



# Full wwPDB X-ray Structure Validation Report ⓘ

Aug 15, 2023 – 06:33 PM EDT

PDB ID : 1X9J  
Title : Structure of butyrate kinase 2 reveals both open- and citrate-induced closed conformations: implications for substrate-induced fit conformational changes  
Authors : Diao, J.S.; Sanders, D.A.; Hasson, M.S.  
Deposited on : 2004-08-21  
Resolution : 3.00 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>.

---

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

MolProbity : 4.02b-467  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.35  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
Refmac : 5.8.0158  
CCP4 : 7.0.044 (Gargrove)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.35

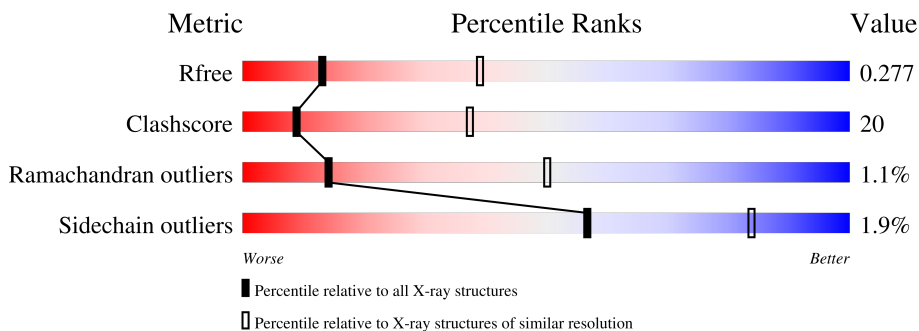
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.00 Å.

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



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

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  $\leq 5\%$ .

| Mol | Chain | Length | Quality of chain                     |
|-----|-------|--------|--------------------------------------|
| 1   | A     | 375    | 60% (green), 38% (yellow), .. (grey) |
| 1   | B     | 375    | 59% (green), 39% (yellow), .. (grey) |
| 1   | C     | 375    | 61% (green), 37% (yellow), .. (grey) |
| 1   | D     | 375    | 58% (green), 40% (yellow), .. (grey) |
| 1   | E     | 375    | 58% (green), 38% (yellow), .. (grey) |
| 1   | F     | 375    | 60% (green), 37% (yellow), .. (grey) |
| 1   | G     | 375    | 61% (green), 38% (yellow), .. (grey) |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 1   | H     | 375    | <br>59% 39% ..   |

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

| Mol | Type | Chain | Res | Chirality | Geometry | Clashes | Electron density |
|-----|------|-------|-----|-----------|----------|---------|------------------|
| 2   | GOL  | A     | 395 | -         | X        | -       | -                |
| 2   | GOL  | B     | 394 | -         | X        | -       | -                |
| 2   | GOL  | C     | 392 | -         | X        | -       | -                |
| 2   | GOL  | D     | 393 | -         | X        | -       | -                |
| 2   | GOL  | F     | 391 | -         | X        | -       | -                |
| 5   | CIT  | D     | 381 | -         | X        | -       | -                |
| 5   | CIT  | D     | 384 | -         | X        | -       | -                |
| 5   | CIT  | G     | 382 | -         | X        | -       | -                |
| 5   | CIT  | G     | 383 | -         | X        | -       | -                |

## 2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 23615 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 Probable butyrate kinase 2.

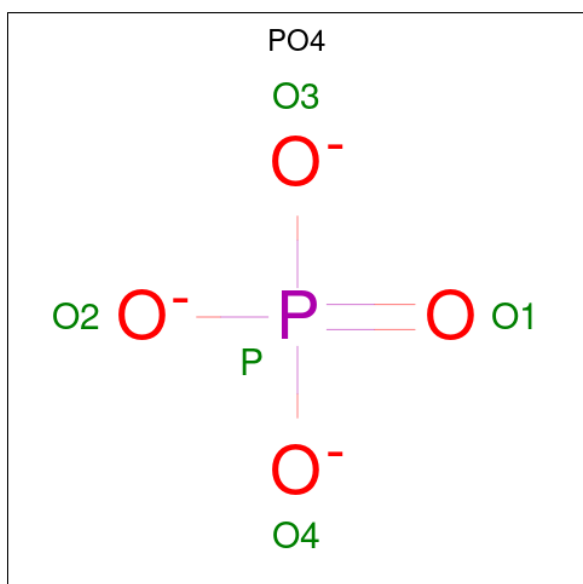
| Mol | Chain | Residues | Atoms |      |     |     |    | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|---------|-------|
|     |       |          | Total | C    | N   | O   | S  |         |         |       |
| 1   | A     | 373      | 2939  | 1866 | 521 | 539 | 13 | 0       | 0       | 0     |
| 1   | B     | 371      | 2927  | 1858 | 519 | 537 | 13 | 0       | 0       | 0     |
| 1   | C     | 371      | 2927  | 1858 | 519 | 537 | 13 | 0       | 0       | 0     |
| 1   | D     | 373      | 2939  | 1866 | 521 | 539 | 13 | 0       | 0       | 0     |
| 1   | E     | 371      | 2927  | 1858 | 519 | 537 | 13 | 0       | 0       | 0     |
| 1   | F     | 372      | 2931  | 1860 | 520 | 538 | 13 | 0       | 0       | 0     |
| 1   | G     | 373      | 2939  | 1866 | 521 | 539 | 13 | 0       | 0       | 0     |
| 1   | H     | 372      | 2931  | 1860 | 520 | 538 | 13 | 0       | 0       | 0     |

- Molecule 2 is GLYCEROL (three-letter code: GOL) (formula: C<sub>3</sub>H<sub>8</sub>O<sub>3</sub>).



| Mol | Chain | Residues | Atoms              | ZeroOcc | AltConf |
|-----|-------|----------|--------------------|---------|---------|
| 2   | A     | 1        | Total C O<br>6 3 3 | 0       | 0       |
| 2   | B     | 1        | Total C O<br>6 3 3 | 0       | 0       |
| 2   | C     | 1        | Total C O<br>6 3 3 | 0       | 0       |
| 2   | D     | 1        | Total C O<br>6 3 3 | 0       | 0       |
| 2   | F     | 1        | Total C O<br>6 3 3 | 0       | 0       |

- Molecule 3 is PHOSPHATE ION (three-letter code: PO4) (formula: O<sub>4</sub>P).

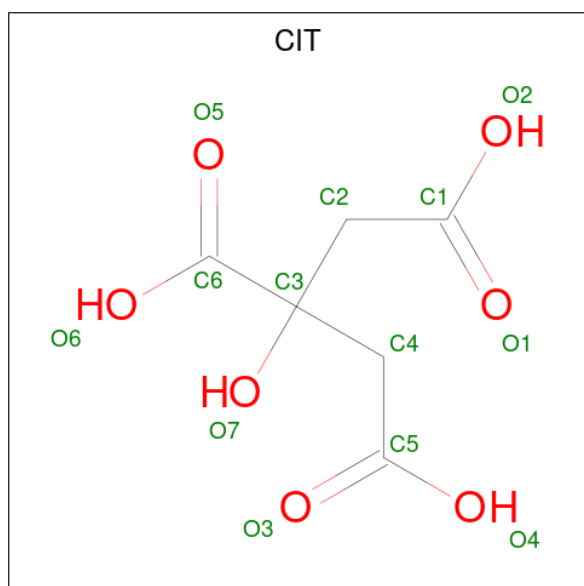


| Mol | Chain | Residues | Atoms              | ZeroOcc | AltConf |
|-----|-------|----------|--------------------|---------|---------|
| 3   | B     | 1        | Total O P<br>5 4 1 | 0       | 0       |
| 3   | E     | 1        | Total O P<br>5 4 1 | 0       | 0       |
| 3   | E     | 1        | Total O P<br>5 4 1 | 0       | 0       |
| 3   | F     | 1        | Total O P<br>5 4 1 | 0       | 0       |
| 3   | H     | 1        | Total O P<br>5 4 1 | 0       | 0       |

- Molecule 4 is SODIUM ION (three-letter code: NA) (formula: Na).

| Mol | Chain | Residues | Atoms           | ZeroOcc | AltConf |
|-----|-------|----------|-----------------|---------|---------|
| 4   | D     | 1        | Total Na<br>1 1 | 0       | 0       |

- Molecule 5 is CITRIC ACID (three-letter code: CIT) (formula: C<sub>6</sub>H<sub>8</sub>O<sub>7</sub>).



| Mol | Chain | Residues | Atoms               | ZeroOcc | AltConf |
|-----|-------|----------|---------------------|---------|---------|
| 5   | D     | 1        | Total C O<br>13 6 7 | 0       | 0       |
| 5   | D     | 1        | Total C O<br>13 6 7 | 0       | 0       |
| 5   | G     | 1        | Total C O<br>13 6 7 | 0       | 0       |
| 5   | G     | 1        | Total C O<br>13 6 7 | 0       | 0       |

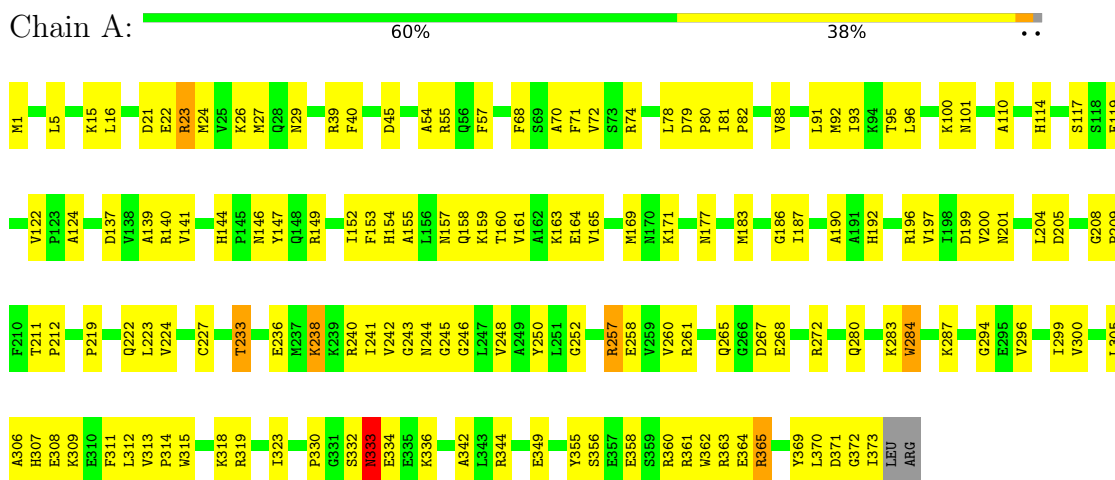
- Molecule 6 is water.

| Mol | Chain | Residues | Atoms            | ZeroOcc | AltConf |
|-----|-------|----------|------------------|---------|---------|
| 6   | A     | 8        | Total O<br>8 8   | 0       | 0       |
| 6   | B     | 7        | Total O<br>7 7   | 0       | 0       |
| 6   | C     | 5        | Total O<br>5 5   | 0       | 0       |
| 6   | D     | 10       | Total O<br>10 10 | 0       | 0       |
| 6   | E     | 4        | Total O<br>4 4   | 0       | 0       |
| 6   | F     | 3        | Total O<br>3 3   | 0       | 0       |
| 6   | G     | 8        | Total O<br>8 8   | 0       | 0       |
| 6   | H     | 2        | Total O<br>2 2   | 0       | 0       |

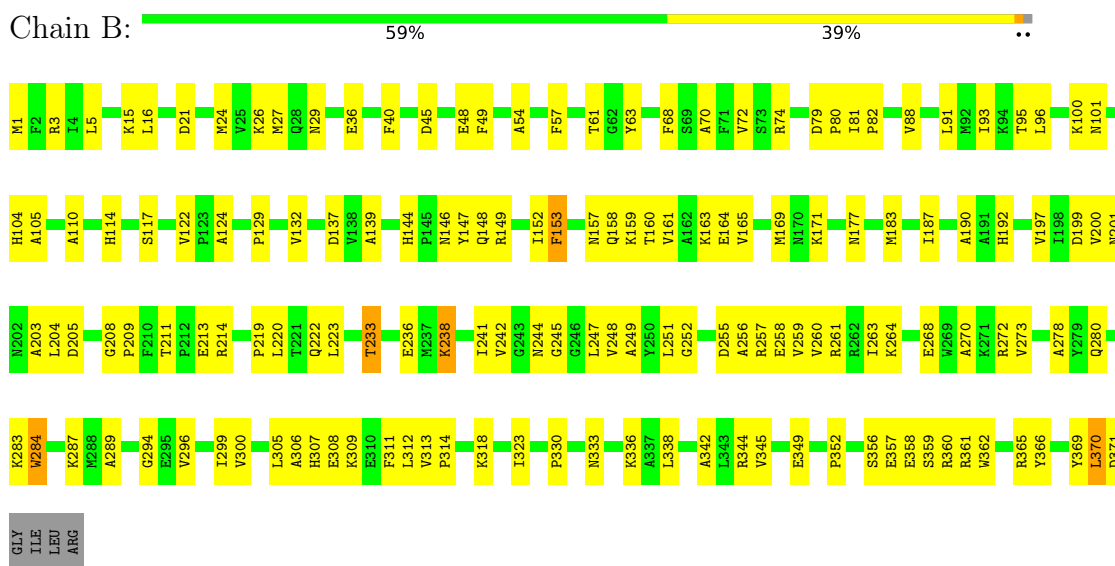
### 3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: Probable butyrate kinase 2



- Molecule 1: Probable butyrate kinase 2



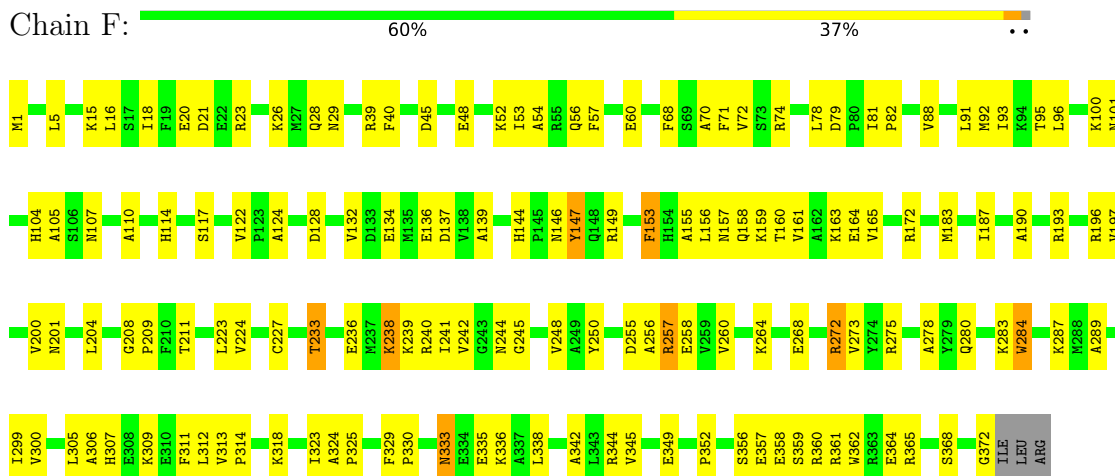
- Molecule 1: Probable butyrate kinase 2



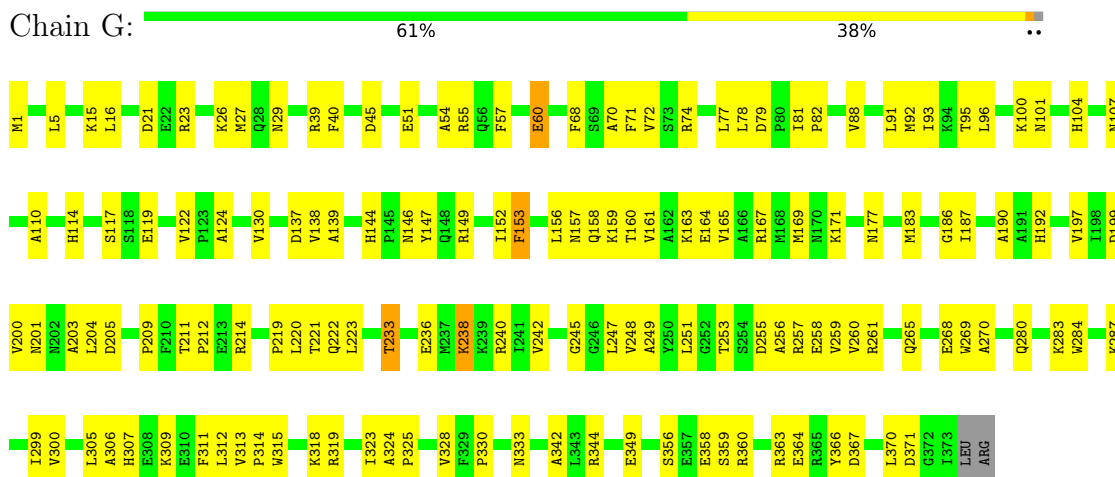




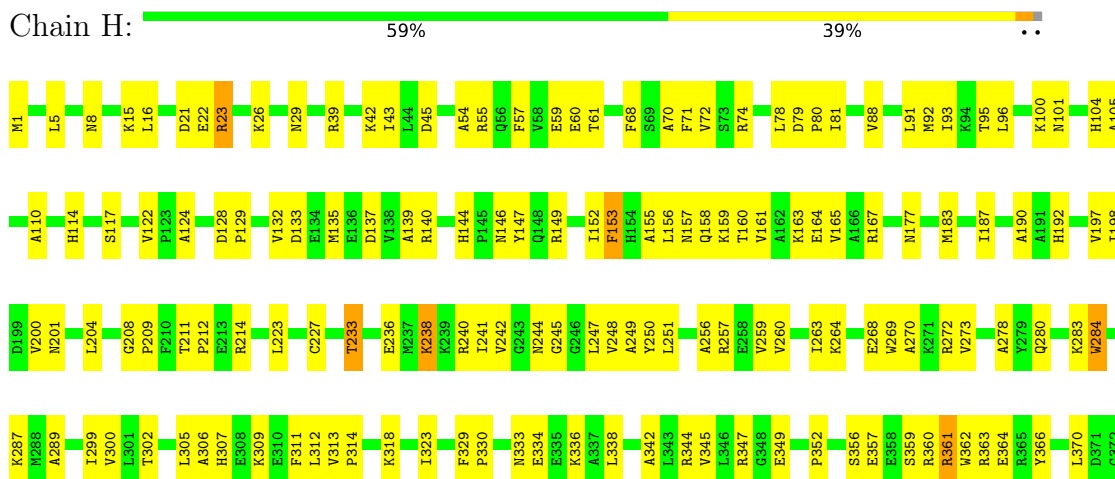
- Molecule 1: Probable butyrate kinase 2



- Molecule 1: Probable butyrate kinase 2



- Molecule 1: Probable butyrate kinase 2



ILE  
LEU  
ARG

## 4 Data and refinement statistics i

| Property  | Value   | Source           |
|---|---|------------------|
| Space group   | P 43  | Depositor        |
| Cell constants<br>a, b, c, $\alpha$ , $\beta$ , $\gamma$                | 193.68Å 193.68Å 122.93Å<br>90.00° 90.00° 90.00°             | Depositor        |
| Resolution (Å)  | 91.48 – 3.00<br>96.84 – 2.70                                | Depositor<br>EDS |
| % Data completeness<br>(in resolution range)                            | 97.0 (91.48-3.00)<br>79.0 (96.84-2.70)                      | Depositor<br>EDS |
| $R_{merge}$   | (Not available)   | Depositor        |
| $R_{sym}$   | 0.09  | Depositor        |
| $\langle I/\sigma(I) \rangle$ <sup>1</sup>                              | 2.25 (at 2.69Å)   | Xtrriage         |
| Refinement program  | CNS 1.1   | Depositor        |
| R, $R_{free}$   | 0.261 , 0.284<br>0.256 , 0.277                              | Depositor<br>DCC |
| $R_{free}$ test set   | 8832 reflections (8.99%)                                    | wwPDB-VP         |
| Wilson B-factor (Å <sup>2</sup> )                                       | 55.6  | Xtrriage         |
| Anisotropy  | 0.333   | Xtrriage         |
| Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> ) | 0.36 , 29.4   | EDS              |
| L-test for twinning <sup>2</sup>  | $\langle  L  \rangle = 0.40$ , $\langle L^2 \rangle = 0.22$ | Xtrriage         |
| Estimated twinning fraction   | 0.278 for h,-k,-l   | Xtrriage         |
| $F_o, F_c$ correlation  | 0.93  | EDS              |
| Total number of atoms   | 23615   | wwPDB-VP         |
| Average B, all atoms (Å <sup>2</sup> )                                  | 55.0  | wwPDB-VP         |

Xtrriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 41.69 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 2.2748e-04.*

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

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

## 5 Model quality

### 5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: NA, CIT, PO4, GOL

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     | 0.31         | 0/2997  | 0.54        | 0/4036          |
| 1   | B     | 0.30         | 0/2985  | 0.55        | 0/4020          |
| 1   | C     | 0.29         | 0/2985  | 0.53        | 0/4020          |
| 1   | D     | 0.32         | 0/2997  | 0.66        | 3/4036 (0.1%)   |
| 1   | E     | 0.31         | 0/2985  | 0.60        | 3/4020 (0.1%)   |
| 1   | F     | 0.33         | 0/2989  | 0.67        | 3/4025 (0.1%)   |
| 1   | G     | 0.30         | 0/2997  | 0.53        | 0/4036          |
| 1   | H     | 0.31         | 0/2989  | 0.62        | 2/4025 (0.0%)   |
| All | All   | 0.31         | 0/23924 | 0.59        | 11/32218 (0.0%) |

There are no bond length outliers.

All (11) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms     | Z      | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-----------|--------|-------------|----------|
| 1   | D     | 360 | ARG  | NE-CZ-NH1 | -16.16 | 112.22      | 120.30   |
| 1   | F     | 272 | ARG  | NE-CZ-NH1 | -15.89 | 112.35      | 120.30   |
| 1   | D     | 360 | ARG  | NE-CZ-NH2 | 15.62  | 128.11      | 120.30   |
| 1   | F     | 272 | ARG  | NE-CZ-NH2 | 15.51  | 128.05      | 120.30   |
| 1   | E     | 39  | ARG  | NE-CZ-NH1 | -11.90 | 114.35      | 120.30   |
| 1   | H     | 167 | ARG  | NE-CZ-NH1 | -11.67 | 114.46      | 120.30   |
| 1   | H     | 167 | ARG  | NE-CZ-NH2 | 11.51  | 126.06      | 120.30   |
| 1   | E     | 39  | ARG  | NE-CZ-NH2 | 11.39  | 126.00      | 120.30   |
| 1   | D     | 360 | ARG  | CD-NE-CZ  | 7.32   | 133.84      | 123.60   |
| 1   | F     | 272 | ARG  | CD-NE-CZ  | 7.27   | 133.78      | 123.60   |
| 1   | E     | 39  | ARG  | CD-NE-CZ  | 5.38   | 131.13      | 123.60   |

There are no chirality outliers.

There are no planarity outliers.

## 5.2 Too-close contacts

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     | 2939  | 0        | 2969     | 119     | 0            |
| 1   | B     | 2927  | 0        | 2955     | 132     | 0            |
| 1   | C     | 2927  | 0        | 2955     | 128     | 0            |
| 1   | D     | 2939  | 0        | 2969     | 136     | 0            |
| 1   | E     | 2927  | 0        | 2955     | 139     | 0            |
| 1   | F     | 2931  | 0        | 2958     | 123     | 0            |
| 1   | G     | 2939  | 0        | 2969     | 126     | 0            |
| 1   | H     | 2931  | 0        | 2958     | 134     | 0            |
| 2   | A     | 6     | 0        | 4        | 0       | 0            |
| 2   | B     | 6     | 0        | 4        | 0       | 0            |
| 2   | C     | 6     | 0        | 4        | 0       | 0            |
| 2   | D     | 6     | 0        | 4        | 0       | 0            |
| 2   | F     | 6     | 0        | 4        | 0       | 0            |
| 3   | B     | 5     | 0        | 0        | 0       | 0            |
| 3   | E     | 10    | 0        | 0        | 0       | 0            |
| 3   | F     | 5     | 0        | 0        | 0       | 0            |
| 3   | H     | 5     | 0        | 0        | 0       | 0            |
| 4   | D     | 1     | 0        | 0        | 0       | 0            |
| 5   | D     | 26    | 0        | 10       | 3       | 0            |
| 5   | G     | 26    | 0        | 10       | 0       | 0            |
| 6   | A     | 8     | 0        | 0        | 1       | 0            |
| 6   | B     | 7     | 0        | 0        | 1       | 0            |
| 6   | C     | 5     | 0        | 0        | 0       | 0            |
| 6   | D     | 10    | 0        | 0        | 0       | 0            |
| 6   | E     | 4     | 0        | 0        | 0       | 0            |
| 6   | F     | 3     | 0        | 0        | 0       | 0            |
| 6   | G     | 8     | 0        | 0        | 0       | 0            |
| 6   | H     | 2     | 0        | 0        | 0       | 0            |
| All | All   | 23615 | 0        | 23728    | 962     | 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 (962) 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:A:88:VAL:HG12  | 1:A:93:ILE:HD11  | 1.43                     | 1.00              |
| 1:A:257:ARG:HB3  | 1:A:257:ARG:HH11 | 1.35                     | 0.91              |
| 1:D:88:VAL:HG12  | 1:D:93:ILE:HD11  | 1.53                     | 0.90              |
| 1:H:344:ARG:HG3  | 1:H:349:GLU:HB2  | 1.53                     | 0.90              |
| 1:B:88:VAL:HG12  | 1:B:93:ILE:HD11  | 1.55                     | 0.89              |
| 1:E:344:ARG:HG3  | 1:E:349:GLU:HB2  | 1.55                     | 0.89              |
| 1:G:88:VAL:HG12  | 1:G:93:ILE:HD11  | 1.52                     | 0.88              |
| 1:A:344:ARG:HG3  | 1:A:349:GLU:HB2  | 1.54                     | 0.88              |
| 1:G:344:ARG:HG3  | 1:G:349:GLU:HB2  | 1.53                     | 0.87              |
| 1:D:344:ARG:HG3  | 1:D:349:GLU:HB2  | 1.54                     | 0.87              |
| 1:F:272:ARG:HD2  | 1:G:137:ASP:OD2  | 1.75                     | 0.86              |
| 1:C:333:ASN:ND2  | 1:C:336:LYS:HB2  | 1.90                     | 0.85              |
| 1:E:261:ARG:NH1  | 1:E:261:ARG:HB2  | 1.93                     | 0.84              |
| 1:C:196:ARG:HH22 | 1:C:365:ARG:HH12 | 1.25                     | 0.82              |
| 1:C:309:LYS:NZ   | 1:D:167:ARG:HD2  | 1.95                     | 0.81              |
| 1:D:72:VAL:HG21  | 1:D:342:ALA:HB2  | 1.61                     | 0.81              |
| 1:E:261:ARG:HB2  | 1:E:261:ARG:HH11 | 1.46                     | 0.81              |
| 1:A:72:VAL:HG21  | 1:A:342:ALA:HB2  | 1.60                     | 0.81              |
| 1:B:72:VAL:HG21  | 1:B:342:ALA:HB2  | 1.63                     | 0.81              |
| 1:G:167:ARG:HD2  | 1:H:309:LYS:NZ   | 1.97                     | 0.80              |
| 1:E:306:ALA:HB3  | 1:E:330:PRO:HA   | 1.64                     | 0.79              |
| 1:A:241:ILE:HG13 | 1:A:242:VAL:HG23 | 1.65                     | 0.79              |
| 1:B:283:LYS:HE2  | 1:C:287:LYS:HE2  | 1.65                     | 0.79              |
| 1:C:344:ARG:HG3  | 1:C:349:GLU:HB2  | 1.65                     | 0.78              |
| 1:B:129:PRO:O    | 1:B:132:VAL:HG23 | 1.84                     | 0.78              |
| 1:G:72:VAL:HG21  | 1:G:342:ALA:HB2  | 1.66                     | 0.78              |
| 1:C:196:ARG:NH2  | 1:C:365:ARG:HH12 | 1.82                     | 0.78              |
| 1:H:72:VAL:HG21  | 1:H:342:ALA:HB2  | 1.66                     | 0.78              |
| 1:H:137:ASP:O    | 1:H:140:ARG:HG3  | 1.83                     | 0.77              |
| 1:D:287:LYS:HE2  | 1:E:283:LYS:HE2  | 1.66                     | 0.77              |
| 1:F:283:LYS:HE2  | 1:G:287:LYS:HE2  | 1.66                     | 0.77              |
| 1:G:261:ARG:HH11 | 1:G:261:ARG:HB3  | 1.48                     | 0.76              |
| 1:B:333:ASN:HD22 | 1:B:336:LYS:HB2  | 1.51                     | 0.76              |
| 1:H:92:MET:HG2   | 1:H:92:MET:O     | 1.86                     | 0.76              |
| 1:G:360:ARG:O    | 1:G:363:ARG:HG2  | 1.84                     | 0.76              |
| 1:C:23:ARG:HD2   | 1:D:257:ARG:HH21 | 1.49                     | 0.75              |
| 1:D:82:PRO:HD2   | 1:D:358:GLU:HG3  | 1.68                     | 0.75              |
| 1:B:257:ARG:HH21 | 1:B:257:ARG:HA   | 1.51                     | 0.75              |
| 1:B:241:ILE:HD11 | 1:C:224:VAL:HG21 | 1.67                     | 0.75              |
| 1:D:77:LEU:HD21  | 1:D:204:LEU:CD1  | 2.17                     | 0.75              |
| 1:C:26:LYS:HE2   | 1:C:57:PHE:CE1   | 2.21                     | 0.74              |
| 1:E:240:ARG:HA   | 1:E:244:ASN:OD1  | 1.88                     | 0.74              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:26:LYS:HE2   | 1:G:57:PHE:CE1   | 2.22                     | 0.74              |
| 1:G:214:ARG:HE   | 1:G:242:VAL:HG13 | 1.53                     | 0.74              |
| 1:A:27:MET:HG2   | 1:B:24:MET:HE3   | 1.70                     | 0.74              |
| 1:F:72:VAL:HG21  | 1:F:342:ALA:HB2  | 1.69                     | 0.74              |
| 1:D:283:LYS:HE2  | 1:E:287:LYS:HE2  | 1.70                     | 0.74              |
| 1:B:287:LYS:HE2  | 1:C:283:LYS:HE2  | 1.68                     | 0.73              |
| 1:A:287:LYS:HE2  | 1:H:283:LYS:HE2  | 1.71                     | 0.72              |
| 1:G:261:ARG:HB3  | 1:G:261:ARG:NH1  | 2.03                     | 0.72              |
| 1:B:26:LYS:HE2   | 1:B:57:PHE:CE1   | 2.24                     | 0.72              |
| 1:D:261:ARG:HG2  | 1:D:265:GLN:HE21 | 1.53                     | 0.71              |
| 1:E:245:GLY:O    | 1:E:248:VAL:HG12 | 1.90                     | 0.71              |
| 1:A:283:LYS:HE2  | 1:H:287:LYS:HE2  | 1.72                     | 0.71              |
| 1:B:251:LEU:HD21 | 1:B:270:ALA:HA   | 1.71                     | 0.71              |
| 1:B:82:PRO:HD2   | 1:B:358:GLU:HG3  | 1.72                     | 0.71              |
| 1:C:72:VAL:HG21  | 1:C:342:ALA:HB2  | 1.73                     | 0.70              |
| 1:E:72:VAL:HG21  | 1:E:342:ALA:HB2  | 1.73                     | 0.70              |
| 1:E:365:ARG:O    | 1:E:369:TYR:HB2  | 1.91                     | 0.70              |
| 1:E:26:LYS:HE2   | 1:E:57:PHE:CE1   | 2.27                     | 0.70              |
| 1:E:91:LEU:HD23  | 1:E:356:SER:HA   | 1.74                     | 0.70              |
| 1:G:167:ARG:HD2  | 1:H:309:LYS:CE   | 2.21                     | 0.70              |
| 1:H:88:VAL:HG12  | 1:H:93:ILE:HD11  | 1.73                     | 0.70              |
| 1:E:255:ASP:OD1  | 1:E:257:ARG:HG3  | 1.92                     | 0.69              |
| 1:E:261:ARG:HG2  | 1:E:265:GLN:HE21 | 1.57                     | 0.69              |
| 1:F:287:LYS:HE2  | 1:G:283:LYS:HE2  | 1.74                     | 0.69              |
| 1:D:88:VAL:CG1   | 1:D:93:ILE:HD11  | 2.22                     | 0.69              |
| 1:D:208:GLY:HA2  | 1:D:284:TRP:CZ2  | 2.27                     | 0.69              |
| 1:H:359:SER:O    | 1:H:363:ARG:HG3  | 1.93                     | 0.69              |
| 1:C:333:ASN:HD22 | 1:C:336:LYS:HB2  | 1.57                     | 0.69              |
| 1:D:256:ALA:O    | 1:D:260:VAL:HG23 | 1.94                     | 0.68              |
| 1:B:259:VAL:O    | 1:B:263:ILE:HG13 | 1.94                     | 0.68              |
| 1:H:360:ARG:O    | 1:H:364:GLU:HG3  | 1.94                     | 0.68              |
| 1:D:220:LEU:HD22 | 1:E:223:LEU:HD22 | 1.75                     | 0.67              |
| 1:E:240:ARG:HD2  | 1:E:244:ASN:ND2  | 2.08                     | 0.67              |
| 1:C:309:LYS:CE   | 1:D:167:ARG:HD2  | 2.23                     | 0.67              |
| 1:H:208:GLY:HA2  | 1:H:284:TRP:CZ2  | 2.29                     | 0.67              |
| 1:A:257:ARG:HB3  | 1:A:257:ARG:NH1  | 2.10                     | 0.67              |
| 1:F:245:GLY:O    | 1:F:248:VAL:HG12 | 1.95                     | 0.67              |
| 1:H:250:TYR:HB3  | 1:H:273:VAL:HG21 | 1.76                     | 0.67              |
| 1:G:248:VAL:HA   | 1:G:253:THR:O    | 1.93                     | 0.67              |
| 1:G:167:ARG:HD2  | 1:H:309:LYS:HZ1  | 1.59                     | 0.67              |
| 1:D:129:PRO:O    | 1:D:132:VAL:HG23 | 1.96                     | 0.66              |

*Continued on next page...*



*Continued from previous page...*

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:240:ARG:HD2  | 1:C:244:ASN:HD21 | 1.59                     | 0.66              |
| 1:E:144:HIS:CE1  | 1:E:146:ASN:HD22 | 2.14                     | 0.66              |
| 1:G:77:LEU:HD21  | 1:G:204:LEU:CD1  | 2.24                     | 0.66              |
| 1:E:208:GLY:HA2  | 1:E:284:TRP:CZ2  | 2.29                     | 0.66              |
| 1:C:23:ARG:HD2   | 1:D:257:ARG:NH2  | 2.11                     | 0.66              |
| 1:C:240:ARG:HD2  | 1:C:244:ASN:ND2  | 2.10                     | 0.66              |
| 1:E:369:TYR:HB3  | 1:E:370:LEU:HD12 | 1.77                     | 0.65              |
| 1:A:241:ILE:HG13 | 1:A:242:VAL:H    | 1.61                     | 0.65              |
| 1:A:360:ARG:O    | 1:A:364:GLU:HG3  | 1.96                     | 0.65              |
| 1:E:328:VAL:HG12 | 1:E:330:PRO:HD3  | 1.77                     | 0.65              |
| 1:G:167:ARG:HD2  | 1:H:309:LYS:HE2  | 1.76                     | 0.65              |
| 1:H:23:ARG:H     | 1:H:23:ARG:HD2   | 1.60                     | 0.65              |
| 1:B:306:ALA:HB3  | 1:B:330:PRO:HA   | 1.78                     | 0.65              |
| 1:E:161:VAL:O    | 1:E:165:VAL:HG23 | 1.97                     | 0.65              |
| 1:E:214:ARG:NE   | 1:E:242:VAL:HG23 | 2.12                     | 0.65              |
| 1:H:214:ARG:HE   | 1:H:242:VAL:HG23 | 1.61                     | 0.65              |
| 1:H:256:ALA:O    | 1:H:260:VAL:HG23 | 1.96                     | 0.65              |
| 1:G:256:ALA:O    | 1:G:260:VAL:HG23 | 1.96                     | 0.65              |
| 1:D:306:ALA:HB3  | 1:D:330:PRO:HA   | 1.79                     | 0.64              |
| 1:D:356:SER:HB3  | 1:D:360:ARG:NH1  | 2.12                     | 0.64              |
| 1:H:55:ARG:HG2   | 1:H:55:ARG:HH11  | 1.63                     | 0.64              |
| 1:G:91:LEU:HD23  | 1:G:356:SER:HA   | 1.80                     | 0.64              |
| 1:A:72:VAL:HG21  | 1:A:342:ALA:CB   | 2.26                     | 0.64              |
| 1:E:128:ASP:HB2  | 1:E:156:LEU:HA   | 1.79                     | 0.64              |
| 1:B:361:ARG:O    | 1:B:365:ARG:HG3  | 1.97                     | 0.64              |
| 1:F:190:ALA:HB1  | 1:F:197:VAL:HG13 | 1.78                     | 0.64              |
| 1:A:241:ILE:HG13 | 1:A:242:VAL:N    | 2.13                     | 0.64              |
| 1:C:258:GLU:O    | 1:C:261:ARG:HB3  | 1.98                     | 0.64              |
| 1:G:212:PRO:HA   | 1:G:247:LEU:HB2  | 1.79                     | 0.64              |
| 1:E:135:MET:HA   | 1:E:198:ILE:HA   | 1.79                     | 0.64              |
| 1:F:161:VAL:O    | 1:F:165:VAL:HG23 | 1.97                     | 0.64              |
| 1:H:214:ARG:NE   | 1:H:242:VAL:HG23 | 2.12                     | 0.64              |
| 1:H:135:MET:HA   | 1:H:198:ILE:HA   | 1.80                     | 0.63              |
| 1:G:130:VAL:HG23 | 1:G:153:PHE:O    | 1.96                     | 0.63              |
| 1:A:91:LEU:HD23  | 1:A:356:SER:HA   | 1.79                     | 0.63              |
| 1:A:219:PRO:HG2  | 1:A:222:GLN:NE2  | 2.13                     | 0.63              |
| 1:A:258:GLU:O    | 1:A:261:ARG:HB3  | 1.98                     | 0.63              |
| 1:F:313:VAL:HB   | 1:F:314:PRO:HD3  | 1.81                     | 0.63              |
| 1:H:313:VAL:HB   | 1:H:314:PRO:HD3  | 1.80                     | 0.63              |
| 1:A:240:ARG:HH21 | 1:H:144:HIS:CE1  | 2.17                     | 0.63              |
| 1:D:255:ASP:O    | 1:D:259:VAL:HG23 | 1.99                     | 0.63              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1          | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|------------------|--------------------------|-------------------|
| 1:D:43:ILE:HD12 | 1:D:103:GLU:HB3  | 1.80                     | 0.63              |
| 1:G:360:ARG:O   | 1:G:364:GLU:HG3  | 1.98                     | 0.63              |
| 1:H:212:PRO:HA  | 1:H:247:LEU:HB3  | 1.80                     | 0.63              |
| 1:C:309:LYS:HE2 | 1:D:167:ARG:HD2  | 1.79                     | 0.62              |
| 1:C:144:HIS:CE1 | 1:C:146:ASN:HD22 | 2.17                     | 0.62              |
| 1:D:313:VAL:HB  | 1:D:314:PRO:HD3  | 1.81                     | 0.62              |
| 1:H:26:LYS:HE2  | 1:H:57:PHE:CE1   | 2.35                     | 0.62              |
| 1:D:161:VAL:O   | 1:D:165:VAL:HG23 | 1.99                     | 0.62              |
| 1:D:72:VAL:HG21 | 1:D:342:ALA:CB   | 2.30                     | 0.62              |
| 1:H:95:THR:HG23 | 1:H:100:LYS:HD3  | 1.82                     | 0.62              |
| 1:F:240:ARG:NH1 | 1:F:244:ASN:HD21 | 1.98                     | 0.62              |
| 1:H:161:VAL:O   | 1:H:165:VAL:HG23 | 2.00                     | 0.62              |
| 1:B:161:VAL:O   | 1:B:165:VAL:HG23 | 2.00                     | 0.61              |
| 1:G:81:ILE:HG22 | 1:G:359:SER:HA   | 1.82                     | 0.61              |
| 1:G:82:PRO:HD2  | 1:G:358:GLU:HG3  | 1.81                     | 0.61              |
| 1:B:93:ILE:HD12 | 1:B:93:ILE:H     | 1.65                     | 0.61              |
| 1:G:360:ARG:HA  | 1:G:363:ARG:NE   | 2.15                     | 0.61              |
| 1:D:95:THR:HG23 | 1:D:100:LYS:HD3  | 1.83                     | 0.61              |
| 1:G:161:VAL:O   | 1:G:165:VAL:HG23 | 1.99                     | 0.61              |
| 1:A:95:THR:HG23 | 1:A:100:LYS:HD3  | 1.82                     | 0.61              |
| 1:B:95:THR:HG23 | 1:B:100:LYS:HD3  | 1.83                     | 0.61              |
| 1:B:81:ILE:HG22 | 1:B:359:SER:HA   | 1.82                     | 0.61              |
| 1:E:238:LYS:HB2 | 1:E:238:LYS:NZ   | 2.15                     | 0.61              |
| 1:C:95:THR:HG23 | 1:C:100:LYS:HD3  | 1.81                     | 0.61              |
| 1:F:157:ASN:ND2 | 1:F:161:VAL:HG13 | 2.16                     | 0.61              |
| 1:C:161:VAL:O   | 1:C:165:VAL:HG23 | 2.01                     | 0.61              |
| 1:E:313:VAL:HB  | 1:E:314:PRO:HD3  | 1.83                     | 0.61              |
| 1:E:356:SER:HB3 | 1:E:360:ARG:HH12 | 1.65                     | 0.61              |
| 1:H:238:LYS:HB2 | 1:H:238:LYS:NZ   | 2.16                     | 0.61              |
| 1:H:356:SER:HB3 | 1:H:360:ARG:HH12 | 1.66                     | 0.61              |
| 1:A:161:VAL:O   | 1:A:165:VAL:HG23 | 2.01                     | 0.60              |
| 1:C:238:LYS:HB2 | 1:C:238:LYS:NZ   | 2.15                     | 0.60              |
| 1:D:238:LYS:HB2 | 1:D:238:LYS:NZ   | 2.16                     | 0.60              |
| 1:G:313:VAL:HB  | 1:G:314:PRO:HD3  | 1.82                     | 0.60              |
| 1:F:95:THR:HG23 | 1:F:100:LYS:HD3  | 1.82                     | 0.60              |
| 1:G:95:THR:HG23 | 1:G:100:LYS:HD3  | 1.83                     | 0.60              |
| 1:H:157:ASN:ND2 | 1:H:161:VAL:HG13 | 2.16                     | 0.60              |
| 1:A:238:LYS:NZ  | 1:A:238:LYS:HB2  | 2.15                     | 0.60              |
| 1:B:313:VAL:HB  | 1:B:314:PRO:HD3  | 1.83                     | 0.60              |
| 1:D:81:ILE:HG22 | 1:D:359:SER:HA   | 1.82                     | 0.60              |
| 1:C:40:PHE:HB3  | 1:C:45:ASP:HB2   | 1.82                     | 0.60              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:E:157:ASN:ND2  | 1:E:161:VAL:HG13 | 2.17                     | 0.60              |
| 1:B:238:LYS:HB2  | 1:B:238:LYS:NZ   | 2.17                     | 0.60              |
| 1:E:248:VAL:HA   | 1:E:253:THR:O    | 2.02                     | 0.60              |
| 1:E:251:LEU:HD21 | 1:E:270:ALA:HA   | 1.83                     | 0.60              |
| 1:G:238:LYS:HB2  | 1:G:238:LYS:NZ   | 2.16                     | 0.60              |
| 1:A:313:VAL:HB   | 1:A:314:PRO:HD3  | 1.83                     | 0.60              |
| 1:D:93:ILE:O     | 1:D:93:ILE:HG22  | 2.00                     | 0.60              |
| 1:D:220:LEU:HD12 | 1:E:241:ILE:HG23 | 1.83                     | 0.60              |
| 1:B:157:ASN:ND2  | 1:B:161:VAL:HG13 | 2.17                     | 0.60              |
| 1:D:219:PRO:HG2  | 1:D:222:GLN:NE2  | 2.16                     | 0.60              |
| 1:E:95:THR:HG23  | 1:E:100:LYS:HD3  | 1.83                     | 0.60              |
| 1:E:261:ARG:HH11 | 1:E:261:ARG:CB   | 2.13                     | 0.60              |
| 1:D:134:GLU:OE2  | 1:D:196:ARG:HA   | 2.02                     | 0.59              |
| 1:C:144:HIS:CE1  | 1:C:146:ASN:ND2  | 2.70                     | 0.59              |
| 1:G:356:SER:HB3  | 1:G:360:ARG:HH12 | 1.68                     | 0.59              |
| 1:B:144:HIS:CE1  | 1:C:240:ARG:HH21 | 2.21                     | 0.59              |
| 1:B:356:SER:HB3  | 1:B:360:ARG:HH12 | 1.67                     | 0.59              |
| 1:F:92:MET:O     | 1:F:92:MET:HG2   | 2.02                     | 0.59              |
| 1:F:238:LYS:NZ   | 1:F:238:LYS:HB2  | 2.16                     | 0.59              |
| 1:F:128:ASP:HB2  | 1:F:156:LEU:HA   | 1.84                     | 0.59              |
| 1:B:257:ARG:HH21 | 1:B:257:ARG:CA   | 2.15                     | 0.59              |
| 1:B:36:GLU:OE1   | 1:B:49:PHE:HZ    | 1.86                     | 0.59              |
| 1:G:214:ARG:NE   | 1:G:242:VAL:HG13 | 2.16                     | 0.59              |
| 1:C:313:VAL:HB   | 1:C:314:PRO:HD3  | 1.84                     | 0.58              |
| 1:H:79:ASP:HB2   | 1:H:363:ARG:NH1  | 2.18                     | 0.58              |
| 1:H:251:LEU:HD21 | 1:H:270:ALA:HA   | 1.85                     | 0.58              |
| 1:H:259:VAL:O    | 1:H:263:ILE:HG13 | 2.04                     | 0.58              |
| 1:B:333:ASN:ND2  | 1:B:336:LYS:H    | 2.00                     | 0.58              |
| 1:E:214:ARG:HE   | 1:E:242:VAL:HG23 | 1.68                     | 0.58              |
| 1:F:333:ASN:HB3  | 1:F:336:LYS:HB3  | 1.85                     | 0.58              |
| 1:A:26:LYS:HE2   | 1:A:57:PHE:CE1   | 2.38                     | 0.58              |
| 1:C:91:LEU:HD23  | 1:C:356:SER:HA   | 1.86                     | 0.58              |
| 1:B:248:VAL:HG13 | 1:B:249:ALA:N    | 2.18                     | 0.58              |
| 1:F:356:SER:HB3  | 1:F:360:ARG:HH12 | 1.67                     | 0.58              |
| 1:B:36:GLU:OE1   | 1:B:49:PHE:CZ    | 2.57                     | 0.58              |
| 1:F:255:ASP:OD1  | 1:F:257:ARG:HB2  | 2.03                     | 0.58              |
| 1:G:187:ILE:HG13 | 1:G:211:THR:HG22 | 1.86                     | 0.57              |
| 1:C:356:SER:HB3  | 1:C:360:ARG:HH12 | 1.68                     | 0.57              |
| 1:D:91:LEU:HD23  | 1:D:356:SER:HA   | 1.86                     | 0.57              |
| 1:D:258:GLU:HA   | 1:D:261:ARG:NH1  | 2.19                     | 0.57              |
| 1:A:157:ASN:ND2  | 1:A:161:VAL:HG13 | 2.18                     | 0.57              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:309:LYS:HZ1  | 1:D:167:ARG:HD2  | 1.67                     | 0.57              |
| 1:E:201:ASN:HB3  | 1:E:284:TRP:CZ3  | 2.38                     | 0.57              |
| 1:H:240:ARG:HA   | 1:H:244:ASN:HB2  | 1.85                     | 0.57              |
| 1:B:91:LEU:HD23  | 1:B:356:SER:HA   | 1.85                     | 0.57              |
| 1:C:60:GLU:OE2   | 1:D:60:GLU:HB3   | 2.05                     | 0.57              |
| 1:C:157:ASN:ND2  | 1:C:161:VAL:HG13 | 2.19                     | 0.57              |
| 1:H:302:THR:HA   | 1:H:329:PHE:O    | 2.05                     | 0.57              |
| 1:B:70:ALA:HA    | 1:B:122:VAL:HG12 | 1.87                     | 0.57              |
| 1:B:72:VAL:HG21  | 1:B:342:ALA:CB   | 2.34                     | 0.57              |
| 1:C:306:ALA:HB3  | 1:C:330:PRO:HA   | 1.85                     | 0.57              |
| 1:D:154:HIS:NE2  | 5:D:381:CIT:H41  | 2.20                     | 0.57              |
| 1:D:239:LYS:O    | 1:D:244:ASN:HB3  | 2.05                     | 0.57              |
| 1:F:147:TYR:CD1  | 1:F:147:TYR:N    | 2.73                     | 0.57              |
| 1:B:40:PHE:HB3   | 1:B:45:ASP:HB2   | 1.86                     | 0.56              |
| 1:D:157:ASN:ND2  | 1:D:161:VAL:HG13 | 2.19                     | 0.56              |
| 1:H:245:GLY:O    | 1:H:248:VAL:HG12 | 2.05                     | 0.56              |
| 1:D:160:THR:O    | 1:D:164:GLU:HG3  | 2.05                     | 0.56              |
| 1:A:24:MET:HE3   | 1:B:27:MET:HG2   | 1.86                     | 0.56              |
| 1:A:27:MET:HG2   | 1:B:24:MET:CE    | 2.36                     | 0.56              |
| 1:A:356:SER:HB3  | 1:A:360:ARG:HH12 | 1.70                     | 0.56              |
| 1:B:272:ARG:HD2  | 1:C:369:TYR:CE1  | 2.40                     | 0.56              |
| 1:C:135:MET:HA   | 1:C:198:ILE:HA   | 1.86                     | 0.56              |
| 1:C:240:ARG:HH11 | 1:C:244:ASN:ND2  | 2.03                     | 0.56              |
| 1:C:261:ARG:HG2  | 1:C:265:GLN:HE21 | 1.71                     | 0.56              |
| 1:C:144:HIS:HE1  | 1:C:146:ASN:ND2  | 2.03                     | 0.56              |
| 1:D:26:LYS:HE2   | 1:D:57:PHE:CE1   | 2.41                     | 0.56              |
| 1:D:223:LEU:HD21 | 1:E:224:VAL:CG2  | 2.36                     | 0.56              |
| 1:F:139:ALA:O    | 1:F:149:ARG:HD3  | 2.05                     | 0.56              |
| 1:B:104:HIS:CD2  | 1:B:105:ALA:H    | 2.24                     | 0.56              |
| 1:G:72:VAL:HG21  | 1:G:342:ALA:CB   | 2.36                     | 0.56              |
| 1:G:139:ALA:O    | 1:G:149:ARG:HD3  | 2.05                     | 0.56              |
| 1:H:74:ARG:HG2   | 1:H:74:ARG:HH11  | 1.71                     | 0.56              |
| 1:A:139:ALA:O    | 1:A:149:ARG:HD3  | 2.06                     | 0.56              |
| 1:B:160:THR:O    | 1:B:164:GLU:HG3  | 2.06                     | 0.56              |
| 1:C:74:ARG:HG2   | 1:C:74:ARG:HH11  | 1.70                     | 0.56              |
| 1:E:240:ARG:HA   | 1:E:244:ASN:ND2  | 2.21                     | 0.56              |
| 1:F:344:ARG:HG3  | 1:F:349:GLU:HB2  | 1.87                     | 0.56              |
| 1:G:157:ASN:ND2  | 1:G:161:VAL:HG13 | 2.19                     | 0.56              |
| 1:A:74:ARG:HH11  | 1:A:74:ARG:HG2   | 1.70                     | 0.56              |
| 1:D:259:VAL:O    | 1:D:263:ILE:HG13 | 2.06                     | 0.56              |
| 1:F:160:THR:O    | 1:F:164:GLU:HG3  | 2.06                     | 0.56              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:160:THR:O    | 1:G:164:GLU:HG3  | 2.06                     | 0.56              |
| 1:B:357:GLU:O    | 1:B:361:ARG:HG3  | 2.06                     | 0.56              |
| 1:E:139:ALA:O    | 1:E:149:ARG:HD3  | 2.06                     | 0.56              |
| 1:F:91:LEU:HD23  | 1:F:356:SER:HA   | 1.88                     | 0.55              |
| 1:G:190:ALA:HB1  | 1:G:197:VAL:HG13 | 1.88                     | 0.55              |
| 1:B:74:ARG:HG2   | 1:B:74:ARG:HH11  | 1.71                     | 0.55              |
| 1:B:148:GLN:HG3  | 1:B:366:TYR:OH   | 2.06                     | 0.55              |
| 1:F:70:ALA:HA    | 1:F:122:VAL:HG12 | 1.88                     | 0.55              |
| 1:A:70:ALA:HA    | 1:A:122:VAL:HG12 | 1.88                     | 0.55              |
| 1:E:74:ARG:HG2   | 1:E:74:ARG:HH11  | 1.71                     | 0.55              |
| 1:C:160:THR:O    | 1:C:164:GLU:HG3  | 2.06                     | 0.55              |
| 1:E:219:PRO:HG2  | 1:E:222:GLN:NE2  | 2.22                     | 0.55              |
| 1:G:255:ASP:HB3  | 1:G:258:GLU:CB   | 2.36                     | 0.55              |
| 1:B:80:PRO:HB2   | 1:B:362:TRP:CE3  | 2.41                     | 0.55              |
| 1:B:139:ALA:O    | 1:B:149:ARG:HD3  | 2.06                     | 0.55              |
| 1:H:70:ALA:HA    | 1:H:122:VAL:HG12 | 1.89                     | 0.55              |
| 1:H:160:THR:O    | 1:H:164:GLU:HG3  | 2.07                     | 0.55              |
| 1:C:190:ALA:HB1  | 1:C:197:VAL:HG13 | 1.89                     | 0.55              |
| 1:D:187:ILE:HG13 | 1:D:211:THR:HG22 | 1.89                     | 0.55              |
| 1:F:239:LYS:O    | 1:F:244:ASN:HB3  | 2.06                     | 0.55              |
| 1:H:43:ILE:C     | 1:H:45:ASP:H     | 2.10                     | 0.55              |
| 1:H:139:ALA:O    | 1:H:149:ARG:HD3  | 2.07                     | 0.55              |
| 1:A:245:GLY:O    | 1:A:248:VAL:HG12 | 2.07                     | 0.55              |
| 1:F:114:HIS:O    | 1:F:117:SER:HB3  | 2.07                     | 0.55              |
| 1:A:114:HIS:O    | 1:A:117:SER:HB3  | 2.07                     | 0.54              |
| 1:B:5:LEU:HB2    | 1:B:68:PHE:CE2   | 2.42                     | 0.54              |
| 1:D:40:PHE:HB3   | 1:D:45:ASP:HB2   | 1.88                     | 0.54              |
| 1:F:40:PHE:HB3   | 1:F:45:ASP:HB2   | 1.90                     | 0.54              |
| 1:C:153:PHE:CD1  | 1:C:158:GLN:HG3  | 2.43                     | 0.54              |
| 1:D:190:ALA:HB1  | 1:D:197:VAL:HG13 | 1.89                     | 0.54              |
| 1:E:240:ARG:HA   | 1:E:244:ASN:CG   | 2.27                     | 0.54              |
| 1:F:223:LEU:HD22 | 1:G:220:LEU:HD22 | 1.89                     | 0.54              |
| 1:F:257:ARG:HB3  | 1:F:257:ARG:NH1  | 2.23                     | 0.54              |
| 1:D:70:ALA:HA    | 1:D:122:VAL:HG12 | 1.89                     | 0.54              |
| 1:D:212:PRO:O    | 1:D:248:VAL:HG23 | 2.08                     | 0.54              |
| 1:A:88:VAL:HG12  | 1:A:93:ILE:CD1   | 2.29                     | 0.54              |
| 1:E:40:PHE:HB3   | 1:E:45:ASP:HB2   | 1.90                     | 0.54              |
| 1:B:268:GLU:HG3  | 1:C:369:TYR:OH   | 2.07                     | 0.54              |
| 1:D:223:LEU:HD23 | 1:E:223:LEU:HD23 | 1.89                     | 0.54              |
| 1:D:241:ILE:HD13 | 1:E:220:LEU:HB3  | 1.90                     | 0.54              |
| 1:E:52:LYS:O     | 1:E:56:GLN:HG3   | 2.08                     | 0.54              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:258:GLU:OE1  | 1:C:261:ARG:HD2  | 2.08                     | 0.54              |
| 1:C:328:VAL:HG12 | 1:C:330:PRO:HD3  | 1.90                     | 0.54              |
| 1:H:240:ARG:NH1  | 1:H:244:ASN:HB3  | 2.23                     | 0.54              |
| 1:G:261:ARG:O    | 1:G:265:GLN:HG3  | 2.08                     | 0.54              |
| 1:H:79:ASP:CB    | 1:H:363:ARG:NH1  | 2.71                     | 0.54              |
| 1:G:70:ALA:HA    | 1:G:122:VAL:HG12 | 1.90                     | 0.53              |
| 1:H:91:LEU:HD23  | 1:H:356:SER:HA   | 1.90                     | 0.53              |
| 1:C:344:ARG:CG   | 1:C:349:GLU:HB2  | 2.37                     | 0.53              |
| 1:G:153:PHE:CD1  | 1:G:158:GLN:HG3  | 2.43                     | 0.53              |
| 1:A:24:MET:HE3   | 1:B:24:MET:HE3   | 1.91                     | 0.53              |
| 1:B:333:ASN:HD22 | 1:B:336:LYS:CB   | 2.21                     | 0.53              |
| 1:D:82:PRO:CD    | 1:D:358:GLU:HG3  | 2.36                     | 0.53              |
| 1:F:257:ARG:CZ   | 1:F:257:ARG:HA   | 2.39                     | 0.53              |
| 1:C:5:LEU:HB2    | 1:C:68:PHE:CE2   | 2.44                     | 0.53              |
| 1:E:144:HIS:HE1  | 1:E:146:ASN:HD22 | 1.54                     | 0.53              |
| 1:F:74:ARG:HH11  | 1:F:74:ARG:HG2   | 1.74                     | 0.53              |
| 1:H:306:ALA:HB3  | 1:H:330:PRO:HA   | 1.89                     | 0.53              |
| 1:A:223:LEU:HD23 | 1:H:223:LEU:HD23 | 1.91                     | 0.53              |
| 1:F:147:TYR:HD1  | 1:F:147:TYR:H    | 1.56                     | 0.53              |
| 1:G:245:GLY:HA2  | 1:G:249:ALA:HB2  | 1.91                     | 0.53              |
| 1:B:248:VAL:HG13 | 1:B:249:ALA:H    | 1.73                     | 0.53              |
| 1:C:139:ALA:O    | 1:C:149:ARG:HD3  | 2.09                     | 0.53              |
| 1:C:241:ILE:HG13 | 1:C:242:VAL:HG13 | 1.90                     | 0.53              |
| 1:H:42:LYS:O     | 1:H:45:ASP:HB2   | 2.08                     | 0.53              |
| 1:D:39:ARG:HB3   | 1:D:40:PHE:CE1   | 2.44                     | 0.53              |
| 1:F:72:VAL:HG21  | 1:F:342:ALA:CB   | 2.37                     | 0.53              |
| 1:G:74:ARG:HG2   | 1:G:74:ARG:HH11  | 1.73                     | 0.53              |
| 1:A:248:VAL:O    | 1:A:252:GLY:HA2  | 2.09                     | 0.53              |
| 1:F:26:LYS:HE2   | 1:F:57:PHE:CE1   | 2.43                     | 0.53              |
| 1:F:153:PHE:CD1  | 1:F:158:GLN:HG3  | 2.43                     | 0.53              |
| 1:F:187:ILE:HG13 | 1:F:211:THR:HG22 | 1.91                     | 0.53              |
| 1:F:256:ALA:O    | 1:F:260:VAL:HG23 | 2.09                     | 0.53              |
| 1:H:187:ILE:HG13 | 1:H:211:THR:HG22 | 1.90                     | 0.53              |
| 1:A:40:PHE:HB3   | 1:A:45:ASP:HB2   | 1.90                     | 0.53              |
| 1:G:23:ARG:HG3   | 1:G:23:ARG:HH11  | 1.74                     | 0.53              |
| 1:G:255:ASP:HB3  | 1:G:258:GLU:HB3  | 1.91                     | 0.53              |
| 1:A:140:ARG:NH1  | 1:A:365:ARG:HH12 | 2.07                     | 0.52              |
| 1:C:22:GLU:OE2   | 1:C:347:ARG:NH2  | 2.41                     | 0.52              |
| 1:C:70:ALA:HA    | 1:C:122:VAL:HG12 | 1.90                     | 0.52              |
| 1:C:114:HIS:O    | 1:C:117:SER:HB3  | 2.09                     | 0.52              |
| 1:C:219:PRO:HG2  | 1:C:222:GLN:NE2  | 2.24                     | 0.52              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:74:ARG:HH11  | 1:D:74:ARG:HG2   | 1.73                     | 0.52              |
| 1:E:240:ARG:HD2  | 1:E:244:ASN:HD21 | 1.71                     | 0.52              |
| 1:F:223:LEU:HD23 | 1:G:223:LEU:HD23 | 1.91                     | 0.52              |
| 1:A:153:PHE:CD1  | 1:A:158:GLN:HG3  | 2.44                     | 0.52              |
| 1:A:160:THR:O    | 1:A:164:GLU:HG3  | 2.09                     | 0.52              |
| 1:E:92:MET:O     | 1:E:92:MET:HG2   | 2.08                     | 0.52              |
| 1:B:114:HIS:O    | 1:B:117:SER:HB3  | 2.09                     | 0.52              |
| 1:D:5:LEU:HB2    | 1:D:68:PHE:CE2   | 2.43                     | 0.52              |
| 1:D:139:ALA:O    | 1:D:149:ARG:HD3  | 2.09                     | 0.52              |
| 1:H:153:PHE:CD1  | 1:H:158:GLN:HG3  | 2.45                     | 0.52              |
| 1:B:187:ILE:HG13 | 1:B:211:THR:HG22 | 1.91                     | 0.52              |
| 1:B:256:ALA:O    | 1:B:260:VAL:HG23 | 2.10                     | 0.52              |
| 1:G:153:PHE:HD1  | 1:G:158:GLN:HG3  | 1.75                     | 0.52              |
| 1:G:255:ASP:O    | 1:G:259:VAL:HG23 | 2.09                     | 0.52              |
| 1:B:190:ALA:HB1  | 1:B:197:VAL:HG13 | 1.91                     | 0.52              |
| 1:C:257:ARG:NH1  | 1:C:308:GLU:HG2  | 2.25                     | 0.52              |
| 1:E:368:SER:HA   | 1:E:371:ASP:HB3  | 1.91                     | 0.52              |
| 1:A:209:PRO:HD3  | 1:A:284:TRP:CD2  | 2.45                     | 0.52              |
| 1:C:257:ARG:HH12 | 1:C:308:GLU:HA   | 1.75                     | 0.52              |
| 1:E:88:VAL:HG12  | 1:E:93:ILE:HD11  | 1.92                     | 0.52              |
| 1:A:187:ILE:HG13 | 1:A:211:THR:HG22 | 1.91                     | 0.52              |
| 1:E:153:PHE:CD1  | 1:E:158:GLN:HG3  | 2.44                     | 0.52              |
| 1:G:5:LEU:HB2    | 1:G:68:PHE:CE2   | 2.44                     | 0.52              |
| 1:B:82:PRO:CD    | 1:B:358:GLU:HG3  | 2.40                     | 0.52              |
| 1:F:18:ILE:HG13  | 1:F:57:PHE:HE2   | 1.75                     | 0.52              |
| 1:F:241:ILE:HD13 | 1:G:220:LEU:HB3  | 1.91                     | 0.52              |
| 1:D:153:PHE:CD1  | 1:D:158:GLN:HG3  | 2.45                     | 0.51              |
| 1:G:280:GLN:O    | 1:G:284:TRP:HE3  | 1.93                     | 0.51              |
| 1:H:114:HIS:O    | 1:H:117:SER:HB3  | 2.10                     | 0.51              |
| 1:A:5:LEU:HB2    | 1:A:68:PHE:CE2   | 2.46                     | 0.51              |
| 1:C:152:ILE:HG21 | 1:C:204:LEU:HD12 | 1.92                     | 0.51              |
| 1:F:5:LEU:HB2    | 1:F:68:PHE:CE2   | 2.46                     | 0.51              |
| 1:H:190:ALA:HB1  | 1:H:197:VAL:HG13 | 1.91                     | 0.51              |
| 1:C:81:ILE:O     | 1:C:132:VAL:HA   | 2.10                     | 0.51              |
| 1:C:259:VAL:O    | 1:C:263:ILE:HG13 | 2.10                     | 0.51              |
| 1:G:40:PHE:HB3   | 1:G:45:ASP:HB2   | 1.91                     | 0.51              |
| 1:H:251:LEU:CD2  | 1:H:270:ALA:HA   | 2.40                     | 0.51              |
| 1:E:114:HIS:O    | 1:E:117:SER:HB3  | 2.10                     | 0.51              |
| 1:G:261:ARG:HH11 | 1:G:261:ARG:CB   | 2.19                     | 0.51              |
| 1:E:18:ILE:HG13  | 1:E:57:PHE:HE2   | 1.74                     | 0.51              |
| 1:F:153:PHE:HD1  | 1:F:158:GLN:HG3  | 1.74                     | 0.51              |

*Continued on next page...*



*Continued from previous page...*

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:240:ARG:HA   | 1:F:244:ASN:HB3  | 1.92                     | 0.51              |
| 1:H:344:ARG:CG   | 1:H:349:GLU:HB2  | 2.35                     | 0.51              |
| 1:C:247:LEU:HD23 | 1:C:273:VAL:HG12 | 1.92                     | 0.51              |
| 1:H:59:GLU:C     | 1:H:61:THR:H     | 2.13                     | 0.51              |
| 1:E:190:ALA:HB1  | 1:E:197:VAL:HG13 | 1.93                     | 0.51              |
| 1:E:255:ASP:O    | 1:E:258:GLU:HB3  | 2.09                     | 0.51              |
| 1:F:134:GLU:HB3  | 1:F:196:ARG:HG3  | 1.93                     | 0.51              |
| 1:D:104:HIS:HE2  | 5:D:381:CIT:H21  | 1.76                     | 0.51              |
| 1:E:208:GLY:HA2  | 1:E:284:TRP:CE2  | 2.46                     | 0.51              |
| 1:F:240:ARG:HH11 | 1:F:244:ASN:HD21 | 1.59                     | 0.51              |
| 1:A:261:ARG:HG2  | 1:A:265:GLN:HE21 | 1.76                     | 0.50              |
| 1:A:371:ASP:OD1  | 1:H:269:TRP:HB2  | 2.11                     | 0.50              |
| 1:C:309:LYS:NZ   | 1:D:167:ARG:CD   | 2.71                     | 0.50              |
| 1:D:153:PHE:HD1  | 1:D:158:GLN:HG3  | 1.76                     | 0.50              |
| 1:G:344:ARG:CG   | 1:G:349:GLU:HB2  | 2.35                     | 0.50              |
| 1:C:240:ARG:NH1  | 1:C:244:ASN:HD22 | 2.08                     | 0.50              |
| 1:E:299:ILE:HD11 | 1:E:323:ILE:HB   | 1.92                     | 0.50              |
| 1:A:153:PHE:HD1  | 1:A:158:GLN:HG3  | 1.76                     | 0.50              |
| 1:C:153:PHE:HD1  | 1:C:158:GLN:HG3  | 1.74                     | 0.50              |
| 1:H:153:PHE:HD1  | 1:H:158:GLN:HG3  | 1.76                     | 0.50              |
| 1:A:190:ALA:HB1  | 1:A:197:VAL:HG13 | 1.93                     | 0.50              |
| 1:B:80:PRO:HB2   | 1:B:362:TRP:CZ3  | 2.47                     | 0.50              |
| 1:H:152:ILE:HG21 | 1:H:204:LEU:HD12 | 1.94                     | 0.50              |
| 1:H:357:GLU:O    | 1:H:361:ARG:HD3  | 2.11                     | 0.50              |
| 1:B:153:PHE:CD1  | 1:B:158:GLN:HG3  | 2.46                     | 0.50              |
| 1:B:223:LEU:HD23 | 1:C:223:LEU:HD23 | 1.93                     | 0.50              |
| 1:B:369:TYR:CD1  | 1:B:370:LEU:N    | 2.80                     | 0.50              |
| 1:D:258:GLU:OE1  | 1:D:261:ARG:HB3  | 2.11                     | 0.50              |
| 1:F:260:VAL:HG13 | 1:F:311:PHE:CE1  | 2.46                     | 0.50              |
| 1:F:357:GLU:HG2  | 1:F:361:ARG:HH21 | 1.76                     | 0.50              |
| 1:G:114:HIS:O    | 1:G:117:SER:HB3  | 2.11                     | 0.50              |
| 1:G:328:VAL:O    | 1:G:330:PRO:HD3  | 2.11                     | 0.50              |
| 1:H:140:ARG:HD3  | 1:H:370:LEU:HD21 | 1.93                     | 0.50              |
| 1:H:370:LEU:HD12 | 1:H:370:LEU:N    | 2.26                     | 0.50              |
| 1:H:72:VAL:HG21  | 1:H:342:ALA:CB   | 2.37                     | 0.50              |
| 1:A:152:ILE:HG21 | 1:A:204:LEU:HD12 | 1.94                     | 0.50              |
| 1:E:81:ILE:O     | 1:E:132:VAL:HA   | 2.10                     | 0.50              |
| 1:D:114:HIS:O    | 1:D:117:SER:HB3  | 2.12                     | 0.50              |
| 1:E:5:LEU:HB2    | 1:E:68:PHE:CE2   | 2.47                     | 0.50              |
| 1:G:299:ILE:HD11 | 1:G:323:ILE:HB   | 1.94                     | 0.50              |
| 1:H:245:GLY:HA2  | 1:H:249:ALA:HB2  | 1.93                     | 0.50              |

*Continued on next page...*



*Continued from previous page...*

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:E:70:ALA:HA    | 1:E:122:VAL:HG12 | 1.93                     | 0.49              |
| 1:F:53:ILE:O     | 1:F:56:GLN:HB3   | 2.12                     | 0.49              |
| 1:G:15:LYS:HD3   | 1:G:29:ASN:HD22  | 1.76                     | 0.49              |
| 1:H:5:LEU:HB2    | 1:H:68:PHE:CE2   | 2.46                     | 0.49              |
| 1:E:255:ASP:OD1  | 1:E:258:GLU:N    | 2.44                     | 0.49              |
| 1:F:306:ALA:HB3  | 1:F:330:PRO:HA   | 1.93                     | 0.49              |
| 1:G:245:GLY:O    | 1:G:248:VAL:HG12 | 2.12                     | 0.49              |
| 1:C:238:LYS:O    | 1:C:242:VAL:HG22 | 2.11                     | 0.49              |
| 1:C:251:LEU:HD21 | 1:C:270:ALA:HA   | 1.94                     | 0.49              |
| 1:D:299:ILE:HD11 | 1:D:323:ILE:HB   | 1.94                     | 0.49              |
| 1:E:214:ARG:HG2  | 1:E:242:VAL:HA   | 1.94                     | 0.49              |
| 1:F:208:GLY:HA2  | 1:F:284:TRP:CZ2  | 2.48                     | 0.49              |
| 1:F:299:ILE:HD11 | 1:F:323:ILE:HB   | 1.94                     | 0.49              |
| 1:F:81:ILE:O     | 1:F:132:VAL:HA   | 2.12                     | 0.49              |
| 1:F:238:LYS:HB2  | 1:F:238:LYS:HZ3  | 1.77                     | 0.49              |
| 1:C:208:GLY:HA2  | 1:C:284:TRP:CZ2  | 2.46                     | 0.49              |
| 1:D:152:ILE:HG21 | 1:D:204:LEU:HD12 | 1.93                     | 0.49              |
| 1:E:153:PHE:HD1  | 1:E:158:GLN:HG3  | 1.76                     | 0.49              |
| 1:E:240:ARG:HA   | 1:E:244:ASN:HD21 | 1.77                     | 0.49              |
| 1:B:153:PHE:HD1  | 1:B:158:GLN:HG3  | 1.77                     | 0.49              |
| 1:F:314:PRO:O    | 1:F:318:LYS:HG3  | 2.13                     | 0.49              |
| 1:A:240:ARG:NH1  | 1:A:244:ASN:OD1  | 2.46                     | 0.49              |
| 1:A:344:ARG:CG   | 1:A:349:GLU:HB2  | 2.36                     | 0.49              |
| 1:D:245:GLY:HA2  | 1:D:249:ALA:HB2  | 1.95                     | 0.49              |
| 1:E:187:ILE:HG13 | 1:E:211:THR:HG22 | 1.95                     | 0.49              |
| 1:G:51:GLU:OE2   | 1:G:55:ARG:NH1   | 2.43                     | 0.49              |
| 1:B:93:ILE:HD12  | 1:B:93:ILE:N     | 2.26                     | 0.49              |
| 1:C:15:LYS:HD3   | 1:C:29:ASN:HD22  | 1.78                     | 0.49              |
| 1:C:93:ILE:HD13  | 1:C:114:HIS:CD2  | 2.48                     | 0.49              |
| 1:C:299:ILE:HD11 | 1:C:323:ILE:HB   | 1.94                     | 0.49              |
| 1:E:57:PHE:O     | 1:E:61:THR:HG23  | 2.12                     | 0.49              |
| 1:E:242:VAL:O    | 1:E:242:VAL:HG13 | 2.12                     | 0.49              |
| 1:C:307:HIS:HA   | 1:C:309:LYS:HE3  | 1.95                     | 0.49              |
| 1:G:209:PRO:HB3  | 1:G:280:GLN:HB3  | 1.95                     | 0.49              |
| 1:G:306:ALA:HB3  | 1:G:330:PRO:HA   | 1.95                     | 0.49              |
| 1:B:204:LEU:O    | 1:B:242:VAL:HG22 | 2.13                     | 0.49              |
| 1:H:43:ILE:C     | 1:H:45:ASP:N     | 2.64                     | 0.49              |
| 1:B:244:ASN:CG   | 1:B:245:GLY:N    | 2.66                     | 0.48              |
| 1:D:82:PRO:HD2   | 1:D:358:GLU:CG   | 2.41                     | 0.48              |
| 1:E:209:PRO:HB3  | 1:E:280:GLN:HB3  | 1.95                     | 0.48              |
| 1:E:251:LEU:CD2  | 1:E:270:ALA:HA   | 2.43                     | 0.48              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:220:LEU:HD22 | 1:C:223:LEU:HD22 | 1.94                     | 0.48              |
| 1:C:196:ARG:HH22 | 1:C:365:ARG:NH1  | 2.01                     | 0.48              |
| 1:F:241:ILE:HG23 | 1:G:220:LEU:HD12 | 1.94                     | 0.48              |
| 1:G:152:ILE:HG21 | 1:G:204:LEU:HD12 | 1.94                     | 0.48              |
| 1:H:333:ASN:ND2  | 1:H:336:LYS:HB2  | 2.27                     | 0.48              |
| 1:G:23:ARG:HG3   | 1:G:23:ARG:NH1   | 2.28                     | 0.48              |
| 1:A:15:LYS:HD3   | 1:A:29:ASN:HD22  | 1.77                     | 0.48              |
| 1:A:92:MET:HG2   | 1:A:92:MET:O     | 2.12                     | 0.48              |
| 1:A:154:HIS:HB3  | 6:A:401:HOH:O    | 2.13                     | 0.48              |
| 1:B:3:ARG:NE     | 1:B:63:TYR:CE2   | 2.82                     | 0.48              |
| 1:B:147:TYR:N    | 1:B:147:TYR:CD1  | 2.81                     | 0.48              |
| 1:C:72:VAL:HG21  | 1:C:342:ALA:CB   | 2.42                     | 0.48              |
| 1:E:152:ILE:HG21 | 1:E:204:LEU:HD12 | 1.95                     | 0.48              |
| 1:H:59:GLU:O     | 1:H:61:THR:N     | 2.46                     | 0.48              |
| 1:H:117:SER:HB2  | 1:H:124:ALA:HB2  | 1.96                     | 0.48              |
| 1:H:299:ILE:HD11 | 1:H:323:ILE:HB   | 1.95                     | 0.48              |
| 1:H:314:PRO:O    | 1:H:318:LYS:HG3  | 2.13                     | 0.48              |
| 1:C:79:ASP:O     | 1:C:81:ILE:HG23  | 2.13                     | 0.48              |
| 1:G:147:TYR:CD1  | 1:G:147:TYR:N    | 2.82                     | 0.48              |
| 1:G:314:PRO:O    | 1:G:318:LYS:HG3  | 2.13                     | 0.48              |
| 1:H:133:ASP:OD1  | 1:H:140:ARG:NH2  | 2.46                     | 0.48              |
| 1:A:117:SER:HB2  | 1:A:124:ALA:HB2  | 1.96                     | 0.48              |
| 1:C:209:PRO:HD3  | 1:C:284:TRP:CD2  | 2.49                     | 0.48              |
| 1:C:311:PHE:O    | 1:C:314:PRO:HD2  | 2.14                     | 0.48              |
| 1:F:360:ARG:O    | 1:F:364:GLU:HB2  | 2.13                     | 0.48              |
| 1:G:55:ARG:NH2   | 1:G:119:GLU:OE1  | 2.46                     | 0.48              |
| 1:A:23:ARG:HH21  | 1:B:307:HIS:CD2  | 2.31                     | 0.48              |
| 1:A:370:LEU:O    | 1:A:373:ILE:HG12 | 2.13                     | 0.48              |
| 1:B:258:GLU:OE1  | 1:B:261:ARG:HD2  | 2.14                     | 0.48              |
| 1:E:333:ASN:C    | 1:E:333:ASN:HD22 | 2.15                     | 0.48              |
| 1:F:362:TRP:C    | 1:F:364:GLU:H    | 2.16                     | 0.48              |
| 1:A:55:ARG:HH22  | 1:A:119:GLU:CD   | 2.16                     | 0.48              |
| 1:A:299:ILE:HD11 | 1:A:323:ILE:HB   | 1.95                     | 0.48              |
| 1:E:117:SER:HB2  | 1:E:124:ALA:HB2  | 1.96                     | 0.48              |
| 1:F:238:LYS:HE3  | 1:G:221:THR:HG23 | 1.96                     | 0.48              |
| 1:H:23:ARG:HD2   | 1:H:23:ARG:N     | 2.29                     | 0.48              |
| 1:H:128:ASP:HB2  | 1:H:156:LEU:HA   | 1.95                     | 0.48              |
| 1:E:72:VAL:HG21  | 1:E:342:ALA:CB   | 2.42                     | 0.48              |
| 1:F:357:GLU:HG2  | 1:F:361:ARG:NH2  | 2.29                     | 0.48              |
| 1:G:74:ARG:NH2   | 1:G:156:LEU:HB3  | 2.29                     | 0.48              |
| 1:A:147:TYR:CD1  | 1:A:147:TYR:N    | 2.82                     | 0.47              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:117:SER:HB2  | 1:B:124:ALA:HB2  | 1.96                     | 0.47              |
| 1:B:152:ILE:HG21 | 1:B:204:LEU:HD12 | 1.95                     | 0.47              |
| 1:B:209:PRO:HB3  | 1:B:280:GLN:HB3  | 1.96                     | 0.47              |
| 1:D:40:PHE:N     | 1:D:40:PHE:CD1   | 2.81                     | 0.47              |
| 1:G:261:ARG:HG2  | 1:G:265:GLN:HE21 | 1.78                     | 0.47              |
| 1:A:314:PRO:O    | 1:A:318:LYS:HG3  | 2.13                     | 0.47              |
| 1:B:1:MET:HA     | 1:B:21:ASP:OD2   | 2.13                     | 0.47              |
| 1:B:223:LEU:HD21 | 1:C:224:VAL:CG2  | 2.44                     | 0.47              |
| 1:B:299:ILE:HD11 | 1:B:323:ILE:HB   | 1.97                     | 0.47              |
| 1:E:22:GLU:OE2   | 1:E:347:ARG:NH2  | 2.47                     | 0.47              |
| 1:H:209:PRO:HB3  | 1:H:280:GLN:HB3  | 1.96                     | 0.47              |
| 1:A:224:VAL:HG21 | 1:H:241:ILE:HD11 | 1.96                     | 0.47              |
| 1:A:240:ARG:HD2  | 1:A:244:ASN:HB3  | 1.97                     | 0.47              |
| 1:D:209:PRO:HB3  | 1:D:280:GLN:HB3  | 1.97                     | 0.47              |
| 1:E:314:PRO:O    | 1:E:318:LYS:HG3  | 2.14                     | 0.47              |
| 1:A:183:MET:HB3  | 1:A:305:LEU:HD12 | 1.95                     | 0.47              |
| 1:A:332:SER:O    | 1:A:334:GLU:HG3  | 2.14                     | 0.47              |
| 1:B:15:LYS:HD3   | 1:B:29:ASN:HD22  | 1.79                     | 0.47              |
| 1:F:364:GLU:O    | 1:F:368:SER:N    | 2.47                     | 0.47              |
| 1:B:255:ASP:O    | 1:B:259:VAL:HG23 | 2.13                     | 0.47              |
| 1:H:242:VAL:HG13 | 1:H:242:VAL:O    | 2.15                     | 0.47              |
| 1:B:159:LYS:O    | 1:B:163:LYS:HG3  | 2.15                     | 0.47              |
| 1:B:260:VAL:HG13 | 1:B:311:PHE:CE1  | 2.49                     | 0.47              |
| 1:B:314:PRO:O    | 1:B:318:LYS:HG3  | 2.15                     | 0.47              |
| 1:C:147:TYR:N    | 1:C:147:TYR:CD1  | 2.82                     | 0.47              |
| 1:C:209:PRO:HB3  | 1:C:280:GLN:HB3  | 1.97                     | 0.47              |
| 1:E:26:LYS:HE3   | 1:F:28:GLN:OE1   | 2.15                     | 0.47              |
| 1:E:147:TYR:N    | 1:E:147:TYR:CD1  | 2.82                     | 0.47              |
| 1:E:165:VAL:HG22 | 1:E:329:PHE:HE2  | 1.79                     | 0.47              |
| 1:E:258:GLU:O    | 1:E:261:ARG:HB3  | 2.13                     | 0.47              |
| 1:F:209:PRO:HB3  | 1:F:280:GLN:HB3  | 1.96                     | 0.47              |
| 1:H:78:LEU:CD2   | 1:H:92:MET:HG3   | 2.44                     | 0.47              |
| 1:A:209:PRO:HB3  | 1:A:280:GLN:HB3  | 1.96                     | 0.47              |
| 1:D:135:MET:HA   | 1:D:198:ILE:HA   | 1.97                     | 0.47              |
| 1:D:247:LEU:HD23 | 1:D:273:VAL:HG12 | 1.97                     | 0.47              |
| 1:E:244:ASN:O    | 1:E:249:ALA:HB2  | 2.14                     | 0.47              |
| 1:F:93:ILE:HD13  | 1:F:114:HIS:CD2  | 2.50                     | 0.47              |
| 1:H:238:LYS:HB2  | 1:H:238:LYS:HZ2  | 1.78                     | 0.47              |
| 1:A:305:LEU:HB3  | 1:A:312:LEU:CD2  | 2.45                     | 0.47              |
| 1:D:39:ARG:HB3   | 1:D:40:PHE:CD1   | 2.49                     | 0.47              |
| 1:F:117:SER:HB2  | 1:F:124:ALA:HB2  | 1.95                     | 0.47              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:204:LEU:O    | 1:F:242:VAL:HG22 | 2.15                     | 0.47              |
| 1:C:117:SER:HB2  | 1:C:124:ALA:HB2  | 1.96                     | 0.47              |
| 1:C:240:ARG:HH11 | 1:C:244:ASN:HD22 | 1.63                     | 0.47              |
| 1:D:147:TYR:N    | 1:D:147:TYR:CD1  | 2.83                     | 0.47              |
| 1:E:169:MET:O    | 1:E:171:LYS:HG3  | 2.15                     | 0.47              |
| 1:F:15:LYS:HD3   | 1:F:29:ASN:HD22  | 1.80                     | 0.47              |
| 1:F:144:HIS:CE1  | 1:G:240:ARG:HH21 | 2.33                     | 0.47              |
| 1:H:147:TYR:CD1  | 1:H:147:TYR:N    | 2.82                     | 0.47              |
| 1:A:54:ALA:O     | 1:A:57:PHE:HB3   | 2.15                     | 0.47              |
| 1:A:307:HIS:HA   | 1:A:309:LYS:HE3  | 1.97                     | 0.47              |
| 1:A:242:VAL:HG12 | 1:A:242:VAL:O    | 2.15                     | 0.46              |
| 1:B:88:VAL:HG12  | 1:B:93:ILE:CD1   | 2.36                     | 0.46              |
| 1:B:272:ARG:HD2  | 1:C:369:TYR:CD1  | 2.50                     | 0.46              |
| 1:C:187:ILE:HG13 | 1:C:211:THR:HG22 | 1.97                     | 0.46              |
| 1:C:240:ARG:NH1  | 1:C:244:ASN:ND2  | 2.63                     | 0.46              |
| 1:D:130:VAL:O    | 1:D:152:ILE:HA   | 2.15                     | 0.46              |
| 1:D:134:GLU:HB2  | 1:D:196:ARG:NH1  | 2.30                     | 0.46              |
| 1:G:204:LEU:O    | 1:G:242:VAL:HG21 | 2.15                     | 0.46              |
| 1:H:305:LEU:HB3  | 1:H:312:LEU:CD2  | 2.45                     | 0.46              |
| 1:A:208:GLY:HA2  | 1:A:284:TRP:CZ2  | 2.49                     | 0.46              |
| 1:G:305:LEU:HB3  | 1:G:312:LEU:CD2  | 2.46                     | 0.46              |
| 1:H:72:VAL:HG12  | 1:H:338:LEU:HD22 | 1.96                     | 0.46              |
| 1:A:233:THR:OG1  | 1:A:236:GLU:HB3  | 2.16                     | 0.46              |
| 1:D:117:SER:HB2  | 1:D:124:ALA:HB2  | 1.96                     | 0.46              |
| 1:E:311:PHE:O    | 1:E:314:PRO:HD2  | 2.16                     | 0.46              |
| 1:E:362:TRP:O    | 1:E:365:ARG:HB3  | 2.15                     | 0.46              |
| 1:G:117:SER:HB2  | 1:G:124:ALA:HB2  | 1.97                     | 0.46              |
| 1:H:307:HIS:HA   | 1:H:309:LYS:HE3  | 1.97                     | 0.46              |
| 1:B:219:PRO:HG2  | 1:B:222:GLN:NE2  | 2.29                     | 0.46              |
| 1:C:71:PHE:HE1   | 1:C:122:VAL:HB   | 1.81                     | 0.46              |
| 1:F:372:GLY:HA3  | 1:G:269:TRP:CE3  | 2.50                     | 0.46              |
| 1:A:79:ASP:O     | 1:A:81:ILE:HG23  | 2.15                     | 0.46              |
| 1:C:208:GLY:HA2  | 1:C:284:TRP:CE2  | 2.51                     | 0.46              |
| 1:F:56:GLN:O     | 1:F:60:GLU:HG2   | 2.15                     | 0.46              |
| 1:G:104:HIS:H    | 1:G:107:ASN:HD22 | 1.64                     | 0.46              |
| 1:G:253:THR:HG21 | 1:G:259:VAL:HG22 | 1.97                     | 0.46              |
| 1:H:15:LYS:HD3   | 1:H:29:ASN:HD22  | 1.81                     | 0.46              |
| 1:C:128:ASP:HB2  | 1:C:156:LEU:HA   | 1.97                     | 0.46              |
| 1:D:258:GLU:OE1  | 1:D:261:ARG:HD2  | 2.15                     | 0.46              |
| 1:H:79:ASP:HB2   | 1:H:363:ARG:HH12 | 1.80                     | 0.46              |
| 1:A:260:VAL:HG13 | 1:A:311:PHE:CE1  | 2.50                     | 0.46              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:165:VAL:HG21 | 1:D:300:VAL:HG21 | 1.98                     | 0.46              |
| 1:D:169:MET:O    | 1:D:171:LYS:HG3  | 2.15                     | 0.46              |
| 1:B:233:THR:OG1  | 1:B:236:GLU:HB3  | 2.16                     | 0.46              |
| 1:C:251:LEU:CD2  | 1:C:270:ALA:HA   | 2.46                     | 0.46              |
| 1:C:314:PRO:O    | 1:C:318:LYS:HG3  | 2.15                     | 0.46              |
| 1:D:208:GLY:HA2  | 1:D:284:TRP:CE2  | 2.50                     | 0.46              |
| 1:F:305:LEU:HB3  | 1:F:312:LEU:CD2  | 2.46                     | 0.46              |
| 1:G:200:VAL:HG22 | 1:G:201:ASN:N    | 2.31                     | 0.46              |
| 1:C:61:THR:HG22  | 1:C:61:THR:O     | 2.16                     | 0.46              |
| 1:D:233:THR:OG1  | 1:D:236:GLU:HB3  | 2.16                     | 0.46              |
| 1:D:327:LEU:HB3  | 1:D:329:PHE:HE1  | 1.80                     | 0.46              |
| 1:E:306:ALA:CB   | 1:E:330:PRO:HA   | 2.42                     | 0.46              |
| 1:F:208:GLY:HA2  | 1:F:284:TRP:CE2  | 2.50                     | 0.46              |
| 1:G:307:HIS:HA   | 1:G:309:LYS:HE3  | 1.98                     | 0.46              |
| 1:A:306:ALA:HB3  | 1:A:330:PRO:HA   | 1.98                     | 0.46              |
| 1:C:159:LYS:O    | 1:C:163:LYS:HG3  | 2.15                     | 0.46              |
| 1:D:88:VAL:HG12  | 1:D:93:ILE:CD1   | 2.34                     | 0.46              |
| 1:E:39:ARG:O     | 1:E:39:ARG:HG2   | 2.15                     | 0.46              |
| 1:E:144:HIS:HE1  | 1:E:146:ASN:ND2  | 2.13                     | 0.46              |
| 1:F:200:VAL:HG22 | 1:F:201:ASN:N    | 2.31                     | 0.46              |
| 1:F:257:ARG:HB3  | 1:F:257:ARG:HH11 | 1.81                     | 0.46              |
| 1:B:247:LEU:HD23 | 1:B:273:VAL:HG12 | 1.99                     | 0.45              |
| 1:E:305:LEU:HB3  | 1:E:312:LEU:CD2  | 2.46                     | 0.45              |
| 1:B:16:LEU:HD11  | 1:B:54:ALA:HA    | 1.98                     | 0.45              |
| 1:C:333:ASN:ND2  | 1:C:336:LYS:CB   | 2.72                     | 0.45              |
| 1:D:104:HIS:HD2  | 1:D:204:LEU:HD21 | 1.81                     | 0.45              |
| 1:D:136:GLU:HB3  | 1:D:138:VAL:HG12 | 1.97                     | 0.45              |
| 1:D:159:LYS:O    | 1:D:163:LYS:HG3  | 2.16                     | 0.45              |
| 1:D:200:VAL:HG22 | 1:D:201:ASN:N    | 2.31                     | 0.45              |
| 1:E:165:VAL:HG21 | 1:E:300:VAL:HG21 | 1.98                     | 0.45              |
| 1:G:257:ARG:NH1  | 1:G:257:ARG:HG2  | 2.31                     | 0.45              |
| 1:B:183:MET:HB3  | 1:B:305:LEU:HD12 | 1.98                     | 0.45              |
| 1:C:1:MET:HA     | 1:C:21:ASP:OD2   | 2.17                     | 0.45              |
| 1:C:130:VAL:HG22 | 1:C:130:VAL:O    | 2.16                     | 0.45              |
| 1:C:305:LEU:HB3  | 1:C:312:LEU:CD2  | 2.46                     | 0.45              |
| 1:E:165:VAL:HG22 | 1:E:329:PHE:CE2  | 2.52                     | 0.45              |
| 1:E:183:MET:HB3  | 1:E:305:LEU:HD12 | 1.97                     | 0.45              |
| 1:F:48:GLU:O     | 1:F:52:LYS:HG3   | 2.16                     | 0.45              |
| 1:B:305:LEU:HB3  | 1:B:312:LEU:CD2  | 2.47                     | 0.45              |
| 1:D:361:ARG:O    | 1:D:365:ARG:HG3  | 2.16                     | 0.45              |
| 1:E:233:THR:OG1  | 1:E:236:GLU:HB3  | 2.15                     | 0.45              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:227:CYS:HG   | 1:H:227:CYS:HG   | 1.64                     | 0.45              |
| 1:B:289:ALA:HB2  | 1:B:323:ILE:HD13 | 1.99                     | 0.45              |
| 1:C:183:MET:HB3  | 1:C:305:LEU:HD12 | 1.97                     | 0.45              |
| 1:C:233:THR:OG1  | 1:C:236:GLU:HB3  | 2.16                     | 0.45              |
| 1:D:70:ALA:HA    | 1:D:122:VAL:CG1  | 2.47                     | 0.45              |
| 1:D:224:VAL:HG21 | 1:E:241:ILE:HD11 | 1.97                     | 0.45              |
| 1:D:305:LEU:HB3  | 1:D:312:LEU:CD2  | 2.46                     | 0.45              |
| 1:F:82:PRO:HD2   | 1:F:358:GLU:HG3  | 1.99                     | 0.45              |
| 1:H:79:ASP:O     | 1:H:81:ILE:HG23  | 2.16                     | 0.45              |
| 1:A:159:LYS:O    | 1:A:163:LYS:HG3  | 2.16                     | 0.45              |
| 1:B:200:VAL:HG22 | 1:B:201:ASN:N    | 2.32                     | 0.45              |
| 1:C:239:LYS:HG2  | 1:C:244:ASN:OD1  | 2.15                     | 0.45              |
| 1:D:15:LYS:HD3   | 1:D:29:ASN:HD22  | 1.81                     | 0.45              |
| 1:D:55:ARG:NH2   | 1:D:119:GLU:OE1  | 2.49                     | 0.45              |
| 1:F:79:ASP:O     | 1:F:81:ILE:HG23  | 2.17                     | 0.45              |
| 1:F:289:ALA:HB2  | 1:F:323:ILE:HD13 | 1.99                     | 0.45              |
| 1:H:157:ASN:HD21 | 1:H:161:VAL:HG13 | 1.80                     | 0.45              |
| 1:H:233:THR:OG1  | 1:H:236:GLU:HB3  | 2.17                     | 0.45              |
| 1:A:200:VAL:HG22 | 1:A:201:ASN:N    | 2.32                     | 0.45              |
| 1:B:257:ARG:HB3  | 1:B:257:ARG:NH2  | 2.31                     | 0.45              |
| 1:C:361:ARG:O    | 1:C:364:GLU:HB2  | 2.17                     | 0.45              |
| 1:D:8:ASN:ND2    | 1:D:334:GLU:HB3  | 2.31                     | 0.45              |
| 1:E:15:LYS:HD3   | 1:E:29:ASN:HD22  | 1.82                     | 0.45              |
| 1:E:370:LEU:HD12 | 1:E:370:LEU:N    | 2.31                     | 0.45              |
| 1:B:258:GLU:O    | 1:B:261:ARG:HB3  | 2.17                     | 0.45              |
| 1:E:247:LEU:HD23 | 1:E:273:VAL:HG12 | 1.98                     | 0.45              |
| 1:H:80:PRO:HB2   | 1:H:362:TRP:CE3  | 2.51                     | 0.45              |
| 1:E:159:LYS:O    | 1:E:163:LYS:HG3  | 2.17                     | 0.45              |
| 1:D:307:HIS:HA   | 1:D:309:LYS:HE3  | 1.99                     | 0.45              |
| 1:D:370:LEU:HD11 | 1:E:269:TRP:HZ3  | 1.81                     | 0.45              |
| 1:F:260:VAL:O    | 1:F:264:LYS:HG3  | 2.17                     | 0.45              |
| 1:E:357:GLU:O    | 1:E:361:ARG:HG2  | 2.17                     | 0.44              |
| 1:F:183:MET:HB3  | 1:F:305:LEU:HD12 | 1.99                     | 0.44              |
| 1:G:144:HIS:CE1  | 1:G:146:ASN:HD22 | 2.35                     | 0.44              |
| 1:H:88:VAL:HG23  | 1:H:124:ALA:O    | 2.17                     | 0.44              |
| 1:H:104:HIS:ND1  | 1:H:105:ALA:N    | 2.65                     | 0.44              |
| 1:H:183:MET:HB3  | 1:H:305:LEU:HD12 | 1.99                     | 0.44              |
| 1:A:70:ALA:HA    | 1:A:122:VAL:CG1  | 2.47                     | 0.44              |
| 1:B:79:ASP:O     | 1:B:81:ILE:HG23  | 2.17                     | 0.44              |
| 1:D:93:ILE:HD13  | 1:D:114:HIS:CG   | 2.52                     | 0.44              |
| 1:F:233:THR:OG1  | 1:F:236:GLU:HB3  | 2.17                     | 0.44              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:71:PHE:HE1   | 1:G:122:VAL:HB   | 1.83                     | 0.44              |
| 1:G:233:THR:OG1  | 1:G:236:GLU:HB3  | 2.16                     | 0.44              |
| 1:B:40:PHE:N     | 1:B:40:PHE:CD1   | 2.85                     | 0.44              |
| 1:B:104:HIS:CD2  | 1:B:105:ALA:N    | 2.85                     | 0.44              |
| 1:B:344:ARG:CG   | 1:B:349:GLU:HB2  | 2.48                     | 0.44              |
| 1:E:200:VAL:HG22 | 1:E:201:ASN:N    | 2.32                     | 0.44              |
| 1:F:70:ALA:HA    | 1:F:122:VAL:CG1  | 2.48                     | 0.44              |
| 1:G:159:LYS:O    | 1:G:163:LYS:HG3  | 2.17                     | 0.44              |
| 1:H:208:GLY:HA2  | 1:H:284:TRP:CE2  | 2.51                     | 0.44              |
| 1:A:88:VAL:HG23  | 1:A:124:ALA:O    | 2.18                     | 0.44              |
| 1:A:369:TYR:CD1  | 1:H:272:ARG:NH2  | 2.86                     | 0.44              |
| 1:E:71:PHE:HE1   | 1:E:122:VAL:HB   | 1.83                     | 0.44              |
| 1:E:240:ARG:HD2  | 1:E:244:ASN:CG   | 2.37                     | 0.44              |
| 1:G:219:PRO:HG2  | 1:G:222:GLN:NE2  | 2.32                     | 0.44              |
| 1:G:251:LEU:HD21 | 1:G:270:ALA:HA   | 1.99                     | 0.44              |
| 1:G:364:GLU:O    | 1:G:367:ASP:N    | 2.49                     | 0.44              |
| 1:D:344:ARG:CG   | 1:D:349:GLU:HB2  | 2.38                     | 0.44              |
| 1:E:17:SER:HG    | 1:E:19:PHE:HE1   | 1.65                     | 0.44              |
| 1:E:333:ASN:ND2  | 1:E:336:LYS:H    | 2.15                     | 0.44              |
| 1:F:81:ILE:HG22  | 1:F:359:SER:HA   | 2.00                     | 0.44              |
| 1:G:16:LEU:HD11  | 1:G:54:ALA:HA    | 1.98                     | 0.44              |
| 1:A:1:MET:HA     | 1:A:21:ASP:OD2   | 2.17                     | 0.44              |
| 1:A:361:ARG:O    | 1:A:365:ARG:HG3  | 2.18                     | 0.44              |
| 1:A:370:LEU:C    | 1:A:372:GLY:H    | 2.21                     | 0.44              |
| 1:B:70:ALA:HA    | 1:B:122:VAL:CG1  | 2.47                     | 0.44              |
| 1:C:260:VAL:O    | 1:C:264:LYS:HG3  | 2.18                     | 0.44              |
| 1:G:1:MET:HA     | 1:G:21:ASP:OD2   | 2.18                     | 0.44              |
| 1:G:311:PHE:O    | 1:G:314:PRO:HD2  | 2.18                     | 0.44              |
| 1:H:43:ILE:HD12  | 1:H:104:HIS:N    | 2.32                     | 0.44              |
| 1:H:165:VAL:HG21 | 1:H:300:VAL:HG21 | 2.00                     | 0.44              |
| 1:A:55:ARG:NH2   | 1:A:119:GLU:OE2  | 2.51                     | 0.44              |
| 1:B:165:VAL:HG21 | 1:B:300:VAL:HG21 | 2.00                     | 0.44              |
| 1:B:318:LYS:HB2  | 6:B:408:HOH:O    | 2.18                     | 0.44              |
| 1:D:104:HIS:H    | 1:D:107:ASN:HD22 | 1.64                     | 0.44              |
| 1:E:79:ASP:O     | 1:E:81:ILE:HG23  | 2.17                     | 0.44              |
| 1:A:272:ARG:NH2  | 1:H:370:LEU:HG   | 2.32                     | 0.44              |
| 1:A:238:LYS:HB2  | 1:A:238:LYS:HZ3  | 1.82                     | 0.43              |
| 1:A:363:ARG:HH11 | 1:A:363:ARG:HG2  | 1.83                     | 0.43              |
| 1:A:370:LEU:HB2  | 1:A:373:ILE:HG23 | 2.00                     | 0.43              |
| 1:B:157:ASN:HD21 | 1:B:161:VAL:HG13 | 1.82                     | 0.43              |
| 1:C:200:VAL:HG22 | 1:C:201:ASN:N    | 2.32                     | 0.43              |

*Continued on next page...*



*Continued from previous page...*

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:165:VAL:HG21 | 1:F:300:VAL:HG21 | 1.99                     | 0.43              |
| 1:F:165:VAL:HG22 | 1:F:329:PHE:CZ   | 2.53                     | 0.43              |
| 1:G:70:ALA:HA    | 1:G:122:VAL:CG1  | 2.48                     | 0.43              |
| 1:B:248:VAL:O    | 1:B:252:GLY:N    | 2.50                     | 0.43              |
| 1:B:311:PHE:O    | 1:B:314:PRO:HD2  | 2.18                     | 0.43              |
| 1:C:153:PHE:CE1  | 1:C:155:ALA:HA   | 2.53                     | 0.43              |
| 1:C:177:ASN:HA   | 1:C:192:HIS:O    | 2.19                     | 0.43              |
| 1:C:311:PHE:C    | 1:C:314:PRO:HD2  | 2.39                     | 0.43              |
| 1:D:104:HIS:H    | 1:D:107:ASN:ND2  | 2.15                     | 0.43              |
| 1:D:241:ILE:HD12 | 1:E:224:VAL:HG21 | 1.99                     | 0.43              |
| 1:E:251:LEU:HD12 | 1:E:259:VAL:HG22 | 1.99                     | 0.43              |
| 1:G:93:ILE:HD13  | 1:G:114:HIS:CG   | 2.53                     | 0.43              |
| 1:G:366:TYR:O    | 1:G:370:LEU:HG   | 2.17                     | 0.43              |
| 1:B:213:GLU:HA   | 1:B:245:GLY:O    | 2.18                     | 0.43              |
| 1:C:165:VAL:HG21 | 1:C:300:VAL:HG21 | 1.99                     | 0.43              |
| 1:D:144:HIS:CE1  | 1:D:146:ASN:HD22 | 2.36                     | 0.43              |
| 1:F:357:GLU:O    | 1:F:361:ARG:HG2  | 2.19                     | 0.43              |
| 1:G:169:MET:O    | 1:G:171:LYS:HG3  | 2.18                     | 0.43              |
| 1:G:183:MET:HB3  | 1:G:305:LEU:HD12 | 2.00                     | 0.43              |
| 1:H:289:ALA:HB2  | 1:H:323:ILE:HD13 | 2.00                     | 0.43              |
| 1:B:209:PRO:HD3  | 1:B:284:TRP:CD2  | 2.53                     | 0.43              |
| 1:G:104:HIS:H    | 1:G:107:ASN:ND2  | 2.16                     | 0.43              |
| 1:G:165:VAL:HG21 | 1:G:300:VAL:HG21 | 2.00                     | 0.43              |
| 1:G:167:ARG:CD   | 1:H:309:LYS:NZ   | 2.75                     | 0.43              |
| 1:G:255:ASP:HB3  | 1:G:258:GLU:HB2  | 1.99                     | 0.43              |
| 1:H:70:ALA:HA    | 1:H:122:VAL:CG1  | 2.48                     | 0.43              |
| 1:A:71:PHE:HE1   | 1:A:122:VAL:HB   | 1.83                     | 0.43              |
| 1:B:283:LYS:HB3  | 1:C:287:LYS:HG3  | 2.01                     | 0.43              |
| 1:C:55:ARG:NH2   | 1:C:119:GLU:OE2  | 2.50                     | 0.43              |
| 1:F:250:TYR:HB3  | 1:F:273:VAL:HG21 | 2.00                     | 0.43              |
| 1:F:275:ARG:HH12 | 1:G:138:VAL:HB   | 1.83                     | 0.43              |
| 1:G:88:VAL:HG23  | 1:G:124:ALA:O    | 2.19                     | 0.43              |
| 1:H:366:TYR:HA   | 1:H:370:LEU:HD13 | 2.00                     | 0.43              |
| 1:A:246:GLY:O    | 1:A:250:TYR:HD1  | 2.02                     | 0.43              |
| 1:B:26:LYS:CD    | 1:B:61:THR:HG22  | 2.48                     | 0.43              |
| 1:C:55:ARG:HH22  | 1:C:119:GLU:CD   | 2.21                     | 0.43              |
| 1:D:88:VAL:HG23  | 1:D:124:ALA:O    | 2.19                     | 0.43              |
| 1:D:183:MET:HB3  | 1:D:305:LEU:HD12 | 1.99                     | 0.43              |
| 1:F:157:ASN:HD21 | 1:F:161:VAL:HG13 | 1.82                     | 0.43              |
| 1:F:268:GLU:HA   | 1:F:268:GLU:OE1  | 2.19                     | 0.43              |
| 1:H:137:ASP:HA   | 1:H:140:ARG:HG3  | 2.01                     | 0.43              |

*Continued on next page...*



*Continued from previous page...*

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:H:159:LYS:O    | 1:H:163:LYS:HG3  | 2.18                     | 0.43              |
| 1:A:165:VAL:HG21 | 1:A:300:VAL:HG21 | 2.00                     | 0.43              |
| 1:B:88:VAL:HG23  | 1:B:124:ALA:O    | 2.18                     | 0.43              |
| 1:E:255:ASP:OD2  | 1:E:257:ARG:NH1  | 2.51                     | 0.43              |
| 1:F:307:HIS:HA   | 1:F:309:LYS:HE3  | 2.00                     | 0.43              |
| 1:G:209:PRO:HA   | 1:G:280:GLN:OE1  | 2.19                     | 0.43              |
| 1:B:268:GLU:OE1  | 1:B:268:GLU:HA   | 2.19                     | 0.43              |
| 1:B:280:GLN:O    | 1:B:284:TRP:HE3  | 2.01                     | 0.43              |
| 1:C:16:LEU:HD11  | 1:C:54:ALA:HA    | 2.01                     | 0.43              |
| 1:C:23:ARG:HG3   | 1:C:23:ARG:HH11  | 1.83                     | 0.43              |
| 1:D:16:LEU:HD11  | 1:D:54:ALA:HA    | 2.00                     | 0.43              |
| 1:F:104:HIS:H    | 1:F:107:ASN:HD22 | 1.66                     | 0.43              |
| 1:F:159:LYS:O    | 1:F:163:LYS:HG3  | 2.19                     | 0.43              |
| 1:A:153:PHE:CE1  | 1:A:155:ALA:HA   | 2.54                     | 0.43              |
| 1:A:311:PHE:O    | 1:A:314:PRO:HD2  | 2.19                     | 0.43              |
| 1:B:245:GLY:O    | 1:B:248:VAL:HG12 | 2.18                     | 0.43              |
| 1:B:260:VAL:O    | 1:B:264:LYS:HG3  | 2.19                     | 0.43              |
| 1:C:157:ASN:HD21 | 1:C:161:VAL:HG13 | 1.84                     | 0.43              |
| 1:D:8:ASN:HD21   | 1:D:334:GLU:HB3  | 1.83                     | 0.43              |
| 1:F:144:HIS:CE1  | 1:F:146:ASN:HD22 | 2.37                     | 0.43              |
| 1:F:255:ASP:O    | 1:F:258:GLU:HB3  | 2.19                     | 0.43              |
| 1:A:208:GLY:HA2  | 1:A:284:TRP:CE2  | 2.53                     | 0.43              |
| 1:B:287:LYS:HG3  | 1:C:283:LYS:HB3  | 2.01                     | 0.43              |
| 1:D:311:PHE:O    | 1:D:314:PRO:HD2  | 2.18                     | 0.43              |
| 1:E:20:GLU:O     | 1:E:21:ASP:HB2   | 2.18                     | 0.43              |
| 1:G:315:TRP:O    | 1:G:319:ARG:HG3  | 2.19                     | 0.43              |
| 1:H:80:PRO:HB2   | 1:H:362:TRP:CZ3  | 2.54                     | 0.43              |
| 1:H:200:VAL:HG22 | 1:H:201:ASN:N    | 2.33                     | 0.43              |
| 1:D:78:LEU:CD2   | 1:D:92:MET:HG3   | 2.49                     | 0.42              |
| 1:E:351:LYS:HA   | 1:E:352:PRO:HD3  | 1.93                     | 0.42              |
| 1:H:16:LEU:HD11  | 1:H:54:ALA:HA    | 2.01                     | 0.42              |
| 1:A:177:ASN:HA   | 1:A:192:HIS:O    | 2.19                     | 0.42              |
| 1:B:208:GLY:HA2  | 1:B:284:TRP:CE2  | 2.53                     | 0.42              |
| 1:C:289:ALA:HB2  | 1:C:323:ILE:HD13 | 2.00                     | 0.42              |
| 1:D:268:GLU:HA   | 1:D:268:GLU:OE1  | 2.19                     | 0.42              |
| 1:D:363:ARG:C    | 1:D:365:ARG:H    | 2.23                     | 0.42              |
| 1:E:177:ASN:HA   | 1:E:192:HIS:O    | 2.19                     | 0.42              |
| 1:F:209:PRO:HD3  | 1:F:284:TRP:CD2  | 2.54                     | 0.42              |
| 1:H:1:MET:HA     | 1:H:21:ASP:OD2   | 2.19                     | 0.42              |
| 1:H:333:ASN:HD22 | 1:H:336:LYS:CB   | 2.32                     | 0.42              |
| 1:A:80:PRO:HB2   | 1:A:362:TRP:CZ3  | 2.54                     | 0.42              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:157:ASN:HD21 | 1:A:161:VAL:HG13 | 1.84                     | 0.42              |
| 1:B:244:ASN:CG   | 1:B:245:GLY:H    | 2.23                     | 0.42              |
| 1:C:238:LYS:HB2  | 1:C:238:LYS:HZ2  | 1.83                     | 0.42              |
| 1:F:71:PHE:HE1   | 1:F:122:VAL:HB   | 1.84                     | 0.42              |
| 1:F:100:LYS:HG3  | 1:F:101:ASN:N    | 2.34                     | 0.42              |
| 1:F:209:PRO:HA   | 1:F:280:GLN:OE1  | 2.20                     | 0.42              |
| 1:A:78:LEU:CD2   | 1:A:92:MET:HG3   | 2.49                     | 0.42              |
| 1:A:100:LYS:HG3  | 1:A:101:ASN:N    | 2.35                     | 0.42              |
| 1:B:144:HIS:CE1  | 1:B:146:ASN:HD22 | 2.37                     | 0.42              |
| 1:C:70:ALA:HA    | 1:C:122:VAL:CG1  | 2.49                     | 0.42              |
| 1:D:93:ILE:O     | 1:D:93:ILE:CG2   | 2.67                     | 0.42              |
| 1:D:223:LEU:HD21 | 1:E:224:VAL:HG23 | 2.01                     | 0.42              |
| 1:E:311:PHE:C    | 1:E:314:PRO:HD2  | 2.39                     | 0.42              |
| 1:A:22:GLU:OE1   | 1:A:22:GLU:N     | 2.49                     | 0.42              |
| 1:A:268:GLU:HA   | 1:A:268:GLU:OE1  | 2.19                     | 0.42              |
| 1:C:209:PRO:HA   | 1:C:280:GLN:OE1  | 2.19                     | 0.42              |
| 1:D:74:ARG:NH1   | 1:D:130:VAL:HG12 | 2.35                     | 0.42              |
| 1:D:100:LYS:HG3  | 1:D:101:ASN:N    | 2.35                     | 0.42              |
| 1:E:209:PRO:HA   | 1:E:280:GLN:OE1  | 2.19                     | 0.42              |
| 1:F:18:ILE:HG13  | 1:F:57:PHE:CE2   | 2.55                     | 0.42              |
| 1:F:78:LEU:CD2   | 1:F:92:MET:HG3   | 2.49                     | 0.42              |
| 1:F:88:VAL:HG12  | 1:F:93:ILE:HD11  | 2.02                     | 0.42              |
| 1:H:345:VAL:CG1  | 1:H:352:PRO:HG3  | 2.49                     | 0.42              |
| 1:B:369:TYR:O    | 1:C:269:TRP:CZ3  | 2.73                     | 0.42              |
| 1:C:241:ILE:HG13 | 1:C:242:VAL:N    | 2.35                     | 0.42              |
| 1:D:223:LEU:HD21 | 1:E:224:VAL:HG22 | 2.00                     | 0.42              |
| 1:D:248:VAL:HG22 | 1:D:254:SER:HB2  | 2.02                     | 0.42              |
| 1:E:28:GLN:OE1   | 1:F:26:LYS:HE3   | 2.20                     | 0.42              |
| 1:E:268:GLU:OE1  | 1:E:268:GLU:HA   | 2.19                     | 0.42              |
| 1:E:289:ALA:HB2  | 1:E:323:ILE:HD13 | 2.02                     | 0.42              |
| 1:F:1:MET:HA     | 1:F:21:ASP:OD2   | 2.20                     | 0.42              |
| 1:H:92:MET:O     | 1:H:92:MET:CG    | 2.64                     | 0.42              |
| 1:B:169:MET:O    | 1:B:171:LYS:HG3  | 2.20                     | 0.42              |
| 1:B:307:HIS:HA   | 1:B:309:LYS:HE3  | 2.00                     | 0.42              |
| 1:D:209:PRO:HA   | 1:D:280:GLN:OE1  | 2.20                     | 0.42              |
| 1:F:104:HIS:ND1  | 1:F:105:ALA:N    | 2.68                     | 0.42              |
| 1:G:257:ARG:HG2  | 1:G:257:ARG:HH11 | 1.85                     | 0.42              |
| 1:H:260:VAL:O    | 1:H:264:LYS:HG3  | 2.20                     | 0.42              |
| 1:A:369:TYR:CD1  | 1:A:369:TYR:C    | 2.93                     | 0.42              |
| 1:B:306:ALA:CB   | 1:B:330:PRO:HA   | 2.48                     | 0.42              |
| 1:D:127:VAL:O    | 1:D:128:ASP:C    | 2.58                     | 0.42              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:144:HIS:CE1  | 1:E:240:ARG:HH21 | 2.38                     | 0.42              |
| 1:H:153:PHE:CE1  | 1:H:155:ALA:HA   | 2.55                     | 0.42              |
| 1:B:345:VAL:CG1  | 1:B:352:PRO:HG3  | 2.50                     | 0.42              |
| 1:D:138:VAL:HB   | 1:E:275:ARG:HH12 | 1.83                     | 0.42              |
| 1:D:248:VAL:CG2  | 1:D:254:SER:HB2  | 2.49                     | 0.42              |
| 1:F:153:PHE:CE1  | 1:F:155:ALA:HA   | 2.55                     | 0.42              |
| 1:H:8:ASN:ND2    | 1:H:334:GLU:OE2  | 2.52                     | 0.42              |
| 1:A:283:LYS:HB3  | 1:H:287:LYS:HG3  | 2.01                     | 0.42              |
| 1:B:72:VAL:HG12  | 1:B:338:LEU:HD22 | 2.01                     | 0.42              |
| 1:D:1:MET:HA     | 1:D:21:ASP:OD2   | 2.20                     | 0.42              |
| 1:F:96:LEU:CD1   | 1:F:110:ALA:HB3  | 2.50                     | 0.42              |
| 1:F:335:GLU:OE2  | 1:F:335:GLU:N    | 2.50                     | 0.42              |
| 1:G:78:LEU:HD21  | 1:G:92:MET:HG3   | 2.01                     | 0.42              |
| 1:H:96:LEU:CD1   | 1:H:110:ALA:HB3  | 2.50                     | 0.42              |
| 1:B:199:ASP:OD1  | 1:B:200:VAL:N    | 2.53                     | 0.41              |
| 1:C:367:ASP:O    | 1:C:368:SER:C    | 2.59                     | 0.41              |
| 1:D:311:PHE:C    | 1:D:314:PRO:HD2  | 2.41                     | 0.41              |
| 1:E:344:ARG:CG   | 1:E:349:GLU:HB2  | 2.36                     | 0.41              |
| 1:H:22:GLU:OE2   | 1:H:347:ARG:NH2  | 2.51                     | 0.41              |
| 1:H:250:TYR:HB2  | 1:H:273:VAL:HG11 | 2.02                     | 0.41              |
| 1:B:311:PHE:C    | 1:B:314:PRO:HD2  | 2.40                     | 0.41              |
| 1:D:250:TYR:O    | 1:D:251:LEU:HD23 | 2.20                     | 0.41              |
| 1:E:16:LEU:HD11  | 1:E:54:ALA:HA    | 2.02                     | 0.41              |
| 1:E:100:LYS:HG3  | 1:E:101:ASN:N    | 2.35                     | 0.41              |
| 1:F:136:GLU:OE1  | 1:F:193:ARG:NH2  | 2.53                     | 0.41              |
| 1:G:100:LYS:HG3  | 1:G:101:ASN:N    | 2.35                     | 0.41              |
| 1:H:144:HIS:CE1  | 1:H:146:ASN:HD22 | 2.38                     | 0.41              |
| 1:H:177:ASN:HA   | 1:H:192:HIS:O    | 2.20                     | 0.41              |
| 1:F:241:ILE:HD13 | 1:G:220:LEU:CB   | 2.50                     | 0.41              |
| 1:H:209:PRO:HA   | 1:H:280:GLN:OE1  | 2.20                     | 0.41              |
| 1:A:199:ASP:OD1  | 1:A:200:VAL:N    | 2.53                     | 0.41              |
| 1:B:238:LYS:HB2  | 1:B:238:LYS:HZ3  | 1.86                     | 0.41              |
| 1:B:369:TYR:O    | 1:B:370:LEU:C    | 2.58                     | 0.41              |
| 1:D:203:ALA:O    | 1:D:214:ARG:NH1  | 2.53                     | 0.41              |
| 1:D:238:LYS:HB2  | 1:D:238:LYS:HZ2  | 1.86                     | 0.41              |
| 1:E:88:VAL:HG23  | 1:E:124:ALA:O    | 2.20                     | 0.41              |
| 1:E:153:PHE:CE1  | 1:E:155:ALA:HA   | 2.56                     | 0.41              |
| 1:H:71:PHE:HE1   | 1:H:122:VAL:HB   | 1.84                     | 0.41              |
| 1:H:361:ARG:HH11 | 1:H:361:ARG:HG2  | 1.85                     | 0.41              |
| 1:A:82:PRO:HD2   | 1:A:358:GLU:HG3  | 2.01                     | 0.41              |
| 1:A:96:LEU:CD1   | 1:A:110:ALA:HB3  | 2.51                     | 0.41              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:82:PRO:HD2   | 1:B:358:GLU:CG   | 2.46                     | 0.41              |
| 1:C:96:LEU:CD1   | 1:C:110:ALA:HB3  | 2.50                     | 0.41              |
| 1:D:177:ASN:HA   | 1:D:192:HIS:O    | 2.21                     | 0.41              |
| 1:D:188:SER:C    | 1:D:189:ILE:HG13 | 2.41                     | 0.41              |
| 1:E:104:HIS:H    | 1:E:107:ASN:HD22 | 1.68                     | 0.41              |
| 1:F:136:GLU:OE1  | 1:F:193:ARG:NH1  | 2.54                     | 0.41              |
| 1:H:209:PRO:HD3  | 1:H:284:TRP:CD2  | 2.55                     | 0.41              |
| 1:H:278:ALA:HB2  | 1:H:312:LEU:HD12 | 2.03                     | 0.41              |
| 1:D:153:PHE:CE1  | 1:D:155:ALA:HA   | 2.55                     | 0.41              |
| 1:E:209:PRO:HD3  | 1:E:284:TRP:CD1  | 2.55                     | 0.41              |
| 1:E:278:ALA:HB2  | 1:E:312:LEU:HD12 | 2.02                     | 0.41              |
| 1:G:199:ASP:OD1  | 1:G:200:VAL:N    | 2.54                     | 0.41              |
| 1:B:100:LYS:HG3  | 1:B:101:ASN:N    | 2.35                     | 0.41              |
| 1:B:147:TYR:HD1  | 1:B:147:TYR:H    | 1.67                     | 0.41              |
| 1:B:203:ALA:O    | 1:B:214:ARG:NH1  | 2.54                     | 0.41              |
| 1:D:283:LYS:HB3  | 1:E:287:LYS:HG3  | 2.03                     | 0.41              |
| 1:E:1:MET:HA     | 1:E:21:ASP:OD2   | 2.20                     | 0.41              |
| 1:E:28:GLN:OE1   | 1:F:26:LYS:CE    | 2.69                     | 0.41              |
| 1:F:88:VAL:HG23  | 1:F:124:ALA:O    | 2.20                     | 0.41              |
| 1:F:257:ARG:HA   | 1:F:257:ARG:NE   | 2.36                     | 0.41              |
| 1:G:324:ALA:HB1  | 1:G:325:PRO:HD2  | 2.03                     | 0.41              |
| 1:H:100:LYS:HG3  | 1:H:101:ASN:N    | 2.36                     | 0.41              |
| 1:H:311:PHE:O    | 1:H:314:PRO:HD2  | 2.21                     | 0.41              |
| 1:H:359:SER:HB2  | 1:H:363:ARG:NH1  | 2.35                     | 0.41              |
| 1:A:16:LEU:HD11  | 1:A:54:ALA:HA    | 2.03                     | 0.41              |
| 1:A:24:MET:CE    | 1:B:24:MET:HE3   | 2.51                     | 0.41              |
| 1:A:169:MET:O    | 1:A:171:LYS:HG3  | 2.20                     | 0.41              |
| 1:F:72:VAL:HG12  | 1:F:338:LEU:HD22 | 2.03                     | 0.41              |
| 1:H:80:PRO:O     | 1:H:81:ILE:HG23  | 2.21                     | 0.41              |
| 1:A:141:VAL:HG13 | 1:H:250:TYR:CE2  | 2.56                     | 0.41              |
| 1:A:147:TYR:HD1  | 1:A:147:TYR:H    | 1.67                     | 0.41              |
| 1:A:186:GLY:HA2  | 1:A:211:THR:HG21 | 2.03                     | 0.41              |
| 1:A:211:THR:HB   | 1:A:212:PRO:CD   | 2.51                     | 0.41              |
| 1:B:177:ASN:HA   | 1:B:192:HIS:O    | 2.20                     | 0.41              |
| 1:C:199:ASP:OD1  | 1:C:200:VAL:N    | 2.53                     | 0.41              |
| 1:C:223:LEU:O    | 1:C:227:CYS:HB2  | 2.21                     | 0.41              |
| 1:D:65:LEU:O     | 1:D:120:THR:HG21 | 2.21                     | 0.41              |
| 1:D:255:ASP:OD1  | 1:D:257:ARG:HB2  | 2.21                     | 0.41              |
| 1:E:144:HIS:CE1  | 1:E:146:ASN:ND2  | 2.84                     | 0.41              |
| 1:F:345:VAL:CG1  | 1:F:352:PRO:HG3  | 2.50                     | 0.41              |
| 1:F:361:ARG:O    | 1:F:365:ARG:NE   | 2.53                     | 0.41              |

*Continued on next page...*

*Continued from previous page...*

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:27:MET:SD    | 1:G:27:MET:C     | 2.99                     | 0.41              |
| 1:G:82:PRO:CD    | 1:G:358:GLU:HG3  | 2.48                     | 0.41              |
| 1:G:88:VAL:HG12  | 1:G:93:ILE:CD1   | 2.37                     | 0.41              |
| 1:A:27:MET:SD    | 1:A:27:MET:C     | 2.99                     | 0.41              |
| 1:C:100:LYS:HG3  | 1:C:101:ASN:N    | 2.36                     | 0.41              |
| 1:E:80:PRO:HB2   | 1:E:362:TRP:CZ3  | 2.56                     | 0.41              |
| 1:E:96:LEU:CD1   | 1:E:110:ALA:HB3  | 2.49                     | 0.41              |
| 1:E:307:HIS:HA   | 1:E:309:LYS:HE3  | 2.02                     | 0.41              |
| 1:G:96:LEU:CD1   | 1:G:110:ALA:HB3  | 2.51                     | 0.41              |
| 1:H:333:ASN:HD22 | 1:H:336:LYS:HB2  | 1.86                     | 0.41              |
| 1:A:144:HIS:CE1  | 1:A:146:ASN:HD22 | 2.38                     | 0.40              |
| 1:A:196:ARG:HH22 | 1:A:365:ARG:NH2  | 2.19                     | 0.40              |
| 1:C:275:ARG:HA   | 1:C:315:TRP:CZ3  | 2.56                     | 0.40              |
| 1:E:203:ALA:O    | 1:E:214:ARG:NH1  | 2.54                     | 0.40              |
| 1:E:256:ALA:O    | 1:E:260:VAL:HG23 | 2.21                     | 0.40              |
| 1:F:20:GLU:O     | 1:F:21:ASP:HB2   | 2.21                     | 0.40              |
| 1:F:278:ALA:HB2  | 1:F:312:LEU:HD12 | 2.03                     | 0.40              |
| 1:G:211:THR:HB   | 1:G:212:PRO:CD   | 2.51                     | 0.40              |
| 1:G:238:LYS:HB2  | 1:G:238:LYS:HZ3  | 1.85                     | 0.40              |
| 1:G:251:LEU:C    | 1:G:253:THR:H    | 2.25                     | 0.40              |
| 1:G:311:PHE:C    | 1:G:314:PRO:HD2  | 2.41                     | 0.40              |
| 1:A:294:GLY:O    | 1:A:296:VAL:N    | 2.53                     | 0.40              |
| 1:C:104:HIS:ND1  | 1:C:105:ALA:N    | 2.70                     | 0.40              |
| 1:C:129:PRO:C    | 1:C:131:VAL:H    | 2.24                     | 0.40              |
| 1:D:77:LEU:HD21  | 1:D:204:LEU:HD12 | 2.01                     | 0.40              |
| 1:F:224:VAL:CG2  | 1:G:223:LEU:HD21 | 2.51                     | 0.40              |
| 1:G:203:ALA:O    | 1:G:214:ARG:NH1  | 2.54                     | 0.40              |
| 1:H:268:GLU:OE1  | 1:H:268:GLU:HA   | 2.21                     | 0.40              |
| 1:B:294:GLY:O    | 1:B:296:VAL:N    | 2.55                     | 0.40              |
| 1:C:88:VAL:HG23  | 1:C:124:ALA:O    | 2.20                     | 0.40              |
| 1:C:345:VAL:CG1  | 1:C:352:PRO:HG3  | 2.51                     | 0.40              |
| 1:E:189:ILE:CD1  | 1:E:284:TRP:HB2  | 2.51                     | 0.40              |
| 1:F:240:ARG:NH1  | 1:F:244:ASN:ND2  | 2.68                     | 0.40              |
| 1:F:283:LYS:CE   | 1:G:287:LYS:HE2  | 2.46                     | 0.40              |
| 1:G:186:GLY:HA2  | 1:G:211:THR:HG21 | 2.03                     | 0.40              |
| 1:G:268:GLU:OE1  | 1:G:268:GLU:HA   | 2.21                     | 0.40              |
| 1:H:55:ARG:HG2   | 1:H:55:ARG:NH1   | 2.32                     | 0.40              |
| 1:H:311:PHE:C    | 1:H:314:PRO:HD2  | 2.41                     | 0.40              |
| 1:A:333:ASN:OD1  | 1:A:336:LYS:HB2  | 2.22                     | 0.40              |
| 1:B:96:LEU:CD1   | 1:B:110:ALA:HB3  | 2.52                     | 0.40              |
| 1:B:278:ALA:HB2  | 1:B:312:LEU:HD12 | 2.03                     | 0.40              |

*Continued on next page...*

Continued from previous page...

| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:64:SER:C     | 1:D:66:SER:N     | 2.74                     | 0.40              |
| 1:D:345:VAL:CG1  | 1:D:352:PRO:HG3  | 2.52                     | 0.40              |
| 1:E:161:VAL:HG23 | 1:E:162:ALA:N    | 2.37                     | 0.40              |
| 1:E:369:TYR:HB3  | 1:E:370:LEU:CD1  | 2.48                     | 0.40              |
| 1:F:16:LEU:HD11  | 1:F:54:ALA:HA    | 2.02                     | 0.40              |
| 1:F:324:ALA:HB1  | 1:F:325:PRO:HD2  | 2.02                     | 0.40              |
| 1:G:79:ASP:O     | 1:G:81:ILE:HG23  | 2.22                     | 0.40              |
| 1:A:92:MET:HB2   | 1:A:355:TYR:CD2  | 2.57                     | 0.40              |
| 1:A:315:TRP:O    | 1:A:319:ARG:HG3  | 2.21                     | 0.40              |
| 1:B:369:TYR:O    | 1:B:371:ASP:N    | 2.55                     | 0.40              |
| 1:C:59:GLU:C     | 1:C:61:THR:H     | 2.25                     | 0.40              |
| 1:D:104:HIS:NE2  | 5:D:381:CIT:H21  | 2.36                     | 0.40              |
| 1:D:153:PHE:N    | 1:D:153:PHE:CD2  | 2.90                     | 0.40              |
| 1:D:315:TRP:O    | 1:D:319:ARG:HG3  | 2.21                     | 0.40              |
| 1:F:223:LEU:O    | 1:F:227:CYS:HB2  | 2.22                     | 0.40              |
| 1:G:177:ASN:HA   | 1:G:192:HIS:O    | 2.21                     | 0.40              |
| 1:H:129:PRO:O    | 1:H:132:VAL:HG23 | 2.22                     | 0.40              |
| 1:H:333:ASN:ND2  | 1:H:336:LYS:CB   | 2.84                     | 0.40              |

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

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

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

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

| Mol | Chain | Analysed      | Favoured  | Allowed  | Outliers | Percentiles |    |
|-----|-------|---------------|-----------|----------|----------|-------------|----|
| 1   | A     | 371/375 (99%) | 325 (88%) | 39 (10%) | 7 (2%)   | 8           | 36 |
| 1   | B     | 369/375 (98%) | 326 (88%) | 39 (11%) | 4 (1%)   | 14          | 50 |
| 1   | C     | 369/375 (98%) | 325 (88%) | 38 (10%) | 6 (2%)   | 9           | 40 |
| 1   | D     | 371/375 (99%) | 327 (88%) | 41 (11%) | 3 (1%)   | 19          | 57 |
| 1   | E     | 369/375 (98%) | 325 (88%) | 40 (11%) | 4 (1%)   | 14          | 50 |
| 1   | F     | 370/375 (99%) | 325 (88%) | 43 (12%) | 2 (0%)   | 29          | 68 |

Continued on next page...

*Continued from previous page...*

| Mol | Chain | Analysed        | Favoured   | Allowed   | Outliers | Percentiles |    |
|-----|-------|-----------------|------------|-----------|----------|-------------|----|
| 1   | G     | 371/375 (99%)   | 322 (87%)  | 45 (12%)  | 4 (1%)   | 14          | 50 |
| 1   | H     | 370/375 (99%)   | 326 (88%)  | 41 (11%)  | 3 (1%)   | 19          | 57 |
| All | All   | 2960/3000 (99%) | 2601 (88%) | 326 (11%) | 33 (1%)  | 14          | 50 |

All (33) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | B     | 370 | LEU  |
| 1   | H     | 60  | GLU  |
| 1   | A     | 39  | ARG  |
| 1   | A     | 243 | GLY  |
| 1   | C     | 245 | GLY  |
| 1   | C     | 368 | SER  |
| 1   | E     | 39  | ARG  |
| 1   | F     | 39  | ARG  |
| 1   | H     | 39  | ARG  |
| 1   | A     | 308 | GLU  |
| 1   | C     | 60  | GLU  |
| 1   | C     | 233 | THR  |
| 1   | C     | 267 | ASP  |
| 1   | D     | 372 | GLY  |
| 1   | E     | 233 | THR  |
| 1   | G     | 39  | ARG  |
| 1   | G     | 233 | THR  |
| 1   | A     | 233 | THR  |
| 1   | B     | 205 | ASP  |
| 1   | B     | 233 | THR  |
| 1   | B     | 308 | GLU  |
| 1   | C     | 308 | GLU  |
| 1   | D     | 233 | THR  |
| 1   | E     | 308 | GLU  |
| 1   | F     | 233 | THR  |
| 1   | G     | 60  | GLU  |
| 1   | G     | 205 | ASP  |
| 1   | H     | 233 | THR  |
| 1   | A     | 205 | ASP  |
| 1   | A     | 267 | ASP  |
| 1   | A     | 333 | ASN  |
| 1   | D     | 205 | ASP  |
| 1   | E     | 330 | PRO  |

### 5.3.2 Protein sidechains

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     | 313/315 (99%)   | 306 (98%)  | 7 (2%)   | 52          | 81 |
| 1   | B     | 312/315 (99%)   | 307 (98%)  | 5 (2%)   | 62          | 86 |
| 1   | C     | 312/315 (99%)   | 308 (99%)  | 4 (1%)   | 69          | 89 |
| 1   | D     | 313/315 (99%)   | 307 (98%)  | 6 (2%)   | 57          | 84 |
| 1   | E     | 312/315 (99%)   | 306 (98%)  | 6 (2%)   | 57          | 84 |
| 1   | F     | 312/315 (99%)   | 303 (97%)  | 9 (3%)   | 42          | 76 |
| 1   | G     | 313/315 (99%)   | 308 (98%)  | 5 (2%)   | 62          | 86 |
| 1   | H     | 312/315 (99%)   | 306 (98%)  | 6 (2%)   | 57          | 84 |
| All | All   | 2499/2520 (99%) | 2451 (98%) | 48 (2%)  | 57          | 84 |

All (48) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 23  | ARG  |
| 1   | A     | 137 | ASP  |
| 1   | A     | 238 | LYS  |
| 1   | A     | 257 | ARG  |
| 1   | A     | 284 | TRP  |
| 1   | A     | 333 | ASN  |
| 1   | A     | 365 | ARG  |
| 1   | B     | 48  | GLU  |
| 1   | B     | 137 | ASP  |
| 1   | B     | 153 | PHE  |
| 1   | B     | 238 | LYS  |
| 1   | B     | 284 | TRP  |
| 1   | C     | 39  | ARG  |
| 1   | C     | 238 | LYS  |
| 1   | C     | 284 | TRP  |
| 1   | C     | 369 | TYR  |
| 1   | D     | 39  | ARG  |
| 1   | D     | 48  | GLU  |
| 1   | D     | 136 | GLU  |

*Continued on next page...*



*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | D     | 153 | PHE  |
| 1   | D     | 238 | LYS  |
| 1   | D     | 361 | ARG  |
| 1   | E     | 153 | PHE  |
| 1   | E     | 238 | LYS  |
| 1   | E     | 257 | ARG  |
| 1   | E     | 258 | GLU  |
| 1   | E     | 333 | ASN  |
| 1   | E     | 369 | TYR  |
| 1   | F     | 23  | ARG  |
| 1   | F     | 137 | ASP  |
| 1   | F     | 147 | TYR  |
| 1   | F     | 153 | PHE  |
| 1   | F     | 172 | ARG  |
| 1   | F     | 238 | LYS  |
| 1   | F     | 257 | ARG  |
| 1   | F     | 284 | TRP  |
| 1   | F     | 333 | ASN  |
| 1   | G     | 60  | GLU  |
| 1   | G     | 153 | PHE  |
| 1   | G     | 238 | LYS  |
| 1   | G     | 333 | ASN  |
| 1   | G     | 371 | ASP  |
| 1   | H     | 23  | ARG  |
| 1   | H     | 153 | PHE  |
| 1   | H     | 238 | LYS  |
| 1   | H     | 257 | ARG  |
| 1   | H     | 284 | TRP  |
| 1   | H     | 361 | ARG  |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (47) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 56  | GLN  |
| 1   | A     | 146 | ASN  |
| 1   | A     | 222 | GLN  |
| 1   | A     | 265 | GLN  |
| 1   | A     | 333 | ASN  |
| 1   | B     | 144 | HIS  |
| 1   | B     | 222 | GLN  |
| 1   | B     | 265 | GLN  |
| 1   | B     | 307 | HIS  |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | B     | 333 | ASN  |
| 1   | C     | 28  | GLN  |
| 1   | C     | 56  | GLN  |
| 1   | C     | 114 | HIS  |
| 1   | C     | 144 | HIS  |
| 1   | C     | 146 | ASN  |
| 1   | C     | 222 | GLN  |
| 1   | C     | 244 | ASN  |
| 1   | C     | 265 | GLN  |
| 1   | C     | 333 | ASN  |
| 1   | D     | 28  | GLN  |
| 1   | D     | 146 | ASN  |
| 1   | D     | 222 | GLN  |
| 1   | D     | 265 | GLN  |
| 1   | E     | 56  | GLN  |
| 1   | E     | 114 | HIS  |
| 1   | E     | 144 | HIS  |
| 1   | E     | 222 | GLN  |
| 1   | E     | 265 | GLN  |
| 1   | E     | 333 | ASN  |
| 1   | F     | 114 | HIS  |
| 1   | F     | 146 | ASN  |
| 1   | F     | 148 | GLN  |
| 1   | F     | 222 | GLN  |
| 1   | F     | 333 | ASN  |
| 1   | G     | 28  | GLN  |
| 1   | G     | 56  | GLN  |
| 1   | G     | 146 | ASN  |
| 1   | G     | 222 | GLN  |
| 1   | G     | 244 | ASN  |
| 1   | G     | 265 | GLN  |
| 1   | G     | 333 | ASN  |
| 1   | H     | 28  | GLN  |
| 1   | H     | 56  | GLN  |
| 1   | H     | 114 | HIS  |
| 1   | H     | 144 | HIS  |
| 1   | H     | 244 | ASN  |
| 1   | H     | 333 | ASN  |

### 5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

## 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

Of 15 ligands modelled in this entry, 1 is monoatomic - leaving 14 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 |
| 2   | GOL  | F     | 391 | -    | 5,5,5        | 4.39 | 5 (100%) | 5,5,5       | 5.37 | 4 (80%)  |
| 5   | CIT  | G     | 382 | -    | 12,12,12     | 1.77 | 4 (33%)  | 17,17,17    | 3.34 | 9 (52%)  |
| 3   | PO4  | E     | 405 | -    | 4,4,4        | 1.39 | 1 (25%)  | 6,6,6       | 0.86 | 0        |
| 3   | PO4  | H     | 404 | -    | 4,4,4        | 1.44 | 1 (25%)  | 6,6,6       | 0.85 | 0        |
| 2   | GOL  | B     | 394 | -    | 5,5,5        | 4.45 | 5 (100%) | 5,5,5       | 5.46 | 4 (80%)  |
| 5   | CIT  | D     | 381 | -    | 12,12,12     | 1.79 | 4 (33%)  | 17,17,17    | 3.03 | 9 (52%)  |
| 2   | GOL  | C     | 392 | -    | 5,5,5        | 4.42 | 5 (100%) | 5,5,5       | 5.46 | 4 (80%)  |
| 3   | PO4  | B     | 402 | -    | 4,4,4        | 1.38 | 1 (25%)  | 6,6,6       | 0.86 | 0        |
| 3   | PO4  | E     | 401 | -    | 4,4,4        | 1.35 | 1 (25%)  | 6,6,6       | 0.89 | 0        |
| 3   | PO4  | F     | 403 | -    | 4,4,4        | 1.39 | 1 (25%)  | 6,6,6       | 0.85 | 0        |
| 2   | GOL  | D     | 393 | -    | 5,5,5        | 4.52 | 5 (100%) | 5,5,5       | 5.63 | 4 (80%)  |
| 5   | CIT  | G     | 383 | -    | 12,12,12     | 1.85 | 5 (41%)  | 17,17,17    | 3.26 | 8 (47%)  |
| 2   | GOL  | A     | 395 | -    | 5,5,5        | 4.42 | 5 (100%) | 5,5,5       | 5.46 | 4 (80%)  |
| 5   | CIT  | D     | 384 | -    | 12,12,12     | 1.81 | 4 (33%)  | 17,17,17    | 3.21 | 8 (47%)  |

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 |
|-----|------|-------|-----|------|---------|-------------|-------|
| 2   | GOL  | F     | 391 | -    | -       | 2/4/4/4     | -     |
| 5   | CIT  | G     | 382 | -    | -       | 10/16/16/16 | -     |
| 2   | GOL  | B     | 394 | -    | -       | 2/4/4/4     | -     |
| 5   | CIT  | D     | 381 | -    | -       | 6/16/16/16  | -     |
| 2   | GOL  | C     | 392 | -    | -       | 3/4/4/4     | -     |
| 2   | GOL  | D     | 393 | -    | -       | 3/4/4/4     | -     |
| 5   | CIT  | G     | 383 | -    | -       | 7/16/16/16  | -     |
| 2   | GOL  | A     | 395 | -    | -       | 4/4/4/4     | -     |
| 5   | CIT  | D     | 384 | -    | -       | 7/16/16/16  | -     |

All (47) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|-------|-------|-------------|----------|
| 2   | D     | 393 | GOL  | C3-C2 | -7.13 | 1.22        | 1.51     |
| 2   | A     | 395 | GOL  | C3-C2 | -6.94 | 1.23        | 1.51     |
| 2   | C     | 392 | GOL  | C3-C2 | -6.90 | 1.23        | 1.51     |
| 2   | B     | 394 | GOL  | C3-C2 | -6.90 | 1.23        | 1.51     |
| 2   | F     | 391 | GOL  | C3-C2 | -6.87 | 1.23        | 1.51     |
| 2   | D     | 393 | GOL  | O1-C1 | 4.72  | 1.62        | 1.42     |
| 2   | B     | 394 | GOL  | O1-C1 | 4.62  | 1.61        | 1.42     |
| 2   | C     | 392 | GOL  | O1-C1 | 4.57  | 1.61        | 1.42     |
| 2   | A     | 395 | GOL  | O1-C1 | 4.55  | 1.61        | 1.42     |
| 2   | F     | 391 | GOL  | O1-C1 | 4.37  | 1.60        | 1.42     |
| 5   | D     | 381 | CIT  | O7-C3 | 3.67  | 1.50        | 1.43     |
| 5   | D     | 384 | CIT  | O7-C3 | 3.62  | 1.50        | 1.43     |
| 5   | G     | 383 | CIT  | O7-C3 | 3.53  | 1.50        | 1.43     |
| 2   | F     | 391 | GOL  | O3-C3 | 3.51  | 1.57        | 1.42     |
| 2   | B     | 394 | GOL  | O3-C3 | 3.44  | 1.56        | 1.42     |
| 2   | C     | 392 | GOL  | O3-C3 | 3.44  | 1.56        | 1.42     |
| 5   | G     | 382 | CIT  | O7-C3 | 3.41  | 1.49        | 1.43     |
| 2   | D     | 393 | GOL  | O3-C3 | 3.29  | 1.56        | 1.42     |
| 2   | A     | 395 | GOL  | O3-C3 | 3.26  | 1.56        | 1.42     |
| 2   | D     | 393 | GOL  | O2-C2 | -3.22 | 1.33        | 1.43     |
| 2   | F     | 391 | GOL  | C1-C2 | -3.15 | 1.38        | 1.51     |
| 2   | A     | 395 | GOL  | O2-C2 | -3.07 | 1.34        | 1.43     |
| 2   | B     | 394 | GOL  | O2-C2 | -3.06 | 1.34        | 1.43     |
| 2   | B     | 394 | GOL  | C1-C2 | -2.98 | 1.39        | 1.51     |
| 2   | C     | 392 | GOL  | C1-C2 | -2.95 | 1.39        | 1.51     |
| 2   | A     | 395 | GOL  | C1-C2 | -2.95 | 1.39        | 1.51     |
| 2   | C     | 392 | GOL  | O2-C2 | -2.94 | 1.34        | 1.43     |
| 2   | D     | 393 | GOL  | C1-C2 | -2.80 | 1.40        | 1.51     |

*Continued on next page...*

*Continued from previous page...*

| Mol | Chain | Res | Type | Atoms | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|-------|-------|-------------|----------|
| 2   | F     | 391 | GOL  | O2-C2 | -2.80 | 1.35        | 1.43     |
| 3   | H     | 404 | PO4  | P-O1  | 2.52  | 1.56        | 1.50     |
| 5   | G     | 383 | CIT  | C3-C6 | 2.52  | 1.56        | 1.53     |
| 5   | D     | 381 | CIT  | O5-C6 | 2.50  | 1.30        | 1.22     |
| 3   | E     | 405 | PO4  | P-O1  | 2.47  | 1.56        | 1.50     |
| 3   | F     | 403 | PO4  | P-O1  | 2.41  | 1.56        | 1.50     |
| 3   | E     | 401 | PO4  | P-O1  | 2.39  | 1.56        | 1.50     |
| 3   | B     | 402 | PO4  | P-O1  | 2.36  | 1.56        | 1.50     |
| 5   | G     | 382 | CIT  | C3-C6 | 2.31  | 1.55        | 1.53     |
| 5   | D     | 381 | CIT  | C3-C6 | 2.29  | 1.55        | 1.53     |
| 5   | D     | 381 | CIT  | O1-C1 | 2.28  | 1.29        | 1.22     |
| 5   | D     | 384 | CIT  | C3-C6 | 2.22  | 1.55        | 1.53     |
| 5   | G     | 383 | CIT  | O1-C1 | 2.20  | 1.29        | 1.22     |
| 5   | D     | 384 | CIT  | O1-C1 | 2.16  | 1.29        | 1.22     |
| 5   | G     | 383 | CIT  | O5-C6 | 2.13  | 1.29        | 1.22     |
| 5   | G     | 382 | CIT  | O1-C1 | 2.07  | 1.29        | 1.22     |
| 5   | D     | 384 | CIT  | O5-C6 | 2.07  | 1.28        | 1.22     |
| 5   | G     | 382 | CIT  | O5-C6 | 2.07  | 1.28        | 1.22     |
| 5   | G     | 383 | CIT  | O4-C5 | -2.03 | 1.23        | 1.30     |

All (54) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms    | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|----------|-------|-------------|----------|
| 2   | D     | 393 | GOL  | O3-C3-C2 | 10.70 | 161.50      | 110.20   |
| 2   | C     | 392 | GOL  | O3-C3-C2 | 10.59 | 160.98      | 110.20   |
| 2   | B     | 394 | GOL  | O3-C3-C2 | 10.54 | 160.73      | 110.20   |
| 2   | A     | 395 | GOL  | O3-C3-C2 | 10.49 | 160.50      | 110.20   |
| 2   | F     | 391 | GOL  | O3-C3-C2 | 10.40 | 160.08      | 110.20   |
| 5   | G     | 382 | CIT  | O7-C3-C6 | -8.50 | 96.94       | 108.86   |
| 5   | G     | 383 | CIT  | O7-C3-C6 | -8.43 | 97.02       | 108.86   |
| 5   | D     | 384 | CIT  | O7-C3-C6 | -8.17 | 97.39       | 108.86   |
| 5   | G     | 382 | CIT  | O5-C6-C3 | -6.31 | 113.32      | 122.25   |
| 5   | D     | 384 | CIT  | O5-C6-C3 | -6.13 | 113.57      | 122.25   |
| 5   | G     | 383 | CIT  | O5-C6-C3 | -6.08 | 113.64      | 122.25   |
| 5   | D     | 381 | CIT  | O5-C6-C3 | -5.74 | 114.13      | 122.25   |
| 5   | D     | 381 | CIT  | O6-C6-C3 | 5.47  | 122.55      | 113.05   |
| 5   | D     | 381 | CIT  | O7-C3-C6 | -4.98 | 101.87      | 108.86   |
| 2   | D     | 393 | GOL  | O2-C2-C3 | 4.90  | 130.72      | 109.12   |
| 2   | A     | 395 | GOL  | O2-C2-C3 | 4.54  | 129.11      | 109.12   |
| 2   | B     | 394 | GOL  | O2-C2-C3 | 4.46  | 128.77      | 109.12   |
| 2   | F     | 391 | GOL  | O2-C2-C3 | 4.37  | 128.39      | 109.12   |
| 2   | C     | 392 | GOL  | O2-C2-C3 | 4.33  | 128.21      | 109.12   |

*Continued on next page...*

Continued from previous page...

| Mol | Chain | Res | Type | Atoms    | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|----------|-------|-------------|----------|
| 5   | D     | 384 | CIT  | C2-C3-C6 | 3.88  | 118.44      | 110.11   |
| 5   | G     | 383 | CIT  | C2-C3-C6 | 3.85  | 118.38      | 110.11   |
| 5   | D     | 381 | CIT  | C3-C2-C1 | 3.79  | 122.98      | 113.81   |
| 5   | G     | 382 | CIT  | C2-C3-C6 | 3.46  | 117.54      | 110.11   |
| 5   | D     | 381 | CIT  | C2-C3-C6 | 3.41  | 117.44      | 110.11   |
| 5   | G     | 382 | CIT  | O4-C5-O3 | -3.36 | 114.92      | 123.30   |
| 5   | D     | 381 | CIT  | O2-C1-C2 | 3.33  | 125.03      | 114.35   |
| 2   | A     | 395 | GOL  | O1-C1-C2 | 3.32  | 126.10      | 110.20   |
| 5   | G     | 383 | CIT  | C3-C2-C1 | 3.30  | 121.79      | 113.81   |
| 5   | G     | 382 | CIT  | O2-C1-C2 | 3.29  | 124.93      | 114.35   |
| 2   | C     | 392 | GOL  | O1-C1-C2 | 3.29  | 125.96      | 110.20   |
| 2   | B     | 394 | GOL  | O1-C1-C2 | 3.28  | 125.93      | 110.20   |
| 2   | D     | 393 | GOL  | O1-C1-C2 | 3.27  | 125.89      | 110.20   |
| 5   | D     | 384 | CIT  | O6-C6-O5 | 3.26  | 134.19      | 123.82   |
| 5   | G     | 382 | CIT  | O6-C6-O5 | 3.24  | 134.12      | 123.82   |
| 5   | G     | 382 | CIT  | C3-C2-C1 | 3.22  | 121.61      | 113.81   |
| 5   | G     | 383 | CIT  | O4-C5-O3 | -3.21 | 115.30      | 123.30   |
| 5   | G     | 383 | CIT  | O6-C6-O5 | 3.21  | 134.02      | 123.82   |
| 5   | D     | 381 | CIT  | O4-C5-O3 | -3.17 | 115.41      | 123.30   |
| 5   | D     | 384 | CIT  | O2-C1-C2 | 3.12  | 124.38      | 114.35   |
| 5   | G     | 383 | CIT  | O2-C1-C2 | 3.10  | 124.30      | 114.35   |
| 2   | F     | 391 | GOL  | O1-C1-C2 | 3.10  | 125.04      | 110.20   |
| 5   | D     | 384 | CIT  | O4-C5-O3 | -3.09 | 115.60      | 123.30   |
| 5   | D     | 384 | CIT  | C3-C2-C1 | 3.08  | 121.28      | 113.81   |
| 2   | D     | 393 | GOL  | C3-C2-C1 | -2.98 | 100.10      | 111.70   |
| 5   | G     | 382 | CIT  | C3-C4-C5 | 2.86  | 120.74      | 113.81   |
| 2   | A     | 395 | GOL  | C3-C2-C1 | -2.71 | 101.15      | 111.70   |
| 2   | F     | 391 | GOL  | C3-C2-C1 | -2.65 | 101.39      | 111.70   |
| 2   | B     | 394 | GOL  | C3-C2-C1 | -2.65 | 101.41      | 111.70   |
| 2   | C     | 392 | GOL  | C3-C2-C1 | -2.61 | 101.56      | 111.70   |
| 5   | G     | 382 | CIT  | O1-C1-C2 | -2.40 | 115.92      | 122.94   |
| 5   | D     | 381 | CIT  | O1-C1-C2 | -2.37 | 116.02      | 122.94   |
| 5   | D     | 381 | CIT  | C3-C4-C5 | 2.30  | 119.38      | 113.81   |
| 5   | G     | 383 | CIT  | O1-C1-C2 | -2.20 | 116.51      | 122.94   |
| 5   | D     | 384 | CIT  | O1-C1-C2 | -2.20 | 116.52      | 122.94   |

There are no chirality outliers.

All (44) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms       |
|-----|-------|-----|------|-------------|
| 2   | A     | 395 | GOL  | O1-C1-C2-C3 |
| 2   | A     | 395 | GOL  | C1-C2-C3-O3 |

Continued on next page...

*Continued from previous page...*

| Mol | Chain | Res | Type | Atoms       |
|-----|-------|-----|------|-------------|
| 2   | B     | 394 | GOL  | C1-C2-C3-O3 |
| 2   | C     | 392 | GOL  | C1-C2-C3-O3 |
| 2   | D     | 393 | GOL  | C1-C2-C3-O3 |
| 2   | D     | 393 | GOL  | O2-C2-C3-O3 |
| 2   | F     | 391 | GOL  | C1-C2-C3-O3 |
| 5   | D     | 381 | CIT  | O7-C3-C4-C5 |
| 5   | D     | 384 | CIT  | O7-C3-C4-C5 |
| 5   | D     | 384 | CIT  | C2-C3-C6-O5 |
| 5   | D     | 384 | CIT  | C2-C3-C6-O6 |
| 5   | D     | 384 | CIT  | O7-C3-C6-O5 |
| 5   | D     | 384 | CIT  | O7-C3-C6-O6 |
| 5   | G     | 382 | CIT  | C1-C2-C3-O7 |
| 5   | G     | 382 | CIT  | C1-C2-C3-C4 |
| 5   | G     | 382 | CIT  | C1-C2-C3-C6 |
| 5   | G     | 382 | CIT  | C2-C3-C4-C5 |
| 5   | G     | 382 | CIT  | O7-C3-C4-C5 |
| 5   | G     | 382 | CIT  | C6-C3-C4-C5 |
| 5   | G     | 382 | CIT  | C2-C3-C6-O5 |
| 5   | G     | 382 | CIT  | C2-C3-C6-O6 |
| 5   | G     | 382 | CIT  | O7-C3-C6-O5 |
| 5   | G     | 382 | CIT  | O7-C3-C6-O6 |
| 5   | G     | 383 | CIT  | C2-C3-C4-C5 |
| 5   | G     | 383 | CIT  | O7-C3-C4-C5 |
| 5   | G     | 383 | CIT  | C2-C3-C6-O5 |
| 5   | G     | 383 | CIT  | C2-C3-C6-O6 |
| 5   | G     | 383 | CIT  | O7-C3-C6-O5 |
| 5   | G     | 383 | CIT  | O7-C3-C6-O6 |
| 5   | D     | 381 | CIT  | C2-C3-C4-C5 |
| 2   | B     | 394 | GOL  | O2-C2-C3-O3 |
| 2   | C     | 392 | GOL  | O2-C2-C3-O3 |
| 5   | D     | 384 | CIT  | C2-C3-C4-C5 |
| 2   | F     | 391 | GOL  | O2-C2-C3-O3 |
| 5   | D     | 381 | CIT  | C6-C3-C4-C5 |
| 5   | D     | 384 | CIT  | C6-C3-C4-C5 |
| 5   | G     | 383 | CIT  | C6-C3-C4-C5 |
| 2   | A     | 395 | GOL  | O1-C1-C2-O2 |
| 2   | A     | 395 | GOL  | O2-C2-C3-O3 |
| 2   | D     | 393 | GOL  | O1-C1-C2-O2 |
| 2   | C     | 392 | GOL  | O1-C1-C2-O2 |
| 5   | D     | 381 | CIT  | C1-C2-C3-O7 |
| 5   | D     | 381 | CIT  | O2-C1-C2-C3 |
| 5   | D     | 381 | CIT  | O1-C1-C2-C3 |

There are no ring outliers.

1 monomer is involved in 3 short contacts:

| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|-----|------|---------|--------------|
| 5   | D     | 381 | CIT  | 3       | 0            |

## 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

Unable to reproduce the depositors R factor - this section is therefore empty.

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

Unable to reproduce the depositors R factor - this section is therefore empty.

### 6.3 Carbohydrates

Unable to reproduce the depositors R factor - this section is therefore empty.

### 6.4 Ligands

Unable to reproduce the depositors R factor - this section is therefore empty.

### 6.5 Other polymers

Unable to reproduce the depositors R factor - this section is therefore empty.