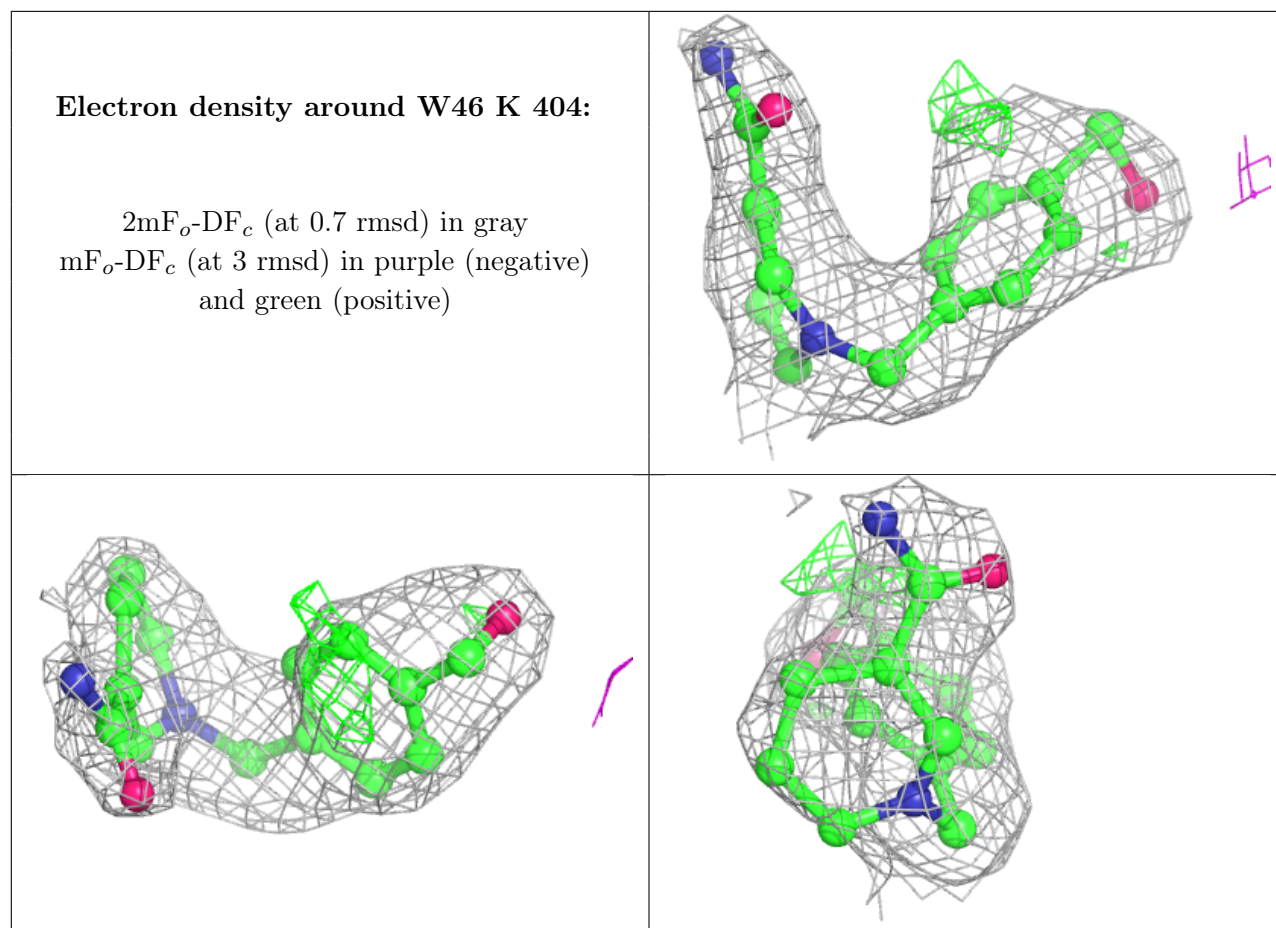


**Electron density around CIT H 503:**

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

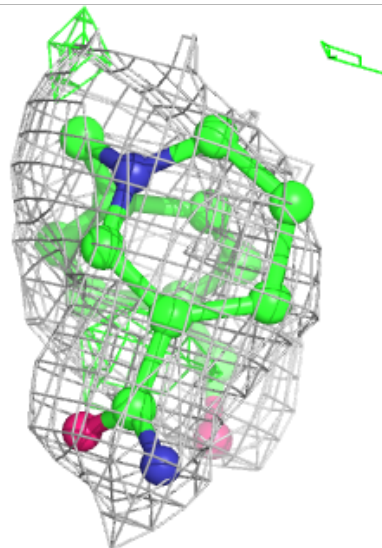
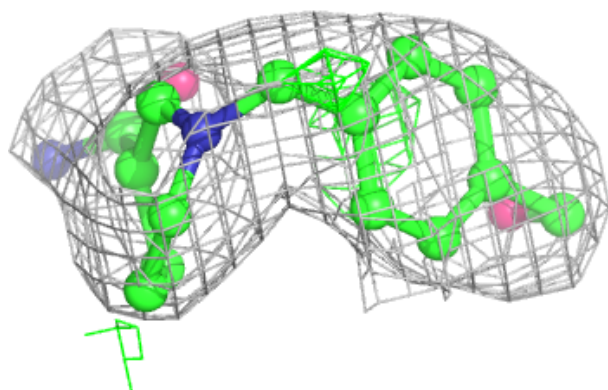
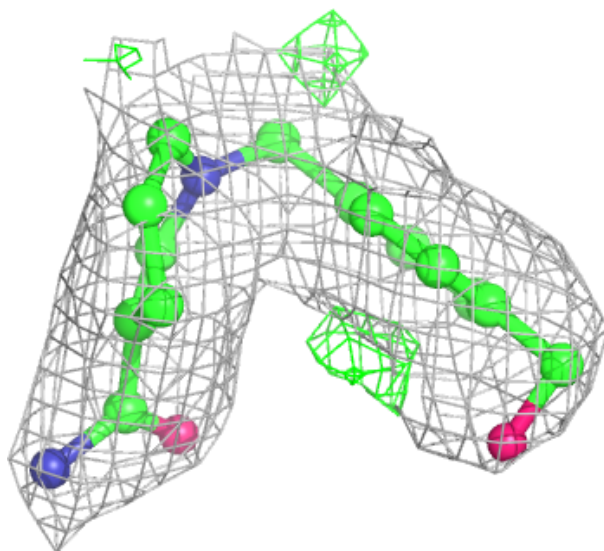






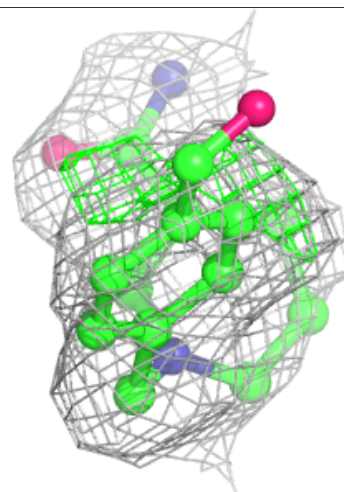
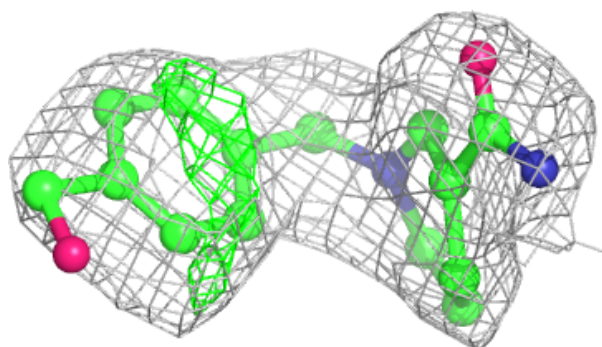
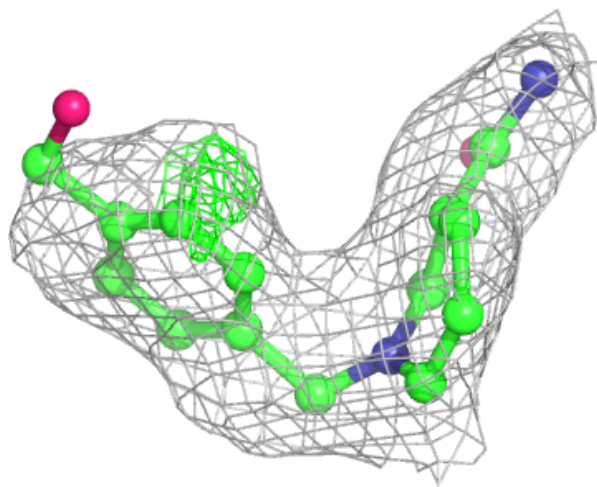
**Electron density around W46 L 504:**

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



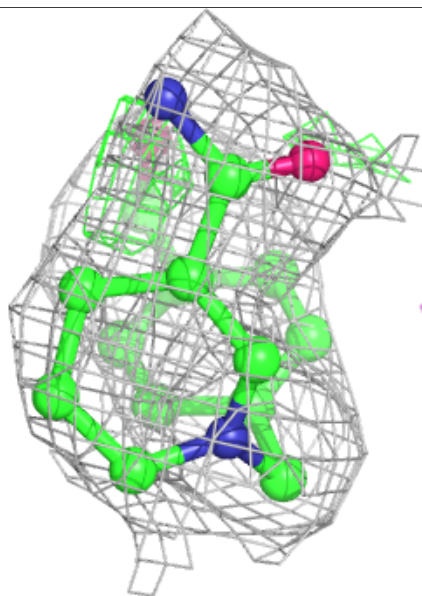
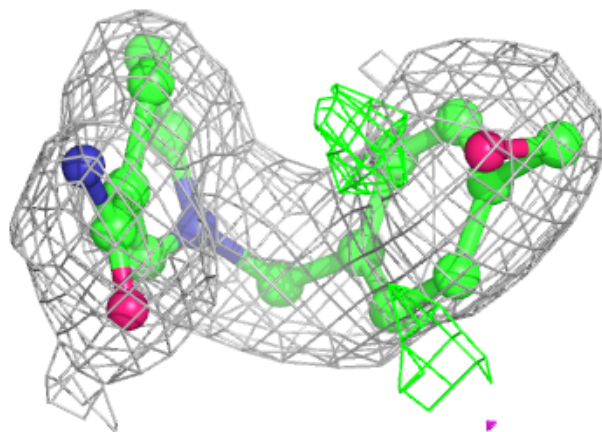
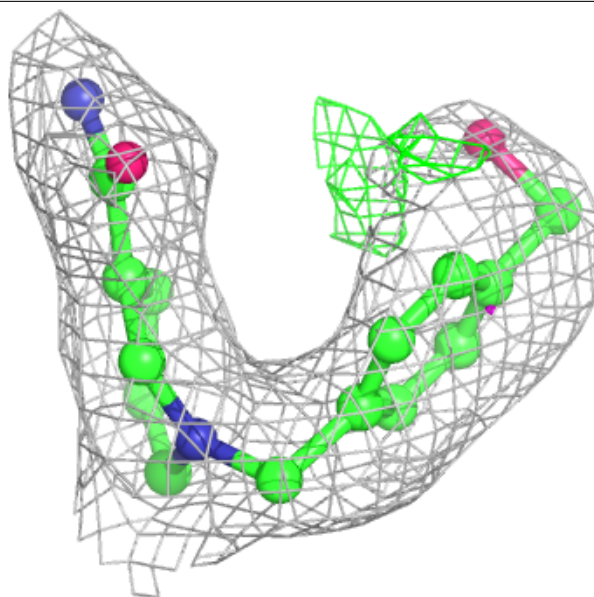
**Electron density around W46 D 503:**

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



**Electron density around W46 E 503:**

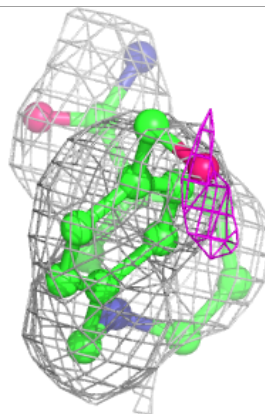
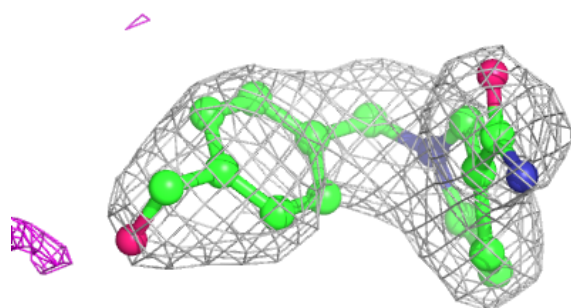
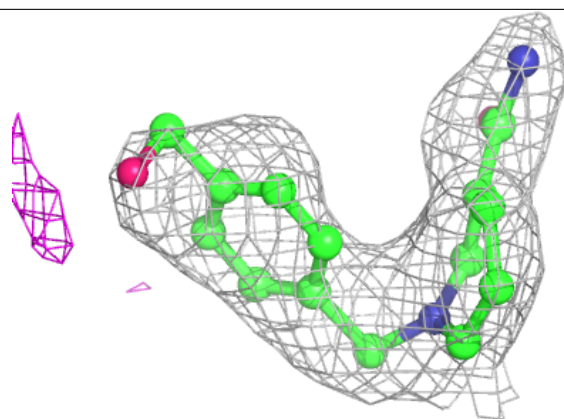
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



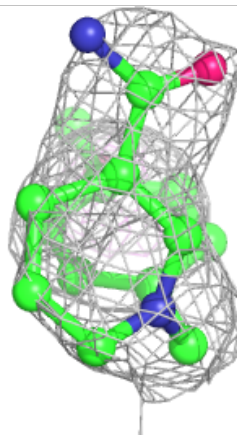
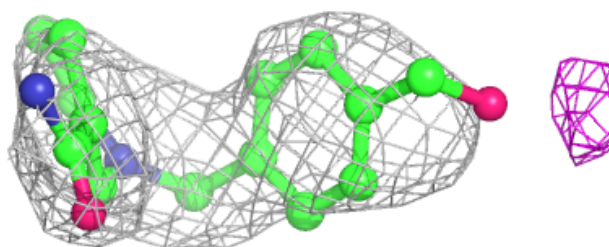
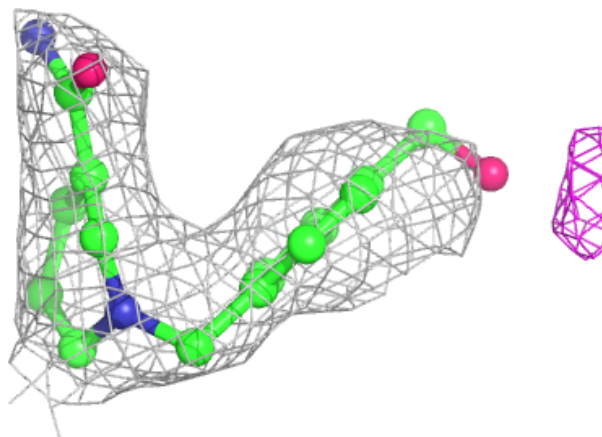


**Electron density around W46 F 503:**

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

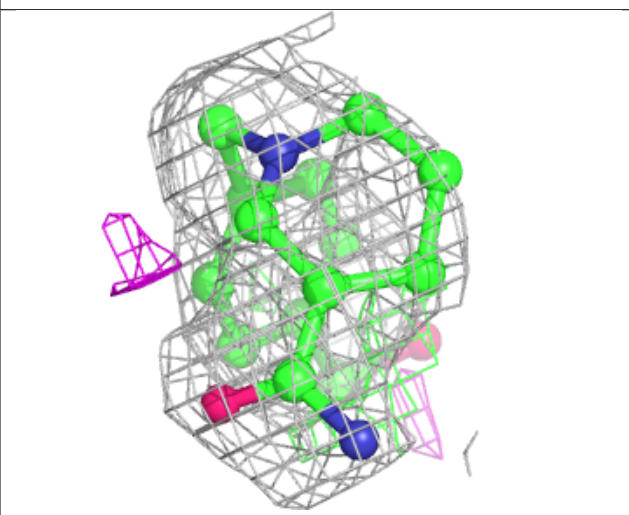
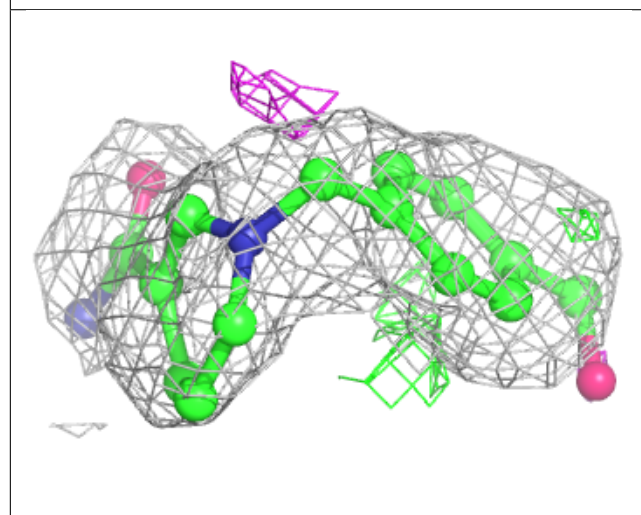
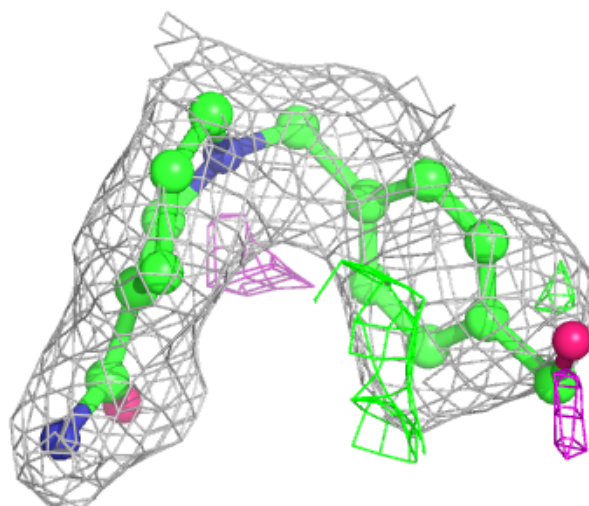
**Electron density around W46 I 504:**

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



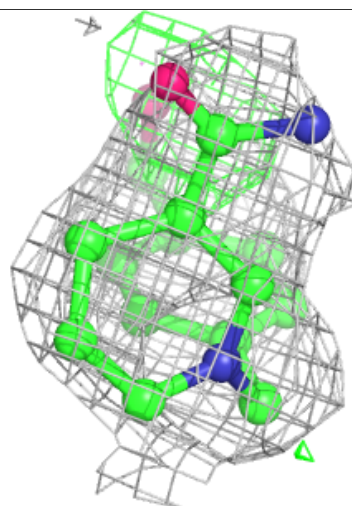
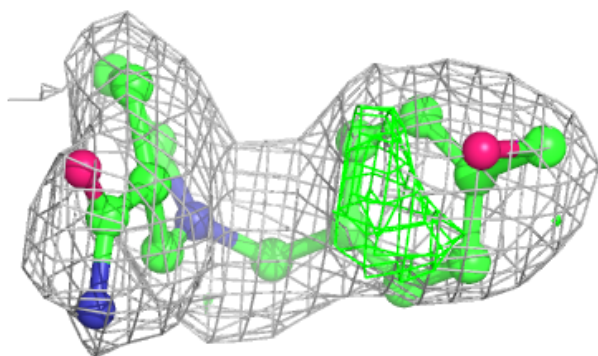
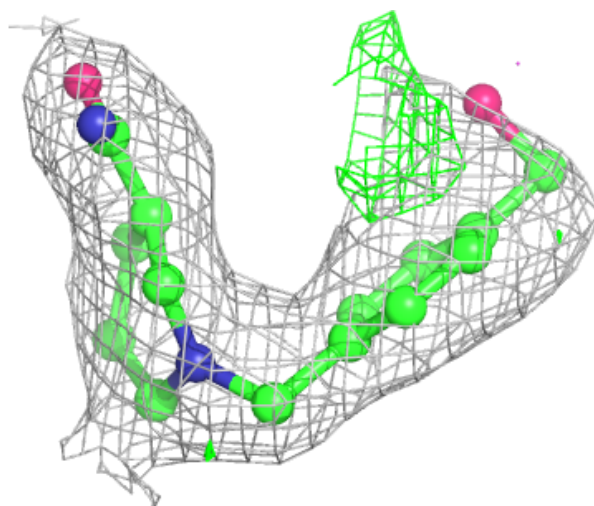
**Electron density around W46 B 504:**

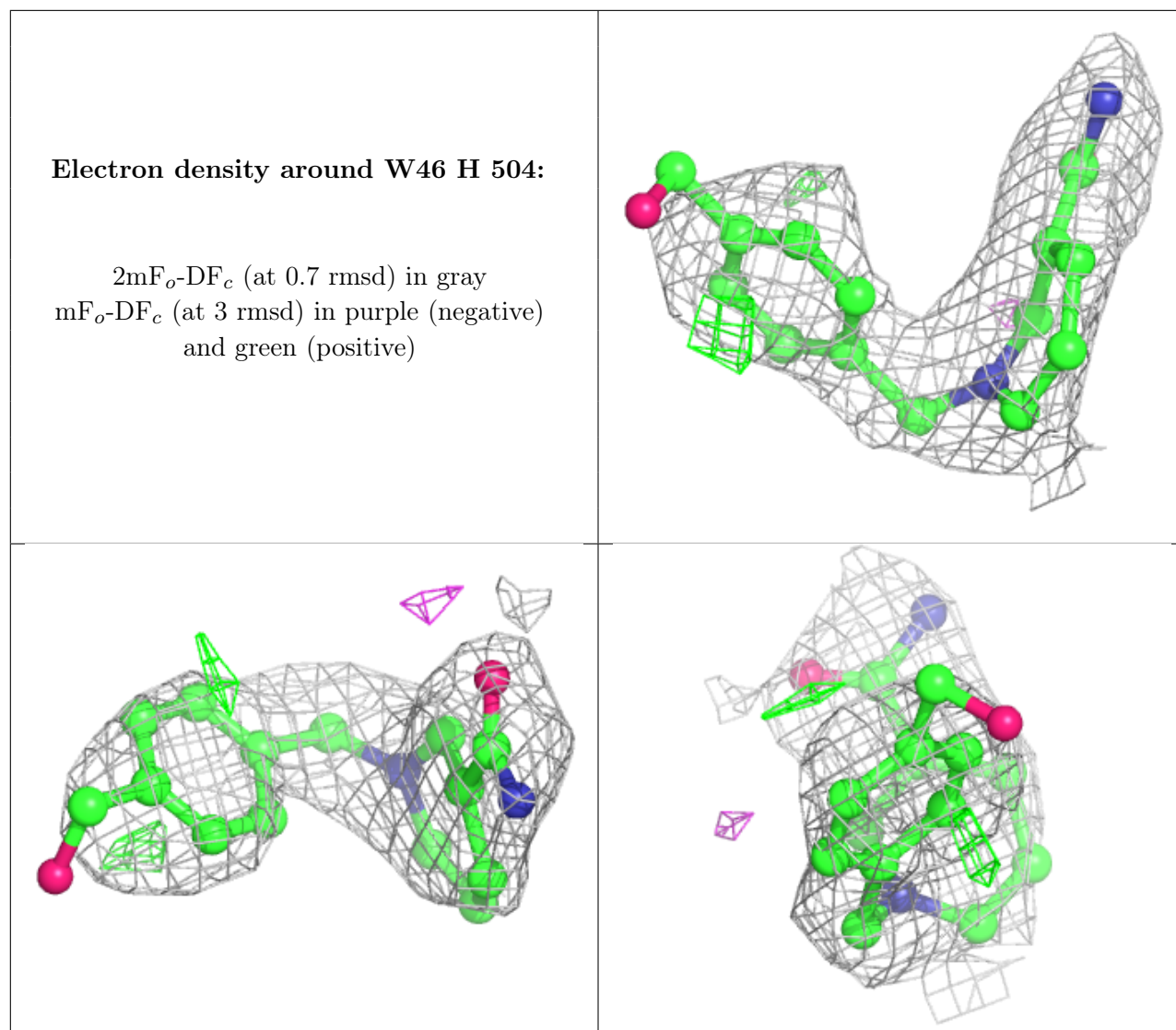
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



**Electron density around W46 A 503:**

$2mF_o-DF_c$  (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.