



# Full wwPDB X-ray Structure Validation Report ⓘ

Nov 10, 2024 – 07:15 PM EST

PDB ID : 1MX5  
Title : Crystal Structure of Human Liver Carboxylesterase in complexed with homatropine, a cocaine analogue  
Authors : Bencharit, S.; Morton, C.L.; Xue, Y.; Potter, P.M.; Redinbo, M.R.  
Deposited on : 2002-10-01  
Resolution : 2.80 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 : 2022.3.0, CSD as543be (2022)  
Xtrriage (Phenix) : **NOT EXECUTED**  
EDS : **NOT EXECUTED**  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.39

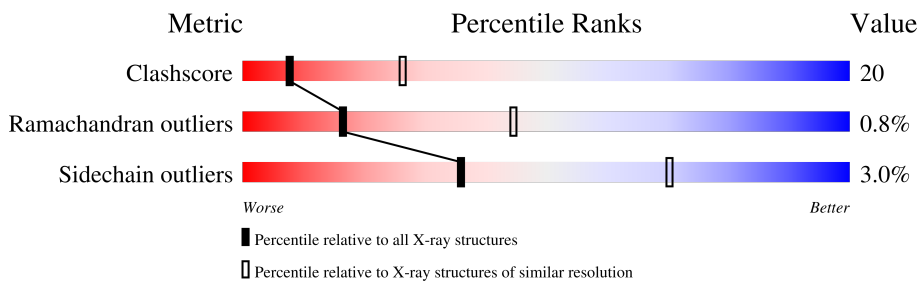
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.80 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)) |
|-----------------------|-----------------------------|---|
| Clashscore            | 180529                      | 4123 (2.80-2.80)                                      |
| Ramachandran outliers | 177936                      | 4071 (2.80-2.80)                                      |
| Sidechain outliers    | 177891                      | 4073 (2.80-2.80)                                      |

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  $\leq 5\%$

Note EDS was not executed.

| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 1   | A     | 548    |                  |
| 1   | B     | 548    |                  |
| 1   | C     | 548    |                  |
| 1   | D     | 548    |                  |
| 1   | E     | 548    |                  |
| 1   | F     | 548    |                  |

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

ria:

| Mol | Type | Chain | Res | Chirality | Geometry | Clashes | Electron density |
|-----|------|-------|-----|-----------|----------|---------|------------------|
| 2   | NAG  | B     | 279 | X         | -        | -       | -                |
| 2   | NAG  | D     | 479 | X         | -        | -       | -                |
| 2   | NAG  | F     | 679 | X         | -        | -       | -                |
| 3   | SIA  | B     | 282 | -         | -        | X       | -                |
| 4   | CL   | A     | 11  | -         | -        | X       | -                |
| 4   | CL   | E     | 15  | -         | -        | X       | -                |
| 5   | HTQ  | A     | 111 | -         | -        | X       | -                |
| 5   | HTQ  | B     | 212 | -         | -        | X       | -                |
| 5   | HTQ  | E     | 515 | -         | -        | X       | -                |

## 2 Entry composition [i](#)

There are 6 unique types of molecules in this entry. The entry contains 26960 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 liver Carboxylesterase I.

| Mol | Chain | Residues | Atoms |      |     |     |    | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|---------|-------|
|     |       |          | Total | C    | N   | O   | S  |         |         |       |
| 1   | A     | 532      | 4130  | 2662 | 685 | 763 | 20 | 0       | 0       | 0     |
| 1   | B     | 531      | 4124  | 2659 | 684 | 761 | 20 | 0       | 0       | 0     |
| 1   | C     | 531      | 4124  | 2659 | 684 | 761 | 20 | 0       | 0       | 0     |
| 1   | D     | 532      | 4130  | 2662 | 685 | 763 | 20 | 0       | 0       | 0     |
| 1   | E     | 531      | 4124  | 2659 | 684 | 761 | 20 | 0       | 0       | 0     |
| 1   | F     | 531      | 4124  | 2659 | 684 | 761 | 20 | 0       | 0       | 0     |

There are 6 discrepancies between the modelled and reference sequences:

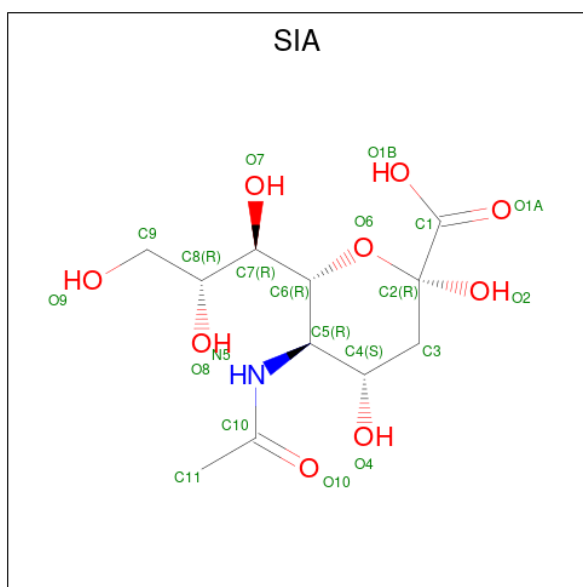
| Chain | Residue | Modelled | Actual | Comment  | Reference  |
|-------|---------|----------|--------|----------|------------|
| A     | ?       | -        | GLN    | deletion | UNP P23141 |
| B     | ?       | -        | GLN    | deletion | UNP P23141 |
| C     | ?       | -        | GLN    | deletion | UNP P23141 |
| D     | ?       | -        | GLN    | deletion | UNP P23141 |
| E     | ?       | -        | GLN    | deletion | UNP P23141 |
| F     | ?       | -        | GLN    | deletion | UNP P23141 |

- Molecule 2 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula:  $C_8H_{15}NO_6$ ).



| Mol | Chain | Residues | Atoms       |   |   |   | ZeroOcc | AltConf |
|-----|-------|----------|-------------|---|---|---|---------|---------|
|     |       |          | Total       | C | N | O |         |         |
| 2   | A     | 1        | Total<br>14 | 8 | 1 | 5 | 0       | 0       |
| 2   | B     | 1        | Total<br>14 | 8 | 1 | 5 | 0       | 0       |
| 2   | C     | 1        | Total<br>14 | 8 | 1 | 5 | 0       | 0       |
| 2   | D     | 1        | Total<br>14 | 8 | 1 | 5 | 0       | 0       |
| 2   | E     | 1        | Total<br>14 | 8 | 1 | 5 | 0       | 0       |
| 2   | E     | 1        | Total<br>14 | 8 | 1 | 5 | 0       | 0       |
| 2   | F     | 1        | Total<br>14 | 8 | 1 | 5 | 0       | 0       |

- Molecule 3 is N-acetyl-alpha-neuraminic acid (three-letter code: SIA) (formula: C<sub>11</sub>H<sub>19</sub>NO<sub>9</sub>).

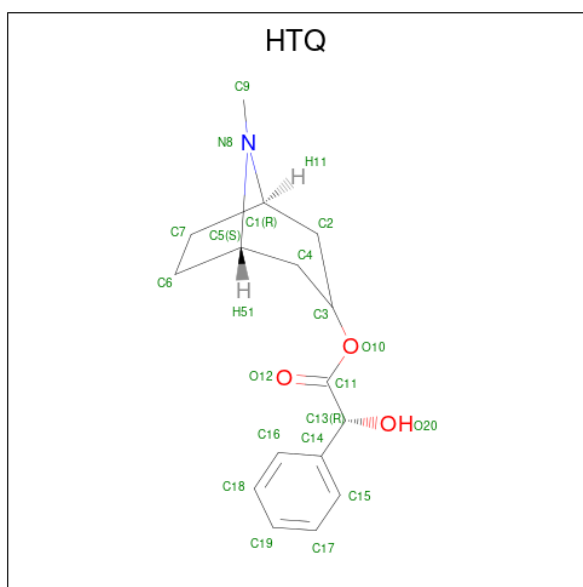


| Mol | Chain | Residues | Atoms |    |   |   | ZeroOcc | AltConf |
|-----|-------|----------|-------|----|---|---|---------|---------|
|     |       |          | Total | C  | N | O |         |         |
| 3   | A     | 1        | 21    | 11 | 1 | 9 | 0       | 0       |
| 3   | B     | 1        | 21    | 11 | 1 | 9 | 0       | 0       |
| 3   | F     | 1        | 21    | 11 | 1 | 9 | 0       | 0       |

- Molecule 4 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

| Mol | Chain | Residues | Atoms |    | ZeroOcc | AltConf |
|-----|-------|----------|-------|----|---------|---------|
|     |       |          | Total | Cl |         |         |
| 4   | A     | 1        | 1     | 1  | 0       | 0       |
| 4   | E     | 1        | 1     | 1  | 0       | 0       |

- Molecule 5 is HOMOTROPINE (three-letter code: HTQ) (formula: C<sub>16</sub>H<sub>21</sub>NO<sub>3</sub>).



| Mol | Chain | Residues | Atoms |    |   |   | ZeroOcc | AltConf |
|-----|-------|----------|-------|----|---|---|---------|---------|
|     |       |          | Total | C  | N | O |         |         |
| 5   | A     | 1        | 20    | 16 | 1 | 3 | 0       | 0       |
| 5   | A     | 1        | 40    | 32 | 2 | 6 | 0       | 1       |
| 5   | B     | 1        | 20    | 16 | 1 | 3 | 0       | 0       |
| 5   | B     | 1        | 40    | 32 | 2 | 6 | 0       | 1       |
| 5   | C     | 1        | 20    | 16 | 1 | 3 | 0       | 0       |
| 5   | C     | 1        | 40    | 32 | 2 | 6 | 0       | 1       |
| 5   | D     | 1        | 20    | 16 | 1 | 3 | 0       | 0       |
| 5   | D     | 1        | 40    | 32 | 2 | 6 | 0       | 1       |
| 5   | E     | 1        | 20    | 16 | 1 | 3 | 0       | 0       |
| 5   | E     | 1        | 40    | 32 | 2 | 6 | 0       | 1       |
| 5   | F     | 1        | 20    | 16 | 1 | 3 | 0       | 0       |
| 5   | F     | 1        | 40    | 32 | 2 | 6 | 0       | 1       |

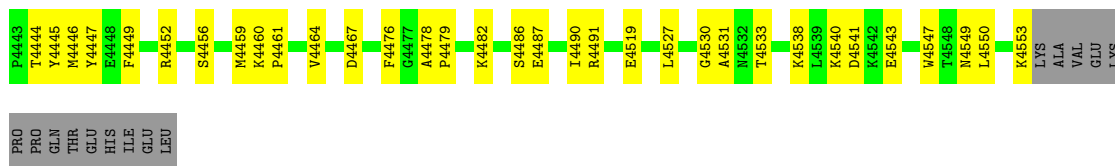
- Molecule 6 is water.

| Mol | Chain | Residues | Atoms              | ZeroOcc | AltConf |
|-----|-------|----------|--------------------|---------|---------|
| 6   | A     | 249      | Total O<br>249 249 | 0       | 0       |
| 6   | B     | 303      | Total O<br>303 303 | 0       | 0       |
| 6   | C     | 289      | Total O<br>289 289 | 0       | 0       |
| 6   | D     | 291      | Total O<br>291 291 | 0       | 0       |
| 6   | E     | 295      | Total O<br>295 295 | 0       | 0       |
| 6   | F     | 254      | Total O<br>254 254 | 0       | 0       |

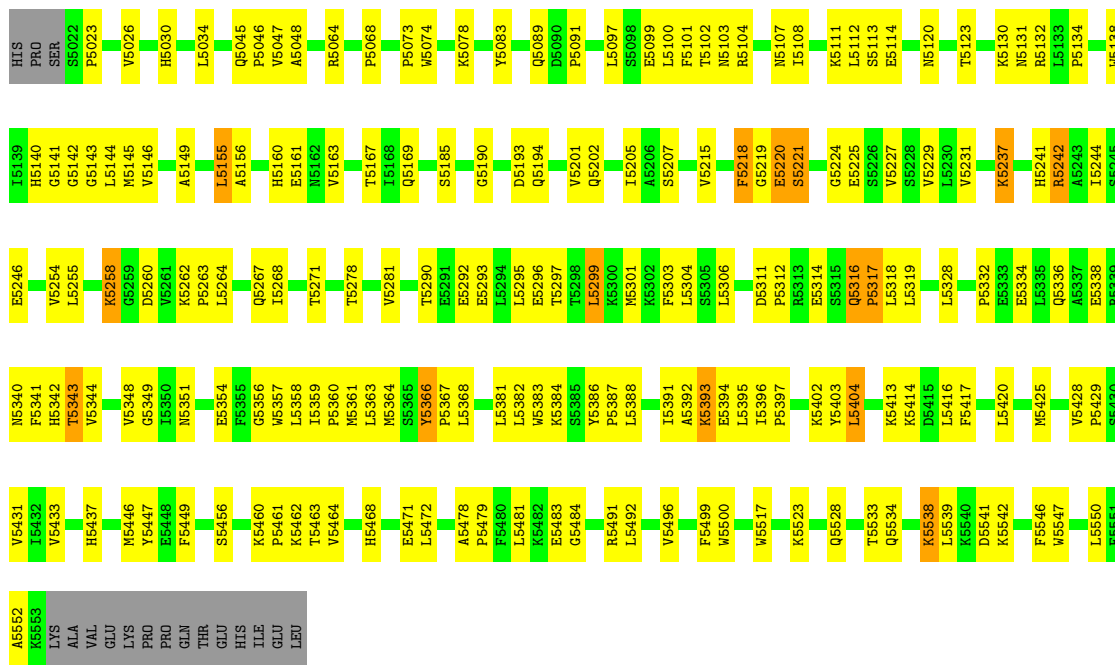




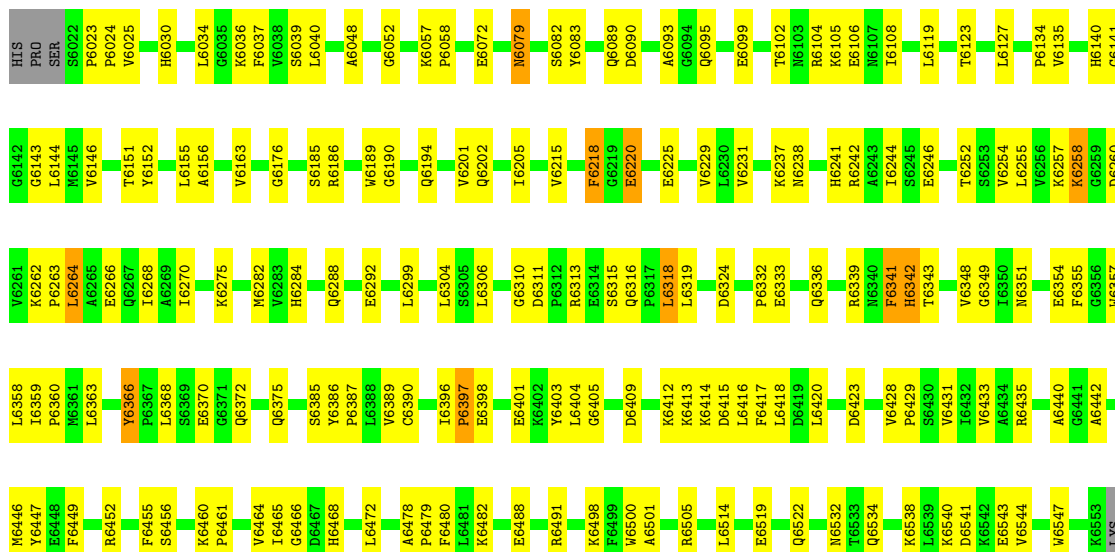




• Molecule 1: liver Carboxylesterase I



• Molecule 1: liver Carboxylesterase I



ALA  
VAL  
GLU  
LYS  
PRO  
GLN  
THR  
GLU  
HIS  
ILE  
GLU  
LEU

## 4 Data and refinement statistics

Xtrriage (Phenix) and EDS were not executed - this section is therefore incomplete.

| Property   | Value  | Source    |
|--|--|-----------|
| Space group  | P 1 21 1                                       | Depositor |
| Cell constants<br>a, b, c, $\alpha$ , $\beta$ , $\gamma$ | 55.40Å 178.80Å 199.60Å<br>90.00° 90.20° 90.00° | Depositor |
| Resolution (Å)   | 19.96 – 2.80                                   | Depositor |
| % Data completeness<br>(in resolution range)             | 92.3 (19.96-2.80)                              | Depositor |
| $R_{merge}$  | (Not available)                                | Depositor |
| $R_{sym}$  | (Not available)                                | Depositor |
| Refinement program                                       | CNS 1.0  | Depositor |
| R, $R_{free}$  | 0.158 , 0.221                                  | Depositor |
| Estimated twinning fraction                              | No twinning to report.                         | Xtrriage  |
| Total number of atoms                                    | 26960  | wwPDB-VP  |
| Average B, all atoms (Å <sup>2</sup> )                   | 31.0   | wwPDB-VP  |

## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: NAG, HTQ, CL, SIA

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

| Mol | Chain | Bond lengths |             | Bond angles |                |
|-----|-------|--------------|-------------|-------------|----------------|
|     |       | RMSZ         | # $ Z  > 5$ | RMSZ        | # $ Z  > 5$    |
| 1   | A     | 0.33         | 0/4236      | 0.57        | 0/5754         |
| 1   | B     | 0.34         | 0/4230      | 0.59        | 1/5746 (0.0%)  |
| 1   | C     | 0.34         | 0/4230      | 0.58        | 0/5746         |
| 1   | D     | 0.34         | 0/4236      | 0.59        | 1/5754 (0.0%)  |
| 1   | E     | 0.33         | 0/4230      | 0.60        | 0/5746         |
| 1   | F     | 0.33         | 0/4230      | 0.58        | 0/5746         |
| All | All   | 0.34         | 0/25392     | 0.58        | 2/34492 (0.0%) |

There are no bond length outliers.

All (2) bond angle outliers are listed below:

| Mol | Chain | Res  | Type | Atoms    | Z    | Observed(°) | Ideal(°) |
|-----|-------|------|------|----------|------|-------------|----------|
| 1   | B     | 2420 | LEU  | CA-CB-CG | 5.32 | 127.53      | 115.30   |
| 1   | D     | 4420 | LEU  | CA-CB-CG | 5.05 | 126.91      | 115.30   |

There are no chirality outliers.

There are no planarity outliers.

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

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

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | A     | 4130  | 0        | 4131     | 161     | 0            |
| 1   | B     | 4124  | 0        | 4126     | 181     | 0            |
| 1   | C     | 4124  | 0        | 4126     | 174     | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | D     | 4130  | 0        | 4131     | 137     | 0            |
| 1   | E     | 4124  | 0        | 4126     | 178     | 0            |
| 1   | F     | 4124  | 0        | 4126     | 151     | 0            |
| 2   | A     | 14    | 0        | 13       | 0       | 0            |
| 2   | B     | 14    | 0        | 13       | 3       | 0            |
| 2   | C     | 14    | 0        | 13       | 0       | 0            |
| 2   | D     | 14    | 0        | 13       | 2       | 0            |
| 2   | E     | 28    | 0        | 26       | 2       | 0            |
| 2   | F     | 14    | 0        | 13       | 2       | 0            |
| 3   | A     | 21    | 0        | 18       | 5       | 0            |
| 3   | B     | 21    | 0        | 18       | 17      | 0            |
| 3   | F     | 21    | 0        | 18       | 5       | 0            |
| 4   | A     | 1     | 0        | 0        | 5       | 0            |
| 4   | E     | 1     | 0        | 0        | 2       | 0            |
| 5   | A     | 60    | 0        | 63       | 21      | 0            |
| 5   | B     | 60    | 0        | 63       | 14      | 0            |
| 5   | C     | 60    | 0        | 63       | 11      | 0            |
| 5   | D     | 60    | 0        | 63       | 12      | 0            |
| 5   | E     | 60    | 0        | 63       | 15      | 0            |
| 5   | F     | 60    | 0        | 63       | 13      | 0            |
| 6   | A     | 249   | 0        | 0        | 13      | 0            |
| 6   | B     | 303   | 0        | 0        | 26      | 0            |
| 6   | C     | 289   | 0        | 0        | 27      | 0            |
| 6   | D     | 291   | 0        | 0        | 15      | 0            |
| 6   | E     | 295   | 0        | 0        | 20      | 0            |
| 6   | F     | 254   | 0        | 0        | 25      | 0            |
| All | All   | 26960 | 0        | 25289    | 990     | 0            |

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 20.

All (990) 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:E:5221:SER:HB3  | 4:E:15:CL:CL      | 1.58                     | 1.39              |
| 1:F:6258:LYS:H    | 1:F:6258:LYS:HE2  | 1.17                     | 1.08              |
| 1:C:3258:LYS:H    | 1:C:3258:LYS:HE2  | 1.19                     | 1.02              |
| 1:B:2304:LEU:HD13 | 5:B:212:HTQ:H171  | 1.39                     | 1.01              |
| 1:B:2079:ASN:HB3  | 3:B:282:SIA:H113  | 1.41                     | 1.00              |
| 1:B:2134:PRO:HG2  | 1:B:2163:VAL:HG12 | 1.43                     | 1.00              |
| 1:E:5221:SER:CB   | 4:E:15:CL:CL      | 2.48                     | 0.98              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:C:3339:ARG:HD2  | 1:C:3440:ALA:HA   | 1.48                     | 0.96              |
| 1:F:6215:VAL:H    | 1:F:6241:HIS:HD2  | 1.06                     | 0.96              |
| 3:B:282:SIA:H92   | 1:C:3278:THR:HA   | 1.48                     | 0.94              |
| 1:E:5215:VAL:H    | 1:E:5241:HIS:HD2  | 0.95                     | 0.94              |
| 1:A:1134:PRO:HG2  | 1:A:1163:VAL:HG12 | 1.51                     | 0.92              |
| 1:E:5317:PRO:HG2  | 1:E:5387:PRO:HB3  | 1.52                     | 0.92              |
| 1:A:1215:VAL:H    | 1:A:1241:HIS:HD2  | 1.18                     | 0.92              |
| 1:C:3215:VAL:H    | 1:C:3241:HIS:HD2  | 1.00                     | 0.91              |
| 1:E:5317:PRO:CG   | 1:E:5387:PRO:HB3  | 2.00                     | 0.91              |
| 1:B:2395:LEU:HB3  | 1:B:2550:LEU:HD11 | 1.51                     | 0.91              |
| 1:E:5091:PRO:HG3  | 1:E:5112:LEU:HD11 | 1.51                     | 0.90              |
| 6:D:7908:HOH:O    | 3:F:682:SIA:H91   | 1.72                     | 0.90              |
| 1:E:5215:VAL:H    | 1:E:5241:HIS:CD2  | 1.87                     | 0.90              |
| 1:C:3215:VAL:H    | 1:C:3241:HIS:CD2  | 1.88                     | 0.89              |
| 2:B:279:NAG:H2    | 6:B:7845:HOH:O    | 1.72                     | 0.88              |
| 1:A:1304:LEU:HD13 | 5:A:111:HTQ:H171  | 1.55                     | 0.87              |
| 1:D:4242:ARG:HG2  | 1:D:4242:ARG:HH11 | 1.40                     | 0.87              |
| 1:B:2237:LYS:HA   | 1:B:2342:HIS:CE1  | 2.10                     | 0.86              |
| 1:B:2290:THR:OG1  | 1:B:2293:GLU:HG3  | 1.75                     | 0.86              |
| 1:C:3296:GLU:HB3  | 6:C:7587:HOH:O    | 1.74                     | 0.85              |
| 1:A:1368:LEU:HB2  | 5:A:1[Z]:HTQ:H151 | 1.57                     | 0.85              |
| 1:B:2215:VAL:H    | 1:B:2241:HIS:HD2  | 1.22                     | 0.85              |
| 1:F:6258:LYS:HE2  | 1:F:6258:LYS:N    | 1.90                     | 0.85              |
| 2:E:579:NAG:O4    | 2:E:580:NAG:H5    | 1.78                     | 0.83              |
| 1:A:1423:ASP:OD2  | 1:A:1543:GLU:HG2  | 1.78                     | 0.83              |
| 3:B:282:SIA:H92   | 1:C:3278:THR:CA   | 2.08                     | 0.83              |
| 1:F:6498:LYS:HB3  | 1:F:6514:LEU:HD11 | 1.62                     | 0.81              |
| 1:D:4215:VAL:H    | 1:D:4241:HIS:HD2  | 1.27                     | 0.81              |
| 1:C:3134:PRO:HG2  | 1:C:3163:VAL:HG12 | 1.62                     | 0.80              |
| 1:A:1363:LEU:HD22 | 5:A:111:HTQ:H181  | 1.63                     | 0.80              |
| 1:E:5343:THR:HG21 | 1:E:5437:HIS:HE1  | 1.45                     | 0.80              |
| 1:E:5104:ARG:HD3  | 6:E:7408:HOH:O    | 1.82                     | 0.79              |
| 1:B:2132:ARG:HB3  | 1:B:2211:ASN:HB2  | 1.64                     | 0.79              |
| 1:D:4290:THR:OG1  | 1:D:4293:GLU:HG3  | 1.83                     | 0.79              |
| 1:E:5311:ASP:HB3  | 1:E:5314:GLU:HG2  | 1.65                     | 0.78              |
| 1:F:6255:LEU:HD11 | 5:F:616:HTQ:H91   | 1.64                     | 0.78              |
| 1:F:6343:THR:HA   | 6:F:7102:HOH:O    | 1.82                     | 0.78              |
| 1:C:3392:ALA:HB3  | 1:C:3395:LEU:HG   | 1.65                     | 0.78              |
| 1:D:4132:ARG:HB3  | 1:D:4211:ASN:HB2  | 1.66                     | 0.78              |
| 1:A:1023:PRO:HB2  | 1:A:1034:LEU:HD21 | 1.65                     | 0.78              |
| 1:C:3318:LEU:HB2  | 6:C:7622:HOH:O    | 1.83                     | 0.77              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:D:4145:MET:HB2  | 1:D:4304:LEU:HD11 | 1.67                     | 0.77              |
| 1:E:5202:GLN:HE22 | 1:E:5215:VAL:HG21 | 1.47                     | 0.77              |
| 1:C:3268:ILE:HG12 | 1:C:3301:MET:HE2  | 1.65                     | 0.77              |
| 1:F:6409:ASP:HB3  | 1:F:6412:LYS:HB3  | 1.67                     | 0.77              |
| 1:A:1132:ARG:HB3  | 1:A:1211:ASN:HB2  | 1.65                     | 0.77              |
| 1:F:6105:LYS:HG3  | 1:F:6106:GLU:H    | 1.48                     | 0.76              |
| 1:F:6134:PRO:HG2  | 1:F:6163:VAL:HG12 | 1.67                     | 0.76              |
| 1:E:5343:THR:HG21 | 1:E:5437:HIS:CE1  | 2.21                     | 0.76              |
| 1:E:5130:LYS:HE3  | 1:E:5132:ARG:NH1  | 2.01                     | 0.76              |
| 1:F:6275:LYS:HD2  | 6:F:8229:HOH:O    | 1.85                     | 0.75              |
| 1:A:1261:VAL:HB   | 6:A:7809:HOH:O    | 1.85                     | 0.75              |
| 3:A:182:SIA:H92   | 1:B:2279:SER:H    | 1.50                     | 0.75              |
| 1:F:6339:ARG:HD2  | 1:F:6440:ALA:HA   | 1.68                     | 0.75              |
| 1:B:2366:TYR:HB3  | 1:B:2368:LEU:HD13 | 1.69                     | 0.75              |
| 1:A:1215:VAL:H    | 1:A:1241:HIS:CD2  | 2.05                     | 0.75              |
| 1:A:1355:PHE:CE1  | 1:A:1360:PRO:HG3  | 2.21                     | 0.75              |
| 1:E:5396:ILE:HB   | 1:E:5397:PRO:HD3  | 1.69                     | 0.75              |
| 1:B:2142:GLY:HA2  | 5:B:212:HTQ:H131  | 1.68                     | 0.75              |
| 1:F:6220:GLU:HG2  | 1:F:6472:LEU:HD21 | 1.69                     | 0.75              |
| 1:D:4343:THR:HB   | 1:D:4442:ALA:HB2  | 1.69                     | 0.74              |
| 1:E:5220:GLU:HG2  | 1:E:5472:LEU:HD21 | 1.68                     | 0.74              |
| 1:F:6023:PRO:HB2  | 1:F:6034:LEU:HD21 | 1.67                     | 0.74              |
| 1:D:4370:GLU:HG3  | 6:D:7641:HOH:O    | 1.87                     | 0.74              |
| 1:A:1079:ASN:HB2  | 3:A:182:SIA:H113  | 1.69                     | 0.74              |
| 1:F:6215:VAL:H    | 1:F:6241:HIS:CD2  | 1.98                     | 0.74              |
| 1:B:2220:GLU:OE2  | 1:B:2221:SER:HB2  | 1.86                     | 0.74              |
| 1:C:3105:LYS:HG3  | 1:C:3106:GLU:H    | 1.53                     | 0.74              |
| 1:F:6258:LYS:H    | 1:F:6258:LYS:CE   | 1.98                     | 0.74              |
| 1:B:2390:CYS:HB3  | 6:B:8305:HOH:O    | 1.87                     | 0.74              |
| 1:B:2254:VAL:HG11 | 5:B:212:HTQ:H61   | 1.68                     | 0.73              |
| 1:F:6095:GLN:O    | 1:F:6099:GLU:HG3  | 1.88                     | 0.73              |
| 1:C:3258:LYS:H    | 1:C:3258:LYS:CE   | 1.98                     | 0.73              |
| 1:E:5237:LYS:HG3  | 6:E:7151:HOH:O    | 1.88                     | 0.73              |
| 1:E:5317:PRO:HB2  | 6:E:8626:HOH:O    | 1.88                     | 0.73              |
| 1:B:2084:PRO:HA   | 3:B:282:SIA:O1B   | 1.89                     | 0.73              |
| 1:C:3242:ARG:HG2  | 1:C:3242:ARG:HH11 | 1.52                     | 0.72              |
| 1:B:2414:LYS:HZ2  | 5:B:2[Y]:HTQ:H181 | 1.53                     | 0.72              |
| 1:E:5290:THR:OG1  | 1:E:5293:GLU:HG3  | 1.89                     | 0.72              |
| 1:B:2023:PRO:HB3  | 1:B:2034:LEU:HD21 | 1.70                     | 0.72              |
| 1:C:3290:THR:OG1  | 1:C:3293:GLU:HG3  | 1.90                     | 0.72              |
| 1:F:6288:GLN:HG3  | 6:F:8386:HOH:O    | 1.89                     | 0.72              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:D:4357:TRP:O    | 1:D:4360:PRO:HD2  | 1.90                     | 0.71              |
| 1:E:5268:ILE:HD11 | 1:E:5319:LEU:HD21 | 1.72                     | 0.71              |
| 1:F:6370:GLU:HG2  | 6:F:7775:HOH:O    | 1.90                     | 0.71              |
| 1:C:3215:VAL:N    | 1:C:3241:HIS:HD2  | 1.83                     | 0.71              |
| 1:E:5215:VAL:N    | 1:E:5241:HIS:HD2  | 1.79                     | 0.71              |
| 1:A:1105:LYS:HD2  | 6:A:8564:HOH:O    | 1.88                     | 0.70              |
| 1:B:2264:LEU:HD13 | 1:B:2316:GLN:HG3  | 1.72                     | 0.70              |
| 1:F:6190:GLY:O    | 1:F:6194:GLN:HG3  | 1.91                     | 0.70              |
| 1:E:5343:THR:CG2  | 1:E:5437:HIS:HE1  | 2.03                     | 0.70              |
| 1:C:3105:LYS:HG3  | 1:C:3106:GLU:N    | 2.07                     | 0.70              |
| 1:C:3339:ARG:HD2  | 1:C:3440:ALA:CA   | 2.20                     | 0.70              |
| 1:C:3355:PHE:CE1  | 1:C:3360:PRO:HG3  | 2.27                     | 0.70              |
| 1:E:5388:LEU:HD22 | 1:E:5425:MET:HE1  | 1.72                     | 0.70              |
| 1:E:5318:LEU:HB2  | 6:E:8626:HOH:O    | 1.92                     | 0.70              |
| 1:A:1236:ALA:HA   | 1:A:1239:LEU:HD12 | 1.74                     | 0.70              |
| 1:D:4268:ILE:HD11 | 1:D:4319:LEU:HD21 | 1.72                     | 0.69              |
| 1:B:2456:SER:HB3  | 1:B:2460:LYS:HD3  | 1.73                     | 0.69              |
| 1:A:1498:LYS:HB3  | 1:A:1514:LEU:HD11 | 1.74                     | 0.69              |
| 1:C:3316:GLN:HA   | 1:C:3316:GLN:HE21 | 1.56                     | 0.69              |
| 1:E:5363:LEU:HB3  | 5:E:515:HTQ:H181  | 1.74                     | 0.69              |
| 1:B:2082:SER:O    | 3:B:282:SIA:H32   | 1.93                     | 0.69              |
| 1:E:5134:PRO:HG2  | 1:E:5163:VAL:HG12 | 1.75                     | 0.69              |
| 3:A:182:SIA:C9    | 1:B:2279:SER:H    | 2.06                     | 0.68              |
| 1:C:3417:PHE:O    | 1:C:3420:LEU:HB3  | 1.93                     | 0.68              |
| 1:B:2252:THR:HG22 | 1:B:2254:VAL:HG12 | 1.74                     | 0.68              |
| 1:E:5241:HIS:O    | 1:E:5344:VAL:HB   | 1.94                     | 0.68              |
| 1:A:1255:LEU:HD11 | 5:A:111:HTQ:H91   | 1.74                     | 0.68              |
| 1:F:6423:ASP:OD2  | 1:F:6543:GLU:HG2  | 1.94                     | 0.68              |
| 1:F:6452:ARG:HB2  | 1:F:6465:ILE:HG12 | 1.76                     | 0.68              |
| 1:C:3316:GLN:HE21 | 1:C:3316:GLN:CA   | 2.06                     | 0.68              |
| 1:D:4456:SER:HB3  | 1:D:4460:LYS:HD3  | 1.75                     | 0.68              |
| 1:E:5404:LEU:HB3  | 1:E:5413:LYS:HG2  | 1.76                     | 0.67              |
| 1:F:6102:THR:OG1  | 1:F:6104:ARG:HG2  | 1.94                     | 0.67              |
| 1:B:2215:VAL:H    | 1:B:2241:HIS:CD2  | 2.09                     | 0.67              |
| 1:F:6260:ASP:OD2  | 1:F:6263:PRO:HD3  | 1.95                     | 0.67              |
| 1:B:2237:LYS:HA   | 1:B:2342:HIS:HE1  | 1.57                     | 0.67              |
| 1:F:6024:PRO:HG3  | 1:F:6037:PHE:CZ   | 2.30                     | 0.67              |
| 1:B:2352:LYS:HG2  | 1:B:2450:GLN:HE21 | 1.59                     | 0.67              |
| 1:F:6105:LYS:HG3  | 1:F:6106:GLU:N    | 2.09                     | 0.67              |
| 1:C:3225:GLU:O    | 1:C:3229:VAL:HG23 | 1.95                     | 0.67              |
| 1:B:2264:LEU:HD21 | 1:B:2319:LEU:HD23 | 1.78                     | 0.66              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:D:4134:PRO:HG2  | 1:D:4163:VAL:HG12 | 1.75                     | 0.66              |
| 1:E:5278:THR:OG1  | 1:E:5281:VAL:HG23 | 1.95                     | 0.66              |
| 1:F:6398:GLU:HG3  | 6:F:7627:HOH:O    | 1.94                     | 0.66              |
| 1:C:3278:THR:OG1  | 1:C:3281:VAL:HG23 | 1.95                     | 0.66              |
| 1:C:3316:GLN:HA   | 1:C:3316:GLN:NE2  | 2.10                     | 0.66              |
| 1:C:3254:VAL:HG11 | 5:C:313:HTQ:H61   | 1.76                     | 0.66              |
| 1:C:3297:THR:O    | 1:C:3301:MET:HG2  | 1.94                     | 0.66              |
| 1:E:5227:VAL:O    | 1:E:5231:VAL:HG23 | 1.95                     | 0.66              |
| 1:B:2279:SER:O    | 1:B:2283:VAL:HG23 | 1.95                     | 0.66              |
| 1:C:3292:GLU:O    | 1:C:3296:GLU:HG3  | 1.96                     | 0.66              |
| 1:F:6355:PHE:CE1  | 1:F:6360:PRO:HG3  | 2.30                     | 0.66              |
| 1:A:1396:ILE:HB   | 1:A:1397:PRO:HD3  | 1.78                     | 0.66              |
| 1:B:2091:PRO:HG3  | 1:B:2112:LEU:HD11 | 1.76                     | 0.66              |
| 1:C:3258:LYS:HE2  | 1:C:3258:LYS:N    | 2.03                     | 0.66              |
| 1:C:3428:VAL:HB   | 1:C:3429:PRO:HD3  | 1.77                     | 0.66              |
| 1:B:2097:LEU:HD13 | 5:B:212:HTQ:H161  | 1.78                     | 0.65              |
| 1:D:4242:ARG:HG2  | 1:D:4242:ARG:NH1  | 2.12                     | 0.65              |
| 1:D:4428:VAL:HB   | 1:D:4429:PRO:HD3  | 1.79                     | 0.65              |
| 1:E:5317:PRO:HG3  | 1:E:5387:PRO:HB3  | 1.78                     | 0.65              |
| 1:E:5395:LEU:HB3  | 1:E:5550:LEU:HD11 | 1.79                     | 0.65              |
| 1:B:2084:PRO:HA   | 3:B:282:SIA:C1    | 2.26                     | 0.65              |
| 1:F:6202:GLN:HG3  | 6:F:7812:HOH:O    | 1.97                     | 0.65              |
| 1:F:6428:VAL:HB   | 1:F:6429:PRO:HD3  | 1.77                     | 0.65              |
| 1:B:2084:PRO:HB3  | 3:B:282:SIA:O1A   | 1.97                     | 0.65              |
| 1:A:1242:ARG:HG2  | 1:A:1242:ARG:HH11 | 1.62                     | 0.65              |
| 1:B:2462:LYS:HG2  | 6:B:8127:HOH:O    | 1.96                     | 0.65              |
| 1:F:6461:PRO:HB2  | 1:F:6464:VAL:HG23 | 1.79                     | 0.65              |
| 1:C:3067:PRO:HB3  | 1:C:3192:LEU:HD13 | 1.79                     | 0.64              |
| 1:E:5417:PHE:O    | 1:E:5420:LEU:HB3  | 1.98                     | 0.64              |
| 1:B:2398:GLU:HG3  | 6:B:7416:HOH:O    | 1.97                     | 0.64              |
| 1:E:5349:GLY:HA3  | 1:E:5447:TYR:CE1  | 2.32                     | 0.64              |
| 1:C:3342:HIS:HB2  | 6:C:8259:HOH:O    | 1.98                     | 0.64              |
| 1:D:4317:PRO:HD3  | 1:D:4387:PRO:HB2  | 1.80                     | 0.64              |
| 1:E:5260:ASP:OD2  | 1:E:5263:PRO:HD3  | 1.98                     | 0.64              |
| 1:F:6501:ALA:O    | 1:F:6505:ARG:HG2  | 1.98                     | 0.64              |
| 1:D:4024:PRO:HG3  | 1:D:4037:PHE:CE1  | 2.33                     | 0.64              |
| 1:C:3330:LYS:HB2  | 6:C:8029:HOH:O    | 1.97                     | 0.64              |
| 1:A:1254:VAL:HG11 | 5:A:111:HTQ:H61   | 1.80                     | 0.63              |
| 1:B:2052:GLY:HA3  | 3:B:282:SIA:H31   | 1.79                     | 0.63              |
| 1:F:6420:LEU:HD12 | 1:F:6547:TRP:HZ2  | 1.63                     | 0.63              |
| 1:A:1373:LEU:HD23 | 6:A:7567:HOH:O    | 1.97                     | 0.63              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:C:3411:VAL:O    | 1:C:3414:LYS:HG2  | 1.99                     | 0.63              |
| 1:C:3464:VAL:HG22 | 5:C:3[Y]:HTQ:H191 | 1.80                     | 0.63              |
| 1:E:5341:PHE:HD1  | 1:E:5343:THR:HG23 | 1.64                     | 0.63              |
| 1:A:1221:SER:HB3  | 4:A:11:CL:CL      | 2.34                     | 0.63              |
| 1:C:3336:GLN:HE22 | 1:C:3433:VAL:HG13 | 1.62                     | 0.63              |
| 1:C:3024:PRO:HG3  | 1:C:3037:PHE:CZ   | 2.33                     | 0.63              |
| 1:D:4372:GLN:HG2  | 1:D:4410:THR:HB   | 1.79                     | 0.63              |
| 1:A:1460:LYS:HE2  | 6:A:7357:HOH:O    | 1.99                     | 0.62              |
| 1:B:2367:PRO:C    | 1:B:2368:LEU:HD12 | 2.19                     | 0.62              |
| 1:B:2420:LEU:HD13 | 1:B:2547:TRP:CZ2  | 2.35                     | 0.62              |
| 1:F:6368:LEU:HD12 | 5:F:6[Z]:HTQ:H151 | 1.81                     | 0.62              |
| 1:A:1140:HIS:HD2  | 1:A:1141:GLY:O    | 1.83                     | 0.62              |
| 1:A:1338:GLU:O    | 1:A:1339:ARG:HD2  | 2.00                     | 0.62              |
| 1:C:3336:GLN:NE2  | 1:C:3433:VAL:HG13 | 2.14                     | 0.62              |
| 1:D:4355:PHE:CE1  | 1:D:4360:PRO:HG3  | 2.33                     | 0.62              |
| 1:A:1372:GLN:HE21 | 1:A:1372:GLN:N    | 1.96                     | 0.62              |
| 3:B:282:SIA:C9    | 1:C:3278:THR:HA   | 2.24                     | 0.62              |
| 1:D:4338:GLU:HG2  | 1:D:4341:PHE:HB2  | 1.82                     | 0.62              |
| 1:E:5264:LEU:HD22 | 1:E:5316:GLN:HE21 | 1.65                     | 0.62              |
| 1:A:1277:THR:HG22 | 1:A:1278:THR:HG23 | 1.81                     | 0.62              |
| 1:E:5102:THR:OG1  | 1:E:5104:ARG:HG2  | 1.99                     | 0.62              |
| 1:F:6083:TYR:CE2  | 1:F:6108:ILE:HD13 | 2.35                     | 0.62              |
| 1:E:5403:TYR:CD1  | 1:E:5420:LEU:HD13 | 2.34                     | 0.62              |
| 1:D:4370:GLU:HB3  | 1:D:4372:GLN:NE2  | 2.15                     | 0.62              |
| 1:B:2202:GLN:HE22 | 1:B:2215:VAL:HG21 | 1.63                     | 0.62              |
| 1:B:2352:LYS:HG2  | 1:B:2450:GLN:NE2  | 2.14                     | 0.62              |
| 1:C:3145:MET:HG3  | 1:C:3304:LEU:HD11 | 1.82                     | 0.62              |
| 1:F:6089:GLN:HB2  | 1:F:6146:VAL:HG12 | 1.81                     | 0.62              |
| 1:E:5312:PRO:HG3  | 1:E:5384:LYS:HD3  | 1.82                     | 0.62              |
| 1:D:4261:VAL:HA   | 6:D:7290:HOH:O    | 2.00                     | 0.61              |
| 1:B:2236:ALA:HA   | 1:B:2239:LEU:HD12 | 1.82                     | 0.61              |
| 1:C:3095:GLN:O    | 1:C:3099:GLU:HG3  | 2.00                     | 0.61              |
| 1:D:4143:GLY:CA   | 5:D:414:HTQ:H42   | 2.30                     | 0.61              |
| 1:F:6538:LYS:HB3  | 1:F:6541:ASP:HB2  | 1.81                     | 0.61              |
| 1:F:6538:LYS:HE2  | 6:F:8409:HOH:O    | 1.99                     | 0.61              |
| 1:D:4487:GLU:HG3  | 1:D:4491:ARG:NH1  | 2.15                     | 0.61              |
| 1:C:3083:TYR:CE2  | 1:C:3108:ILE:HD13 | 2.36                     | 0.61              |
| 1:B:2215:VAL:N    | 1:B:2241:HIS:HD2  | 1.96                     | 0.61              |
| 1:F:6417:PHE:O    | 1:F:6420:LEU:HB3  | 2.00                     | 0.61              |
| 1:A:1370:GLU:HB3  | 1:A:1372:GLN:HE22 | 1.66                     | 0.60              |
| 1:B:2079:ASN:HB2  | 6:B:8690:HOH:O    | 2.01                     | 0.60              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:B:2428:VAL:HB   | 1:B:2429:PRO:HD3  | 1.83                     | 0.60              |
| 1:E:5140:HIS:HD2  | 1:E:5141:GLY:O    | 1.84                     | 0.60              |
| 1:B:2085:PRO:HD3  | 3:B:282:SIA:O1B   | 2.00                     | 0.60              |
| 1:C:3260:ASP:OD2  | 1:C:3263:PRO:HD3  | 2.01                     | 0.60              |
| 1:E:5296:GLU:HG2  | 6:E:8471:HOH:O    | 2.01                     | 0.60              |
| 1:E:5366:TYR:HB3  | 1:E:5368:LEU:HD13 | 1.82                     | 0.60              |
| 1:E:5538:LYS:HE2  | 6:E:8549:HOH:O    | 2.00                     | 0.60              |
| 1:E:5264:LEU:HD22 | 1:E:5316:GLN:NE2  | 2.15                     | 0.60              |
| 1:A:1143:GLY:N    | 4:A:11:CL:CL      | 2.68                     | 0.60              |
| 1:E:5429:PRO:O    | 1:E:5433:VAL:HG23 | 2.01                     | 0.60              |
| 1:F:6252:THR:HG22 | 1:F:6254:VAL:HG12 | 1.82                     | 0.60              |
| 1:E:5403:TYR:O    | 1:E:5416:LEU:HD13 | 2.00                     | 0.60              |
| 1:E:5089:GLN:OE1  | 1:E:5146:VAL:HB   | 2.02                     | 0.60              |
| 1:E:5089:GLN:HB2  | 1:E:5146:VAL:HG12 | 1.83                     | 0.60              |
| 1:A:1145:MET:HB2  | 1:A:1304:LEU:HD11 | 1.83                     | 0.59              |
| 1:D:4237:LYS:HE3  | 1:D:4342:HIS:HB2  | 1.84                     | 0.59              |
| 1:D:4105:LYS:HA   | 1:D:4482:LYS:HG2  | 1.84                     | 0.59              |
| 1:C:3242:ARG:HD3  | 1:C:3503:PHE:O    | 2.02                     | 0.59              |
| 1:C:3414:LYS:HG3  | 1:C:3415:ASP:N    | 2.16                     | 0.59              |
| 1:F:6370:GLU:HB3  | 1:F:6372:GLN:HG2  | 1.84                     | 0.59              |
| 1:F:6429:PRO:O    | 1:F:6433:VAL:HG23 | 2.02                     | 0.59              |
| 1:A:1308:LEU:HD11 | 1:A:1367:PRO:HG3  | 1.83                     | 0.59              |
| 1:D:4238:ASN:HB2  | 6:D:7053:HOH:O    | 2.01                     | 0.59              |
| 1:C:3315:SER:HA   | 6:C:8252:HOH:O    | 2.03                     | 0.59              |
| 1:B:2363:LEU:HD13 | 5:B:212:HTQ:C16   | 2.31                     | 0.59              |
| 1:C:3349:GLY:HA3  | 1:C:3447:TYR:CE1  | 2.38                     | 0.59              |
| 1:F:6342:HIS:HB2  | 6:F:7674:HOH:O    | 2.03                     | 0.59              |
| 1:A:1456:SER:HB3  | 1:A:1460:LYS:HD3  | 1.84                     | 0.58              |
| 1:B:2363:LEU:HD22 | 5:B:212:HTQ:H181  | 1.85                     | 0.58              |
| 1:B:2414:LYS:NZ   | 5:B:2[Y]:HTQ:H181 | 2.17                     | 0.58              |
| 1:E:5363:LEU:HD13 | 5:E:515:HTQ:H161  | 1.85                     | 0.58              |
| 1:F:6332:PRO:O    | 1:F:6336:GLN:HG3  | 2.02                     | 0.58              |
| 1:B:2420:LEU:HD13 | 1:B:2547:TRP:HZ2  | 1.68                     | 0.58              |
| 1:E:5190:GLY:O    | 1:E:5194:GLN:HG3  | 2.03                     | 0.58              |
| 1:D:4445:TYR:CE1  | 1:D:4519:GLU:HA   | 2.38                     | 0.58              |
| 1:C:3400:THR:HG23 | 1:C:3404:LEU:HD12 | 1.85                     | 0.58              |
| 1:A:1297:THR:O    | 1:A:1301:MET:HG2  | 2.03                     | 0.58              |
| 1:D:4199:ARG:HG2  | 1:D:4199:ARG:HH11 | 1.68                     | 0.58              |
| 1:E:5428:VAL:HB   | 1:E:5429:PRO:HD3  | 1.85                     | 0.58              |
| 1:B:2255:LEU:HD11 | 5:B:212:HTQ:H91   | 1.85                     | 0.58              |
| 1:C:3357:TRP:HB2  | 5:C:3[Z]:HTQ:H171 | 1.84                     | 0.58              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:D:4081:THR:OG1  | 2:D:479:NAG:H82   | 2.04                     | 0.58              |
| 1:A:1024:PRO:HG3  | 1:A:1037:PHE:CZ   | 2.39                     | 0.58              |
| 1:B:2145:MET:HB2  | 1:B:2304:LEU:HD11 | 1.86                     | 0.58              |
| 1:A:1021:SER:HB2  | 6:A:8675:HOH:O    | 2.04                     | 0.57              |
| 1:A:1097:LEU:HD13 | 5:A:111:HTQ:H161  | 1.87                     | 0.57              |
| 1:A:1386:TYR:N    | 1:A:1387:PRO:HD2  | 2.19                     | 0.57              |
| 1:C:3388:LEU:HD22 | 1:C:3425:MET:HE1  | 1.87                     | 0.57              |
| 1:A:1023:PRO:CB   | 1:A:1034:LEU:HD21 | 2.34                     | 0.57              |
| 1:A:1377:THR:O    | 1:A:1380:SER:HB3  | 2.05                     | 0.57              |
| 1:F:6522:GLN:HB2  | 6:F:8312:HOH:O    | 2.04                     | 0.57              |
| 1:A:1343:THR:HB   | 1:A:1442:ALA:HB2  | 1.86                     | 0.57              |
| 1:A:1351:ASN:HB3  | 1:A:1466:GLY:O    | 2.05                     | 0.57              |
| 1:B:2461:PRO:HG2  | 1:B:2464:VAL:HG23 | 1.87                     | 0.57              |
| 1:C:3149:ALA:HB2  | 1:C:3169:GLN:HG3  | 1.86                     | 0.57              |
| 1:A:1215:VAL:N    | 1:A:1241:HIS:HD2  | 1.96                     | 0.57              |
| 1:E:5023:PRO:HB2  | 1:E:5034:LEU:HD21 | 1.87                     | 0.57              |
| 1:F:6176:GLY:HA2  | 1:F:6189:TRP:HB2  | 1.87                     | 0.57              |
| 1:F:6339:ARG:HD2  | 1:F:6440:ALA:CA   | 2.35                     | 0.57              |
| 1:B:2547:TRP:CZ3  | 1:B:2550:LEU:HD23 | 2.40                     | 0.57              |
| 1:D:4251:LEU:HD22 | 1:D:4333:GLU:OE2  | 2.05                     | 0.57              |
| 1:F:6268:ILE:HD11 | 1:F:6319:LEU:HD21 | 1.86                     | 0.56              |
| 1:A:1474:SER:HB3  | 1:A:1496:VAL:HG21 | 1.87                     | 0.56              |
| 1:C:3104:ARG:HD3  | 6:C:8237:HOH:O    | 2.04                     | 0.56              |
| 1:F:6255:LEU:HD23 | 1:F:6318:LEU:HD11 | 1.87                     | 0.56              |
| 1:B:2353:GLN:NE2  | 1:B:2465:ILE:H    | 2.03                     | 0.56              |
| 1:C:3045:GLN:NE2  | 1:C:3046:PRO:HD2  | 2.20                     | 0.56              |
| 1:E:5332:PRO:O    | 1:E:5336:GLN:HG3  | 2.06                     | 0.56              |
| 1:F:6156:ALA:HB3  | 6:F:7194:HOH:O    | 2.04                     | 0.56              |
| 1:F:6357:TRP:HA   | 5:F:6[Y]:HTQ:H181 | 1.88                     | 0.56              |
| 1:F:6386:TYR:N    | 1:F:6387:PRO:HD2  | 2.20                     | 0.56              |
| 1:B:2220:GLU:HG3  | 6:B:7802:HOH:O    | 2.06                     | 0.56              |
| 1:C:3414:LYS:NZ   | 5:C:3[Z]:HTQ:H161 | 2.20                     | 0.56              |
| 1:E:5538:LYS:HD2  | 1:E:5541:ASP:OD2  | 2.05                     | 0.56              |
| 1:F:6258:LYS:HD3  | 6:F:8619:HOH:O    | 2.05                     | 0.56              |
| 1:B:2461:PRO:HG2  | 1:B:2464:VAL:CG2  | 2.35                     | 0.56              |
| 1:E:5149:ALA:HB2  | 1:E:5169:GLN:HG3  | 1.88                     | 0.56              |
| 1:E:5303:PHE:HD2  | 1:E:5317:PRO:O    | 1.88                     | 0.56              |
| 1:A:1370:GLU:HB3  | 1:A:1372:GLN:NE2  | 2.21                     | 0.56              |
| 1:B:2254:VAL:HG22 | 1:B:2318:LEU:HD12 | 1.88                     | 0.56              |
| 1:D:4199:ARG:HG2  | 1:D:4199:ARG:NH1  | 2.19                     | 0.56              |
| 1:D:4275:LYS:HG3  | 6:F:8666:HOH:O    | 2.05                     | 0.56              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:E:5202:GLN:NE2  | 1:E:5215:VAL:HG21 | 2.19                     | 0.56              |
| 1:A:1135:VAL:HG21 | 1:A:1205:ILE:HG12 | 1.88                     | 0.56              |
| 1:B:2246:GLU:HG2  | 1:B:2447:TYR:OH   | 2.06                     | 0.56              |
| 1:C:3338:GLU:OE1  | 1:C:3340:ASN:HB3  | 2.05                     | 0.56              |
| 1:F:6455:PHE:CD2  | 1:F:6482:LYS:HD3  | 2.40                     | 0.56              |
| 1:D:4338:GLU:CG   | 1:D:4341:PHE:HB2  | 2.36                     | 0.55              |
| 2:E:579:NAG:HO4   | 2:E:580:NAG:H5    | 1.69                     | 0.55              |
| 1:B:2074:TRP:CD2  | 1:B:2078:LYS:HE2  | 2.41                     | 0.55              |
| 1:E:5342:HIS:HD2  | 6:E:8426:HOH:O    | 1.89                     | 0.55              |
| 1:A:1363:LEU:HD13 | 5:A:111:HTQ:C16   | 2.37                     | 0.55              |
| 1:D:4089:GLN:HB2  | 1:D:4146:VAL:HG12 | 1.88                     | 0.55              |
| 1:F:6315:SER:HB2  | 6:F:8469:HOH:O    | 2.06                     | 0.55              |
| 1:A:1043:PHE:HA   | 6:A:7064:HOH:O    | 2.07                     | 0.55              |
| 1:A:1403:TYR:O    | 1:A:1416:LEU:HD13 | 2.06                     | 0.55              |
| 1:D:4215:VAL:H    | 1:D:4241:HIS:CD2  | 2.17                     | 0.55              |
| 1:E:5258:LYS:HD2  | 1:E:5258:LYS:O    | 2.06                     | 0.55              |
| 1:E:5262:LYS:HB3  | 1:E:5263:PRO:HD3  | 1.88                     | 0.55              |
| 1:A:1403:TYR:CD1  | 1:A:1420:LEU:HD23 | 2.42                     | 0.55              |
| 1:D:4105:LYS:HG2  | 6:D:7281:HOH:O    | 2.06                     | 0.55              |
| 1:E:5140:HIS:HE1  | 6:E:7090:HOH:O    | 1.90                     | 0.55              |
| 1:F:6255:LEU:HD11 | 5:F:616:HTQ:C9    | 2.36                     | 0.55              |
| 1:A:1368:LEU:O    | 5:A:1[Y]:HTQ:H22  | 2.06                     | 0.55              |
| 1:D:4459:MET:HE2  | 6:D:8676:HOH:O    | 2.07                     | 0.55              |
| 1:B:2024:PRO:HG3  | 1:B:2037:PHE:CZ   | 2.42                     | 0.55              |
| 1:D:4236:ALA:HA   | 1:D:4239:LEU:HD12 | 1.89                     | 0.55              |
| 1:D:4461:PRO:HG2  | 1:D:4464:VAL:HG23 | 1.89                     | 0.55              |
| 1:F:6414:LYS:HG3  | 1:F:6415:ASP:N    | 2.21                     | 0.55              |
| 1:F:6242:ARG:HG2  | 1:F:6242:ARG:HH11 | 1.71                     | 0.55              |
| 1:F:6431:VAL:HG21 | 1:F:6540:LYS:HB2  | 1.88                     | 0.55              |
| 1:D:4262:LYS:O    | 1:D:4266:GLU:HG3  | 2.07                     | 0.55              |
| 1:E:5131:ASN:HB2  | 6:E:7188:HOH:O    | 2.06                     | 0.55              |
| 1:E:5357:TRP:HA   | 5:E:5[Y]:HTQ:H171 | 1.88                     | 0.55              |
| 1:C:3262:LYS:HB3  | 1:C:3263:PRO:HD3  | 1.89                     | 0.55              |
| 1:D:4103:ASN:ND2  | 1:D:4476:PHE:HB3  | 2.22                     | 0.55              |
| 1:D:4292:GLU:CD   | 1:D:4292:GLU:H    | 2.10                     | 0.55              |
| 1:E:5461:PRO:HG2  | 1:E:5464:VAL:CG2  | 2.37                     | 0.55              |
| 1:D:4140:HIS:HD2  | 1:D:4141:GLY:O    | 1.90                     | 0.54              |
| 1:C:3145:MET:HG3  | 1:C:3318:LEU:HD21 | 1.89                     | 0.54              |
| 1:C:3386:TYR:N    | 1:C:3387:PRO:HD2  | 2.22                     | 0.54              |
| 1:D:4297:THR:O    | 1:D:4301:MET:HG2  | 2.07                     | 0.54              |
| 1:E:5292:GLU:CD   | 1:E:5292:GLU:H    | 2.09                     | 0.54              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1199:ARG:HG2  | 1:A:1199:ARG:HH11 | 1.71                     | 0.54              |
| 1:B:2047:VAL:HG21 | 1:B:2155:LEU:HD23 | 1.89                     | 0.54              |
| 1:C:3348:VAL:O    | 1:C:3446:MET:HA   | 2.07                     | 0.54              |
| 1:F:6403:TYR:O    | 1:F:6416:LEU:HD13 | 2.08                     | 0.54              |
| 1:B:2436:ASN:HB3  | 6:B:7545:HOH:O    | 2.06                     | 0.54              |
| 1:A:1343:THR:HA   | 6:A:7195:HOH:O    | 2.07                     | 0.54              |
| 1:A:1428:VAL:HB   | 1:A:1429:PRO:HD3  | 1.89                     | 0.54              |
| 1:A:1138:TRP:HH2  | 1:A:1220:GLU:HB2  | 1.71                     | 0.54              |
| 1:A:1461:PRO:HG2  | 1:A:1464:VAL:HG23 | 1.90                     | 0.54              |
| 1:F:6241:HIS:O    | 1:F:6242:ARG:HG2  | 2.08                     | 0.54              |
| 1:F:6304:LEU:HD23 | 5:F:616:HTQ:C17   | 2.38                     | 0.54              |
| 1:A:1369:SER:O    | 5:A:1[Z]:HTQ:H91  | 2.08                     | 0.54              |
| 1:B:2486:SER:O    | 1:B:2490:ILE:HG13 | 2.08                     | 0.54              |
| 1:A:1025:VAL:HG22 | 1:A:1034:LEU:HD23 | 1.90                     | 0.53              |
| 1:C:3268:ILE:HG12 | 1:C:3301:MET:CE   | 2.37                     | 0.53              |
| 1:D:4254:VAL:HG11 | 5:D:414:HTQ:H72   | 1.90                     | 0.53              |
| 1:D:4461:PRO:HG2  | 1:D:4464:VAL:CG2  | 2.38                     | 0.53              |
| 1:E:5388:LEU:HD22 | 1:E:5425:MET:CE   | 2.38                     | 0.53              |
| 1:B:2264:LEU:HD21 | 1:B:2319:LEU:CD2  | 2.38                     | 0.53              |
| 1:C:3437:HIS:HE1  | 6:C:7026:HOH:O    | 1.90                     | 0.53              |
| 1:E:5268:ILE:CD1  | 1:E:5319:LEU:HD21 | 2.37                     | 0.53              |
| 1:A:1221:SER:CB   | 4:A:11:CL:CL      | 2.93                     | 0.53              |
| 1:B:2403:TYR:O    | 1:B:2416:LEU:HD13 | 2.07                     | 0.53              |
| 1:E:5255:LEU:HD11 | 5:E:515:HTQ:H91   | 1.90                     | 0.53              |
| 1:B:2220:GLU:HA   | 1:B:2246:GLU:O    | 2.09                     | 0.53              |
| 1:B:2242:ARG:HG3  | 1:B:2242:ARG:HH11 | 1.74                     | 0.53              |
| 1:E:5220:GLU:O    | 1:E:5221:SER:HB2  | 2.08                     | 0.53              |
| 1:E:5491:ARG:HG2  | 1:E:5491:ARG:HH11 | 1.74                     | 0.53              |
| 1:F:6284:HIS:O    | 1:F:6288:GLN:HG2  | 2.08                     | 0.53              |
| 1:F:6456:SER:HB3  | 1:F:6460:LYS:HD3  | 1.91                     | 0.53              |
| 1:A:1254:VAL:HG12 | 6:A:7530:HOH:O    | 2.09                     | 0.53              |
| 1:B:2024:PRO:HG3  | 1:B:2037:PHE:CE1  | 2.43                     | 0.53              |
| 1:D:4361:MET:HE1  | 1:D:4363:LEU:HG   | 1.91                     | 0.53              |
| 1:A:1221:SER:HA   | 1:A:1247:SER:O    | 2.09                     | 0.53              |
| 1:B:2452:ARG:NE   | 1:B:2462:LYS:HA   | 2.23                     | 0.53              |
| 1:C:3138:TRP:CZ3  | 1:C:3219:GLY:HA2  | 2.44                     | 0.53              |
| 1:C:3429:PRO:O    | 1:C:3433:VAL:HG23 | 2.09                     | 0.53              |
| 1:D:4227:VAL:O    | 1:D:4231:VAL:HG23 | 2.09                     | 0.53              |
| 1:E:5402:LYS:NZ   | 1:E:5546:PHE:CD1  | 2.75                     | 0.53              |
| 1:F:6090:ASP:HB3  | 1:F:6093:ALA:HB3  | 1.91                     | 0.53              |
| 1:A:1132:ARG:HG2  | 6:A:8191:HOH:O    | 2.09                     | 0.52              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1421:ILE:HG22 | 1:A:1425:MET:HE3  | 1.91                     | 0.52              |
| 1:C:3023:PRO:HB2  | 1:C:3034:LEU:HD21 | 1.91                     | 0.52              |
| 1:F:6040:LEU:HG   | 6:F:8070:HOH:O    | 2.09                     | 0.52              |
| 1:F:6119:LEU:HD12 | 1:F:6119:LEU:O    | 2.09                     | 0.52              |
| 1:A:1102:THR:OG1  | 1:A:1104:ARG:HG2  | 2.08                     | 0.52              |
| 1:B:2081:THR:OG1  | 2:B:279:NAG:H82   | 2.10                     | 0.52              |
| 1:B:2372:GLN:O    | 1:B:2373:LEU:HB2  | 2.08                     | 0.52              |
| 1:D:4486:SER:O    | 1:D:4490:ILE:HG13 | 2.08                     | 0.52              |
| 1:D:4553:LYS:HB3  | 6:D:7920:HOH:O    | 2.08                     | 0.52              |
| 1:E:5030:HIS:HD2  | 6:E:7229:HOH:O    | 1.92                     | 0.52              |
| 1:C:3139:ILE:HG12 | 1:C:3168:ILE:HD11 | 1.91                     | 0.52              |
| 1:C:3398:GLU:HG3  | 6:C:7478:HOH:O    | 2.09                     | 0.52              |
| 1:C:3456:SER:HA   | 6:C:7789:HOH:O    | 2.10                     | 0.52              |
| 1:B:2292:GLU:HG3  | 6:C:8454:HOH:O    | 2.10                     | 0.52              |
| 1:C:3464:VAL:HG22 | 5:C:3[Z]:HTQ:H191 | 1.92                     | 0.52              |
| 1:F:6351:ASN:ND2  | 1:F:6449:PHE:HB3  | 2.25                     | 0.52              |
| 1:A:1366:TYR:O    | 5:A:1[Z]:HTQ:H171 | 2.09                     | 0.52              |
| 1:B:2104:ARG:CZ   | 1:B:2153:ASP:HB2  | 2.39                     | 0.52              |
| 1:B:2389:VAL:HB   | 1:B:2424:VAL:HG11 | 1.90                     | 0.52              |
| 1:D:4383:TRP:O    | 1:D:4386:TYR:HB2  | 2.10                     | 0.52              |
| 1:E:5354:GLU:O    | 1:E:5468:HIS:HB2  | 2.09                     | 0.52              |
| 1:F:6030:HIS:HD2  | 6:F:8639:HOH:O    | 1.91                     | 0.52              |
| 1:B:2351:ASN:ND2  | 1:B:2449:PHE:HB3  | 2.24                     | 0.52              |
| 1:D:4262:LYS:HE3  | 1:D:4279:SER:OG   | 2.10                     | 0.52              |
| 1:A:1368:LEU:HD12 | 5:A:1[Y]:HTQ:H151 | 1.92                     | 0.52              |
| 1:B:2386:TYR:N    | 1:B:2387:PRO:HD2  | 2.25                     | 0.52              |
| 1:B:2084:PRO:CB   | 3:B:282:SIA:O1A   | 2.58                     | 0.52              |
| 1:D:4339:ARG:HG3  | 1:D:4440:ALA:HA   | 1.91                     | 0.52              |
| 1:F:6220:GLU:HA   | 1:F:6246:GLU:O    | 2.10                     | 0.52              |
| 1:A:1292:GLU:CD   | 1:A:1292:GLU:H    | 2.13                     | 0.52              |
| 1:A:1402:LYS:HG2  | 1:A:1546:PHE:CE1  | 2.45                     | 0.52              |
| 1:B:2052:GLY:HA3  | 3:B:282:SIA:O1A   | 2.09                     | 0.52              |
| 1:B:2261:VAL:HA   | 6:B:7763:HOH:O    | 2.10                     | 0.52              |
| 1:D:4491:ARG:HG3  | 1:D:4491:ARG:HH11 | 1.75                     | 0.52              |
| 1:A:1241:HIS:O    | 1:A:1242:ARG:HG2  | 2.10                     | 0.52              |
| 1:E:5358:LEU:HG   | 1:E:5363:LEU:HD12 | 1.92                     | 0.52              |
| 1:B:2231:VAL:HA   | 1:B:2342:HIS:HD2  | 1.73                     | 0.51              |
| 1:C:3334:GLU:HG2  | 6:C:8402:HOH:O    | 2.10                     | 0.51              |
| 1:C:3382:LEU:HD23 | 1:C:3396:ILE:HG23 | 1.90                     | 0.51              |
| 1:E:5382:LEU:HD11 | 1:E:5391:ILE:HD12 | 1.92                     | 0.51              |
| 1:F:6135:VAL:HB   | 1:F:6215:VAL:HG22 | 1.92                     | 0.51              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:F:6480:PHE:HB3  | 6:F:8202:HOH:O    | 2.10                     | 0.51              |
| 1:B:2227:VAL:O    | 1:B:2231:VAL:HG23 | 2.10                     | 0.51              |
| 1:B:2352:LYS:HE2  | 1:B:2450:GLN:NE2  | 2.24                     | 0.51              |
| 1:D:4201:VAL:HG13 | 1:D:4205:ILE:HB   | 1.92                     | 0.51              |
| 1:D:4332:PRO:O    | 1:D:4336:GLN:HG2  | 2.11                     | 0.51              |
| 1:E:5304:LEU:HD13 | 5:E:515:HTQ:C19   | 2.41                     | 0.51              |
| 1:C:3512:GLU:HB3  | 6:C:7617:HOH:O    | 2.10                     | 0.51              |
| 1:D:4369:SER:O    | 5:D:4[Z]:HTQ:H51  | 2.10                     | 0.51              |
| 1:F:6358:LEU:HD23 | 1:F:6468:HIS:HD2  | 1.75                     | 0.51              |
| 1:F:6478:ALA:N    | 1:F:6479:PRO:CD   | 2.74                     | 0.51              |
| 1:A:1308:LEU:HD11 | 1:A:1367:PRO:CG   | 2.40                     | 0.51              |
| 1:E:5242:ARG:HG3  | 1:E:5242:ARG:HH11 | 1.74                     | 0.51              |
| 1:B:2040:LEU:HD22 | 1:B:2156:ALA:HA   | 1.92                     | 0.51              |
| 1:A:1079:ASN:CB   | 3:A:182:SIA:H113  | 2.40                     | 0.51              |
| 1:C:3364:MET:CE   | 1:C:3388:LEU:HD11 | 2.41                     | 0.51              |
| 1:C:3407:THR:HG21 | 6:C:7543:HOH:O    | 2.09                     | 0.51              |
| 1:D:4386:TYR:N    | 1:D:4387:PRO:HD2  | 2.26                     | 0.51              |
| 1:F:6396:ILE:HB   | 1:F:6397:PRO:HD3  | 1.91                     | 0.51              |
| 1:A:1385:SER:O    | 1:A:1389:VAL:HG22 | 2.11                     | 0.51              |
| 1:B:2534:GLN:HG2  | 6:B:7715:HOH:O    | 2.11                     | 0.51              |
| 1:C:3102:THR:OG1  | 1:C:3104:ARG:HG2  | 2.11                     | 0.51              |
| 1:D:4024:PRO:HG3  | 1:D:4037:PHE:CZ   | 2.45                     | 0.51              |
| 1:D:4349:GLY:HA3  | 1:D:4447:TYR:CE1  | 2.46                     | 0.51              |
| 1:F:6237:LYS:HG3  | 1:F:6238:ASN:ND2  | 2.26                     | 0.51              |
| 1:B:2025:VAL:HG22 | 1:B:2034:LEU:HD23 | 1.92                     | 0.51              |
| 1:B:2268:ILE:HD11 | 1:B:2319:LEU:HD21 | 1.92                     | 0.51              |
| 1:B:2352:LYS:HE2  | 1:B:2450:GLN:HE22 | 1.75                     | 0.51              |
| 1:B:2541:ASP:HB3  | 6:B:8152:HOH:O    | 2.11                     | 0.51              |
| 2:B:279:NAG:H4    | 6:B:8352:HOH:O    | 2.11                     | 0.51              |
| 1:D:4206:ALA:HB3  | 6:D:7552:HOH:O    | 2.10                     | 0.51              |
| 1:B:2341:PHE:HA   | 6:B:7548:HOH:O    | 2.10                     | 0.51              |
| 1:D:4304:LEU:HD13 | 5:D:414:HTQ:C17   | 2.40                     | 0.51              |
| 1:F:6152:TYR:CD1  | 1:F:6152:TYR:N    | 2.79                     | 0.51              |
| 1:A:1254:VAL:HG21 | 1:A:1388:LEU:HD23 | 1.93                     | 0.50              |
| 1:A:1313:ARG:HA   | 1:A:1386:TYR:CD2  | 2.46                     | 0.50              |
| 1:C:3522:GLN:HB2  | 6:C:7554:HOH:O    | 2.12                     | 0.50              |
| 1:F:6262:LYS:HE2  | 1:F:6282:MET:HE1  | 1.92                     | 0.50              |
| 1:B:2119:LEU:HD12 | 1:B:2119:LEU:O    | 2.11                     | 0.50              |
| 1:D:4237:LYS:HG3  | 1:D:4342:HIS:ND1  | 2.25                     | 0.50              |
| 2:D:479:NAG:H3    | 6:D:8543:HOH:O    | 2.11                     | 0.50              |
| 1:F:6363:LEU:HB3  | 5:F:616:HTQ:C18   | 2.41                     | 0.50              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:F:6368:LEU:HB2  | 5:F:6[Z]:HTQ:H151 | 1.93                     | 0.50              |
| 1:C:3268:ILE:HD11 | 1:C:3319:LEU:HD21 | 1.93                     | 0.50              |
| 1:C:3355:PHE:CD1  | 1:C:3360:PRO:HG3  | 2.46                     | 0.50              |
| 1:C:3364:MET:SD   | 1:C:3388:LEU:HD11 | 2.52                     | 0.50              |
| 1:B:2084:PRO:CA   | 3:B:282:SIA:O1A   | 2.60                     | 0.50              |
| 1:B:2338:GLU:HB2  | 1:B:2340:ASN:HB3  | 1.91                     | 0.50              |
| 1:C:3140:HIS:HD2  | 1:C:3141:GLY:O    | 1.95                     | 0.50              |
| 1:C:3339:ARG:HB3  | 6:C:7469:HOH:O    | 2.10                     | 0.50              |
| 1:E:5241:HIS:HA   | 1:E:5344:VAL:HG11 | 1.93                     | 0.50              |
| 1:B:2138:TRP:CZ3  | 1:B:2219:GLY:HA2  | 2.46                     | 0.50              |
| 1:B:2357:TRP:CE3  | 1:B:2460:LYS:HB2  | 2.47                     | 0.50              |
| 1:E:5478:ALA:HB3  | 1:E:5479:PRO:HD3  | 1.92                     | 0.50              |
| 1:B:2032:LYS:HG3  | 6:B:7916:HOH:O    | 2.10                     | 0.50              |
| 1:E:5394:GLU:O    | 1:E:5397:PRO:HD2  | 2.10                     | 0.50              |
| 1:F:6357:TRP:HA   | 5:F:6[Y]:HTQ:C18  | 2.41                     | 0.50              |
| 1:C:3375:GLN:O    | 1:C:3379:MET:HG3  | 2.12                     | 0.50              |
| 1:F:6306:LEU:HD22 | 1:F:6366:TYR:CE1  | 2.46                     | 0.50              |
| 1:A:1063:LEU:HD21 | 1:A:1069:GLN:NE2  | 2.27                     | 0.50              |
| 5:B:2[Z]:HTQ:H51  | 6:B:8669:HOH:O    | 2.12                     | 0.50              |
| 1:C:3304:LEU:HG   | 5:C:313:HTQ:C19   | 2.42                     | 0.50              |
| 1:D:4225:GLU:O    | 1:D:4229:VAL:HG23 | 2.11                     | 0.50              |
| 1:E:5099:GLU:HG3  | 1:E:5107:ASN:OD1  | 2.12                     | 0.50              |
| 1:B:2338:GLU:O    | 1:B:2339:ARG:C    | 2.49                     | 0.50              |
| 1:B:2437:HIS:HD2  | 1:B:2444:THR:OG1  | 1.95                     | 0.50              |
| 1:C:3376:LYS:HE3  | 6:C:8551:HOH:O    | 2.11                     | 0.50              |
| 1:C:3396:ILE:HB   | 1:C:3397:PRO:HD3  | 1.94                     | 0.50              |
| 1:F:6036:LYS:NZ   | 6:F:7752:HOH:O    | 2.44                     | 0.50              |
| 1:B:2284:HIS:O    | 1:B:2288:GLN:HG2  | 2.12                     | 0.49              |
| 1:C:3242:ARG:HG2  | 1:C:3242:ARG:NH1  | 2.25                     | 0.49              |
| 1:E:5364:MET:SD   | 1:E:5388:LEU:HD11 | 2.52                     | 0.49              |
| 1:C:3456:SER:HB3  | 1:C:3460:LYS:HD3  | 1.94                     | 0.49              |
| 2:F:679:NAG:H81   | 3:F:682:SIA:O9    | 2.11                     | 0.49              |
| 1:E:5220:GLU:HA   | 1:E:5246:GLU:O    | 2.12                     | 0.49              |
| 1:A:1143:GLY:O    | 1:A:1318:LEU:HD22 | 2.13                     | 0.49              |
| 1:A:1358:LEU:HG   | 1:A:1363:LEU:HD11 | 1.94                     | 0.49              |
| 1:D:4547:TRP:CZ3  | 1:D:4550:LEU:HD23 | 2.46                     | 0.49              |
| 1:C:3383:TRP:HB2  | 6:C:7716:HOH:O    | 2.13                     | 0.49              |
| 1:C:3528:GLN:O    | 1:C:3533:THR:HA   | 2.13                     | 0.49              |
| 1:D:4308:LEU:HD11 | 1:D:4367:PRO:HG3  | 1.95                     | 0.49              |
| 1:D:4404:LEU:C    | 1:D:4406:GLY:H    | 2.16                     | 0.49              |
| 1:B:2023:PRO:CB   | 1:B:2034:LEU:HD21 | 2.39                     | 0.49              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:B:2080:ALA:HA   | 3:B:282:SIA:O4    | 2.12                     | 0.49              |
| 1:D:4263:PRO:HD2  | 6:D:7290:HOH:O    | 2.12                     | 0.49              |
| 1:B:2145:MET:CB   | 1:B:2304:LEU:HD11 | 2.43                     | 0.49              |
| 1:C:3220:GLU:HG2  | 1:C:3472:LEU:HD21 | 1.94                     | 0.49              |
| 1:E:5254:VAL:HG11 | 5:E:515:HTQ:H61   | 1.94                     | 0.49              |
| 1:E:5356:GLY:O    | 5:E:5[Y]:HTQ:H171 | 2.13                     | 0.49              |
| 1:F:6404:LEU:O    | 1:F:6413:LYS:HE2  | 2.11                     | 0.49              |
| 1:C:3461:PRO:HB2  | 1:C:3464:VAL:HG23 | 1.95                     | 0.49              |
| 1:B:2143:GLY:O    | 1:B:2144:LEU:HB2  | 2.12                     | 0.49              |
| 1:C:3352:LYS:HG2  | 6:C:8697:HOH:O    | 2.13                     | 0.49              |
| 1:E:5145:MET:HG2  | 1:E:5318:LEU:HD21 | 1.95                     | 0.49              |
| 1:E:5386:TYR:N    | 1:E:5387:PRO:CD   | 2.75                     | 0.49              |
| 1:F:6079:ASN:O    | 3:F:682:SIA:H6    | 2.12                     | 0.49              |
| 1:C:3375:GLN:NE2  | 1:C:3400:THR:HG22 | 2.28                     | 0.49              |
| 1:D:4437:HIS:HD2  | 1:D:4444:THR:OG1  | 1.96                     | 0.49              |
| 1:E:5237:LYS:NZ   | 1:E:5342:HIS:HB2  | 2.28                     | 0.49              |
| 1:E:5296:GLU:HG3  | 6:E:7989:HOH:O    | 2.13                     | 0.49              |
| 1:E:5348:VAL:O    | 1:E:5446:MET:HA   | 2.12                     | 0.49              |
| 1:F:6231:VAL:HG13 | 6:F:7815:HOH:O    | 2.12                     | 0.49              |
| 1:A:1095:GLN:O    | 1:A:1099:GLU:HG3  | 2.13                     | 0.48              |
| 1:B:2025:VAL:CG2  | 1:B:2034:LEU:HD23 | 2.43                     | 0.48              |
| 3:B:282:SIA:H92   | 1:C:3279:SER:H    | 1.78                     | 0.48              |
| 1:D:4040:LEU:HD22 | 1:D:4156:ALA:HA   | 1.94                     | 0.48              |
| 1:F:6368:LEU:HB2  | 5:F:6[Y]:HTQ:H151 | 1.95                     | 0.48              |
| 1:A:1372:GLN:N    | 1:A:1372:GLN:NE2  | 2.62                     | 0.48              |
| 1:B:2292:GLU:CD   | 1:B:2292:GLU:H    | 2.16                     | 0.48              |
| 1:D:4339:ARG:HH21 | 1:D:4439:ASP:HB2  | 1.78                     | 0.48              |
| 1:E:5241:HIS:C    | 1:E:5242:ARG:HD2  | 2.34                     | 0.48              |
| 1:E:5271:THR:CG2  | 1:E:5297:THR:HG23 | 2.43                     | 0.48              |
| 1:A:1403:TYR:CG   | 1:A:1420:LEU:HD23 | 2.48                     | 0.48              |
| 1:E:5045:GLN:NE2  | 1:E:5046:PRO:HD2  | 2.28                     | 0.48              |
| 1:A:1097:LEU:HD13 | 5:A:111:HTQ:C16   | 2.42                     | 0.48              |
| 1:A:1186:ARG:HB3  | 1:A:1324:ASP:HB2  | 1.95                     | 0.48              |
| 1:A:1373:LEU:HD11 | 6:A:8101:HOH:O    | 2.13                     | 0.48              |
| 1:C:3308:LEU:HD11 | 1:C:3367:PRO:HG3  | 1.95                     | 0.48              |
| 1:E:5552:ALA:HB3  | 6:E:8130:HOH:O    | 2.13                     | 0.48              |
| 1:F:6140:HIS:HD2  | 1:F:6141:GLY:O    | 1.97                     | 0.48              |
| 1:F:6254:VAL:HG11 | 5:F:616:HTQ:H61   | 1.96                     | 0.48              |
| 1:F:6264:LEU:HD11 | 1:F:6316:GLN:HG2  | 1.94                     | 0.48              |
| 1:A:1348:VAL:O    | 1:A:1446:MET:HA   | 2.14                     | 0.48              |
| 1:B:2478:ALA:HB3  | 1:B:2479:PRO:HD3  | 1.96                     | 0.48              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:D:4105:LYS:HG3  | 1:D:4106:GLU:N    | 2.28                     | 0.48              |
| 1:F:6119:LEU:HD12 | 1:F:6119:LEU:C    | 2.34                     | 0.48              |
| 1:B:2048:ALA:HB3  | 1:B:2123:THR:CG2  | 2.44                     | 0.48              |
| 1:E:5074:TRP:CD2  | 1:E:5078:LYS:HE2  | 2.48                     | 0.48              |
| 1:E:5351:ASN:ND2  | 1:E:5449:PHE:HB3  | 2.28                     | 0.48              |
| 1:A:1420:LEU:HD22 | 1:A:1547:TRP:HZ2  | 1.78                     | 0.48              |
| 1:B:2103:ASN:HB3  | 6:B:8481:HOH:O    | 2.14                     | 0.48              |
| 1:B:2140:HIS:CD2  | 1:B:2147:GLY:HA3  | 2.49                     | 0.48              |
| 1:B:2366:TYR:HB3  | 1:B:2368:LEU:CD1  | 2.41                     | 0.48              |
| 1:D:4355:PHE:CD1  | 1:D:4360:PRO:HG3  | 2.49                     | 0.48              |
| 1:D:4369:SER:HA   | 5:D:4[Y]:HTQ:H21  | 1.95                     | 0.48              |
| 1:E:5026:VAL:CG1  | 1:E:5207:SER:HB3  | 2.44                     | 0.48              |
| 1:E:5048:ALA:HB3  | 1:E:5123:THR:HG23 | 1.95                     | 0.48              |
| 1:E:5138:TRP:CZ3  | 1:E:5219:GLY:HA2  | 2.49                     | 0.48              |
| 1:F:6414:LYS:O    | 1:F:6418:LEU:HG   | 2.14                     | 0.48              |
| 1:A:1304:LEU:CD1  | 5:A:111:HTQ:H171  | 2.36                     | 0.48              |
| 1:A:1435:ARG:O    | 1:A:1438:ARG:HB3  | 2.14                     | 0.48              |
| 1:B:2044:ALA:O    | 1:F:6491:ARG:HD2  | 2.13                     | 0.48              |
| 1:B:2425:MET:CE   | 5:B:212:HTQ:H72   | 2.44                     | 0.48              |
| 1:C:3254:VAL:HG13 | 1:C:3255:LEU:HG   | 1.95                     | 0.48              |
| 1:F:6146:VAL:HG21 | 5:F:616:HTQ:H171  | 1.95                     | 0.48              |
| 1:B:2369:SER:O    | 5:B:2[Y]:HTQ:H51  | 2.14                     | 0.48              |
| 1:D:4382:LEU:HD23 | 1:D:4396:ILE:HG23 | 1.95                     | 0.48              |
| 1:F:6351:ASN:HB3  | 1:F:6466:GLY:O    | 2.13                     | 0.48              |
| 1:A:1359:ILE:HB   | 1:A:1360:PRO:HD3  | 1.96                     | 0.48              |
| 1:B:2023:PRO:HA   | 1:B:2024:PRO:HD3  | 1.83                     | 0.48              |
| 1:D:4452:ARG:HG2  | 6:D:8033:HOH:O    | 2.14                     | 0.48              |
| 1:F:6225:GLU:O    | 1:F:6229:VAL:HG23 | 2.13                     | 0.48              |
| 1:B:2334:GLU:O    | 1:B:2338:GLU:HG3  | 2.14                     | 0.47              |
| 1:F:6237:LYS:HG2  | 6:F:8213:HOH:O    | 2.14                     | 0.47              |
| 1:A:1124:PRO:HD3  | 1:A:1158:ALA:HB1  | 1.96                     | 0.47              |
| 1:A:1138:TRP:CH2  | 1:A:1220:GLU:HB2  | 2.49                     | 0.47              |
| 1:A:1222:ALA:N    | 4:A:11:CL:CL      | 2.83                     | 0.47              |
| 1:A:1260:ASP:OD2  | 1:A:1263:PRO:HD3  | 2.14                     | 0.47              |
| 1:A:1372:GLN:NE2  | 1:A:1372:GLN:H    | 2.12                     | 0.47              |
| 1:B:2022:SER:HB3  | 6:B:8445:HOH:O    | 2.14                     | 0.47              |
| 1:B:2368:LEU:HD12 | 1:B:2368:LEU:N    | 2.29                     | 0.47              |
| 1:B:2498:LYS:HG2  | 1:B:2514:LEU:HD11 | 1.95                     | 0.47              |
| 1:C:3218:PHE:CB   | 1:C:3244:ILE:HB   | 2.44                     | 0.47              |
| 1:E:5542:LYS:HB2  | 6:E:8311:HOH:O    | 2.14                     | 0.47              |
| 1:C:3257:LYS:HB3  | 6:C:7331:HOH:O    | 2.13                     | 0.47              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:D:4354:GLU:HB2  | 1:D:4422:ALA:HB1  | 1.96                     | 0.47              |
| 1:E:5221:SER:O    | 1:E:5224:GLY:N    | 2.47                     | 0.47              |
| 1:C:3425:MET:CE   | 5:C:313:HTQ:H72   | 2.45                     | 0.47              |
| 1:A:1089:GLN:OE1  | 1:A:1146:VAL:HB   | 2.14                     | 0.47              |
| 1:D:4242:ARG:NH1  | 1:D:4242:ARG:CG   | 2.77                     | 0.47              |
| 1:E:5030:HIS:HB3  | 1:E:5073:PRO:HA   | 1.96                     | 0.47              |
| 1:E:5523:LYS:HD2  | 6:E:8003:HOH:O    | 2.13                     | 0.47              |
| 1:B:2152:TYR:CD1  | 1:B:2152:TYR:N    | 2.82                     | 0.47              |
| 1:A:1242:ARG:HG2  | 1:A:1242:ARG:NH1  | 2.29                     | 0.47              |
| 1:A:1478:ALA:N    | 1:A:1479:PRO:CD   | 2.77                     | 0.47              |
| 1:B:2348:VAL:O    | 1:B:2446:MET:HA   | 2.15                     | 0.47              |
| 1:C:3236:ALA:O    | 1:C:3238:ASN:N    | 2.47                     | 0.47              |
| 1:E:5100:LEU:HD13 | 1:E:5358:LEU:HD11 | 1.96                     | 0.47              |
| 1:E:5338:GLU:C    | 1:E:5340:ASN:N    | 2.67                     | 0.47              |
| 1:E:5383:TRP:CH2  | 1:E:5393:LYS:HB2  | 2.50                     | 0.47              |
| 1:E:5431:VAL:HG21 | 1:E:5539:LEU:O    | 2.15                     | 0.47              |
| 1:F:6349:GLY:HA3  | 1:F:6447:TYR:CE1  | 2.48                     | 0.47              |
| 1:F:6359:ILE:HB   | 1:F:6360:PRO:HD3  | 1.97                     | 0.47              |
| 1:A:1034:LEU:HD13 | 1:A:1034:LEU:C    | 2.35                     | 0.47              |
| 1:D:4038:VAL:HG21 | 1:D:4049:ILE:HD12 | 1.97                     | 0.47              |
| 1:D:4336:GLN:O    | 1:D:4339:ARG:NH1  | 2.48                     | 0.47              |
| 1:A:1199:ARG:NH1  | 1:A:1239:LEU:HD21 | 2.30                     | 0.47              |
| 1:B:2376:LYS:HA   | 1:B:2379:MET:HE2  | 1.97                     | 0.47              |
| 1:D:4025:VAL:HG22 | 1:D:4034:LEU:HD23 | 1.96                     | 0.47              |
| 1:D:4306:LEU:HD23 | 1:D:4308:LEU:HD21 | 1.96                     | 0.47              |
| 1:D:4478:ALA:N    | 1:D:4479:PRO:CD   | 2.78                     | 0.47              |
| 1:E:5267:GLN:HB2  | 6:E:8396:HOH:O    | 2.15                     | 0.47              |
| 1:F:6385:SER:O    | 1:F:6389:VAL:HG22 | 2.15                     | 0.47              |
| 1:A:1220:GLU:HG3  | 1:A:1472:LEU:HD21 | 1.97                     | 0.47              |
| 1:B:2139:ILE:O    | 1:B:2223:GLY:HA3  | 2.15                     | 0.47              |
| 1:C:3371:GLY:HA2  | 5:C:3[Y]:HTQ:O12  | 2.15                     | 0.47              |
| 1:C:3538:LYS:HB3  | 1:C:3541:ASP:HB2  | 1.96                     | 0.47              |
| 1:D:4418:LEU:HD11 | 5:D:4[Z]:HTQ:C18  | 2.45                     | 0.47              |
| 1:E:5297:THR:O    | 1:E:5301:MET:HG2  | 2.15                     | 0.47              |
| 1:E:5425:MET:CE   | 5:E:515:HTQ:H72   | 2.45                     | 0.47              |
| 1:A:1349:GLY:HA3  | 1:A:1447:TYR:CZ   | 2.49                     | 0.46              |
| 1:C:3380:SER:O    | 1:C:3384:LYS:HG2  | 2.15                     | 0.46              |
| 1:E:5271:THR:HG22 | 1:E:5297:THR:HG23 | 1.97                     | 0.46              |
| 1:F:6292:GLU:CD   | 1:F:6292:GLU:H    | 2.18                     | 0.46              |
| 1:A:1355:PHE:CD1  | 1:A:1360:PRO:HG3  | 2.49                     | 0.46              |
| 1:A:1455:PHE:HB3  | 1:A:1482:LYS:NZ   | 2.30                     | 0.46              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1461:PRO:HG2  | 1:A:1464:VAL:CG2  | 2.44                     | 0.46              |
| 1:C:3308:LEU:HD21 | 1:C:3367:PRO:HG2  | 1.96                     | 0.46              |
| 1:D:4278:THR:OG1  | 1:D:4281:VAL:HG23 | 2.16                     | 0.46              |
| 1:F:6186:ARG:HB3  | 1:F:6324:ASP:HB2  | 1.96                     | 0.46              |
| 1:A:1119:LEU:HD12 | 1:A:1119:LEU:O    | 2.14                     | 0.46              |
| 1:A:1176:GLY:HA2  | 1:A:1189:TRP:HB2  | 1.97                     | 0.46              |
| 1:A:1403:TYR:CE2  | 1:A:1420:LEU:HA   | 2.50                     | 0.46              |
| 1:A:1426:PHE:HZ   | 5:A:111:HTQ:H11   | 1.81                     | 0.46              |
| 1:A:1551:PHE:C    | 1:A:1553:LYS:H    | 2.18                     | 0.46              |
| 1:C:3217:ILE:HG13 | 1:C:3217:ILE:O    | 2.14                     | 0.46              |
| 1:C:3254:VAL:HG13 | 1:C:3255:LEU:N    | 2.30                     | 0.46              |
| 1:E:5492:LEU:O    | 1:E:5496:VAL:HG23 | 2.16                     | 0.46              |
| 1:F:6143:GLY:O    | 1:F:6318:LEU:HD13 | 2.16                     | 0.46              |
| 1:F:6246:GLU:HG2  | 1:F:6447:TYR:OH   | 2.15                     | 0.46              |
| 1:F:6332:PRO:HD2  | 1:F:6333:GLU:OE1  | 2.16                     | 0.46              |
| 1:F:6357:TRP:O    | 1:F:6360:PRO:HD2  | 2.15                     | 0.46              |
| 1:F:6358:LEU:HD23 | 1:F:6468:HIS:CD2  | 2.51                     | 0.46              |
| 1:A:1262:LYS:O    | 1:A:1266:GLU:HG3  | 2.16                     | 0.46              |
| 1:B:2329:LEU:HD21 | 6:B:7603:HOH:O    | 2.15                     | 0.46              |
| 1:C:3161:GLU:O    | 1:C:3163:VAL:HG13 | 2.14                     | 0.46              |
| 1:C:3220:GLU:HA   | 1:C:3246:GLU:O    | 2.15                     | 0.46              |
| 1:C:3242:ARG:HD2  | 1:C:3504:ALA:HA   | 1.97                     | 0.46              |
| 1:D:4089:GLN:OE1  | 1:D:4146:VAL:HB   | 2.16                     | 0.46              |
| 1:E:5393:LYS:HA   | 1:E:5396:ILE:HG12 | 1.97                     | 0.46              |
| 1:A:1140:HIS:CD2  | 1:A:1141:GLY:O    | 2.67                     | 0.46              |
| 1:A:1254:VAL:CG1  | 5:A:111:HTQ:H61   | 2.44                     | 0.46              |
| 1:A:1409:ASP:O    | 1:A:1413:LYS:HG3  | 2.16                     | 0.46              |
| 1:A:1024:PRO:HG3  | 1:A:1037:PHE:CE1  | 2.51                     | 0.46              |
| 1:A:1036:LYS:HE3  | 1:A:1038:VAL:CG2  | 2.46                     | 0.46              |
| 1:C:3161:GLU:HB3  | 1:C:3501:ALA:CB   | 2.45                     | 0.46              |
| 1:D:4540:LYS:HA   | 1:D:4543:GLU:OE2  | 2.16                     | 0.46              |
| 1:A:1429:PRO:O    | 1:A:1433:VAL:HG23 | 2.16                     | 0.46              |
| 1:B:2104:ARG:NH1  | 1:B:2153:ASP:HB2  | 2.31                     | 0.46              |
| 1:B:2357:TRP:HB3  | 1:B:2467:ASP:OD2  | 2.15                     | 0.46              |
| 1:B:2396:ILE:HB   | 1:B:2397:PRO:HD3  | 1.98                     | 0.46              |
| 1:C:3140:HIS:HE1  | 6:C:7059:HOH:O    | 1.99                     | 0.46              |
| 1:C:3498:LYS:HE2  | 6:C:7202:HOH:O    | 2.15                     | 0.46              |
| 1:E:5237:LYS:HZ3  | 1:E:5342:HIS:H    | 1.63                     | 0.46              |
| 1:E:5363:LEU:HD13 | 5:E:515:HTQ:C16   | 2.45                     | 0.46              |
| 1:E:5402:LYS:O    | 1:E:5402:LYS:HD3  | 2.16                     | 0.46              |
| 1:B:2264:LEU:HD22 | 1:B:2316:GLN:HE21 | 1.81                     | 0.46              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:C:3477:GLY:HA2  | 1:C:3493:SER:OG   | 2.16                     | 0.46              |
| 1:D:4139:ILE:O    | 1:D:4223:GLY:HA3  | 2.16                     | 0.46              |
| 1:F:6264:LEU:HD22 | 1:F:6268:ILE:HD11 | 1.97                     | 0.46              |
| 1:A:1025:VAL:CG2  | 1:A:1034:LEU:HD23 | 2.46                     | 0.46              |
| 1:B:2455:PHE:CD2  | 1:B:2482:LYS:HD3  | 2.51                     | 0.46              |
| 1:B:2532:ASN:ND2  | 1:B:2534:GLN:NE2  | 2.64                     | 0.46              |
| 1:E:5383:TRP:CZ3  | 1:E:5393:LYS:HB2  | 2.51                     | 0.46              |
| 1:F:6366:TYR:O    | 5:F:6[Z]:HTQ:H171 | 2.16                     | 0.46              |
| 1:A:1349:GLY:HA3  | 1:A:1447:TYR:CE1  | 2.51                     | 0.45              |
| 1:B:2478:ALA:N    | 1:B:2479:PRO:CD   | 2.79                     | 0.45              |
| 1:E:5461:PRO:HB3  | 6:E:8667:HOH:O    | 2.16                     | 0.45              |
| 1:A:1551:PHE:C    | 1:A:1553:LYS:N    | 2.69                     | 0.45              |
| 1:B:2064:ARG:O    | 1:B:2066:THR:HG23 | 2.17                     | 0.45              |
| 1:B:2120:ASN:HB2  | 1:B:2167:THR:OG1  | 2.16                     | 0.45              |
| 1:B:2233:SER:O    | 1:B:2342:HIS:NE2  | 2.48                     | 0.45              |
| 1:C:3251:LEU:CD2  | 1:C:3333:GLU:HG3  | 2.46                     | 0.45              |
| 1:D:4190:GLY:O    | 1:D:4194:GLN:HG3  | 2.17                     | 0.45              |
| 1:F:6082:SER:OG   | 3:F:682:SIA:N5    | 2.49                     | 0.45              |
| 1:A:1152:TYR:N    | 1:A:1152:TYR:CD1  | 2.84                     | 0.45              |
| 3:B:282:SIA:H92   | 1:C:3279:SER:N    | 2.30                     | 0.45              |
| 1:B:2084:PRO:CA   | 3:B:282:SIA:C1    | 2.95                     | 0.45              |
| 1:B:2262:LYS:HE3  | 1:B:2279:SER:OG   | 2.17                     | 0.45              |
| 1:C:3074:TRP:CD2  | 1:C:3078:LYS:HE2  | 2.52                     | 0.45              |
| 1:C:3205:ILE:HD12 | 1:C:3205:ILE:HA   | 1.78                     | 0.45              |
| 1:E:5316:GLN:HA   | 1:E:5316:GLN:OE1  | 2.16                     | 0.45              |
| 1:E:5368:LEU:HD12 | 1:E:5368:LEU:N    | 2.31                     | 0.45              |
| 1:F:6220:GLU:CB   | 1:F:6246:GLU:HB2  | 2.47                     | 0.45              |
| 1:C:3067:PRO:HB3  | 1:C:3192:LEU:CD1  | 2.44                     | 0.45              |
| 1:D:4040:LEU:O    | 1:D:4041:GLU:C    | 2.54                     | 0.45              |
| 1:B:2119:LEU:HD12 | 1:B:2119:LEU:C    | 2.37                     | 0.45              |
| 1:B:2262:LYS:HE2  | 1:B:2282:MET:HE1  | 1.99                     | 0.45              |
| 1:C:3024:PRO:HG3  | 1:C:3037:PHE:CE2  | 2.52                     | 0.45              |
| 1:C:3284:HIS:O    | 1:C:3288:GLN:HG2  | 2.17                     | 0.45              |
| 1:C:3353:GLN:O    | 1:C:3467:ASP:HA   | 2.16                     | 0.45              |
| 1:C:3428:VAL:HG21 | 1:C:3547:TRP:CD1  | 2.52                     | 0.45              |
| 1:E:5461:PRO:HG2  | 1:E:5464:VAL:HG23 | 1.97                     | 0.45              |
| 1:F:6311:ASP:OD1  | 1:F:6313:ARG:HB2  | 2.16                     | 0.45              |
| 1:C:3097:LEU:HD11 | 1:C:3101:PHE:CE2  | 2.52                     | 0.45              |
| 1:C:3272:ALA:O    | 1:C:3289:LYS:NZ   | 2.49                     | 0.45              |
| 1:F:6389:VAL:O    | 1:F:6390:CYS:HB2  | 2.16                     | 0.45              |
| 5:A:1[Z]:HTQ:H191 | 6:A:8638:HOH:O    | 2.17                     | 0.45              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:B:2045:GLN:N    | 1:F:6488:GLU:HG3  | 2.32                     | 0.45              |
| 1:B:2140:HIS:HD2  | 1:B:2141:GLY:O    | 2.00                     | 0.45              |
| 1:C:3527:LEU:HD11 | 1:C:3533:THR:HG22 | 1.98                     | 0.45              |
| 1:A:1199:ARG:HG2  | 1:A:1199:ARG:NH1  | 2.30                     | 0.45              |
| 1:A:1292:GLU:O    | 1:A:1296:GLU:HG3  | 2.16                     | 0.45              |
| 1:A:1447:TYR:C    | 1:A:1447:TYR:CD2  | 2.89                     | 0.45              |
| 1:E:5047:VAL:HG21 | 1:E:5155:LEU:HD23 | 1.99                     | 0.45              |
| 1:A:1355:PHE:CZ   | 1:A:1360:PRO:HG3  | 2.52                     | 0.45              |
| 1:B:2452:ARG:CZ   | 1:B:2462:LYS:HA   | 2.47                     | 0.45              |
| 1:D:4104:ARG:CZ   | 1:D:4153:ASP:HB2  | 2.47                     | 0.45              |
| 1:D:4391:ILE:CG2  | 1:D:4396:ILE:HD13 | 2.47                     | 0.45              |
| 1:E:5420:LEU:HD12 | 1:E:5547:TRP:HZ2  | 1.82                     | 0.45              |
| 1:F:6343:THR:HB   | 1:F:6442:ALA:HB2  | 1.99                     | 0.45              |
| 1:B:2104:ARG:NH1  | 1:B:2104:ARG:HB3  | 2.30                     | 0.44              |
| 1:C:3304:LEU:HD22 | 1:C:3304:LEU:N    | 2.32                     | 0.44              |
| 1:C:3366:TYR:HA   | 1:C:3367:PRO:HD3  | 1.83                     | 0.44              |
| 1:C:3383:TRP:CZ3  | 1:C:3393:LYS:HB2  | 2.52                     | 0.44              |
| 1:D:4527:LEU:HD11 | 1:D:4533:THR:CG2  | 2.48                     | 0.44              |
| 1:B:2355:PHE:HD1  | 1:B:2418:LEU:HD22 | 1.82                     | 0.44              |
| 1:D:4143:GLY:N    | 5:D:414:HTQ:H42   | 2.32                     | 0.44              |
| 1:D:4351:ASN:ND2  | 1:D:4449:PHE:HB3  | 2.31                     | 0.44              |
| 1:E:5097:LEU:HD11 | 1:E:5101:PHE:CE2  | 2.52                     | 0.44              |
| 1:E:5359:ILE:N    | 1:E:5360:PRO:HD2  | 2.32                     | 0.44              |
| 1:F:6072:GLU:HG3  | 6:F:8439:HOH:O    | 2.17                     | 0.44              |
| 1:B:2132:ARG:HA   | 1:B:2132:ARG:HD3  | 1.83                     | 0.44              |
| 1:D:4221:SER:HA   | 1:D:4247:SER:O    | 2.18                     | 0.44              |
| 1:D:4246:GLU:HG2  | 1:D:4447:TYR:OH   | 2.17                     | 0.44              |
| 1:B:2201:VAL:O    | 1:B:2205:ILE:HB   | 2.17                     | 0.44              |
| 1:C:3198:LEU:HB3  | 1:C:3239:LEU:HB3  | 1.99                     | 0.44              |
| 1:D:4206:ALA:HA   | 1:D:4210:GLY:O    | 2.17                     | 0.44              |
| 1:A:1221:SER:OG   | 4:A:11:CL:CL      | 2.68                     | 0.44              |
| 1:D:4074:TRP:CD2  | 1:D:4078:LYS:HE2  | 2.52                     | 0.44              |
| 1:D:4119:LEU:HD12 | 1:D:4119:LEU:O    | 2.17                     | 0.44              |
| 1:E:5254:VAL:HG13 | 1:E:5255:LEU:N    | 2.31                     | 0.44              |
| 1:E:5304:LEU:HD13 | 5:E:515:HTQ:H191  | 2.00                     | 0.44              |
| 1:E:5334:GLU:O    | 1:E:5338:GLU:HG3  | 2.18                     | 0.44              |
| 1:F:6201:VAL:HG13 | 1:F:6205:ILE:HB   | 1.99                     | 0.44              |
| 1:C:3492:LEU:O    | 1:C:3496:VAL:HG23 | 2.17                     | 0.44              |
| 1:D:4111:LYS:HG2  | 6:D:7506:HOH:O    | 2.18                     | 0.44              |
| 1:E:5068:PRO:HB3  | 1:E:5193:ASP:OD1  | 2.18                     | 0.44              |
| 1:E:5156:ALA:O    | 1:E:5160:HIS:HB2  | 2.17                     | 0.44              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:E:5456:SER:HB3  | 1:E:5460:LYS:HD3  | 2.00                     | 0.44              |
| 1:A:1278:THR:OG1  | 1:A:1281:VAL:HG23 | 2.18                     | 0.44              |
| 1:A:1389:VAL:O    | 1:A:1390:CYS:HB2  | 2.18                     | 0.44              |
| 1:B:2311:ASP:OD1  | 1:B:2313:ARG:HB2  | 2.17                     | 0.44              |
| 1:C:3414:LYS:O    | 1:C:3418:LEU:HG   | 2.18                     | 0.44              |
| 1:D:4464:VAL:HG12 | 1:D:4467:ASP:HB2  | 2.00                     | 0.44              |
| 1:E:5205:ILE:HD12 | 1:E:5205:ILE:HA   | 1.80                     | 0.44              |
| 1:E:5292:GLU:CD   | 1:E:5292:GLU:N    | 2.71                     | 0.44              |
| 1:B:2304:LEU:CD2  | 1:B:2318:LEU:HD21 | 2.48                     | 0.44              |
| 1:C:3191:HIS:HA   | 1:C:3194:GLN:OE1  | 2.17                     | 0.44              |
| 1:E:5064:ARG:NH2  | 1:E:5114:GLU:OE2  | 2.50                     | 0.44              |
| 1:F:6348:VAL:O    | 1:F:6446:MET:HA   | 2.18                     | 0.44              |
| 1:A:1382:LEU:HD23 | 1:A:1396:ILE:HG23 | 2.00                     | 0.44              |
| 1:B:2524:GLU:OE2  | 1:B:2538:LYS:HD3  | 2.18                     | 0.44              |
| 1:C:3242:ARG:NH1  | 1:C:3242:ARG:CG   | 2.81                     | 0.44              |
| 1:E:5461:PRO:O    | 1:E:5464:VAL:HG23 | 2.18                     | 0.44              |
| 1:F:6039:SER:HA   | 6:F:8282:HOH:O    | 2.17                     | 0.44              |
| 1:A:1026:VAL:CG1  | 1:A:1207:SER:HB3  | 2.48                     | 0.43              |
| 1:B:2337:ALA:C    | 1:B:2339:ARG:H    | 2.22                     | 0.43              |
| 1:B:2349:GLY:HA3  | 1:B:2447:TYR:CE1  | 2.53                     | 0.43              |
| 1:C:3149:ALA:CB   | 1:C:3169:GLN:HG3  | 2.48                     | 0.43              |
| 1:C:3308:LEU:HB2  | 1:C:3309:GLN:NE2  | 2.33                     | 0.43              |
| 1:C:3420:LEU:HD12 | 1:C:3547:TRP:HZ2  | 1.83                     | 0.43              |
| 1:D:4312:PRO:HG2  | 1:D:4383:TRP:CD1  | 2.53                     | 0.43              |
| 1:E:5143:GLY:O    | 1:E:5144:LEU:HB2  | 2.17                     | 0.43              |
| 1:E:5258:LYS:HE2  | 6:E:7744:HOH:O    | 2.18                     | 0.43              |
| 1:E:5306:LEU:HD22 | 1:E:5366:TYR:CE1  | 2.53                     | 0.43              |
| 1:E:5366:TYR:HD2  | 1:E:5368:LEU:HD11 | 1.83                     | 0.43              |
| 1:E:5447:TYR:HB3  | 1:E:5517:TRP:CZ2  | 2.53                     | 0.43              |
| 1:F:6052:GLY:O    | 3:F:682:SIA:O1A   | 2.36                     | 0.43              |
| 1:F:6257:LYS:NZ   | 1:F:6316:GLN:NE2  | 2.66                     | 0.43              |
| 1:A:1268:ILE:HD11 | 1:A:1319:LEU:HD21 | 2.00                     | 0.43              |
| 1:B:2098:SER:O    | 1:B:2102:THR:HB   | 2.19                     | 0.43              |
| 1:B:2199:ARG:HD2  | 6:B:7112:HOH:O    | 2.18                     | 0.43              |
| 1:B:2255:LEU:HD21 | 5:B:212:HTQ:H91   | 2.00                     | 0.43              |
| 1:C:3357:TRP:HB2  | 5:C:3[Y]:HTQ:H171 | 1.99                     | 0.43              |
| 1:D:4409:ASP:OD1  | 1:D:4411:VAL:N    | 2.51                     | 0.43              |
| 1:E:5142:GLY:HA2  | 5:E:515:HTQ:H151  | 1.99                     | 0.43              |
| 1:B:2283:VAL:HG12 | 1:B:2287:ARG:NH1  | 2.33                     | 0.43              |
| 1:F:6215:VAL:N    | 1:F:6241:HIS:HD2  | 1.91                     | 0.43              |
| 1:A:1125:ALA:HB2  | 1:A:1133:LEU:CD1  | 2.49                     | 0.43              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1218:PHE:HB2  | 1:A:1244:ILE:HB   | 2.00                     | 0.43              |
| 1:A:1402:LYS:HG2  | 1:A:1546:PHE:CZ   | 2.54                     | 0.43              |
| 1:C:3350:ILE:O    | 1:C:3448:GLU:HA   | 2.18                     | 0.43              |
| 1:A:1409:ASP:HB3  | 1:A:1412:LYS:HB2  | 2.01                     | 0.43              |
| 1:B:2332:PRO:O    | 1:B:2336:GLN:HG3  | 2.17                     | 0.43              |
| 1:B:2540:LYS:O    | 1:B:2544:VAL:HG23 | 2.18                     | 0.43              |
| 1:D:4359:ILE:HB   | 1:D:4360:PRO:HD3  | 2.01                     | 0.43              |
| 1:E:5221:SER:OG   | 1:E:5468:HIS:NE2  | 2.50                     | 0.43              |
| 1:F:6058:PRO:HA   | 6:F:7119:HOH:O    | 2.18                     | 0.43              |
| 1:A:1366:TYR:O    | 5:A:1[Y]:HTQ:H171 | 2.19                     | 0.43              |
| 1:B:2089:GLN:HB2  | 1:B:2146:VAL:HG12 | 2.00                     | 0.43              |
| 1:C:3414:LYS:O    | 1:C:3417:PHE:HB3  | 2.19                     | 0.43              |
| 1:C:3464:VAL:CG2  | 5:C:3[Y]:HTQ:H191 | 2.48                     | 0.43              |
| 1:D:4369:SER:HA   | 5:D:4[Z]:HTQ:H42  | 1.99                     | 0.43              |
| 1:D:4372:GLN:HG2  | 1:D:4373:LEU:N    | 2.34                     | 0.43              |
| 1:F:6435:ARG:NH1  | 1:F:6544:VAL:HG11 | 2.33                     | 0.43              |
| 1:A:1177:PHE:HE1  | 1:A:1191:HIS:CD2  | 2.36                     | 0.43              |
| 1:A:1225:GLU:O    | 1:A:1229:VAL:HG23 | 2.18                     | 0.43              |
| 1:A:1266:GLU:O    | 1:A:1270:ILE:HG13 | 2.18                     | 0.43              |
| 1:D:4211:ASN:C    | 1:D:4213:GLY:H    | 2.22                     | 0.43              |
| 1:F:6310:GLY:HA3  | 6:F:7283:HOH:O    | 2.18                     | 0.43              |
| 1:F:6447:TYR:CD2  | 1:F:6447:TYR:C    | 2.92                     | 0.43              |
| 1:B:2218:PHE:CB   | 1:B:2244:ILE:HB   | 2.49                     | 0.43              |
| 1:B:2547:TRP:CE3  | 1:B:2550:LEU:HD23 | 2.53                     | 0.43              |
| 1:D:4063:LEU:HD21 | 1:D:4069:GLN:NE2  | 2.34                     | 0.43              |
| 1:E:5425:MET:HE1  | 5:E:515:HTQ:H72   | 1.99                     | 0.43              |
| 1:E:5461:PRO:O    | 1:E:5463:THR:N    | 2.51                     | 0.43              |
| 1:A:1409:ASP:OD1  | 1:A:1411:VAL:N    | 2.50                     | 0.43              |
| 1:B:2102:THR:OG1  | 1:B:2104:ARG:HG2  | 2.19                     | 0.43              |
| 1:C:3038:VAL:CG2  | 1:C:3049:ILE:HD12 | 2.48                     | 0.43              |
| 1:C:3369:SER:HA   | 5:C:3[Z]:HTQ:H11  | 2.01                     | 0.43              |
| 1:C:3452:ARG:HD2  | 1:C:3464:VAL:O    | 2.19                     | 0.43              |
| 1:D:4264:LEU:HD11 | 1:D:4319:LEU:HD23 | 1.99                     | 0.43              |
| 1:D:4370:GLU:HB2  | 6:D:7875:HOH:O    | 2.19                     | 0.43              |
| 1:E:5145:MET:CG   | 1:E:5318:LEU:HD21 | 2.48                     | 0.43              |
| 1:E:5149:ALA:CB   | 1:E:5169:GLN:HG3  | 2.48                     | 0.43              |
| 1:A:1079:ASN:O    | 3:A:182:SIA:C4    | 2.67                     | 0.43              |
| 1:A:1338:GLU:C    | 1:A:1339:ARG:HD2  | 2.40                     | 0.43              |
| 1:B:2030:HIS:HB3  | 1:B:2073:PRO:HA   | 2.00                     | 0.43              |
| 1:B:2199:ARG:CD   | 6:B:7112:HOH:O    | 2.67                     | 0.43              |
| 1:B:2262:LYS:N    | 1:B:2263:PRO:CD   | 2.82                     | 0.43              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:B:2553:LYS:HD3  | 6:B:8382:HOH:O    | 2.19                     | 0.43              |
| 1:E:5255:LEU:HD21 | 5:E:515:HTQ:H51   | 2.01                     | 0.43              |
| 1:E:5264:LEU:HD21 | 1:E:5319:LEU:HD23 | 2.01                     | 0.43              |
| 1:E:5394:GLU:HG3  | 1:E:5395:LEU:CD2  | 2.49                     | 0.43              |
| 1:F:6420:LEU:CD1  | 1:F:6547:TRP:HZ2  | 2.30                     | 0.43              |
| 1:B:2375:GLN:O    | 1:B:2378:ALA:HB3  | 2.18                     | 0.42              |
| 1:C:3140:HIS:HB2  | 6:C:7490:HOH:O    | 2.18                     | 0.42              |
| 1:C:3143:GLY:O    | 1:C:3144:LEU:HB2  | 2.19                     | 0.42              |
| 1:D:4311:ASP:OD1  | 1:D:4313:ARG:HB2  | 2.19                     | 0.42              |
| 1:E:5026:VAL:HG13 | 1:E:5207:SER:HB3  | 2.01                     | 0.42              |
| 1:E:5237:LYS:HZ3  | 1:E:5342:HIS:CB   | 2.31                     | 0.42              |
| 1:E:5460:LYS:HA   | 1:E:5461:PRO:HD2  | 1.79                     | 0.42              |
| 1:F:6359:ILE:CD1  | 5:F:616:HTQ:H22   | 2.49                     | 0.42              |
| 1:A:1477:GLY:HA2  | 1:A:1493:SER:OG   | 2.19                     | 0.42              |
| 1:B:2407:THR:O    | 1:B:2413:LYS:HE2  | 2.19                     | 0.42              |
| 1:C:3045:GLN:HA   | 1:C:3046:PRO:HD3  | 1.91                     | 0.42              |
| 1:C:3304:LEU:O    | 1:C:3364:MET:HG2  | 2.19                     | 0.42              |
| 1:E:5464:VAL:HB   | 6:E:7870:HOH:O    | 2.19                     | 0.42              |
| 1:F:6375:GLN:HE21 | 1:F:6375:GLN:HB3  | 1.60                     | 0.42              |
| 1:F:6409:ASP:OD2  | 1:F:6412:LYS:HB2  | 2.19                     | 0.42              |
| 1:A:1378:ALA:HA   | 6:A:8101:HOH:O    | 2.19                     | 0.42              |
| 1:C:3119:LEU:HD12 | 1:C:3119:LEU:O    | 2.18                     | 0.42              |
| 1:C:3268:ILE:CD1  | 1:C:3319:LEU:HD21 | 2.49                     | 0.42              |
| 1:C:3495:MET:HE3  | 1:C:3533:THR:HG21 | 2.01                     | 0.42              |
| 1:C:3501:ALA:O    | 1:C:3505:ARG:HG2  | 2.19                     | 0.42              |
| 1:F:6268:ILE:HD11 | 1:F:6319:LEU:CD2  | 2.50                     | 0.42              |
| 1:A:1437:HIS:HD2  | 1:A:1444:THR:OG1  | 2.02                     | 0.42              |
| 1:B:2268:ILE:HD11 | 1:B:2319:LEU:CD2  | 2.49                     | 0.42              |
| 1:B:2414:LYS:HB3  | 1:B:2414:LYS:HE3  | 1.74                     | 0.42              |
| 1:C:3373:LEU:HD12 | 1:C:3377:THR:HB   | 2.01                     | 0.42              |
| 1:F:6370:GLU:C    | 1:F:6372:GLN:H    | 2.21                     | 0.42              |
| 1:A:1306:LEU:HD22 | 1:A:1366:TYR:CE1  | 2.55                     | 0.42              |
| 1:B:2464:VAL:HA   | 6:B:8607:HOH:O    | 2.18                     | 0.42              |
| 1:C:3251:LEU:HD21 | 1:C:3333:GLU:HG3  | 2.00                     | 0.42              |
| 1:C:3357:TRP:O    | 1:C:3360:PRO:HD2  | 2.19                     | 0.42              |
| 1:D:4277:THR:HG22 | 1:D:4278:THR:HG23 | 2.02                     | 0.42              |
| 1:D:4324:ASP:OD2  | 1:D:4327:LEU:HB3  | 2.19                     | 0.42              |
| 1:B:2036:LYS:HG2  | 6:B:8453:HOH:O    | 2.20                     | 0.42              |
| 1:C:3100:LEU:HD13 | 1:C:3358:LEU:HD11 | 2.02                     | 0.42              |
| 1:D:4030:HIS:HB3  | 1:D:4073:PRO:HA   | 2.02                     | 0.42              |
| 1:D:4125:ALA:HB2  | 1:D:4133:LEU:HD12 | 2.02                     | 0.42              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:E:5146:VAL:HG22 | 5:E:515:HTQ:H171  | 2.01                     | 0.42              |
| 1:F:6266:GLU:O    | 1:F:6270:ILE:HG13 | 2.20                     | 0.42              |
| 1:B:2079:ASN:CB   | 6:B:8690:HOH:O    | 2.61                     | 0.42              |
| 1:B:2346:TYR:HB3  | 1:B:2437:HIS:CD2  | 2.54                     | 0.42              |
| 1:C:3139:ILE:O    | 1:C:3223:GLY:HA3  | 2.20                     | 0.42              |
| 1:F:6262:LYS:HE2  | 1:F:6282:MET:CE   | 2.49                     | 0.42              |
| 1:B:2205:ILE:HD12 | 1:B:2205:ILE:HA   | 1.81                     | 0.42              |
| 1:C:3100:LEU:HD13 | 1:C:3358:LEU:CD1  | 2.49                     | 0.42              |
| 1:E:5478:ALA:N    | 1:E:5479:PRO:CD   | 2.82                     | 0.42              |
| 1:A:1304:LEU:HD13 | 5:A:111:HTQ:C17   | 2.39                     | 0.42              |
| 1:B:2373:LEU:HA   | 6:B:7705:HOH:O    | 2.19                     | 0.42              |
| 1:C:3218:PHE:HB2  | 1:C:3244:ILE:HB   | 2.02                     | 0.42              |
| 1:E:5391:ILE:HB   | 6:E:7649:HOH:O    | 2.20                     | 0.42              |
| 1:A:1090:ASP:HB3  | 1:A:1093:ALA:HB3  | 2.02                     | 0.42              |
| 1:A:1306:LEU:HD23 | 1:A:1367:PRO:HD3  | 2.02                     | 0.42              |
| 1:C:3153:ASP:OD2  | 1:C:3155:LEU:HB2  | 2.19                     | 0.42              |
| 1:C:3237:LYS:HG2  | 6:C:7248:HOH:O    | 2.20                     | 0.42              |
| 1:D:4079:ASN:HB2  | 6:D:8164:HOH:O    | 2.18                     | 0.42              |
| 1:E:5528:GLN:O    | 1:E:5533:THR:HA   | 2.20                     | 0.42              |
| 1:F:6083:TYR:CZ   | 1:F:6108:ILE:HD13 | 2.55                     | 0.42              |
| 1:F:6354:GLU:O    | 1:F:6468:HIS:HB2  | 2.19                     | 0.42              |
| 1:A:1087:CYS:O    | 1:A:1089:GLN:HG2  | 2.20                     | 0.41              |
| 1:C:3251:LEU:HD23 | 1:C:3251:LEU:HA   | 1.87                     | 0.41              |
| 1:A:1205:ILE:HD12 | 1:A:1205:ILE:HA   | 1.91                     | 0.41              |
| 1:C:3249:VAL:HG23 | 1:C:3251:LEU:H    | 1.84                     | 0.41              |
| 1:C:3329:LEU:HG   | 6:C:8361:HOH:O    | 2.20                     | 0.41              |
| 1:C:3533:THR:C    | 1:C:3534:GLN:HG3  | 2.40                     | 0.41              |
| 1:D:4205:ILE:HD12 | 1:D:4205:ILE:HA   | 1.86                     | 0.41              |
| 1:D:4366:TYR:HA   | 1:D:4367:PRO:HD3  | 1.86                     | 0.41              |
| 1:E:5083:TYR:CE2  | 1:E:5108:ILE:HD12 | 2.55                     | 0.41              |
| 1:A:1040:LEU:HG   | 6:A:8379:HOH:O    | 2.19                     | 0.41              |
| 1:B:2140:HIS:HE1  | 6:B:7338:HOH:O    | 2.02                     | 0.41              |
| 1:D:4343:THR:HB   | 1:D:4442:ALA:CB   | 2.44                     | 0.41              |
| 1:E:5112:LEU:O    | 1:E:5113:SER:HB2  | 2.20                     | 0.41              |
| 1:E:5311:ASP:HA   | 1:E:5312:PRO:HD3  | 1.88                     | 0.41              |
| 1:E:5491:ARG:HG2  | 1:E:5491:ARG:NH1  | 2.35                     | 0.41              |
| 1:F:6104:ARG:O    | 1:F:6482:LYS:NZ   | 2.52                     | 0.41              |
| 1:A:1206:ALA:HA   | 1:A:1210:GLY:O    | 2.21                     | 0.41              |
| 1:B:2218:PHE:HA   | 1:B:2244:ILE:O    | 2.21                     | 0.41              |
| 1:B:2297:THR:O    | 1:B:2301:MET:HG2  | 2.21                     | 0.41              |
| 1:B:2464:VAL:HG22 | 5:B:2[Y]:HTQ:H171 | 2.01                     | 0.41              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:C:3375:GLN:HG3  | 1:C:3413:LYS:NZ   | 2.35                     | 0.41              |
| 1:C:3460:LYS:HD2  | 6:C:7823:HOH:O    | 2.20                     | 0.41              |
| 1:D:4364:MET:HG3  | 5:D:414:HTQ:H181  | 2.02                     | 0.41              |
| 1:E:5023:PRO:HB2  | 1:E:5034:LEU:CD2  | 2.51                     | 0.41              |
| 1:A:1528:GLN:O    | 1:A:1533:THR:HA   | 2.21                     | 0.41              |
| 1:C:3173:GLY:HA3  | 6:C:7272:HOH:O    | 2.19                     | 0.41              |
| 1:C:3340:ASN:O    | 1:C:3341:PHE:HB3  | 2.20                     | 0.41              |
| 1:D:4218:PHE:CB   | 1:D:4244:ILE:HB   | 2.50                     | 0.41              |
| 1:D:4538:LYS:HB3  | 1:D:4541:ASP:HB2  | 2.03                     | 0.41              |
| 1:E:5229:VAL:HG13 | 1:E:5328:LEU:HD21 | 2.03                     | 0.41              |
| 1:E:5414:LYS:HD3  | 1:E:5414:LYS:C    | 2.40                     | 0.41              |
| 1:F:6218:PHE:CB   | 1:F:6244:ILE:HB   | 2.49                     | 0.41              |
| 1:A:1309:GLN:O    | 1:A:1309:GLN:NE2  | 2.54                     | 0.41              |
| 1:D:4023:PRO:CB   | 1:D:4034:LEU:HD21 | 2.50                     | 0.41              |
| 1:D:4262:LYS:N    | 1:D:4263:PRO:CD   | 2.84                     | 0.41              |
| 1:E:5420:LEU:CD1  | 1:E:5547:TRP:HZ2  | 2.33                     | 0.41              |
| 1:E:5483:GLU:CG   | 1:E:5484:GLY:N    | 2.84                     | 0.41              |
| 1:C:3145:MET:CG   | 1:C:3318:LEU:HD21 | 2.50                     | 0.41              |
| 1:C:3257:LYS:NZ   | 1:C:3318:LEU:O    | 2.53                     | 0.41              |
| 1:D:4304:LEU:HB3  | 5:D:414:HTQ:C19   | 2.50                     | 0.41              |
| 1:D:4348:VAL:O    | 1:D:4446:MET:HA   | 2.20                     | 0.41              |
| 1:D:4368:LEU:HB3  | 5:D:4[Y]:HTQ:O20  | 2.21                     | 0.41              |
| 1:E:5130:LYS:HE3  | 1:E:5132:ARG:HH12 | 1.81                     | 0.41              |
| 1:F:6048:ALA:HB3  | 1:F:6123:THR:HG23 | 2.03                     | 0.41              |
| 1:F:6151:THR:HB   | 1:F:6152:TYR:CE1  | 2.55                     | 0.41              |
| 1:F:6257:LYS:NZ   | 1:F:6318:LEU:O    | 2.42                     | 0.41              |
| 1:F:6401:GLU:OE2  | 1:F:6405:GLY:HA3  | 2.20                     | 0.41              |
| 1:A:1332:PRO:O    | 1:A:1336:GLN:HG2  | 2.20                     | 0.41              |
| 1:C:3478:ALA:N    | 1:C:3479:PRO:CD   | 2.83                     | 0.41              |
| 1:D:4022:SER:O    | 1:D:4023:PRO:C    | 2.59                     | 0.41              |
| 1:D:4249:VAL:HG23 | 1:D:4251:LEU:H    | 1.86                     | 0.41              |
| 1:E:5428:VAL:HG21 | 1:E:5547:TRP:CD1  | 2.56                     | 0.41              |
| 1:F:6336:GLN:HE22 | 1:F:6433:VAL:HG22 | 1.86                     | 0.41              |
| 1:A:1211:ASN:HA   | 1:A:1212:PRO:HD2  | 1.92                     | 0.41              |
| 1:A:1218:PHE:CB   | 1:A:1244:ILE:HB   | 2.50                     | 0.41              |
| 1:A:1220:GLU:HA   | 1:A:1246:GLU:O    | 2.21                     | 0.41              |
| 1:A:1231:VAL:HA   | 1:A:1240:PHE:HZ   | 1.84                     | 0.41              |
| 1:B:2057:LYS:HE2  | 6:B:8660:HOH:O    | 2.20                     | 0.41              |
| 1:B:2161:GLU:HB3  | 1:B:2501:ALA:CB   | 2.50                     | 0.41              |
| 1:C:3238:ASN:N    | 6:C:8682:HOH:O    | 2.53                     | 0.41              |
| 1:D:4350:ILE:HD13 | 1:D:4427:GLY:HA2  | 2.03                     | 0.41              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:D:4530:GLY:O    | 1:D:4531:ALA:C    | 2.59                     | 0.41              |
| 5:D:414:HTQ:H41   | 6:D:14:HOH:O      | 2.20                     | 0.41              |
| 1:E:5218:PHE:CB   | 1:E:5244:ILE:HB   | 2.50                     | 0.41              |
| 1:E:5367:PRO:HA   | 6:E:8558:HOH:O    | 2.21                     | 0.41              |
| 1:F:6025:VAL:CG2  | 1:F:6034:LEU:HD23 | 2.51                     | 0.41              |
| 1:B:2277:THR:HG22 | 1:B:2278:THR:HG23 | 2.03                     | 0.41              |
| 1:D:4135:VAL:HG21 | 1:D:4205:ILE:HG12 | 2.03                     | 0.41              |
| 1:E:5161:GLU:O    | 1:E:5163:VAL:HG13 | 2.21                     | 0.41              |
| 1:E:5201:VAL:HG13 | 1:E:5205:ILE:HB   | 2.03                     | 0.41              |
| 1:F:6057:LYS:HE3  | 6:F:8439:HOH:O    | 2.21                     | 0.41              |
| 1:F:6143:GLY:O    | 1:F:6144:LEU:HB2  | 2.21                     | 0.41              |
| 1:F:6336:GLN:NE2  | 1:F:6433:VAL:HG13 | 2.36                     | 0.41              |
| 1:A:1547:TRP:CZ3  | 1:A:1550:LEU:HD23 | 2.56                     | 0.40              |
| 1:B:2420:LEU:HD12 | 1:B:2420:LEU:C    | 2.42                     | 0.40              |
| 1:C:3252:THR:HG22 | 1:C:3254:VAL:HG12 | 2.03                     | 0.40              |
| 1:D:4143:GLY:O    | 1:D:4144:LEU:HB2  | 2.21                     | 0.40              |
| 1:F:6089:GLN:OE1  | 1:F:6146:VAL:HB   | 2.20                     | 0.40              |
| 1:F:6140:HIS:HE1  | 6:F:7206:HOH:O    | 2.04                     | 0.40              |
| 1:A:1142:GLY:HA2  | 5:A:111:HTQ:H131  | 2.04                     | 0.40              |
| 1:A:1368:LEU:HB2  | 5:A:1[Y]:HTQ:H151 | 2.04                     | 0.40              |
| 1:D:4527:LEU:HD11 | 1:D:4533:THR:HG22 | 2.03                     | 0.40              |
| 1:E:5361:MET:HB2  | 5:E:5[Z]:HTQ:H181 | 2.02                     | 0.40              |
| 1:F:6264:LEU:O    | 1:F:6268:ILE:HG13 | 2.21                     | 0.40              |
| 1:F:6341:PHE:O    | 1:F:6342:HIS:C    | 2.59                     | 0.40              |
| 1:B:2048:ALA:HB3  | 1:B:2123:THR:HG23 | 2.03                     | 0.40              |
| 1:B:2353:GLN:O    | 1:B:2467:ASP:HA   | 2.22                     | 0.40              |
| 1:D:4125:ALA:HB2  | 1:D:4133:LEU:CD1  | 2.51                     | 0.40              |
| 1:D:4361:MET:CE   | 1:D:4363:LEU:HG   | 2.50                     | 0.40              |
| 1:E:5103:ASN:ND2  | 1:E:5481:LEU:HD12 | 2.36                     | 0.40              |
| 1:E:5246:GLU:OE1  | 1:E:5471:GLU:OE1  | 2.40                     | 0.40              |
| 1:E:5120:ASN:HB2  | 1:E:5167:THR:OG1  | 2.21                     | 0.40              |
| 1:F:6079:ASN:HB2  | 2:F:679:NAG:H83   | 2.02                     | 0.40              |
| 1:A:1301:MET:HB2  | 1:A:1303:PHE:CE1  | 2.57                     | 0.40              |
| 1:A:1363:LEU:HD13 | 5:A:111:HTQ:C18   | 2.51                     | 0.40              |
| 1:B:2040:LEU:O    | 1:B:2041:GLU:C    | 2.60                     | 0.40              |
| 1:C:3089:GLN:OE1  | 1:C:3146:VAL:HB   | 2.22                     | 0.40              |
| 1:C:3402:LYS:HE2  | 1:C:3546:PHE:CD1  | 2.57                     | 0.40              |
| 1:D:4051:LEU:HD13 | 1:D:4083:TYR:CD1  | 2.57                     | 0.40              |
| 1:E:5295:LEU:O    | 1:E:5299:LEU:HD22 | 2.22                     | 0.40              |
| 1:E:5392:ALA:O    | 1:E:5394:GLU:N    | 2.55                     | 0.40              |

There are no symmetry-related clashes.



## 5.3 Torsion angles

### 5.3.1 Protein backbone

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     | 530/548 (97%)   | 495 (93%)  | 33 (6%)  | 2 (0%)   | 30          | 61 |
| 1   | B     | 529/548 (96%)   | 496 (94%)  | 28 (5%)  | 5 (1%)   | 14          | 42 |
| 1   | C     | 529/548 (96%)   | 488 (92%)  | 38 (7%)  | 3 (1%)   | 22          | 51 |
| 1   | D     | 530/548 (97%)   | 503 (95%)  | 23 (4%)  | 4 (1%)   | 16          | 44 |
| 1   | E     | 529/548 (96%)   | 495 (94%)  | 27 (5%)  | 7 (1%)   | 10          | 32 |
| 1   | F     | 529/548 (96%)   | 493 (93%)  | 32 (6%)  | 4 (1%)   | 16          | 44 |
| All | All   | 3176/3288 (97%) | 2970 (94%) | 181 (6%) | 25 (1%)  | 16          | 44 |

All (25) Ramachandran outliers are listed below:

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | B     | 2253 | SER  |
| 1   | C     | 3237 | LYS  |
| 1   | E     | 5393 | LYS  |
| 1   | E     | 5462 | LYS  |
| 1   | F     | 6341 | PHE  |
| 1   | A     | 1185 | SER  |
| 1   | B     | 2041 | GLU  |
| 1   | C     | 3185 | SER  |
| 1   | D     | 4253 | SER  |
| 1   | E     | 5237 | LYS  |
| 1   | F     | 6185 | SER  |
| 1   | B     | 2373 | LEU  |
| 1   | C     | 3341 | PHE  |
| 1   | D     | 4041 | GLU  |
| 1   | E     | 5538 | LYS  |
| 1   | A     | 1253 | SER  |
| 1   | B     | 2042 | GLY  |
| 1   | B     | 2540 | LYS  |
| 1   | D     | 4023 | PRO  |
| 1   | E     | 5185 | SER  |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | F     | 6127 | LEU  |
| 1   | E     | 5221 | SER  |
| 1   | E     | 5317 | PRO  |
| 1   | D     | 4205 | ILE  |
| 1   | F     | 6397 | PRO  |

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

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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     | 448/463 (97%)   | 437 (98%)  | 11 (2%)  | 42 75       |
| 1   | B     | 447/463 (96%)   | 433 (97%)  | 14 (3%)  | 35 69       |
| 1   | C     | 447/463 (96%)   | 432 (97%)  | 15 (3%)  | 32 66       |
| 1   | D     | 448/463 (97%)   | 437 (98%)  | 11 (2%)  | 42 75       |
| 1   | E     | 447/463 (96%)   | 431 (96%)  | 16 (4%)  | 30 64       |
| 1   | F     | 447/463 (96%)   | 433 (97%)  | 14 (3%)  | 35 69       |
| All | All   | 2684/2778 (97%) | 2603 (97%) | 81 (3%)  | 36 70       |

All (81) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 1033 | VAL  |
| 1   | A     | 1079 | ASN  |
| 1   | A     | 1218 | PHE  |
| 1   | A     | 1221 | SER  |
| 1   | A     | 1264 | LEU  |
| 1   | A     | 1309 | GLN  |
| 1   | A     | 1338 | GLU  |
| 1   | A     | 1366 | TYR  |
| 1   | A     | 1372 | GLN  |
| 1   | A     | 1455 | PHE  |
| 1   | A     | 1500 | TRP  |
| 1   | B     | 2104 | ARG  |
| 1   | B     | 2155 | LEU  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | B            | 2218       | PHE         |
| 1          | B            | 2220       | GLU         |
| 1          | B            | 2221       | SER         |
| 1          | B            | 2242       | ARG         |
| 1          | B            | 2258       | LYS         |
| 1          | B            | 2340       | ASN         |
| 1          | B            | 2358       | LEU         |
| 1          | B            | 2366       | TYR         |
| 1          | B            | 2420       | LEU         |
| 1          | B            | 2499       | PHE         |
| 1          | B            | 2500       | TRP         |
| 1          | B            | 2534       | GLN         |
| 1          | C            | 3155       | LEU         |
| 1          | C            | 3218       | PHE         |
| 1          | C            | 3220       | GLU         |
| 1          | C            | 3258       | LYS         |
| 1          | C            | 3264       | LEU         |
| 1          | C            | 3299       | LEU         |
| 1          | C            | 3304       | LEU         |
| 1          | C            | 3316       | GLN         |
| 1          | C            | 3318       | LEU         |
| 1          | C            | 3342       | HIS         |
| 1          | C            | 3366       | TYR         |
| 1          | C            | 3375       | GLN         |
| 1          | C            | 3381       | LEU         |
| 1          | C            | 3500       | TRP         |
| 1          | C            | 3534       | GLN         |
| 1          | D            | 4023       | PRO         |
| 1          | D            | 4079       | ASN         |
| 1          | D            | 4095       | GLN         |
| 1          | D            | 4218       | PHE         |
| 1          | D            | 4264       | LEU         |
| 1          | D            | 4309       | GLN         |
| 1          | D            | 4338       | GLU         |
| 1          | D            | 4372       | GLN         |
| 1          | D            | 4381       | LEU         |
| 1          | D            | 4420       | LEU         |
| 1          | D            | 4549       | ASN         |
| 1          | E            | 5111       | LYS         |
| 1          | E            | 5155       | LEU         |
| 1          | E            | 5218       | PHE         |
| 1          | E            | 5220       | GLU         |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | E     | 5225 | GLU  |
| 1   | E     | 5242 | ARG  |
| 1   | E     | 5258 | LYS  |
| 1   | E     | 5299 | LEU  |
| 1   | E     | 5316 | GLN  |
| 1   | E     | 5343 | THR  |
| 1   | E     | 5366 | TYR  |
| 1   | E     | 5381 | LEU  |
| 1   | E     | 5404 | LEU  |
| 1   | E     | 5499 | PHE  |
| 1   | E     | 5500 | TRP  |
| 1   | E     | 5534 | GLN  |
| 1   | F     | 6079 | ASN  |
| 1   | F     | 6155 | LEU  |
| 1   | F     | 6218 | PHE  |
| 1   | F     | 6220 | GLU  |
| 1   | F     | 6258 | LYS  |
| 1   | F     | 6264 | LEU  |
| 1   | F     | 6299 | LEU  |
| 1   | F     | 6318 | LEU  |
| 1   | F     | 6342 | HIS  |
| 1   | F     | 6366 | TYR  |
| 1   | F     | 6500 | TRP  |
| 1   | F     | 6519 | GLU  |
| 1   | F     | 6532 | ASN  |
| 1   | F     | 6534 | GLN  |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (85) such sidechains are listed below:

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 1069 | GLN  |
| 1   | A     | 1131 | ASN  |
| 1   | A     | 1140 | HIS  |
| 1   | A     | 1162 | ASN  |
| 1   | A     | 1241 | HIS  |
| 1   | A     | 1284 | HIS  |
| 1   | A     | 1309 | GLN  |
| 1   | A     | 1336 | GLN  |
| 1   | A     | 1351 | ASN  |
| 1   | A     | 1372 | GLN  |
| 1   | A     | 1436 | ASN  |
| 1   | A     | 1437 | HIS  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | A            | 1537       | GLN         |
| 1          | B            | 2140       | HIS         |
| 1          | B            | 2202       | GLN         |
| 1          | B            | 2241       | HIS         |
| 1          | B            | 2267       | GLN         |
| 1          | B            | 2342       | HIS         |
| 1          | B            | 2351       | ASN         |
| 1          | B            | 2353       | GLN         |
| 1          | B            | 2372       | GLN         |
| 1          | B            | 2437       | HIS         |
| 1          | B            | 2450       | GLN         |
| 1          | B            | 2528       | GLN         |
| 1          | B            | 2532       | ASN         |
| 1          | B            | 2537       | GLN         |
| 1          | C            | 3107       | ASN         |
| 1          | C            | 3131       | ASN         |
| 1          | C            | 3140       | HIS         |
| 1          | C            | 3241       | HIS         |
| 1          | C            | 3309       | GLN         |
| 1          | C            | 3336       | GLN         |
| 1          | C            | 3340       | ASN         |
| 1          | C            | 3351       | ASN         |
| 1          | C            | 3372       | GLN         |
| 1          | C            | 3375       | GLN         |
| 1          | C            | 3436       | ASN         |
| 1          | C            | 3437       | HIS         |
| 1          | C            | 3450       | GLN         |
| 1          | C            | 3528       | GLN         |
| 1          | C            | 3532       | ASN         |
| 1          | C            | 3537       | GLN         |
| 1          | D            | 4045       | GLN         |
| 1          | D            | 4069       | GLN         |
| 1          | D            | 4107       | ASN         |
| 1          | D            | 4140       | HIS         |
| 1          | D            | 4162       | ASN         |
| 1          | D            | 4241       | HIS         |
| 1          | D            | 4309       | GLN         |
| 1          | D            | 4351       | ASN         |
| 1          | D            | 4372       | GLN         |
| 1          | D            | 4375       | GLN         |
| 1          | D            | 4436       | ASN         |
| 1          | D            | 4437       | HIS         |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | D     | 4537 | GLN  |
| 1   | E     | 5030 | HIS  |
| 1   | E     | 5095 | GLN  |
| 1   | E     | 5131 | ASN  |
| 1   | E     | 5140 | HIS  |
| 1   | E     | 5162 | ASN  |
| 1   | E     | 5202 | GLN  |
| 1   | E     | 5241 | HIS  |
| 1   | E     | 5288 | GLN  |
| 1   | E     | 5336 | GLN  |
| 1   | E     | 5351 | ASN  |
| 1   | E     | 5372 | GLN  |
| 1   | E     | 5436 | ASN  |
| 1   | E     | 5437 | HIS  |
| 1   | E     | 5534 | GLN  |
| 1   | E     | 5537 | GLN  |
| 1   | F     | 6069 | GLN  |
| 1   | F     | 6095 | GLN  |
| 1   | F     | 6140 | HIS  |
| 1   | F     | 6162 | ASN  |
| 1   | F     | 6238 | ASN  |
| 1   | F     | 6241 | HIS  |
| 1   | F     | 6316 | GLN  |
| 1   | F     | 6336 | GLN  |
| 1   | F     | 6351 | ASN  |
| 1   | F     | 6353 | GLN  |
| 1   | F     | 6372 | GLN  |
| 1   | F     | 6375 | GLN  |
| 1   | F     | 6450 | GLN  |
| 1   | F     | 6532 | ASN  |
| 1   | F     | 6537 | GLN  |

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

## 5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

Of 30 ligands modelled in this entry, 2 are monoatomic - leaving 28 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 |
| 5   | HTQ  | D     | 414  | -    | 22,22,22     | 2.15 | 11 (50%) | 30,31,31    | 1.95 | 4 (13%)  |
| 5   | HTQ  | E     | 5[Y] | -    | 22,22,22     | 2.16 | 8 (36%)  | 30,31,31    | 1.20 | 3 (10%)  |
| 2   | NAG  | F     | 679  | 1    | 14,14,15     | 0.63 | 0        | 17,19,21    | 0.67 | 0        |
| 5   | HTQ  | B     | 2[Y] | -    | 22,22,22     | 2.09 | 9 (40%)  | 30,31,31    | 1.10 | 2 (6%)   |
| 5   | HTQ  | F     | 6[Y] | -    | 22,22,22     | 2.17 | 8 (36%)  | 30,31,31    | 1.28 | 2 (6%)   |
| 2   | NAG  | E     | 579  | 1    | 14,14,15     | 0.57 | 0        | 17,19,21    | 0.70 | 1 (5%)   |
| 2   | NAG  | D     | 479  | 1    | 14,14,15     | 0.54 | 0        | 17,19,21    | 0.65 | 0        |
| 5   | HTQ  | A     | 111  | -    | 22,22,22     | 2.03 | 8 (36%)  | 30,31,31    | 1.64 | 5 (16%)  |
| 5   | HTQ  | F     | 616  | -    | 22,22,22     | 2.01 | 10 (45%) | 30,31,31    | 1.29 | 2 (6%)   |
| 2   | NAG  | E     | 580  | -    | 14,14,15     | 0.56 | 0        | 17,19,21    | 0.66 | 1 (5%)   |
| 5   | HTQ  | E     | 515  | -    | 22,22,22     | 2.11 | 10 (45%) | 30,31,31    | 1.39 | 2 (6%)   |
| 3   | SIA  | F     | 682  | -    | 21,21,21     | 1.27 | 2 (9%)   | 24,31,31    | 1.11 | 2 (8%)   |
| 5   | HTQ  | C     | 313  | -    | 22,22,22     | 2.14 | 10 (45%) | 30,31,31    | 1.35 | 3 (10%)  |
| 2   | NAG  | C     | 379  | 1    | 14,14,15     | 0.58 | 0        | 17,19,21    | 0.69 | 0        |
| 5   | HTQ  | A     | 1[Z] | -    | 22,22,22     | 2.23 | 9 (40%)  | 30,31,31    | 1.71 | 4 (13%)  |
| 2   | NAG  | A     | 179  | 1    | 14,14,15     | 0.64 | 0        | 17,19,21    | 0.72 | 1 (5%)   |
| 5   | HTQ  | C     | 3[Z] | -    | 22,22,22     | 2.20 | 9 (40%)  | 30,31,31    | 1.34 | 4 (13%)  |
| 5   | HTQ  | D     | 4[Z] | -    | 22,22,22     | 2.06 | 8 (36%)  | 30,31,31    | 1.15 | 2 (6%)   |
| 3   | SIA  | A     | 182  | -    | 21,21,21     | 1.11 | 2 (9%)   | 24,31,31    | 1.33 | 5 (20%)  |
| 3   | SIA  | B     | 282  | -    | 21,21,21     | 1.32 | 2 (9%)   | 24,31,31    | 1.40 | 3 (12%)  |
| 5   | HTQ  | B     | 212  | -    | 22,22,22     | 2.01 | 9 (40%)  | 30,31,31    | 1.58 | 4 (13%)  |
| 2   | NAG  | B     | 279  | 1    | 14,14,15     | 0.53 | 0        | 17,19,21    | 0.77 | 1 (5%)   |
| 5   | HTQ  | A     | 1[Y] | -    | 22,22,22     | 2.21 | 11 (50%) | 30,31,31    | 1.41 | 3 (10%)  |

| Mol | Type | Chain | Res  | Link | Bond lengths |      |          | Bond angles |      |          |
|-----|------|-------|------|------|--------------|------|----------|-------------|------|----------|
|     |      |       |      |      | Counts       | RMSZ | # Z  > 2 | Counts      | RMSZ | # Z  > 2 |
| 5   | HTQ  | E     | 5[Z] | -    | 22,22,22     | 2.15 | 9 (40%)  | 30,31,31    | 1.40 | 2 (6%)   |
| 5   | HTQ  | B     | 2[Z] | -    | 22,22,22     | 2.13 | 9 (40%)  | 30,31,31    | 1.28 | 3 (10%)  |
| 5   | HTQ  | C     | 3[Y] | -    | 22,22,22     | 2.15 | 8 (36%)  | 30,31,31    | 1.41 | 3 (10%)  |
| 5   | HTQ  | D     | 4[Y] | -    | 22,22,22     | 2.13 | 8 (36%)  | 30,31,31    | 1.31 | 3 (10%)  |
| 5   | HTQ  | F     | 6[Z] | -    | 22,22,22     | 2.18 | 9 (40%)  | 30,31,31    | 1.42 | 3 (10%)  |

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

| Mol | Type | Chain | Res  | Link | Chirals | Torsions   | Rings   |
|-----|------|-------|------|------|---------|------------|---------|
| 5   | HTQ  | D     | 414  | -    | -       | 5/12/33/33 | 0/4/3/3 |
| 5   | HTQ  | E     | 5[Y] | -    | -       | 4/12/33/33 | 0/4/3/3 |
| 2   | NAG  | F     | 679  | 1    | 1/1/5/7 | 4/6/23/26  | 0/1/1/1 |
| 5   | HTQ  | B     | 2[Y] | -    | -       | 4/12/33/33 | 0/4/3/3 |
| 5   | HTQ  | F     | 6[Y] | -    | -       | 5/12/33/33 | 0/4/3/3 |
| 2   | NAG  | E     | 579  | 1    | -       | 2/6/23/26  | 0/1/1/1 |
| 2   | NAG  | D     | 479  | 1    | 1/1/5/7 | 2/6/23/26  | 0/1/1/1 |
| 5   | HTQ  | A     | 111  | -    | -       | 1/12/33/33 | 0/4/3/3 |
| 5   | HTQ  | F     | 616  | -    | -       | 4/12/33/33 | 0/4/3/3 |
| 2   | NAG  | E     | 580  | -    | -       | 4/6/23/26  | 0/1/1/1 |
| 5   | HTQ  | E     | 515  | -    | -       | 5/12/33/33 | 0/4/3/3 |
| 3   | SIA  | F     | 682  | -    | -       | 1/20/38/38 | 0/1/1/1 |
| 5   | HTQ  | C     | 313  | -    | -       | 5/12/33/33 | 0/4/3/3 |
| 2   | NAG  | C     | 379  | 1    | -       | 4/6/23/26  | 0/1/1/1 |
| 5   | HTQ  | A     | 1[Z] | -    | -       | 5/12/33/33 | 0/4/3/3 |
| 2   | NAG  | A     | 179  | 1    | -       | 4/6/23/26  | 0/1/1/1 |
| 5   | HTQ  | C     | 3[Z] | -    | -       | 5/12/33/33 | 0/4/3/3 |
| 5   | HTQ  | D     | 4[Z] | -    | -       | 3/12/33/33 | 0/4/3/3 |
| 3   | SIA  | A     | 182  | -    | -       | 2/20/38/38 | 0/1/1/1 |
| 3   | SIA  | B     | 282  | -    | -       | 1/20/38/38 | 0/1/1/1 |
| 5   | HTQ  | B     | 212  | -    | -       | 1/12/33/33 | 0/4/3/3 |
| 2   | NAG  | B     | 279  | 1    | 1/1/5/7 | 2/6/23/26  | 0/1/1/1 |
| 5   | HTQ  | A     | 1[Y] | -    | -       | 4/12/33/33 | 0/4/3/3 |
| 5   | HTQ  | E     | 5[Z] | -    | -       | 5/12/33/33 | 0/4/3/3 |
| 5   | HTQ  | B     | 2[Z] | -    | -       | 6/12/33/33 | 0/4/3/3 |

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| Mol | Type | Chain | Res  | Link | Chirals | Torsions   | Rings   |
|-----|------|-------|------|------|---------|------------|---------|
| 5   | HTQ  | C     | 3[Y] | -    | -       | 1/12/33/33 | 0/4/3/3 |
| 5   | HTQ  | D     | 4[Y] | -    | -       | 5/12/33/33 | 0/4/3/3 |
| 5   | HTQ  | F     | 6[Z] | -    | -       | 4/12/33/33 | 0/4/3/3 |

All (169) bond length outliers are listed below:

| Mol | Chain | Res  | Type | Atoms   | Z    | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|------|-------------|----------|
| 3   | F     | 682  | SIA  | C4-C5   | 3.84 | 1.56        | 1.53     |
| 5   | B     | 2[Z] | HTQ  | C4-C3   | 3.78 | 1.61        | 1.52     |
| 5   | D     | 4[Y] | HTQ  | C4-C3   | 3.75 | 1.61        | 1.52     |
| 5   | E     | 5[Y] | HTQ  | C4-C3   | 3.74 | 1.61        | 1.52     |
| 5   | C     | 3[Z] | HTQ  | C4-C3   | 3.68 | 1.60        | 1.52     |
| 5   | C     | 3[Y] | HTQ  | C4-C3   | 3.60 | 1.60        | 1.52     |
| 5   | C     | 3[Z] | HTQ  | O10-C11 | 3.57 | 1.42        | 1.34     |
| 5   | C     | 3[Y] | HTQ  | C4-C5   | 3.54 | 1.60        | 1.53     |
| 5   | A     | 1[Z] | HTQ  | O10-C11 | 3.54 | 1.42        | 1.34     |
| 5   | A     | 1[Y] | HTQ  | C4-C3   | 3.54 | 1.60        | 1.52     |
| 5   | D     | 414  | HTQ  | C16-C14 | 3.53 | 1.44        | 1.39     |
| 5   | E     | 515  | HTQ  | C9-N8   | 3.52 | 1.52        | 1.47     |
| 5   | D     | 4[Y] | HTQ  | O10-C11 | 3.48 | 1.42        | 1.34     |
| 5   | F     | 6[Z] | HTQ  | C4-C3   | 3.48 | 1.60        | 1.52     |
| 5   | F     | 6[Y] | HTQ  | C4-C3   | 3.47 | 1.60        | 1.52     |
| 5   | C     | 3[Z] | HTQ  | C4-C5   | 3.46 | 1.59        | 1.53     |
| 5   | B     | 2[Z] | HTQ  | O10-C11 | 3.42 | 1.42        | 1.34     |
| 5   | C     | 313  | HTQ  | C9-N8   | 3.42 | 1.52        | 1.47     |
| 5   | B     | 212  | HTQ  | C4-C3   | 3.41 | 1.60        | 1.52     |
| 5   | D     | 4[Z] | HTQ  | C9-N8   | 3.41 | 1.52        | 1.47     |
| 5   | E     | 5[Z] | HTQ  | C9-N8   | 3.40 | 1.52        | 1.47     |
| 5   | A     | 111  | HTQ  | C4-C5   | 3.40 | 1.59        | 1.53     |
| 5   | C     | 3[Z] | HTQ  | C2-C3   | 3.39 | 1.60        | 1.52     |
| 5   | F     | 6[Z] | HTQ  | C9-N8   | 3.39 | 1.52        | 1.47     |
| 5   | F     | 6[Y] | HTQ  | C2-C3   | 3.39 | 1.60        | 1.52     |
| 5   | F     | 6[Y] | HTQ  | O10-C11 | 3.39 | 1.42        | 1.34     |
| 5   | E     | 5[Y] | HTQ  | O10-C11 | 3.38 | 1.42        | 1.34     |
| 5   | A     | 1[Y] | HTQ  | C9-N8   | 3.38 | 1.52        | 1.47     |
| 5   | A     | 1[Y] | HTQ  | C4-C5   | 3.38 | 1.59        | 1.53     |
| 5   | E     | 5[Y] | HTQ  | C9-N8   | 3.37 | 1.52        | 1.47     |
| 5   | E     | 515  | HTQ  | C2-C3   | 3.37 | 1.60        | 1.52     |
| 5   | C     | 3[Y] | HTQ  | C9-N8   | 3.36 | 1.52        | 1.47     |
| 5   | B     | 2[Y] | HTQ  | C9-N8   | 3.35 | 1.52        | 1.47     |
| 5   | F     | 6[Y] | HTQ  | C9-N8   | 3.34 | 1.52        | 1.47     |
| 5   | B     | 212  | HTQ  | C4-C5   | 3.34 | 1.59        | 1.53     |

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| Mol | Chain | Res  | Type | Atoms   | Z    | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|------|-------------|----------|
| 5   | D     | 4[Y] | HTQ  | C9-N8   | 3.32 | 1.52        | 1.47     |
| 5   | D     | 4[Z] | HTQ  | C4-C3   | 3.32 | 1.60        | 1.52     |
| 5   | E     | 515  | HTQ  | O10-C11 | 3.32 | 1.41        | 1.34     |
| 5   | D     | 414  | HTQ  | O10-C11 | 3.31 | 1.41        | 1.34     |
| 5   | B     | 212  | HTQ  | C2-C3   | 3.31 | 1.60        | 1.52     |
| 5   | E     | 5[Y] | HTQ  | C2-C3   | 3.30 | 1.60        | 1.52     |
| 5   | F     | 6[Z] | HTQ  | C4-C5   | 3.29 | 1.59        | 1.53     |
| 5   | C     | 3[Y] | HTQ  | C2-C3   | 3.29 | 1.59        | 1.52     |
| 5   | A     | 111  | HTQ  | C4-C3   | 3.28 | 1.59        | 1.52     |
| 5   | B     | 2[Z] | HTQ  | C4-C5   | 3.28 | 1.59        | 1.53     |
| 5   | D     | 4[Y] | HTQ  | C4-C5   | 3.27 | 1.59        | 1.53     |
| 5   | C     | 3[Z] | HTQ  | C9-N8   | 3.27 | 1.52        | 1.47     |
| 5   | F     | 6[Z] | HTQ  | C2-C3   | 3.27 | 1.59        | 1.52     |
| 5   | B     | 2[Z] | HTQ  | C9-N8   | 3.26 | 1.52        | 1.47     |
| 5   | A     | 1[Y] | HTQ  | C2-C3   | 3.26 | 1.59        | 1.52     |
| 5   | B     | 2[Z] | HTQ  | C2-C3   | 3.26 | 1.59        | 1.52     |
| 5   | C     | 313  | HTQ  | O10-C11 | 3.25 | 1.41        | 1.34     |
| 5   | A     | 1[Y] | HTQ  | C16-C14 | 3.25 | 1.44        | 1.39     |
| 5   | D     | 4[Z] | HTQ  | C2-C3   | 3.24 | 1.59        | 1.52     |
| 5   | E     | 5[Y] | HTQ  | C4-C5   | 3.24 | 1.59        | 1.53     |
| 5   | A     | 1[Z] | HTQ  | C9-N8   | 3.23 | 1.52        | 1.47     |
| 5   | C     | 313  | HTQ  | C2-C3   | 3.23 | 1.59        | 1.52     |
| 5   | E     | 5[Z] | HTQ  | O10-C11 | 3.22 | 1.41        | 1.34     |
| 5   | B     | 2[Y] | HTQ  | C2-C3   | 3.21 | 1.59        | 1.52     |
| 5   | D     | 4[Y] | HTQ  | C2-C3   | 3.20 | 1.59        | 1.52     |
| 5   | A     | 1[Z] | HTQ  | C2-C1   | 3.20 | 1.59        | 1.53     |
| 5   | A     | 1[Z] | HTQ  | C2-C3   | 3.20 | 1.59        | 1.52     |
| 5   | E     | 515  | HTQ  | C4-C3   | 3.20 | 1.59        | 1.52     |
| 3   | B     | 282  | SIA  | C4-C5   | 3.18 | 1.56        | 1.53     |
| 5   | A     | 111  | HTQ  | C2-C3   | 3.17 | 1.59        | 1.52     |
| 5   | C     | 313  | HTQ  | C4-C3   | 3.16 | 1.59        | 1.52     |
| 5   | D     | 414  | HTQ  | C9-N8   | 3.13 | 1.51        | 1.47     |
| 5   | F     | 616  | HTQ  | C4-C5   | 3.12 | 1.59        | 1.53     |
| 5   | D     | 414  | HTQ  | C2-C1   | 3.12 | 1.59        | 1.53     |
| 5   | A     | 1[Z] | HTQ  | C4-C5   | 3.10 | 1.59        | 1.53     |
| 5   | A     | 1[Z] | HTQ  | C4-C3   | 3.10 | 1.59        | 1.52     |
| 5   | F     | 616  | HTQ  | O10-C11 | 3.10 | 1.41        | 1.34     |
| 5   | A     | 1[Z] | HTQ  | C16-C14 | 3.09 | 1.44        | 1.39     |
| 5   | F     | 616  | HTQ  | C4-C3   | 3.08 | 1.59        | 1.52     |
| 5   | F     | 6[Y] | HTQ  | C4-C5   | 3.08 | 1.59        | 1.53     |
| 5   | B     | 2[Y] | HTQ  | C4-C3   | 3.07 | 1.59        | 1.52     |
| 5   | F     | 6[Y] | HTQ  | C2-C1   | 3.06 | 1.59        | 1.53     |

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| Mol | Chain | Res  | Type | Atoms   | Z    | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|------|-------------|----------|
| 5   | F     | 6[Z] | HTQ  | C16-C14 | 3.05 | 1.43        | 1.39     |
| 5   | E     | 5[Z] | HTQ  | C2-C3   | 3.04 | 1.59        | 1.52     |
| 5   | E     | 5[Z] | HTQ  | C2-C1   | 3.03 | 1.59        | 1.53     |
| 5   | E     | 5[Z] | HTQ  | C16-C14 | 3.02 | 1.43        | 1.39     |
| 5   | D     | 4[Z] | HTQ  | O10-C11 | 3.01 | 1.41        | 1.34     |
| 5   | B     | 2[Y] | HTQ  | C4-C5   | 3.00 | 1.58        | 1.53     |
| 5   | E     | 5[Y] | HTQ  | C16-C14 | 2.99 | 1.43        | 1.39     |
| 5   | F     | 616  | HTQ  | C2-C3   | 2.99 | 1.59        | 1.52     |
| 5   | E     | 515  | HTQ  | C4-C5   | 2.98 | 1.58        | 1.53     |
| 5   | C     | 313  | HTQ  | C4-C5   | 2.97 | 1.58        | 1.53     |
| 5   | B     | 212  | HTQ  | C9-N8   | 2.96 | 1.51        | 1.47     |
| 5   | E     | 5[Z] | HTQ  | C4-C3   | 2.96 | 1.59        | 1.52     |
| 5   | B     | 2[Y] | HTQ  | C2-C1   | 2.94 | 1.58        | 1.53     |
| 5   | A     | 111  | HTQ  | C9-N8   | 2.93 | 1.51        | 1.47     |
| 5   | D     | 4[Z] | HTQ  | C2-C1   | 2.93 | 1.58        | 1.53     |
| 5   | D     | 4[Y] | HTQ  | C16-C14 | 2.93 | 1.43        | 1.39     |
| 5   | E     | 5[Z] | HTQ  | C4-C5   | 2.92 | 1.58        | 1.53     |
| 5   | C     | 313  | HTQ  | C2-C1   | 2.91 | 1.58        | 1.53     |
| 5   | E     | 515  | HTQ  | C16-C14 | 2.90 | 1.43        | 1.39     |
| 5   | F     | 616  | HTQ  | C9-N8   | 2.90 | 1.51        | 1.47     |
| 5   | F     | 6[Z] | HTQ  | O10-C11 | 2.90 | 1.40        | 1.34     |
| 5   | C     | 3[Y] | HTQ  | C16-C14 | 2.89 | 1.43        | 1.39     |
| 5   | C     | 313  | HTQ  | C16-C14 | 2.89 | 1.43        | 1.39     |
| 5   | B     | 2[Y] | HTQ  | C16-C14 | 2.85 | 1.43        | 1.39     |
| 5   | A     | 111  | HTQ  | O10-C11 | 2.84 | 1.40        | 1.34     |
| 5   | C     | 3[Z] | HTQ  | C16-C14 | 2.83 | 1.43        | 1.39     |
| 5   | B     | 2[Z] | HTQ  | C16-C14 | 2.82 | 1.43        | 1.39     |
| 5   | A     | 1[Y] | HTQ  | C15-C14 | 2.79 | 1.43        | 1.39     |
| 5   | D     | 4[Z] | HTQ  | C15-C14 | 2.79 | 1.43        | 1.39     |
| 5   | F     | 6[Y] | HTQ  | C16-C14 | 2.79 | 1.43        | 1.39     |
| 5   | D     | 414  | HTQ  | C2-C3   | 2.78 | 1.58        | 1.52     |
| 5   | B     | 2[Y] | HTQ  | O10-C11 | 2.78 | 1.40        | 1.34     |
| 5   | C     | 3[Y] | HTQ  | C15-C14 | 2.76 | 1.43        | 1.39     |
| 5   | F     | 6[Z] | HTQ  | C2-C1   | 2.75 | 1.58        | 1.53     |
| 5   | F     | 616  | HTQ  | C16-C14 | 2.72 | 1.43        | 1.39     |
| 5   | B     | 2[Y] | HTQ  | C15-C14 | 2.71 | 1.43        | 1.39     |
| 5   | A     | 111  | HTQ  | C16-C14 | 2.71 | 1.43        | 1.39     |
| 5   | A     | 1[Z] | HTQ  | C15-C14 | 2.71 | 1.43        | 1.39     |
| 5   | D     | 414  | HTQ  | C4-C5   | 2.70 | 1.58        | 1.53     |
| 5   | E     | 5[Z] | HTQ  | C15-C14 | 2.70 | 1.43        | 1.39     |
| 5   | F     | 6[Z] | HTQ  | C15-C14 | 2.70 | 1.43        | 1.39     |
| 5   | F     | 6[Y] | HTQ  | C15-C14 | 2.68 | 1.43        | 1.39     |

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| Mol | Chain | Res  | Type | Atoms   | Z    | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|------|-------------|----------|
| 5   | D     | 414  | HTQ  | C15-C14 | 2.68 | 1.43        | 1.39     |
| 3   | B     | 282  | SIA  | O6-C2   | 2.67 | 1.45        | 1.43     |
| 5   | D     | 4[Y] | HTQ  | C2-C1   | 2.67 | 1.58        | 1.53     |
| 5   | A     | 1[Y] | HTQ  | O10-C11 | 2.67 | 1.40        | 1.34     |
| 5   | E     | 5[Y] | HTQ  | C2-C1   | 2.66 | 1.58        | 1.53     |
| 5   | B     | 212  | HTQ  | C15-C14 | 2.65 | 1.43        | 1.39     |
| 5   | B     | 212  | HTQ  | C16-C14 | 2.65 | 1.43        | 1.39     |
| 5   | D     | 4[Z] | HTQ  | C4-C5   | 2.64 | 1.58        | 1.53     |
| 5   | C     | 313  | HTQ  | C15-C14 | 2.64 | 1.43        | 1.39     |
| 5   | C     | 3[Z] | HTQ  | C2-C1   | 2.62 | 1.58        | 1.53     |
| 5   | A     | 1[Y] | HTQ  | C2-C1   | 2.61 | 1.58        | 1.53     |
| 5   | C     | 3[Y] | HTQ  | O10-C11 | 2.61 | 1.40        | 1.34     |
| 5   | F     | 616  | HTQ  | C2-C1   | 2.59 | 1.58        | 1.53     |
| 5   | E     | 515  | HTQ  | C2-C1   | 2.59 | 1.58        | 1.53     |
| 5   | B     | 212  | HTQ  | O10-C11 | 2.59 | 1.40        | 1.34     |
| 5   | C     | 3[Z] | HTQ  | C15-C14 | 2.55 | 1.43        | 1.39     |
| 5   | A     | 111  | HTQ  | C15-C14 | 2.55 | 1.43        | 1.39     |
| 5   | C     | 3[Y] | HTQ  | C2-C1   | 2.54 | 1.58        | 1.53     |
| 3   | A     | 182  | SIA  | C4-C5   | 2.54 | 1.55        | 1.53     |
| 5   | D     | 4[Z] | HTQ  | C16-C14 | 2.52 | 1.43        | 1.39     |
| 5   | B     | 2[Z] | HTQ  | C2-C1   | 2.52 | 1.58        | 1.53     |
| 5   | E     | 515  | HTQ  | C15-C14 | 2.49 | 1.43        | 1.39     |
| 5   | F     | 616  | HTQ  | C15-C14 | 2.48 | 1.43        | 1.39     |
| 5   | B     | 2[Z] | HTQ  | C15-C14 | 2.48 | 1.43        | 1.39     |
| 5   | E     | 5[Y] | HTQ  | C15-C14 | 2.44 | 1.43        | 1.39     |
| 5   | D     | 4[Y] | HTQ  | C15-C14 | 2.37 | 1.42        | 1.39     |
| 5   | F     | 616  | HTQ  | C17-C15 | 2.24 | 1.42        | 1.38     |
| 5   | D     | 414  | HTQ  | C4-C3   | 2.24 | 1.57        | 1.52     |
| 5   | A     | 1[Z] | HTQ  | C13-C11 | 2.18 | 1.55        | 1.53     |
| 5   | E     | 5[Z] | HTQ  | C13-C11 | 2.16 | 1.55        | 1.53     |
| 5   | A     | 111  | HTQ  | C2-C1   | 2.15 | 1.57        | 1.53     |
| 5   | C     | 313  | HTQ  | C17-C15 | 2.15 | 1.42        | 1.38     |
| 5   | A     | 1[Y] | HTQ  | C17-C15 | 2.15 | 1.42        | 1.38     |
| 3   | A     | 182  | SIA  | O6-C2   | 2.15 | 1.45        | 1.43     |
| 5   | B     | 2[Y] | HTQ  | C17-C15 | 2.14 | 1.42        | 1.38     |
| 5   | D     | 414  | HTQ  | C17-C15 | 2.13 | 1.42        | 1.38     |
| 5   | E     | 515  | HTQ  | C18-C16 | 2.09 | 1.42        | 1.38     |
| 5   | D     | 414  | HTQ  | C18-C16 | 2.08 | 1.42        | 1.38     |
| 5   | B     | 212  | HTQ  | C18-C16 | 2.08 | 1.42        | 1.38     |
| 5   | D     | 414  | HTQ  | C13-C11 | 2.08 | 1.55        | 1.53     |
| 5   | F     | 6[Z] | HTQ  | C13-C11 | 2.07 | 1.55        | 1.53     |
| 5   | A     | 1[Y] | HTQ  | C13-C11 | 2.06 | 1.55        | 1.53     |

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| Mol | Chain | Res  | Type | Atoms   | Z    | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|------|-------------|----------|
| 3   | F     | 682  | SIA  | O6-C2   | 2.06 | 1.45        | 1.43     |
| 5   | F     | 616  | HTQ  | C18-C16 | 2.04 | 1.42        | 1.38     |
| 5   | B     | 2[Z] | HTQ  | C17-C15 | 2.04 | 1.42        | 1.38     |
| 5   | B     | 212  | HTQ  | C17-C15 | 2.04 | 1.42        | 1.38     |
| 5   | C     | 3[Z] | HTQ  | C17-C15 | 2.04 | 1.42        | 1.38     |
| 5   | A     | 1[Y] | HTQ  | C18-C16 | 2.02 | 1.42        | 1.38     |
| 5   | C     | 313  | HTQ  | C18-C16 | 2.00 | 1.42        | 1.38     |
| 5   | E     | 515  | HTQ  | C17-C15 | 2.00 | 1.42        | 1.38     |

All (68) bond angle outliers are listed below:

| Mol | Chain | Res  | Type | Atoms      | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|------------|-------|-------------|----------|
| 5   | D     | 414  | HTQ  | C3-O10-C11 | 9.43  | 132.54      | 117.72   |
| 5   | A     | 1[Z] | HTQ  | C3-O10-C11 | 8.08  | 130.41      | 117.72   |
| 5   | A     | 111  | HTQ  | C3-O10-C11 | 6.62  | 128.12      | 117.72   |
| 5   | E     | 5[Z] | HTQ  | C3-O10-C11 | 6.42  | 127.81      | 117.72   |
| 5   | B     | 212  | HTQ  | C3-O10-C11 | 6.25  | 127.54      | 117.72   |
| 5   | F     | 6[Z] | HTQ  | C3-O10-C11 | 6.04  | 127.21      | 117.72   |
| 5   | A     | 1[Y] | HTQ  | C3-O10-C11 | 5.99  | 127.13      | 117.72   |
| 5   | E     | 515  | HTQ  | C3-O10-C11 | 5.93  | 127.03      | 117.72   |
| 5   | C     | 313  | HTQ  | C3-O10-C11 | 5.83  | 126.88      | 117.72   |
| 5   | F     | 616  | HTQ  | C3-O10-C11 | 5.52  | 126.40      | 117.72   |
| 5   | F     | 6[Y] | HTQ  | C3-O10-C11 | 5.29  | 126.03      | 117.72   |
| 5   | C     | 3[Y] | HTQ  | C3-O10-C11 | 5.23  | 125.94      | 117.72   |
| 5   | D     | 4[Z] | HTQ  | C3-O10-C11 | 4.82  | 125.29      | 117.72   |
| 5   | B     | 2[Z] | HTQ  | C3-O10-C11 | 4.62  | 124.98      | 117.72   |
| 5   | C     | 3[Z] | HTQ  | C3-O10-C11 | 4.54  | 124.85      | 117.72   |
| 5   | D     | 4[Y] | HTQ  | C3-O10-C11 | 4.49  | 124.78      | 117.72   |
| 5   | B     | 2[Y] | HTQ  | C3-O10-C11 | 4.36  | 124.57      | 117.72   |
| 5   | E     | 5[Y] | HTQ  | C3-O10-C11 | 4.07  | 124.12      | 117.72   |
| 3   | B     | 282  | SIA  | O6-C6-C7   | 3.49  | 112.10      | 106.65   |
| 3   | B     | 282  | SIA  | O1A-C1-C2  | -3.19 | 118.53      | 123.85   |
| 3   | A     | 182  | SIA  | O1A-C1-C2  | -3.09 | 118.70      | 123.85   |
| 5   | A     | 1[Z] | HTQ  | O10-C3-C2  | 3.00  | 114.83      | 107.77   |
| 5   | D     | 414  | HTQ  | O10-C3-C4  | 2.81  | 114.37      | 107.77   |
| 3   | A     | 182  | SIA  | O6-C6-C7   | 2.78  | 110.99      | 106.65   |
| 3   | F     | 682  | SIA  | O1A-C1-C2  | -2.76 | 119.24      | 123.85   |
| 5   | A     | 111  | HTQ  | C3-C4-C5   | 2.74  | 116.64      | 112.73   |
| 5   | C     | 3[Y] | HTQ  | C3-C4-C5   | 2.73  | 116.62      | 112.73   |
| 5   | D     | 4[Y] | HTQ  | C3-C4-C5   | 2.70  | 116.58      | 112.73   |
| 3   | B     | 282  | SIA  | C3-C2-C1   | -2.69 | 107.84      | 112.84   |
| 5   | C     | 3[Z] | HTQ  | C3-C4-C5   | 2.69  | 116.57      | 112.73   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 5   | B     | 212  | HTQ  | C3-C4-C5    | 2.64  | 116.50      | 112.73   |
| 5   | D     | 414  | HTQ  | O10-C11-O12 | 2.63  | 128.69      | 123.95   |
| 5   | B     | 2[Z] | HTQ  | C3-C4-C5    | 2.45  | 116.23      | 112.73   |
| 5   | F     | 616  | HTQ  | C5-N8-C1    | 2.44  | 103.66      | 100.79   |
| 5   | A     | 111  | HTQ  | C5-N8-C1    | 2.39  | 103.61      | 100.79   |
| 5   | E     | 5[Z] | HTQ  | C5-N8-C1    | 2.39  | 103.60      | 100.79   |
| 5   | B     | 212  | HTQ  | C5-N8-C1    | 2.38  | 103.60      | 100.79   |
| 5   | D     | 414  | HTQ  | C5-N8-C1    | 2.38  | 103.59      | 100.79   |
| 5   | E     | 5[Y] | HTQ  | C3-C4-C5    | 2.38  | 116.12      | 112.73   |
| 5   | E     | 5[Y] | HTQ  | C5-N8-C1    | 2.35  | 103.56      | 100.79   |
| 3   | A     | 182  | SIA  | O6-C6-C5    | 2.34  | 111.99      | 109.84   |
| 5   | E     | 515  | HTQ  | C5-N8-C1    | 2.34  | 103.54      | 100.79   |
| 5   | C     | 313  | HTQ  | C5-N8-C1    | 2.33  | 103.54      | 100.79   |
| 5   | C     | 3[Z] | HTQ  | C5-N8-C1    | 2.33  | 103.53      | 100.79   |
| 5   | A     | 1[Z] | HTQ  | C5-N8-C1    | 2.32  | 103.52      | 100.79   |
| 5   | F     | 6[Z] | HTQ  | C3-C4-C5    | 2.31  | 116.03      | 112.73   |
| 5   | F     | 6[Y] | HTQ  | C5-N8-C1    | 2.31  | 103.51      | 100.79   |
| 3   | F     | 682  | SIA  | O6-C6-C5    | 2.31  | 111.96      | 109.84   |
| 5   | D     | 4[Z] | HTQ  | C5-N8-C1    | 2.31  | 103.51      | 100.79   |
| 5   | B     | 2[Z] | HTQ  | C5-N8-C1    | 2.31  | 103.51      | 100.79   |
| 5   | B     | 2[Y] | HTQ  | C5-N8-C1    | 2.30  | 103.50      | 100.79   |
| 5   | A     | 1[Y] | HTQ  | C3-C4-C5    | 2.28  | 115.98      | 112.73   |
| 5   | A     | 1[Y] | HTQ  | C5-N8-C1    | 2.28  | 103.47      | 100.79   |
| 5   | F     | 6[Z] | HTQ  | C5-N8-C1    | 2.27  | 103.46      | 100.79   |
| 5   | D     | 4[Y] | HTQ  | C5-N8-C1    | 2.23  | 103.42      | 100.79   |
| 3   | A     | 182  | SIA  | C3-C2-C1    | -2.22 | 108.71      | 112.84   |
| 5   | C     | 3[Y] | HTQ  | C5-N8-C1    | 2.22  | 103.40      | 100.79   |
| 2   | A     | 179  | NAG  | C2-N2-C7    | -2.21 | 119.94      | 122.90   |
| 5   | B     | 212  | HTQ  | O10-C11-O12 | 2.20  | 127.93      | 123.95   |
| 3   | A     | 182  | SIA  | C3-C4-C5    | 2.11  | 112.99      | 109.72   |
| 2   | E     | 579  | NAG  | C2-N2-C7    | -2.09 | 120.10      | 122.90   |
| 5   | A     | 111  | HTQ  | C2-C1-N8    | -2.07 | 104.71      | 107.54   |
| 5   | C     | 313  | HTQ  | O10-C3-C2   | 2.05  | 112.58      | 107.77   |
| 5   | A     | 111  | HTQ  | O10-C3-C2   | 2.04  | 112.57      | 107.77   |
| 2   | B     | 279  | NAG  | C2-N2-C7    | -2.02 | 120.20      | 122.90   |
| 5   | C     | 3[Z] | HTQ  | C2-C1-N8    | -2.01 | 104.80      | 107.54   |
| 5   | A     | 1[Z] | HTQ  | O10-C11-O12 | 2.01  | 127.57      | 123.95   |
| 2   | E     | 580  | NAG  | C2-N2-C7    | -2.00 | 120.22      | 122.90   |

All (3) chirality outliers are listed below:

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| Mol | Chain | Res | Type | Atom |
|-----|-------|-----|------|------|
|-----|-------|-----|------|------|

| Mol | Chain | Res | Type | Atom |
|-----|-------|-----|------|------|
| 2   | B     | 279 | NAG  | C1   |
| 2   | D     | 479 | NAG  | C1   |
| 2   | F     | 679 | NAG  | C1   |

All (98) torsion outliers are listed below:

| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 2   | A     | 179  | NAG  | C8-C7-N2-C2     |
| 2   | A     | 179  | NAG  | O7-C7-N2-C2     |
| 2   | B     | 279  | NAG  | O7-C7-N2-C2     |
| 2   | E     | 580  | NAG  | C8-C7-N2-C2     |
| 2   | E     | 580  | NAG  | O7-C7-N2-C2     |
| 2   | F     | 679  | NAG  | C8-C7-N2-C2     |
| 2   | F     | 679  | NAG  | O7-C7-N2-C2     |
| 5   | A     | 111  | HTQ  | C2-C3-O10-C11   |
| 5   | A     | 1[Y] | HTQ  | O10-C11-C13-O20 |
| 5   | A     | 1[Y] | HTQ  | O12-C11-C13-O20 |
| 5   | A     | 1[Z] | HTQ  | C2-C3-O10-C11   |
| 5   | A     | 1[Z] | HTQ  | O10-C11-C13-C14 |
| 5   | A     | 1[Z] | HTQ  | O10-C11-C13-O20 |
| 5   | A     | 1[Z] | HTQ  | O12-C11-C13-C14 |
| 5   | A     | 1[Z] | HTQ  | O12-C11-C13-O20 |
| 5   | B     | 2[Y] | HTQ  | O10-C11-C13-O20 |
| 5   | B     | 2[Y] | HTQ  | O12-C11-C13-C14 |
| 5   | B     | 2[Y] | HTQ  | O12-C11-C13-O20 |
| 5   | B     | 2[Z] | HTQ  | O10-C11-C13-O20 |
| 5   | B     | 2[Z] | HTQ  | O12-C11-C13-O20 |
| 5   | C     | 313  | HTQ  | O10-C11-C13-C14 |
| 5   | C     | 313  | HTQ  | O10-C11-C13-O20 |
| 5   | C     | 313  | HTQ  | O12-C11-C13-C14 |
| 5   | C     | 313  | HTQ  | O12-C11-C13-O20 |
| 5   | C     | 3[Z] | HTQ  | O10-C11-C13-O20 |
| 5   | C     | 3[Z] | HTQ  | O12-C11-C13-O20 |
| 5   | D     | 414  | HTQ  | C4-C3-O10-C11   |
| 5   | D     | 414  | HTQ  | O10-C11-C13-O20 |
| 5   | D     | 414  | HTQ  | O12-C11-C13-C14 |
| 5   | D     | 414  | HTQ  | O12-C11-C13-O20 |
| 5   | D     | 4[Y] | HTQ  | O10-C11-C13-O20 |
| 5   | D     | 4[Y] | HTQ  | O12-C11-C13-O20 |
| 5   | E     | 515  | HTQ  | O10-C11-C13-O20 |
| 5   | E     | 515  | HTQ  | O12-C11-C13-C14 |

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| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 5   | E     | 515  | HTQ  | O12-C11-C13-O20 |
| 5   | E     | 5[Y] | HTQ  | O10-C11-C13-O20 |
| 5   | E     | 5[Y] | HTQ  | O12-C11-C13-O20 |
| 5   | E     | 5[Z] | HTQ  | O10-C11-C13-O20 |
| 5   | E     | 5[Z] | HTQ  | O12-C11-C13-C14 |
| 5   | E     | 5[Z] | HTQ  | O12-C11-C13-O20 |
| 5   | F     | 616  | HTQ  | O12-C11-C13-O20 |
| 5   | F     | 6[Y] | HTQ  | O10-C11-C13-O20 |
| 5   | F     | 6[Y] | HTQ  | O12-C11-C13-O20 |
| 5   | F     | 6[Z] | HTQ  | O10-C11-C13-O20 |
| 5   | F     | 6[Z] | HTQ  | O12-C11-C13-C14 |
| 5   | F     | 6[Z] | HTQ  | O12-C11-C13-O20 |
| 5   | B     | 212  | HTQ  | C2-C3-O10-C11   |
| 5   | C     | 313  | HTQ  | C2-C3-O10-C11   |
| 5   | C     | 3[Z] | HTQ  | C2-C3-O10-C11   |
| 5   | D     | 4[Y] | HTQ  | C2-C3-O10-C11   |
| 5   | E     | 515  | HTQ  | C2-C3-O10-C11   |
| 5   | F     | 6[Y] | HTQ  | C2-C3-O10-C11   |
| 2   | B     | 279  | NAG  | C8-C7-N2-C2     |
| 2   | C     | 379  | NAG  | C8-C7-N2-C2     |
| 2   | C     | 379  | NAG  | O7-C7-N2-C2     |
| 2   | A     | 179  | NAG  | O5-C5-C6-O6     |
| 2   | A     | 179  | NAG  | C4-C5-C6-O6     |
| 2   | E     | 579  | NAG  | C8-C7-N2-C2     |
| 2   | E     | 580  | NAG  | C4-C5-C6-O6     |
| 5   | E     | 5[Z] | HTQ  | C2-C3-O10-C11   |
| 2   | E     | 579  | NAG  | O7-C7-N2-C2     |
| 5   | E     | 5[Y] | HTQ  | C2-C3-O10-C11   |
| 5   | B     | 2[Z] | HTQ  | C2-C3-O10-C11   |
| 5   | A     | 1[Y] | HTQ  | O10-C11-C13-C14 |
| 5   | B     | 2[Y] | HTQ  | O10-C11-C13-C14 |
| 5   | D     | 414  | HTQ  | O10-C11-C13-C14 |
| 5   | D     | 4[Y] | HTQ  | O10-C11-C13-C14 |
| 5   | E     | 515  | HTQ  | O10-C11-C13-C14 |
| 5   | E     | 5[Z] | HTQ  | O10-C11-C13-C14 |
| 5   | F     | 6[Y] | HTQ  | O10-C11-C13-C14 |
| 5   | F     | 6[Z] | HTQ  | O10-C11-C13-C14 |
| 2   | E     | 580  | NAG  | O5-C5-C6-O6     |
| 2   | C     | 379  | NAG  | O5-C5-C6-O6     |
| 2   | C     | 379  | NAG  | C4-C5-C6-O6     |
| 5   | F     | 616  | HTQ  | C4-C3-O10-C11   |
| 5   | C     | 3[Z] | HTQ  | O10-C11-C13-C14 |

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| Mol | Chain | Res  | Type | Atoms           |
|-----|-------|------|------|-----------------|
| 2   | F     | 679  | NAG  | C4-C5-C6-O6     |
| 5   | A     | 1[Y] | HTQ  | O12-C11-C13-C14 |
| 5   | B     | 2[Z] | HTQ  | O12-C11-C13-C14 |
| 5   | C     | 3[Z] | HTQ  | O12-C11-C13-C14 |
| 5   | D     | 4[Y] | HTQ  | O12-C11-C13-C14 |
| 5   | D     | 4[Z] | HTQ  | O12-C11-C13-C14 |
| 5   | F     | 6[Y] | HTQ  | O12-C11-C13-C14 |
| 2   | F     | 679  | NAG  | O5-C5-C6-O6     |
| 5   | F     | 616  | HTQ  | O10-C11-C13-O20 |
| 5   | D     | 4[Z] | HTQ  | C4-C3-O10-C11   |
| 3   | A     | 182  | SIA  | O1A-C1-C2-O2    |
| 3   | A     | 182  | SIA  | O1A-C1-C2-O6    |
| 5   | F     | 616  | HTQ  | C2-C3-O10-C11   |
| 2   | D     | 479  | NAG  | C8-C7-N2-C2     |
| 5   | B     | 2[Z] | HTQ  | O10-C11-C13-C14 |
| 5   | D     | 4[Z] | HTQ  | O10-C11-C13-C14 |
| 5   | E     | 5[Y] | HTQ  | C4-C3-O10-C11   |
| 2   | D     | 479  | NAG  | O7-C7-N2-C2     |
| 5   | B     | 2[Z] | HTQ  | C4-C3-O10-C11   |
| 3   | B     | 282  | SIA  | O1B-C1-C2-O2    |
| 3   | F     | 682  | SIA  | O1B-C1-C2-C3    |
| 5   | C     | 3[Y] | HTQ  | C2-C3-O10-C11   |

There are no ring outliers.

26 monomers are involved in 121 short contacts:

| Mol | Chain | Res  | Type | Clashes | Symm-Clashes |
|-----|-------|------|------|---------|--------------|
| 5   | D     | 414  | HTQ  | 7       | 0            |
| 5   | E     | 5[Y] | HTQ  | 2       | 0            |
| 2   | F     | 679  | NAG  | 2       | 0            |
| 5   | B     | 2[Y] | HTQ  | 4       | 0            |
| 5   | F     | 6[Y] | HTQ  | 3       | 0            |
| 2   | E     | 579  | NAG  | 2       | 0            |
| 2   | D     | 479  | NAG  | 2       | 0            |
| 5   | A     | 111  | HTQ  | 13      | 0            |
| 5   | F     | 616  | HTQ  | 7       | 0            |
| 2   | E     | 580  | NAG  | 2       | 0            |
| 5   | E     | 515  | HTQ  | 12      | 0            |
| 3   | F     | 682  | SIA  | 5       | 0            |
| 5   | C     | 313  | HTQ  | 3       | 0            |
| 5   | A     | 1[Z] | HTQ  | 4       | 0            |
| 5   | C     | 3[Z] | HTQ  | 4       | 0            |

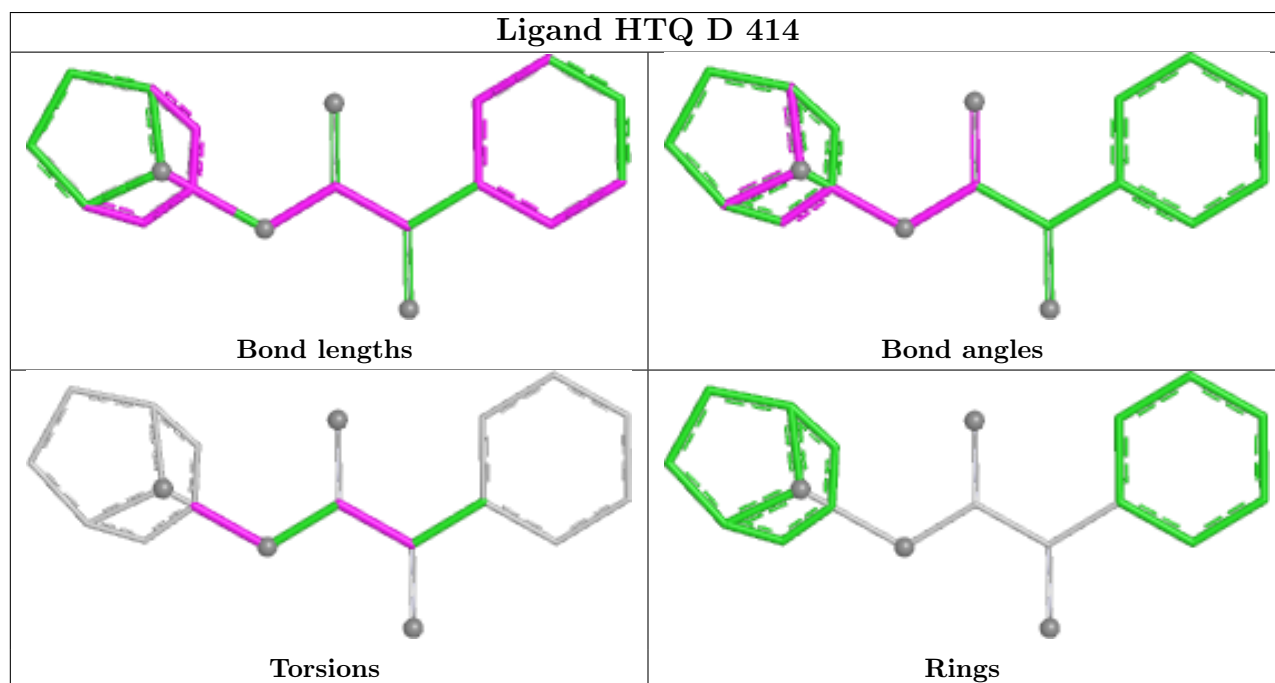
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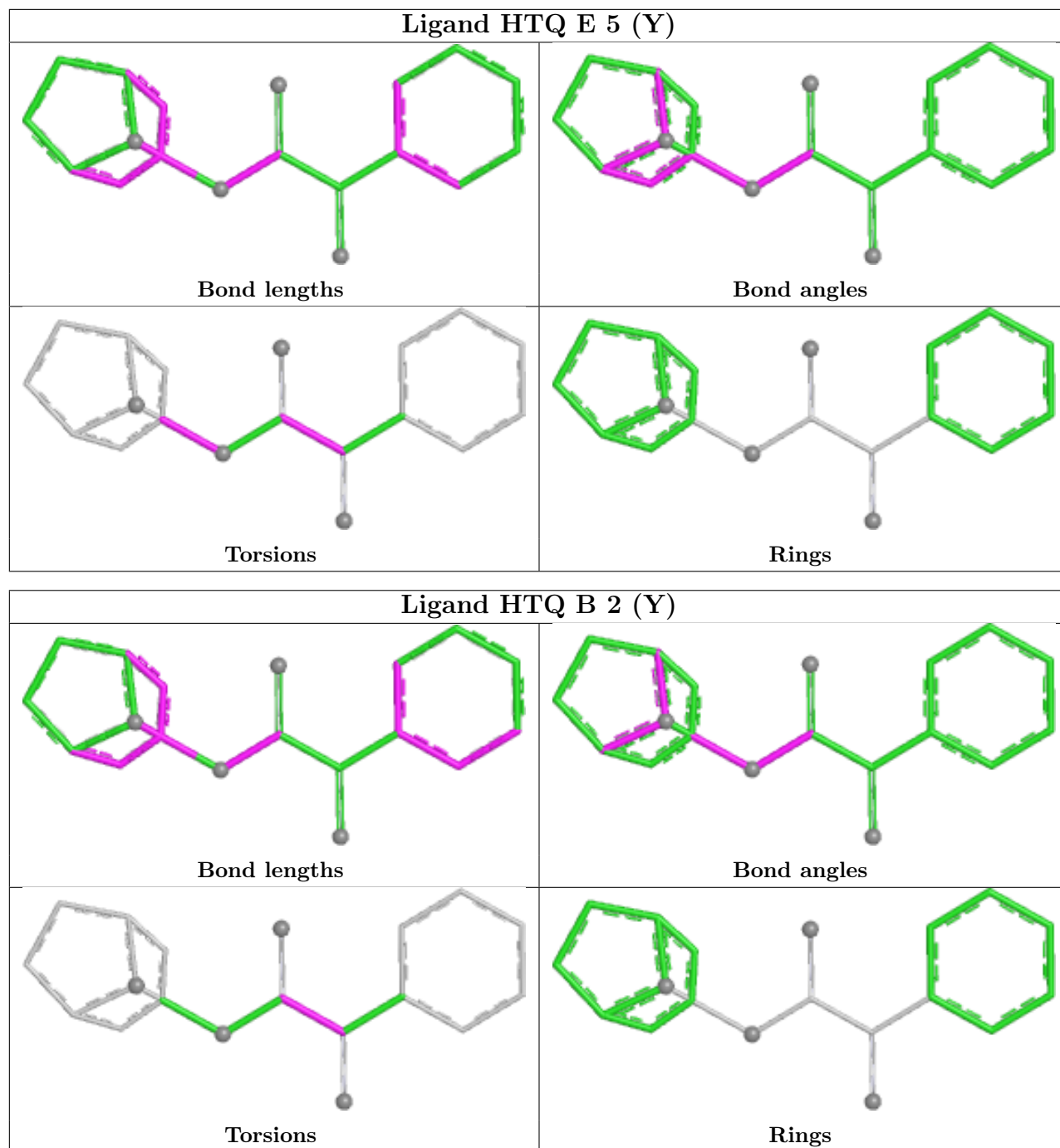


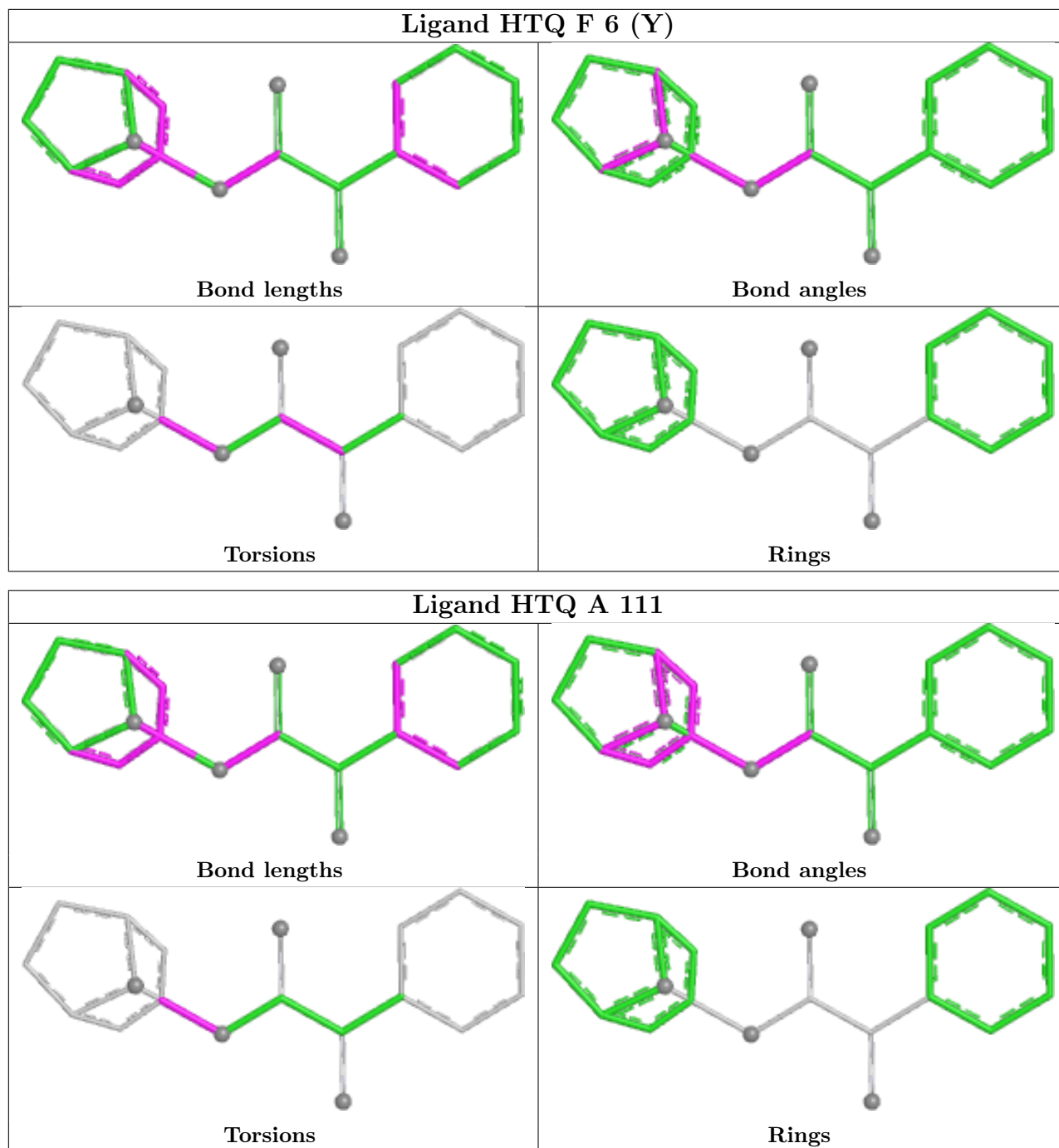
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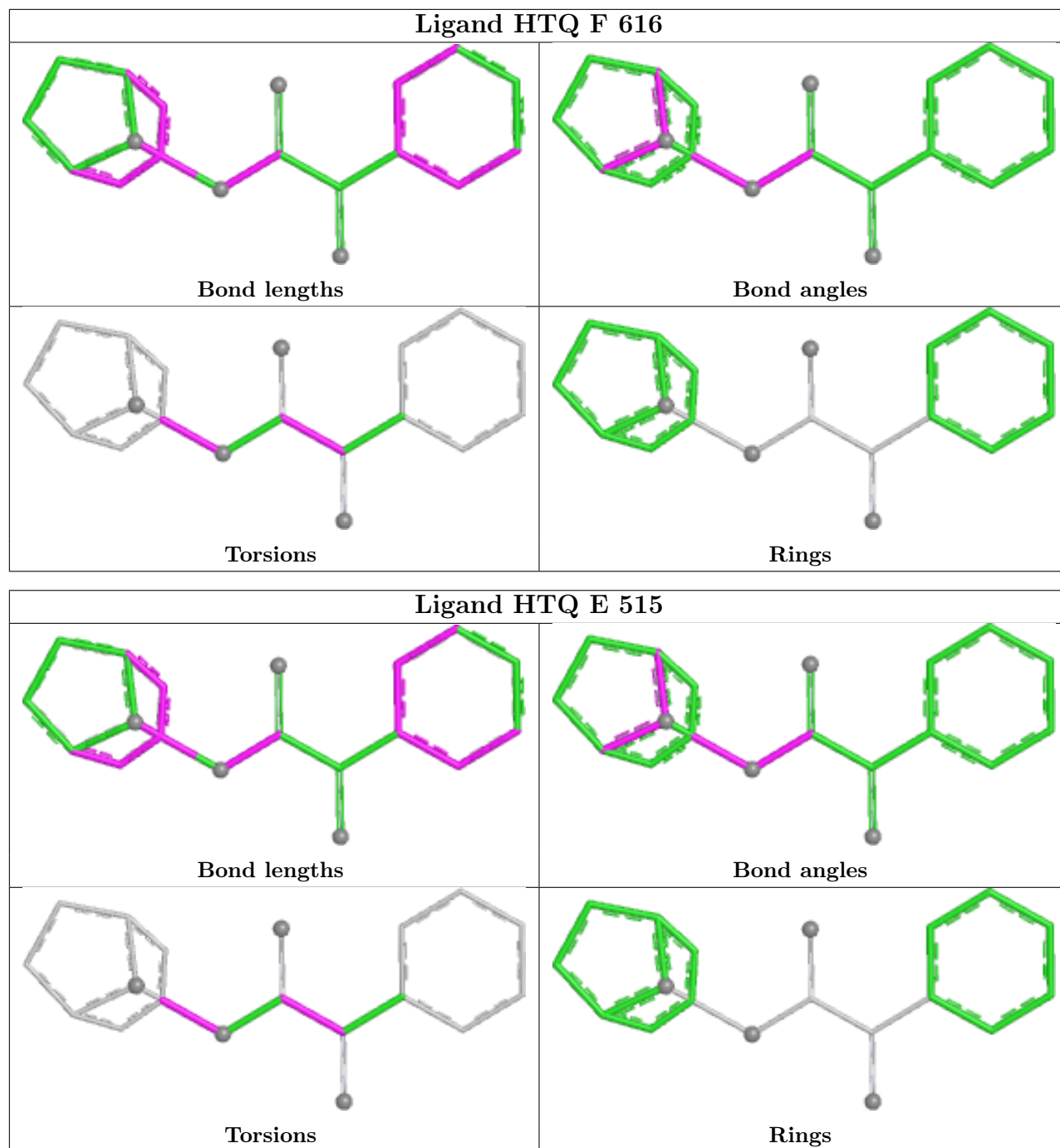
| Mol | Chain | Res  | Type | Clashes | Symm-Clashes |
|-----|-------|------|------|---------|--------------|
| 5   | D     | 4[Z] | HTQ  | 3       | 0            |
| 3   | A     | 182  | SIA  | 5       | 0            |
| 3   | B     | 282  | SIA  | 17      | 0            |
| 5   | B     | 212  | HTQ  | 9       | 0            |
| 2   | B     | 279  | NAG  | 3       | 0            |
| 5   | A     | 1[Y] | HTQ  | 4       | 0            |
| 5   | E     | 5[Z] | HTQ  | 1       | 0            |
| 5   | B     | 2[Z] | HTQ  | 1       | 0            |
| 5   | C     | 3[Y] | HTQ  | 4       | 0            |
| 5   | D     | 4[Y] | HTQ  | 2       | 0            |
| 5   | F     | 6[Z] | HTQ  | 3       | 0            |

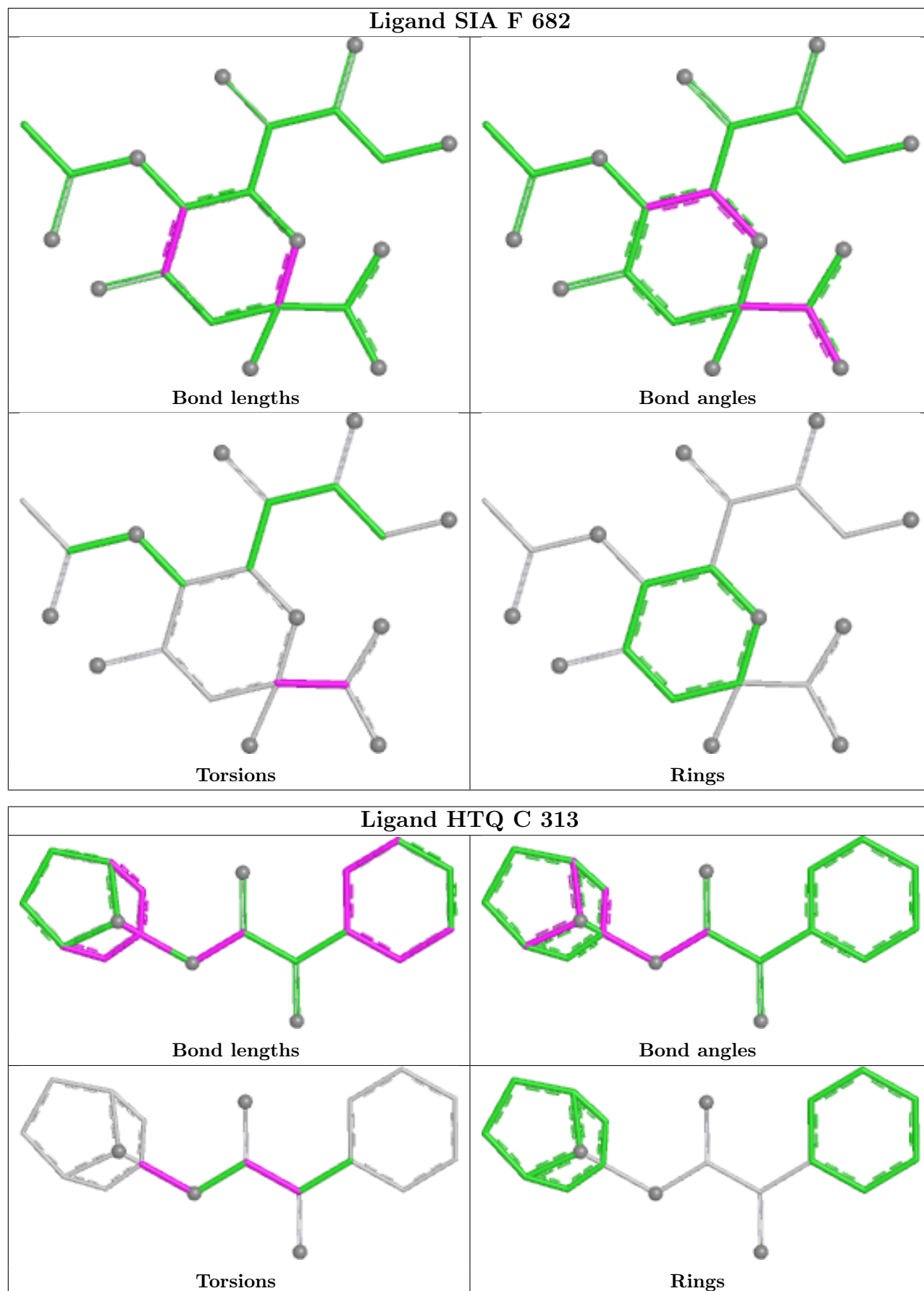
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

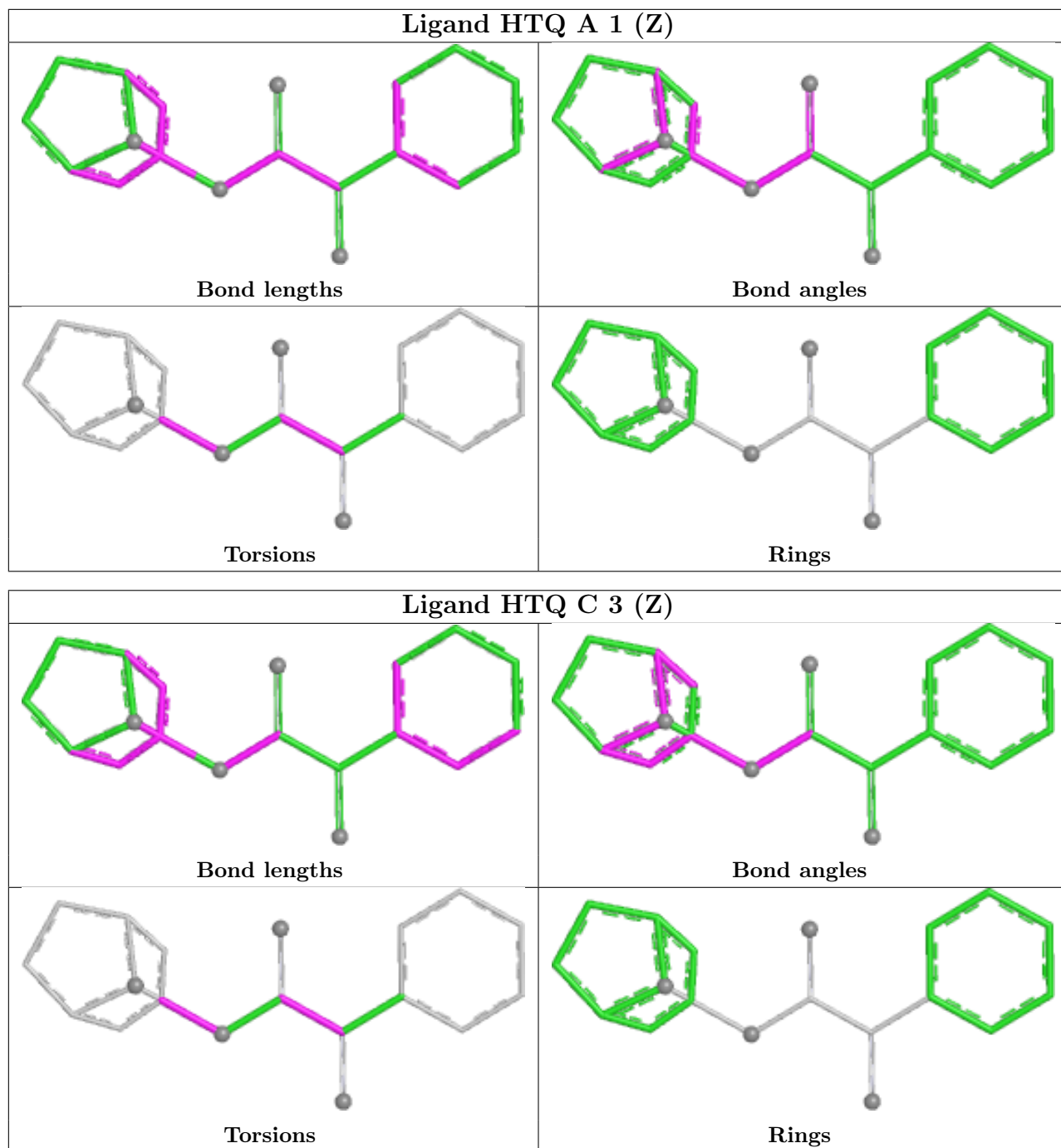


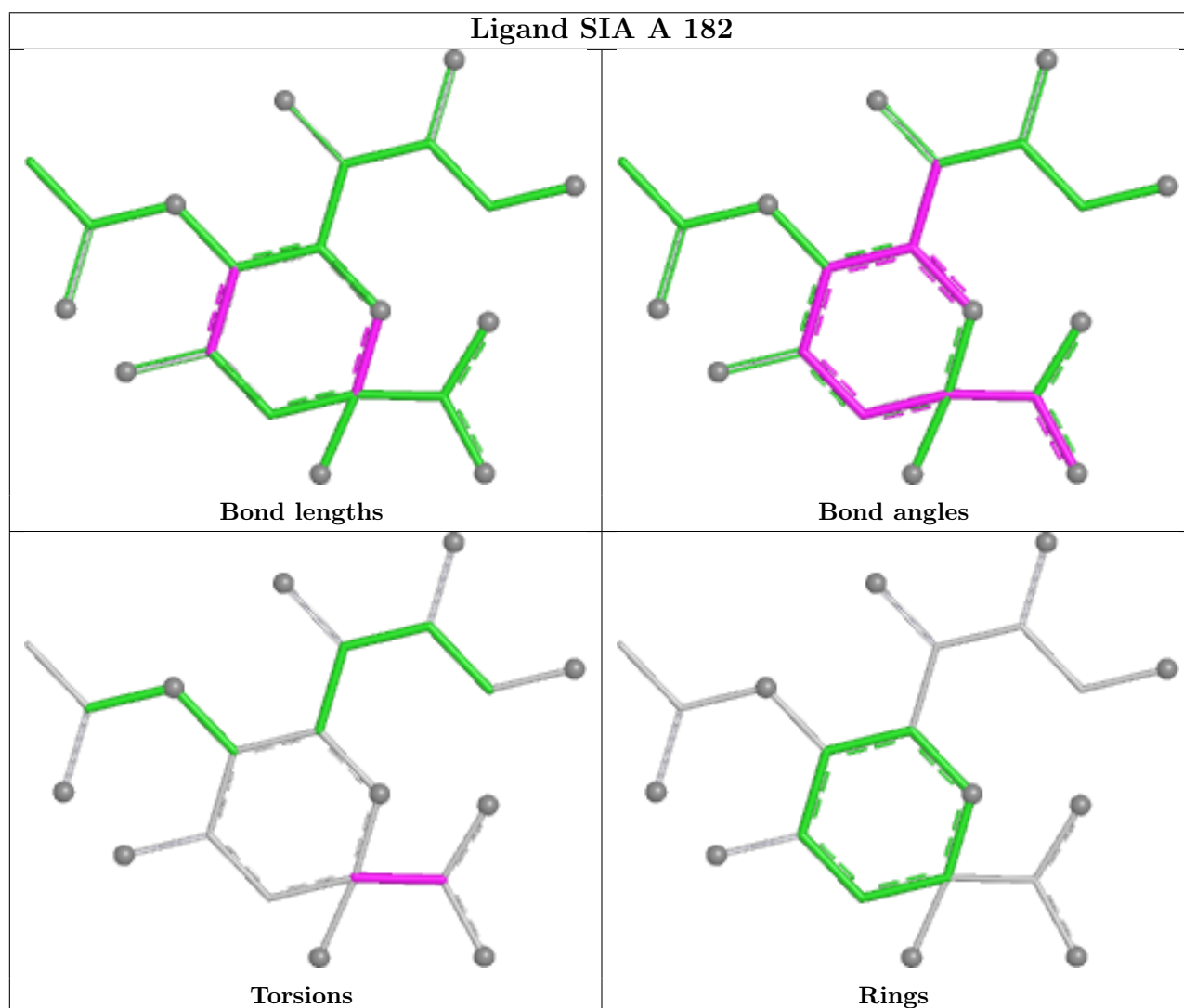
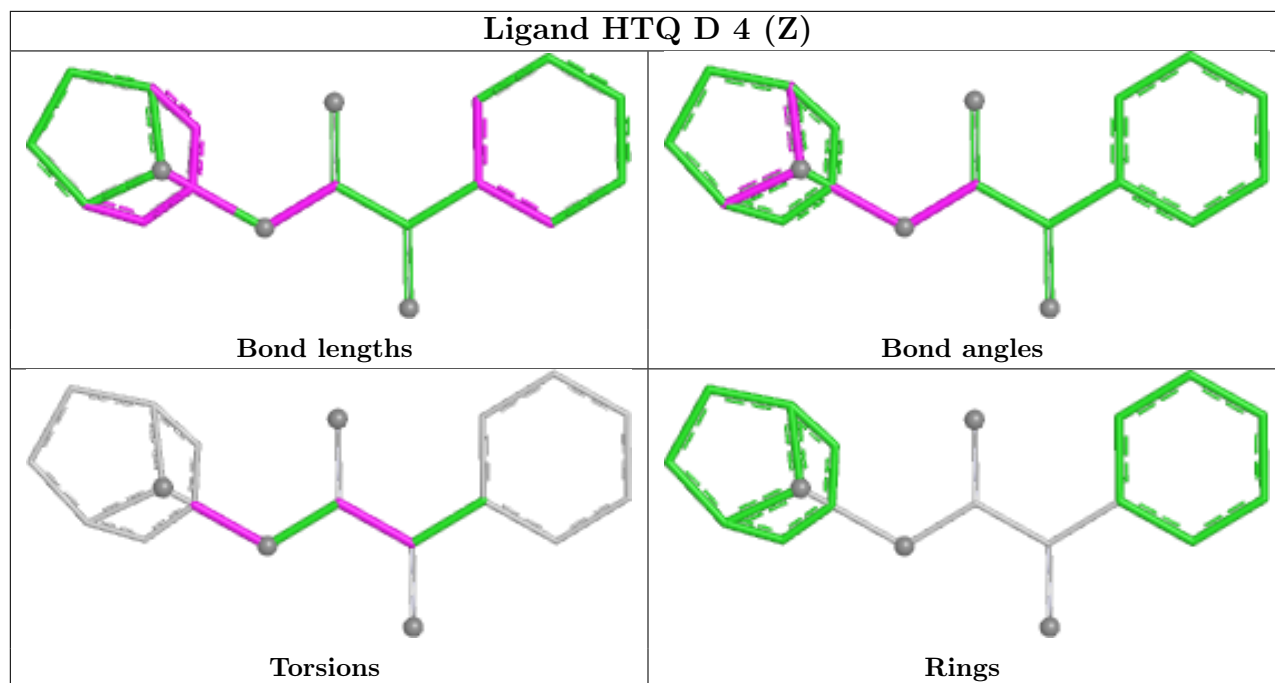


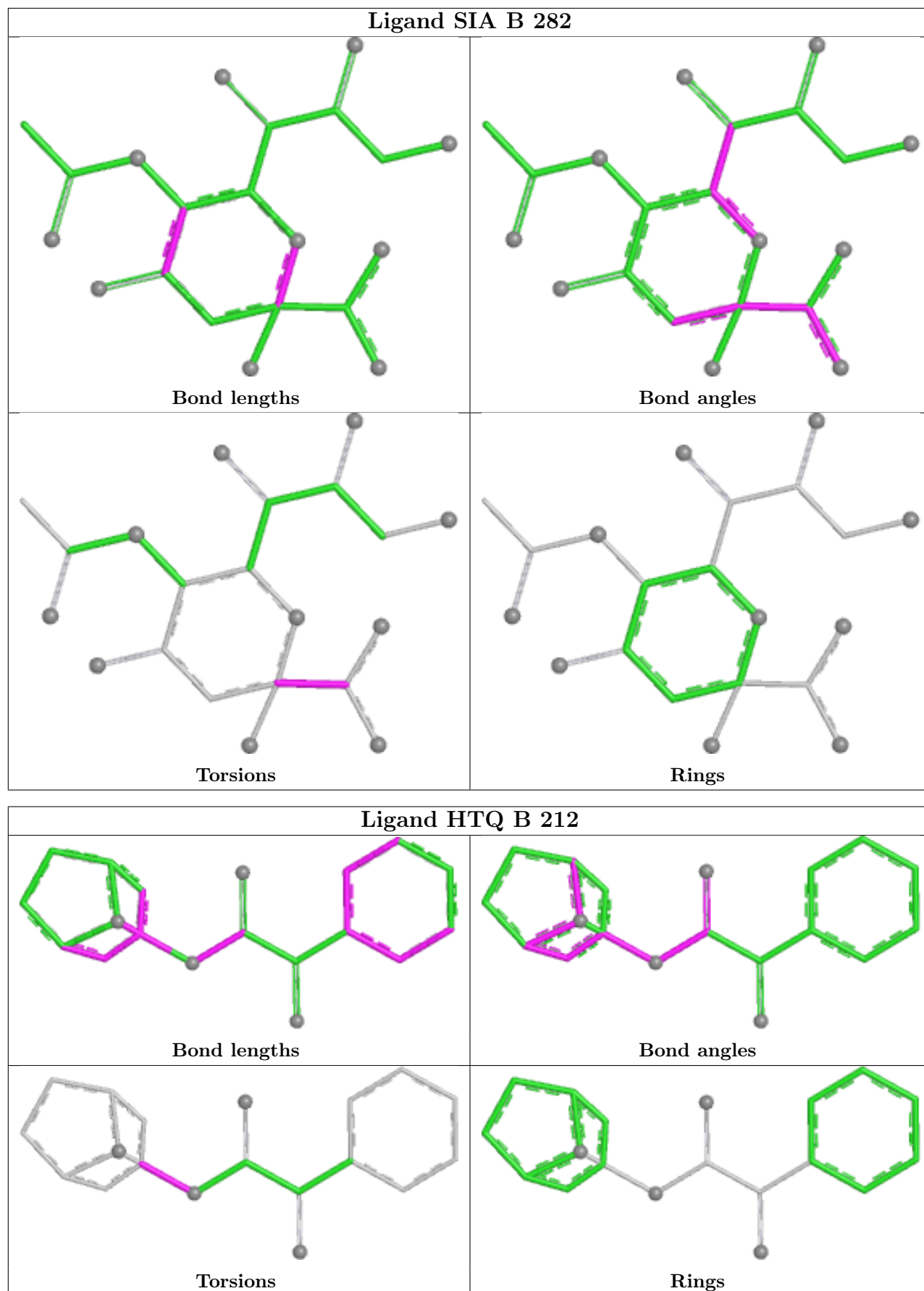




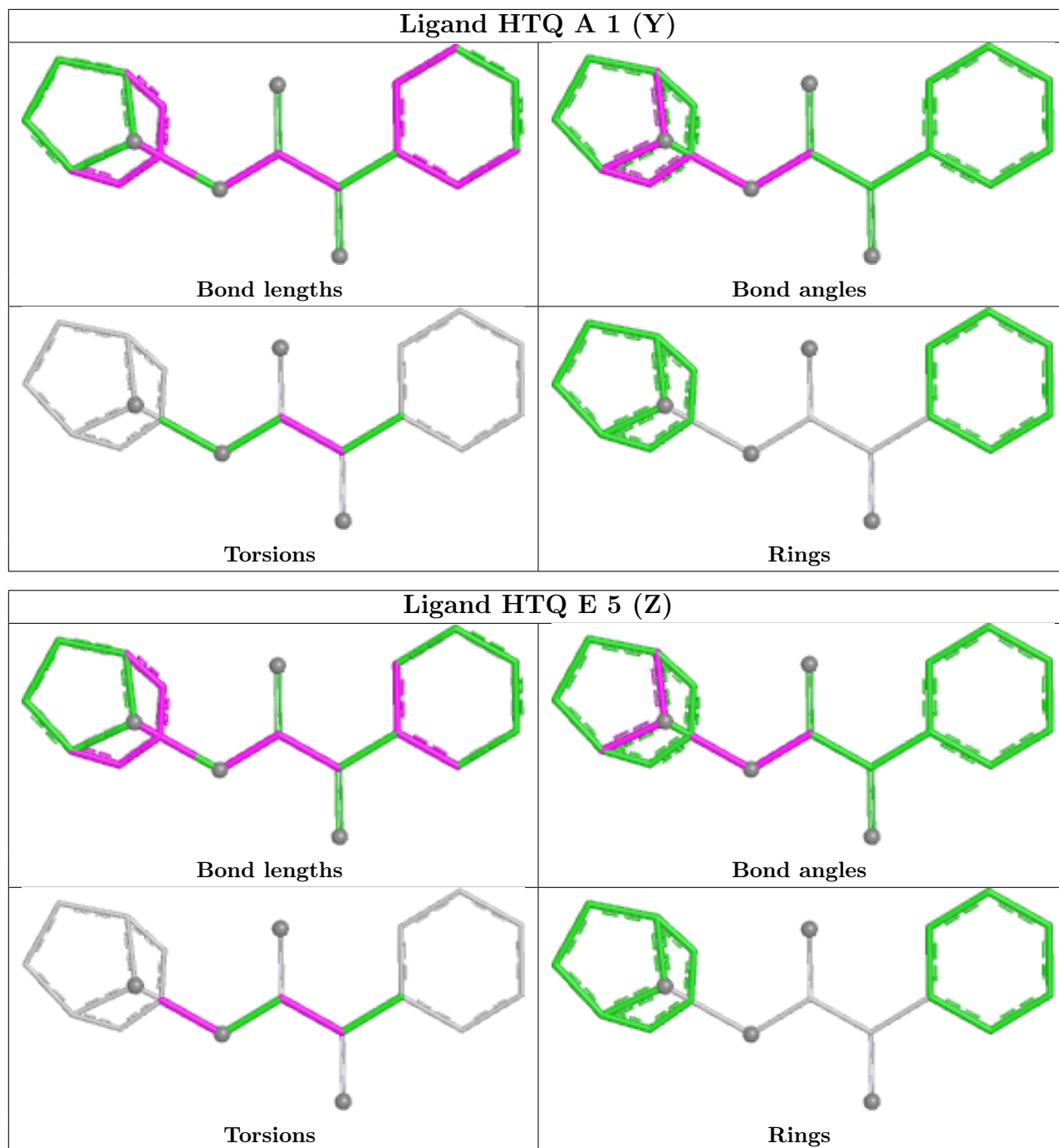


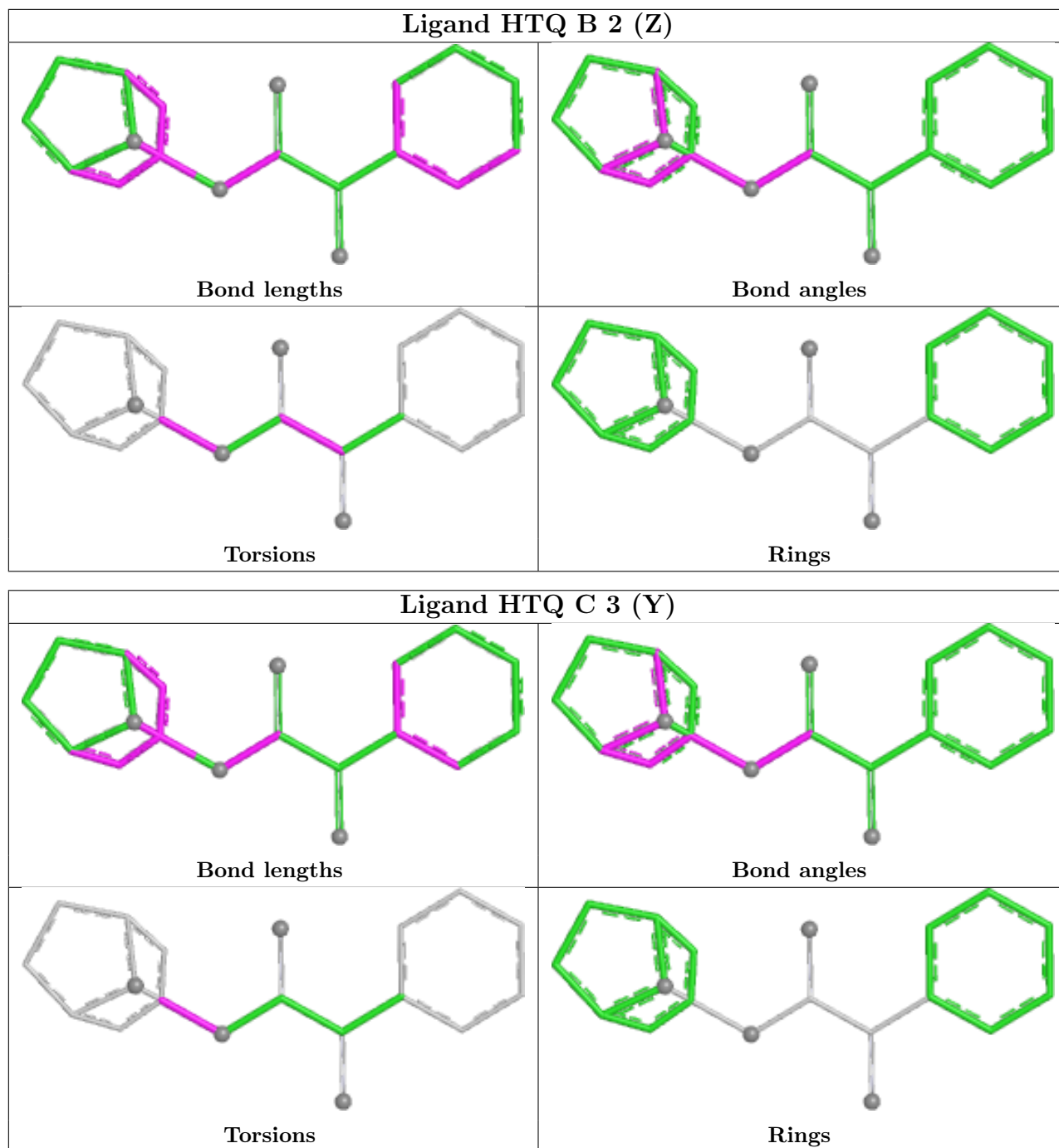


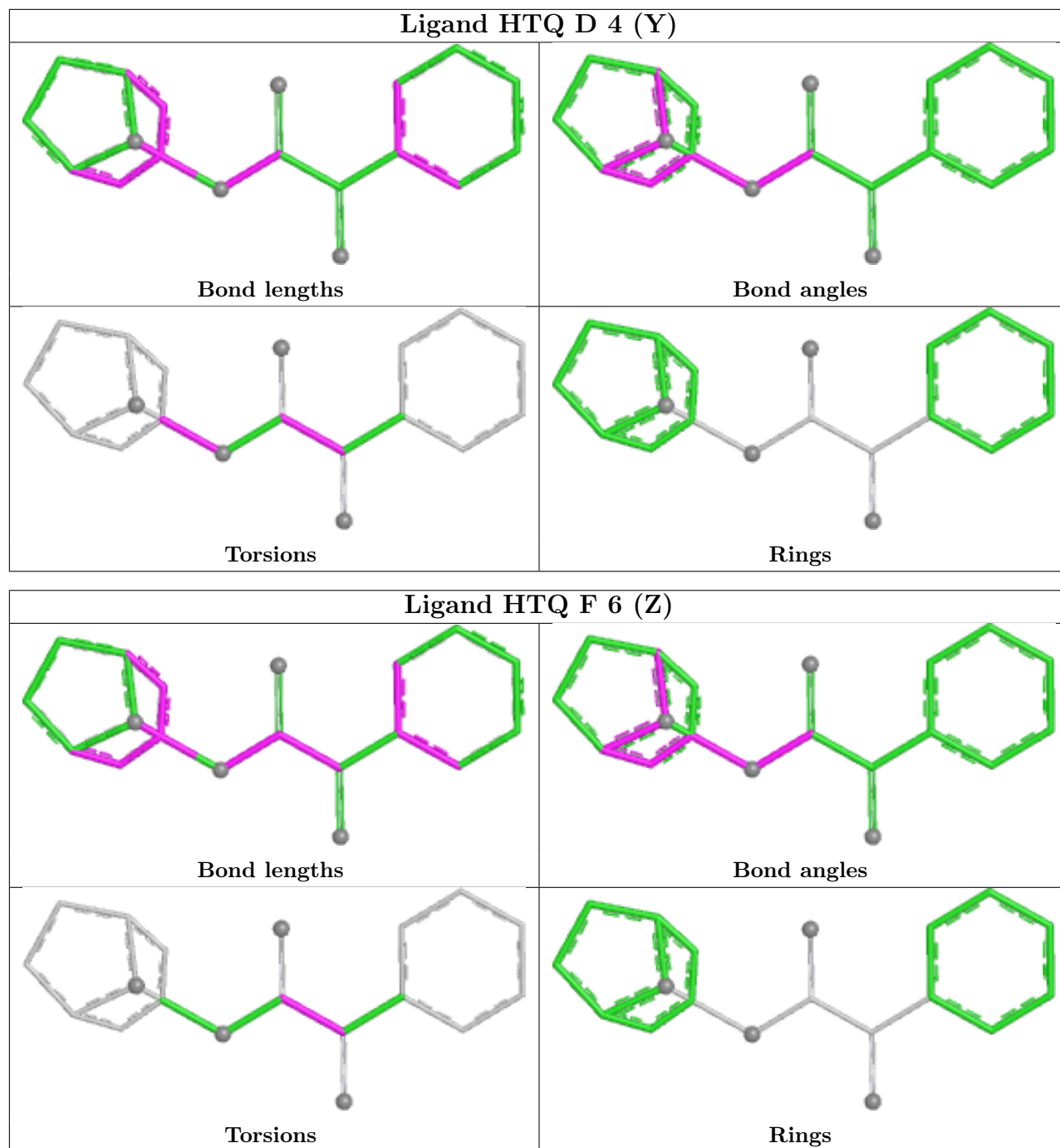












## 5.7 Other polymers [\(i\)](#)

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

EDS was not executed - this section is therefore empty.

### 6.2 Non-standard residues in protein, DNA, RNA chains

EDS was not executed - this section is therefore empty.

### 6.3 Carbohydrates

EDS was not executed - this section is therefore empty.

### 6.4 Ligands

EDS was not executed - this section is therefore empty.

### 6.5 Other polymers

EDS was not executed - this section is therefore empty.