



Full wwPDB X-ray Structure Validation Report ⓘ

Aug 2, 2023 – 06:38 AM EDT

PDB ID : 1BU6
Title : CRYSTAL STRUCTURES OF ESCHERICHIA COLI GLYCEROL KINASE AND THE MUTANT A65T IN AN INACTIVE TETRAMER: CONFORMATIONAL CHANGES AND IMPLICATIONS FOR ALLOSTERIC REGULATION
Authors : Feese, M.D.; Faber, H.R.; Bystrom, C.E.; Pettigrew, D.W.; Remington, S.J.
Deposited on : 1998-08-30
Resolution : 2.37 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

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 : 2.34
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) : 2.34

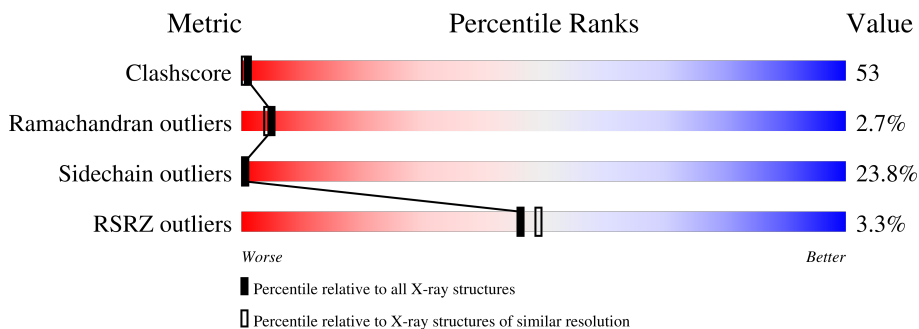
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.37 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)) |
|-----------------------|-----------------------------|---|
| Clashscore | 141614 | 6082 (2.40-2.36) |
| Ramachandran outliers | 138981 | 5973 (2.40-2.36) |
| Sidechain outliers | 138945 | 5975 (2.40-2.36) |
| RSRZ outliers | 127900 | 5397 (2.40-2.36) |

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 ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 1 | O | 501 | |
| 1 | X | 501 | |
| 1 | Y | 501 | |
| 1 | Z | 501 | |

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

ria:

| Mol | Type | Chain | Res | Chirality | Geometry | Clashes | Electron density |
|-----|------|-------|-----|-----------|----------|---------|------------------|
| 2 | SO4 | O | 502 | - | - | X | - |
| 3 | GOL | Z | 504 | - | - | X | - |

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 15815 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 PROTEIN (GLYCEROL KINASE).

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|---------|-------|
| | | | Total | C | N | O | S | | | |
| 1 | O | 497 | 3891 | 2452 | 680 | 740 | 19 | 0 | 0 | 0 |
| 1 | Y | 499 | 3921 | 2471 | 686 | 745 | 19 | 0 | 0 | 0 |
| 1 | Z | 498 | 3913 | 2465 | 686 | 743 | 19 | 0 | 0 | 0 |
| 1 | X | 498 | 3896 | 2456 | 681 | 740 | 19 | 0 | 0 | 0 |

There are 4 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|---------------------|------------|
| O | 65 | THR | ALA | engineered mutation | UNP P0A6F3 |
| Y | 65 | THR | ALA | engineered mutation | UNP P0A6F3 |
| Z | 65 | THR | ALA | engineered mutation | UNP P0A6F3 |
| X | 65 | THR | ALA | engineered mutation | UNP P0A6F3 |

- Molecule 2 is SULFATE ION (three-letter code: SO4) (formula: O₄S).



| Mol | Chain | Residues | Atoms | | | ZeroOcc | AltConf |
|-----|-------|----------|-------|---|---|---------|---------|
| 2 | O | 1 | Total | O | S | 0 | 0 |
| | | | 5 | 4 | 1 | | |
| 2 | O | 1 | Total | O | S | 0 | 0 |
| | | | 5 | 4 | 1 | | |
| 2 | Y | 1 | Total | O | S | 0 | 0 |
| | | | 5 | 4 | 1 | | |
| 2 | Z | 1 | Total | O | S | 0 | 0 |
| | | | 5 | 4 | 1 | | |
| 2 | Z | 1 | Total | O | S | 0 | 0 |
| | | | 5 | 4 | 1 | | |
| 2 | X | 1 | Total | O | S | 0 | 0 |
| | | | 5 | 4 | 1 | | |

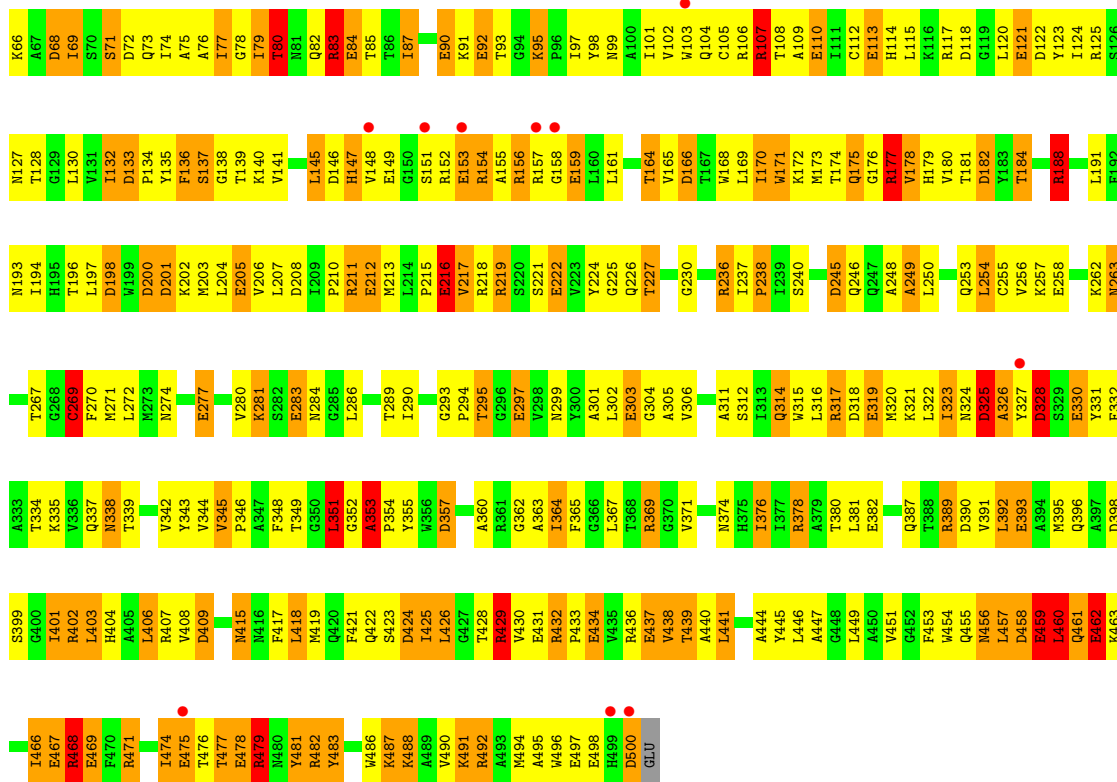
- Molecule 3 is GLYCEROL (three-letter code: GOL) (formula: C₃H₈O₃).



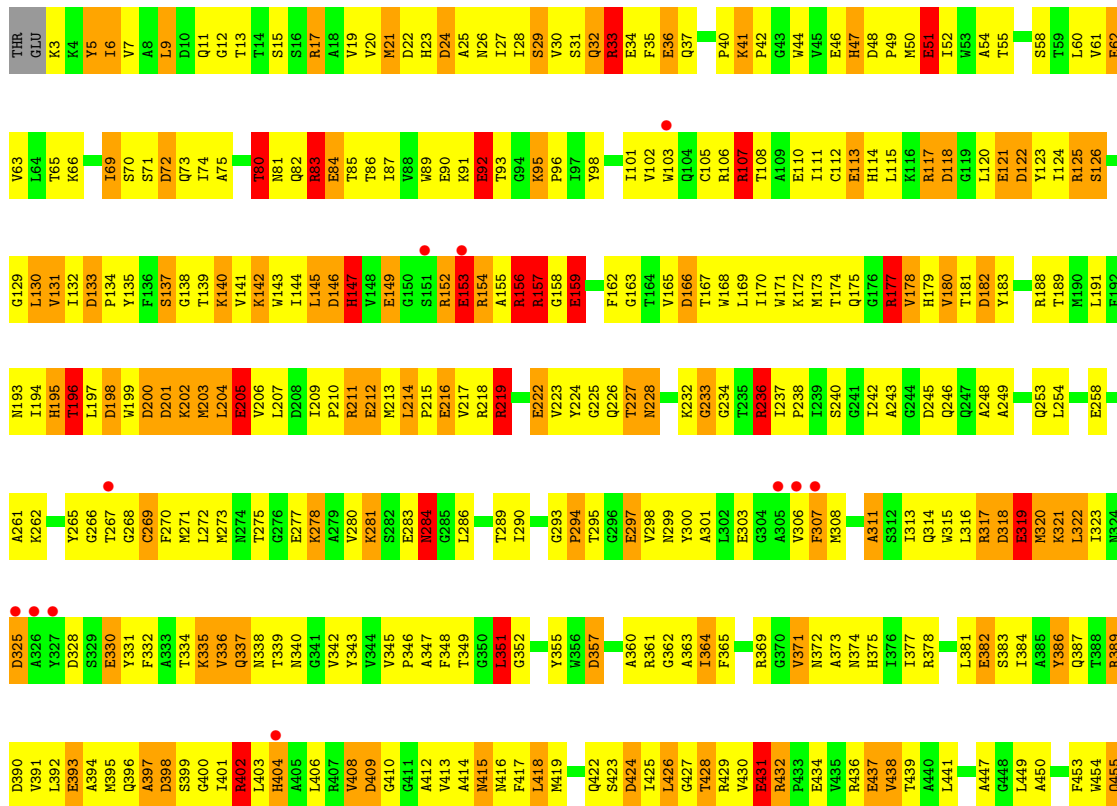
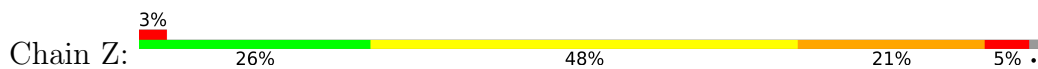
| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|-----|-------|----------|--------------------|---------|---------|
| 3 | O | 1 | Total C O 6 3 3 | 0 | 0 |
| 3 | Y | 1 | Total C O 6 3 3 | 0 | 0 |
| 3 | Z | 1 | Total C O 6 3 3 | 0 | 0 |
| 3 | X | 1 | Total C O 6 3 3 | 0 | 0 |

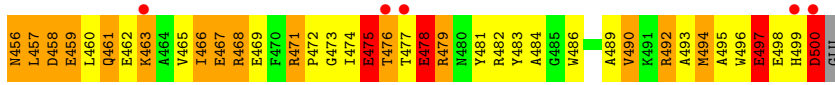
- Molecule 4 is water.

| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|-----|-------|----------|------------------|---------|---------|
| 4 | O | 29 | Total O 29 29 | 0 | 0 |
| 4 | Y | 38 | Total O 38 38 | 0 | 0 |
| 4 | Z | 31 | Total O 31 31 | 0 | 0 |
| 4 | X | 42 | Total O 42 42 | 0 | 0 |

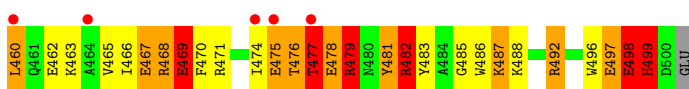
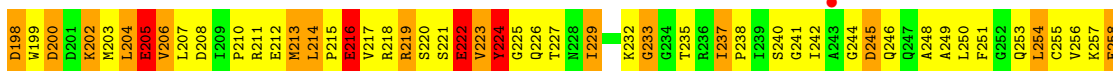
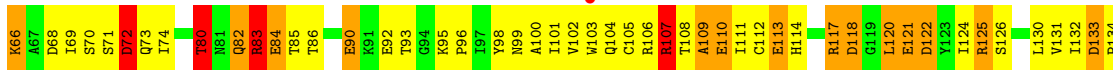
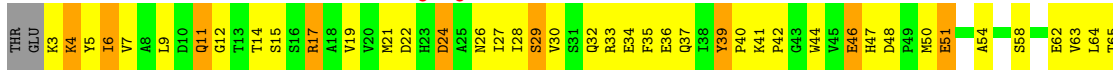


• Molecule 1: PROTEIN (GLYCEROL KINASE)





• Molecule 1: PROTEIN (GLYCEROL KINASE)



4 Data and refinement statistics

| Property | Value | Source |
|---|---|------------------|
| Space group | P 1 21 1 | Depositor |
| Cell constants a, b, c, α , β , γ | 91.90Å 119.00Å 109.30Å 90.00° 103.40° 90.00° | Depositor |
| Resolution (Å) | 20.00 – 2.37 37.01 – 2.37 | Depositor EDS |
| % Data completeness (in resolution range) | 74.0 (20.00-2.37) 72.3 (37.01-2.37) | Depositor EDS |
| R_{merge} | 0.07 | Depositor |
| R_{sym} | (Not available) | Depositor |
| $\langle I/\sigma(I) \rangle$ ¹ | 0.49 (at 2.37Å) | Xtrriage |
| Refinement program | TNT 5F-6 | Depositor |
| R, R_{free} | 0.167 , (Not available) 0.157 , (Not available) | Depositor DCC |
| R_{free} test set | No test flags present. | wwPDB-VP |
| Wilson B-factor (Å ²) | 31.5 | Xtrriage |
| Anisotropy | 0.469 | Xtrriage |
| Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²) | 0.26 , 128.3 | EDS |
| L-test for twinning ² | $\langle L \rangle = 0.51$, $\langle L^2 \rangle = 0.34$ | Xtrriage |
| Estimated twinning fraction | No twinning to report. | Xtrriage |
| F_o, F_c correlation | 0.96 | EDS |
| Total number of atoms | 15815 | wwPDB-VP |
| Average B, all atoms (Å ²) | 38.0 | 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 32.80 % 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 8.8628e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

¹Intensities estimated from amplitudes.

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

5 Model quality i

5.1 Standard geometry i

Bond lengths and bond angles in the following residue types are not validated in this section: GOL, SO4

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 | O | 1.34 | 35/3970 (0.9%) | 1.71 | 83/5387 (1.5%) |
| 1 | X | 1.37 | 39/3975 (1.0%) | 1.76 | 96/5393 (1.8%) |
| 1 | Y | 1.34 | 40/4001 (1.0%) | 1.75 | 102/5427 (1.9%) |
| 1 | Z | 1.32 | 36/3992 (0.9%) | 1.71 | 69/5413 (1.3%) |
| All | All | 1.34 | 150/15938 (0.9%) | 1.74 | 350/21620 (1.6%) |

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

| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 1 | X | 2 | 0 |
| 1 | Z | 1 | 0 |
| All | All | 3 | 0 |

All (150) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|--------|-------|-------------|----------|
| 1 | X | 475 | GLU | CD-OE2 | 16.71 | 1.44 | 1.25 |
| 1 | Y | 475 | GLU | CD-OE2 | 12.24 | 1.39 | 1.25 |
| 1 | Z | 36 | GLU | CD-OE2 | 10.65 | 1.37 | 1.25 |
| 1 | Y | 84 | GLU | CD-OE1 | 10.23 | 1.36 | 1.25 |
| 1 | Y | 434 | GLU | CD-OE2 | 10.15 | 1.36 | 1.25 |
| 1 | O | 475 | GLU | CD-OE1 | 9.90 | 1.36 | 1.25 |
| 1 | Z | 149 | GLU | CD-OE1 | 9.86 | 1.36 | 1.25 |
| 1 | X | 277 | GLU | CD-OE2 | 9.64 | 1.36 | 1.25 |
| 1 | Z | 34 | GLU | CD-OE1 | 9.49 | 1.36 | 1.25 |
| 1 | Z | 475 | GLU | CD-OE2 | 9.44 | 1.36 | 1.25 |
| 1 | O | 92 | GLU | CD-OE1 | 9.33 | 1.35 | 1.25 |
| 1 | Y | 216 | GLU | CD-OE1 | 9.14 | 1.35 | 1.25 |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|--------|------|-------------|----------|
| 1 | O | 121 | GLU | CD-OE1 | 9.11 | 1.35 | 1.25 |
| 1 | Y | 92 | GLU | CD-OE1 | 9.08 | 1.35 | 1.25 |
| 1 | X | 153 | GLU | CD-OE2 | 8.99 | 1.35 | 1.25 |
| 1 | O | 36 | GLU | CD-OE2 | 8.98 | 1.35 | 1.25 |
| 1 | O | 434 | GLU | CD-OE2 | 8.93 | 1.35 | 1.25 |
| 1 | O | 277 | GLU | CD-OE2 | 8.86 | 1.35 | 1.25 |
| 1 | X | 258 | GLU | CD-OE2 | 8.85 | 1.35 | 1.25 |
| 1 | Z | 110 | GLU | CD-OE2 | 8.72 | 1.35 | 1.25 |
| 1 | X | 205 | GLU | CD-OE2 | 8.67 | 1.35 | 1.25 |
| 1 | X | 437 | GLU | CD-OE2 | 8.64 | 1.35 | 1.25 |
| 1 | X | 434 | GLU | CD-OE1 | 8.58 | 1.35 | 1.25 |
| 1 | O | 462 | GLU | CD-OE1 | 8.57 | 1.35 | 1.25 |
| 1 | Z | 92 | GLU | CD-OE2 | 8.57 | 1.35 | 1.25 |
| 1 | X | 431 | GLU | CD-OE1 | 8.54 | 1.35 | 1.25 |
| 1 | Y | 462 | GLU | CD-OE1 | 8.53 | 1.35 | 1.25 |
| 1 | Z | 462 | GLU | CD-OE2 | 8.51 | 1.35 | 1.25 |
| 1 | Y | 153 | GLU | CD-OE1 | 8.49 | 1.34 | 1.25 |
| 1 | O | 34 | GLU | CD-OE1 | 8.47 | 1.34 | 1.25 |
| 1 | Z | 437 | GLU | CD-OE2 | 8.47 | 1.34 | 1.25 |
| 1 | X | 283 | GLU | CD-OE1 | 8.47 | 1.34 | 1.25 |
| 1 | Z | 51 | GLU | CD-OE1 | 8.38 | 1.34 | 1.25 |
| 1 | Y | 459 | GLU | CD-OE2 | 8.36 | 1.34 | 1.25 |
| 1 | O | 153 | GLU | CD-OE2 | 8.33 | 1.34 | 1.25 |
| 1 | O | 497 | GLU | CD-OE2 | 8.33 | 1.34 | 1.25 |
| 1 | X | 149 | GLU | CD-OE1 | 8.30 | 1.34 | 1.25 |
| 1 | Y | 382 | GLU | CD-OE2 | 8.29 | 1.34 | 1.25 |
| 1 | Y | 437 | GLU | CD-OE2 | 8.16 | 1.34 | 1.25 |
| 1 | X | 478 | GLU | CD-OE1 | 8.12 | 1.34 | 1.25 |
| 1 | O | 62 | GLU | CD-OE2 | 8.09 | 1.34 | 1.25 |
| 1 | Y | 36 | GLU | CD-OE2 | 8.05 | 1.34 | 1.25 |
| 1 | X | 92 | GLU | CD-OE2 | 8.02 | 1.34 | 1.25 |
| 1 | Y | 34 | GLU | CD-OE1 | 7.97 | 1.34 | 1.25 |
| 1 | Y | 469 | GLU | CD-OE2 | 7.93 | 1.34 | 1.25 |
| 1 | O | 459 | GLU | CD-OE1 | 7.93 | 1.34 | 1.25 |
| 1 | X | 36 | GLU | CD-OE2 | 7.91 | 1.34 | 1.25 |
| 1 | X | 34 | GLU | CD-OE1 | 7.89 | 1.34 | 1.25 |
| 1 | Z | 153 | GLU | CD-OE1 | 7.87 | 1.34 | 1.25 |
| 1 | Y | 110 | GLU | CD-OE1 | 7.87 | 1.34 | 1.25 |
| 1 | X | 459 | GLU | CD-OE2 | 7.84 | 1.34 | 1.25 |
| 1 | Z | 283 | GLU | CD-OE1 | 7.81 | 1.34 | 1.25 |
| 1 | X | 330 | GLU | CD-OE1 | 7.80 | 1.34 | 1.25 |
| 1 | Z | 205 | GLU | CD-OE2 | 7.79 | 1.34 | 1.25 |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|--------|-------|-------------|----------|
| 1 | Y | 283 | GLU | CD-OE1 | 7.76 | 1.34 | 1.25 |
| 1 | O | 149 | GLU | CD-OE1 | 7.75 | 1.34 | 1.25 |
| 1 | Y | 258 | GLU | CD-OE1 | 7.70 | 1.34 | 1.25 |
| 1 | O | 216 | GLU | CD-OE2 | 7.65 | 1.34 | 1.25 |
| 1 | X | 462 | GLU | CD-OE2 | 7.65 | 1.34 | 1.25 |
| 1 | O | 437 | GLU | CD-OE1 | 7.64 | 1.34 | 1.25 |
| 1 | X | 110 | GLU | CD-OE1 | 7.61 | 1.34 | 1.25 |
| 1 | X | 51 | GLU | CD-OE1 | 7.58 | 1.33 | 1.25 |
| 1 | O | 212 | GLU | CD-OE2 | 7.57 | 1.33 | 1.25 |
| 1 | Z | 459 | GLU | CD-OE1 | 7.53 | 1.33 | 1.25 |
| 1 | Y | 498 | GLU | CD-OE1 | 7.52 | 1.33 | 1.25 |
| 1 | Y | 205 | GLU | CD-OE2 | 7.46 | 1.33 | 1.25 |
| 1 | X | 297 | GLU | CD-OE1 | 7.46 | 1.33 | 1.25 |
| 1 | O | 498 | GLU | CD-OE1 | 7.39 | 1.33 | 1.25 |
| 1 | Y | 330 | GLU | CD-OE2 | 7.38 | 1.33 | 1.25 |
| 1 | O | 205 | GLU | CD-OE1 | 7.32 | 1.33 | 1.25 |
| 1 | X | 62 | GLU | CD-OE2 | 7.31 | 1.33 | 1.25 |
| 1 | Z | 382 | GLU | CD-OE2 | 7.29 | 1.33 | 1.25 |
| 1 | Z | 258 | GLU | CD-OE1 | 7.28 | 1.33 | 1.25 |
| 1 | Z | 277 | GLU | CD-OE1 | 7.26 | 1.33 | 1.25 |
| 1 | O | 467 | GLU | CD-OE2 | 7.25 | 1.33 | 1.25 |
| 1 | X | 469 | GLU | CD-OE1 | 7.17 | 1.33 | 1.25 |
| 1 | Z | 330 | GLU | CD-OE1 | 7.16 | 1.33 | 1.25 |
| 1 | Z | 497 | GLU | CD-OE2 | 7.12 | 1.33 | 1.25 |
| 1 | X | 117 | ARG | NE-CZ | 7.11 | 1.42 | 1.33 |
| 1 | Y | 149 | GLU | CD-OE1 | 7.10 | 1.33 | 1.25 |
| 1 | Y | 467 | GLU | CD-OE2 | 7.10 | 1.33 | 1.25 |
| 1 | O | 469 | GLU | CD-OE2 | 7.09 | 1.33 | 1.25 |
| 1 | O | 330 | GLU | CD-OE1 | 7.08 | 1.33 | 1.25 |
| 1 | X | 216 | GLU | CD-OE2 | 7.08 | 1.33 | 1.25 |
| 1 | X | 319 | GLU | CD-OE2 | 7.07 | 1.33 | 1.25 |
| 1 | Z | 159 | GLU | CD-OE1 | 7.04 | 1.33 | 1.25 |
| 1 | Y | 84 | GLU | CD-OE2 | -6.96 | 1.18 | 1.25 |
| 1 | X | 121 | GLU | CD-OE1 | 6.94 | 1.33 | 1.25 |
| 1 | Y | 431 | GLU | CD-OE2 | 6.87 | 1.33 | 1.25 |
| 1 | Z | 393 | GLU | CD-OE1 | 6.83 | 1.33 | 1.25 |
| 1 | X | 498 | GLU | CD-OE1 | 6.81 | 1.33 | 1.25 |
| 1 | O | 110 | GLU | CD-OE1 | 6.74 | 1.33 | 1.25 |
| 1 | X | 222 | GLU | CD-OE2 | 6.73 | 1.33 | 1.25 |
| 1 | O | 283 | GLU | CD-OE1 | 6.67 | 1.32 | 1.25 |
| 1 | O | 478 | GLU | CD-OE2 | 6.63 | 1.32 | 1.25 |
| 1 | O | 382 | GLU | CD-OE2 | 6.62 | 1.32 | 1.25 |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|--------|-------|-------------|----------|
| 1 | Z | 478 | GLU | CD-OE2 | 6.62 | 1.32 | 1.25 |
| 1 | X | 159 | GLU | CD-OE2 | 6.62 | 1.32 | 1.25 |
| 1 | Y | 269 | CYS | CB-SG | -6.57 | 1.71 | 1.82 |
| 1 | O | 258 | GLU | CD-OE1 | 6.56 | 1.32 | 1.25 |
| 1 | Z | 222 | GLU | CD-OE2 | 6.49 | 1.32 | 1.25 |
| 1 | Z | 431 | GLU | CD-OE1 | 6.42 | 1.32 | 1.25 |
| 1 | Z | 62 | GLU | CD-OE2 | 6.38 | 1.32 | 1.25 |
| 1 | O | 393 | GLU | CD-OE2 | 6.36 | 1.32 | 1.25 |
| 1 | Y | 497 | GLU | CD-OE1 | 6.33 | 1.32 | 1.25 |
| 1 | Z | 498 | GLU | CD-OE1 | 6.31 | 1.32 | 1.25 |
| 1 | Y | 393 | GLU | CD-OE1 | 6.31 | 1.32 | 1.25 |
| 1 | Y | 62 | GLU | CD-OE1 | 6.28 | 1.32 | 1.25 |
| 1 | X | 212 | GLU | CD-OE2 | 6.27 | 1.32 | 1.25 |
| 1 | Y | 478 | GLU | CD-OE2 | 6.26 | 1.32 | 1.25 |
| 1 | Z | 121 | GLU | CD-OE2 | 6.25 | 1.32 | 1.25 |
| 1 | Y | 212 | GLU | CD-OE2 | 6.23 | 1.32 | 1.25 |
| 1 | Y | 297 | GLU | CD-OE2 | 6.21 | 1.32 | 1.25 |
| 1 | Y | 121 | GLU | CD-OE1 | 6.19 | 1.32 | 1.25 |
| 1 | Z | 212 | GLU | CD-OE1 | 6.18 | 1.32 | 1.25 |
| 1 | Y | 113 | GLU | CD-OE2 | 6.17 | 1.32 | 1.25 |
| 1 | O | 222 | GLU | CD-OE1 | 6.17 | 1.32 | 1.25 |
| 1 | Y | 46 | GLU | CD-OE1 | -6.16 | 1.18 | 1.25 |
| 1 | X | 393 | GLU | CD-OE1 | 6.14 | 1.32 | 1.25 |
| 1 | O | 90 | GLU | CD-OE2 | 6.08 | 1.32 | 1.25 |
| 1 | X | 467 | GLU | CD-OE2 | 6.08 | 1.32 | 1.25 |
| 1 | Y | 277 | GLU | CD-OE1 | 6.06 | 1.32 | 1.25 |
| 1 | X | 497 | GLU | CD-OE2 | 6.03 | 1.32 | 1.25 |
| 1 | O | 84 | GLU | CD-OE1 | 6.01 | 1.32 | 1.25 |
| 1 | Z | 467 | GLU | CD-OE2 | 6.00 | 1.32 | 1.25 |
| 1 | Y | 222 | GLU | CD-OE2 | 5.99 | 1.32 | 1.25 |
| 1 | O | 159 | GLU | CD-OE1 | 5.98 | 1.32 | 1.25 |
| 1 | Z | 216 | GLU | CD-OE2 | 5.98 | 1.32 | 1.25 |
| 1 | Z | 269 | CYS | CB-SG | -5.94 | 1.72 | 1.81 |
| 1 | Y | 159 | GLU | CD-OE1 | 5.91 | 1.32 | 1.25 |
| 1 | Z | 84 | GLU | CD-OE1 | 5.90 | 1.32 | 1.25 |
| 1 | O | 431 | GLU | CD-OE1 | 5.79 | 1.32 | 1.25 |
| 1 | X | 113 | GLU | CD-OE2 | 5.76 | 1.31 | 1.25 |
| 1 | Z | 113 | GLU | CD-OE2 | 5.72 | 1.31 | 1.25 |
| 1 | Z | 297 | GLU | CD-OE1 | 5.56 | 1.31 | 1.25 |
| 1 | O | 319 | GLU | CD-OE2 | 5.46 | 1.31 | 1.25 |
| 1 | Y | 482 | ARG | NE-CZ | 5.46 | 1.40 | 1.33 |
| 1 | Y | 402 | ARG | NE-CZ | 5.44 | 1.40 | 1.33 |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|--------|-------|-------------|----------|
| 1 | O | 157 | ARG | NE-CZ | 5.39 | 1.40 | 1.33 |
| 1 | X | 84 | GLU | CD-OE1 | 5.39 | 1.31 | 1.25 |
| 1 | Z | 46 | GLU | CD-OE2 | 5.35 | 1.31 | 1.25 |
| 1 | X | 269 | CYS | CB-SG | -5.31 | 1.73 | 1.81 |
| 1 | X | 84 | GLU | N-CA | 5.29 | 1.56 | 1.46 |
| 1 | O | 113 | GLU | CD-OE1 | 5.28 | 1.31 | 1.25 |
| 1 | Z | 90 | GLU | CD-OE2 | 5.24 | 1.31 | 1.25 |
| 1 | X | 46 | GLU | CD-OE2 | 5.16 | 1.31 | 1.25 |
| 1 | Y | 90 | GLU | CD-OE1 | 5.15 | 1.31 | 1.25 |
| 1 | Z | 434 | GLU | CD-OE1 | 5.05 | 1.31 | 1.25 |
| 1 | X | 117 | ARG | CD-NE | 5.05 | 1.55 | 1.46 |
| 1 | Y | 319 | GLU | CD-OE2 | 5.04 | 1.31 | 1.25 |

All (350) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-----------|--------|-------------|----------|
| 1 | Z | 107 | ARG | NE-CZ-NH1 | 13.64 | 127.12 | 120.30 |
| 1 | Z | 479 | ARG | NE-CZ-NH1 | 12.15 | 126.38 | 120.30 |
| 1 | O | 200 | ASP | CB-CG-OD2 | -11.71 | 107.76 | 118.30 |
| 1 | X | 479 | ARG | NE-CZ-NH2 | -10.50 | 115.05 | 120.30 |
| 1 | Y | 407 | ARG | NE-CZ-NH2 | -10.35 | 115.13 | 120.30 |
| 1 | Z | 107 | ARG | NE-CZ-NH2 | -10.20 | 115.20 | 120.30 |
| 1 | X | 152 | ARG | NE-CZ-NH1 | 10.17 | 125.39 | 120.30 |
| 1 | Z | 200 | ASP | CB-CG-OD2 | -9.93 | 109.36 | 118.30 |
| 1 | Z | 361 | ARG | NE-CZ-NH2 | -9.86 | 115.37 | 120.30 |
| 1 | Y | 483 | TYR | CB-CG-CD1 | 9.70 | 126.82 | 121.00 |
| 1 | Y | 107 | ARG | NE-CZ-NH2 | -9.68 | 115.46 | 120.30 |
| 1 | O | 133 | ASP | CB-CG-OD1 | -9.67 | 109.59 | 118.30 |
| 1 | O | 107 | ARG | NE-CZ-NH2 | -9.66 | 115.47 | 120.30 |
| 1 | Y | 318 | ASP | CB-CG-OD2 | -9.52 | 109.73 | 118.30 |
| 1 | Y | 402 | ARG | NE-CZ-NH1 | 9.39 | 125.00 | 120.30 |
| 1 | O | 135 | TYR | CB-CG-CD1 | 9.38 | 126.63 | 121.00 |
| 1 | Y | 458 | ASP | CB-CG-OD2 | -9.33 | 109.90 | 118.30 |
| 1 | Y | 208 | ASP | CB-CG-OD2 | 9.33 | 126.69 | 118.30 |
| 1 | Y | 492 | ARG | NE-CZ-NH1 | 9.29 | 124.94 | 120.30 |
| 1 | X | 39 | TYR | CB-CG-CD1 | 9.28 | 126.57 | 121.00 |
| 1 | Y | 351 | LEU | C-N-CA | -9.22 | 102.94 | 122.30 |
| 1 | Z | 361 | ARG | NE-CZ-NH1 | 9.21 | 124.91 | 120.30 |
| 1 | O | 325 | ASP | CB-CG-OD2 | -9.21 | 110.02 | 118.30 |
| 1 | O | 492 | ARG | NE-CZ-NH1 | 9.19 | 124.90 | 120.30 |
| 1 | Y | 353 | ALA | N-CA-CB | 9.15 | 122.91 | 110.10 |
| 1 | X | 146 | ASP | CB-CG-OD2 | -9.13 | 110.08 | 118.30 |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-----------|-------|-------------|----------|
| 1 | O | 118 | ASP | CB-CG-OD1 | 8.94 | 126.35 | 118.30 |
| 1 | Y | 68 | ASP | CB-CG-OD1 | -8.91 | 110.28 | 118.30 |
| 1 | Y | 481 | TYR | CB-CG-CD1 | -8.83 | 115.70 | 121.00 |
| 1 | Y | 198 | ASP | CB-CG-OD2 | -8.81 | 110.37 | 118.30 |
| 1 | Y | 208 | ASP | CB-CG-OD1 | -8.79 | 110.39 | 118.30 |
| 1 | X | 224 | TYR | CB-CG-CD1 | -8.77 | 115.74 | 121.00 |
| 1 | X | 482 | ARG | NE-CZ-NH1 | 8.67 | 124.64 | 120.30 |
| 1 | Z | 245 | ASP | CB-CG-OD2 | -8.60 | 110.56 | 118.30 |
| 1 | O | 429 | ARG | NE-CZ-NH1 | 8.57 | 124.59 | 120.30 |
| 1 | X | 288 | THR | CA-CB-CG2 | -8.53 | 100.46 | 112.40 |
| 1 | Z | 458 | ASP | CB-CG-OD1 | -8.48 | 110.67 | 118.30 |
| 1 | O | 83 | ARG | C-N-CA | -8.42 | 100.64 | 121.70 |
| 1 | X | 118 | ASP | CB-CG-OD2 | -8.37 | 110.76 | 118.30 |
| 1 | X | 39 | TYR | CB-CG-CD2 | -8.37 | 115.98 | 121.00 |
| 1 | Z | 33 | ARG | NE-CZ-NH1 | 8.37 | 124.48 | 120.30 |
| 1 | Y | 318 | ASP | CB-CG-OD1 | 8.34 | 125.81 | 118.30 |
| 1 | X | 83 | ARG | C-N-CA | -8.29 | 100.98 | 121.70 |
| 1 | Y | 245 | ASP | CB-CG-OD2 | -8.19 | 110.93 | 118.30 |
| 1 | Z | 156 | ARG | NE-CZ-NH1 | 8.14 | 124.37 | 120.30 |
| 1 | O | 128 | THR | CA-CB-CG2 | -8.06 | 101.11 | 112.40 |
| 1 | Y | 325 | ASP | CB-CG-OD2 | -8.04 | 111.06 | 118.30 |
| 1 | X | 317 | ARG | NE-CZ-NH1 | 8.02 | 124.31 | 120.30 |
| 1 | Y | 17 | ARG | NE-CZ-NH1 | 8.02 | 124.31 | 120.30 |
| 1 | X | 133 | ASP | CB-CG-OD1 | -7.97 | 111.12 | 118.30 |
| 1 | X | 351 | LEU | C-N-CA | -7.97 | 105.56 | 122.30 |
| 1 | Y | 479 | ARG | NE-CZ-NH2 | -7.90 | 116.35 | 120.30 |
| 1 | X | 245 | ASP | CB-CG-OD2 | -7.90 | 111.19 | 118.30 |
| 1 | X | 152 | ARG | NE-CZ-NH2 | -7.89 | 116.36 | 120.30 |
| 1 | X | 458 | ASP | CB-CG-OD1 | -7.87 | 111.22 | 118.30 |
| 1 | Y | 407 | ARG | NE-CZ-NH1 | 7.79 | 124.19 | 120.30 |
| 1 | X | 200 | ASP | CB-CG-OD2 | -7.78 | 111.30 | 118.30 |
| 1 | X | 154 | ARG | NE-CZ-NH1 | 7.77 | 124.19 | 120.30 |
| 1 | X | 219 | ARG | NE-CZ-NH1 | 7.77 | 124.19 | 120.30 |
| 1 | X | 182 | ASP | CB-CG-OD2 | -7.77 | 111.31 | 118.30 |
| 1 | O | 458 | ASP | CB-CG-OD1 | -7.72 | 111.35 | 118.30 |
| 1 | X | 386 | TYR | CB-CG-CD1 | -7.70 | 116.38 | 121.00 |
| 1 | O | 490 | VAL | CA-CB-CG1 | -7.69 | 99.36 | 110.90 |
| 1 | Z | 83 | ARG | C-N-CA | -7.68 | 102.51 | 121.70 |
| 1 | Y | 83 | ARG | C-N-CA | -7.63 | 102.63 | 121.70 |
| 1 | X | 166 | ASP | CB-CG-OD1 | -7.63 | 111.44 | 118.30 |
| 1 | Z | 122 | ASP | CB-CG-OD2 | -7.62 | 111.44 | 118.30 |
| 1 | O | 200 | ASP | CB-CG-OD1 | 7.61 | 125.15 | 118.30 |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-----------|-------|-------------|----------|
| 1 | Y | 122 | ASP | CB-CG-OD2 | -7.56 | 111.50 | 118.30 |
| 1 | Y | 211 | ARG | NE-CZ-NH1 | 7.55 | 124.08 | 120.30 |
| 1 | Z | 409 | ASP | CB-CG-OD1 | 7.51 | 125.06 | 118.30 |
| 1 | Y | 10 | ASP | CB-CG-OD1 | -7.47 | 111.58 | 118.30 |
| 1 | X | 83 | ARG | NE-CZ-NH1 | 7.38 | 123.99 | 120.30 |
| 1 | X | 133 | ASP | CB-CG-OD2 | 7.34 | 124.91 | 118.30 |
| 1 | Y | 107 | ARG | NE-CZ-NH1 | 7.34 | 123.97 | 120.30 |
| 1 | O | 152 | ARG | NE-CZ-NH2 | -7.33 | 116.64 | 120.30 |
| 1 | X | 146 | ASP | CB-CG-OD1 | 7.30 | 124.87 | 118.30 |
| 1 | X | 166 | ASP | CB-CG-OD2 | 7.30 | 124.87 | 118.30 |
| 1 | Y | 328 | ASP | CB-CG-OD1 | 7.29 | 124.86 | 118.30 |
| 1 | O | 146 | ASP | CB-CG-OD2 | -7.28 | 111.75 | 118.30 |
| 1 | O | 402 | ARG | NE-CZ-NH2 | -7.25 | 116.67 | 120.30 |
| 1 | Y | 245 | ASP | CB-CG-OD1 | 7.25 | 124.83 | 118.30 |
| 1 | X | 188 | ARG | CG-CD-NE | 7.24 | 127.00 | 111.80 |
| 1 | Y | 24 | ASP | CB-CG-OD1 | -7.23 | 111.79 | 118.30 |
| 1 | Y | 369 | ARG | NE-CZ-NH2 | -7.23 | 116.69 | 120.30 |
| 1 | X | 188 | ARG | CD-NE-CZ | 7.19 | 133.66 | 123.60 |
| 1 | O | 156 | ARG | NE-CZ-NH1 | 7.16 | 123.88 | 120.30 |
| 1 | Y | 481 | TYR | N-CA-CB | -7.14 | 97.75 | 110.60 |
| 1 | Y | 146 | ASP | CB-CG-OD2 | -7.12 | 111.89 | 118.30 |
| 1 | O | 378 | ARG | NE-CZ-NH2 | -7.11 | 116.75 | 120.30 |
| 1 | Y | 345 | VAL | CA-CB-CG2 | -7.04 | 100.34 | 110.90 |
| 1 | X | 137 | SER | N-CA-CB | 7.03 | 121.05 | 110.50 |
| 1 | X | 389 | ARG | NE-CZ-NH2 | -7.03 | 116.79 | 120.30 |
| 1 | X | 24 | ASP | CB-CG-OD1 | -7.03 | 111.98 | 118.30 |
| 1 | X | 318 | ASP | CB-CG-OD2 | -7.01 | 111.99 | 118.30 |
| 1 | Y | 147 | HIS | CA-CB-CG | -6.99 | 101.72 | 113.60 |
| 1 | Z | 317 | ARG | NE-CZ-NH1 | 6.97 | 123.78 | 120.30 |
| 1 | Z | 201 | ASP | CB-CG-OD2 | -6.96 | 112.03 | 118.30 |
| 1 | Z | 409 | ASP | CB-CG-OD2 | -6.96 | 112.04 | 118.30 |
| 1 | Y | 475 | GLU | N-CA-CB | -6.94 | 98.10 | 110.60 |
| 1 | O | 357 | ASP | CB-CG-OD2 | -6.93 | 112.06 | 118.30 |
| 1 | Z | 133 | ASP | CB-CG-OD1 | 6.92 | 124.53 | 118.30 |
| 1 | X | 180 | VAL | CA-CB-CG1 | 6.91 | 121.26 | 110.90 |
| 1 | Y | 468 | ARG | NE-CZ-NH1 | 6.91 | 123.75 | 120.30 |
| 1 | Z | 24 | ASP | CB-CG-OD2 | -6.91 | 112.08 | 118.30 |
| 1 | O | 24 | ASP | CB-CG-OD2 | -6.87 | 112.12 | 118.30 |
| 1 | O | 107 | ARG | NE-CZ-NH1 | 6.85 | 123.73 | 120.30 |
| 1 | O | 126 | SER | N-CA-CB | 6.81 | 120.71 | 110.50 |
| 1 | O | 479 | ARG | NE-CZ-NH1 | -6.79 | 116.91 | 120.30 |
| 1 | Y | 188 | ARG | NE-CZ-NH1 | 6.79 | 123.70 | 120.30 |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-----------|-------|-------------|----------|
| 1 | Z | 80 | THR | CA-CB-CG2 | -6.79 | 102.90 | 112.40 |
| 1 | Z | 424 | ASP | CB-CG-OD1 | 6.77 | 124.39 | 118.30 |
| 1 | X | 409 | ASP | CB-CG-OD1 | 6.77 | 124.39 | 118.30 |
| 1 | Y | 106 | ARG | NE-CZ-NH1 | 6.74 | 123.67 | 120.30 |
| 1 | Z | 118 | ASP | CB-CG-OD2 | -6.73 | 112.24 | 118.30 |
| 1 | X | 177 | ARG | NE-CZ-NH1 | 6.72 | 123.66 | 120.30 |
| 1 | O | 147 | HIS | CA-CB-CG | -6.71 | 102.20 | 113.60 |
| 1 | O | 236 | ARG | NE-CZ-NH1 | -6.67 | 116.96 | 120.30 |
| 1 | Y | 211 | ARG | NE-CZ-NH2 | -6.67 | 116.97 | 120.30 |
| 1 | X | 188 | ARG | NE-CZ-NH1 | 6.66 | 123.63 | 120.30 |
| 1 | O | 436 | ARG | NE-CZ-NH1 | 6.65 | 123.62 | 120.30 |
| 1 | X | 68 | ASP | CB-CG-OD1 | -6.64 | 112.33 | 118.30 |
| 1 | O | 118 | ASP | CB-CG-OD2 | -6.63 | 112.33 | 118.30 |
| 1 | O | 182 | ASP | CB-CG-OD2 | -6.62 | 112.34 | 118.30 |
| 1 | X | 109 | ALA | N-CA-CB | -6.62 | 100.83 | 110.10 |
| 1 | Z | 500 | ASP | CB-CG-OD1 | 6.61 | 124.25 | 118.30 |
| 1 | X | 208 | ASP | CB-CG-OD2 | 6.60 | 124.24 | 118.30 |
| 1 | Y | 106 | ARG | NE-CZ-NH2 | -6.60 | 117.00 | 120.30 |
| 1 | Y | 249 | ALA | CB-CA-C | 6.59 | 119.99 | 110.10 |
| 1 | O | 454 | TRP | N-CA-CB | 6.58 | 122.45 | 110.60 |
| 1 | O | 72 | ASP | CB-CG-OD1 | -6.58 | 112.38 | 118.30 |
| 1 | Z | 269 | CYS | CB-CA-C | -6.57 | 97.25 | 110.40 |
| 1 | Y | 432 | ARG | NE-CZ-NH2 | -6.57 | 117.01 | 120.30 |
| 1 | O | 15 | SER | N-CA-CB | -6.57 | 100.65 | 110.50 |
| 1 | Y | 483 | TYR | CB-CG-CD2 | -6.57 | 117.06 | 121.00 |
| 1 | Y | 328 | ASP | CB-CG-OD2 | -6.53 | 112.42 | 118.30 |
| 1 | Z | 339 | THR | CA-CB-CG2 | -6.51 | 103.28 | 112.40 |
| 1 | O | 289 | THR | N-CA-CB | 6.51 | 122.67 | 110.30 |
| 1 | X | 328 | ASP | CB-CG-OD1 | 6.50 | 124.15 | 118.30 |
| 1 | Y | 5 | TYR | CB-CG-CD1 | -6.49 | 117.10 | 121.00 |
| 1 | Z | 177 | ARG | NE-CZ-NH1 | 6.49 | 123.55 | 120.30 |
| 1 | O | 440 | ALA | N-CA-CB | 6.48 | 119.17 | 110.10 |
| 1 | Y | 479 | ARG | NE-CZ-NH1 | 6.48 | 123.54 | 120.30 |
| 1 | O | 436 | ARG | NE-CZ-NH2 | -6.46 | 117.07 | 120.30 |
| 1 | O | 468 | ARG | NE-CZ-NH2 | -6.46 | 117.07 | 120.30 |
| 1 | X | 432 | ARG | NE-CZ-NH1 | 6.44 | 123.52 | 120.30 |
| 1 | X | 24 | ASP | CB-CG-OD2 | 6.44 | 124.10 | 118.30 |
| 1 | X | 148 | VAL | CB-CA-C | -6.44 | 99.17 | 111.40 |
| 1 | X | 122 | ASP | CB-CG-OD2 | -6.39 | 112.55 | 118.30 |
| 1 | O | 198 | ASP | CB-CG-OD1 | -6.39 | 112.55 | 118.30 |
| 1 | X | 402 | ARG | NE-CZ-NH2 | -6.38 | 117.11 | 120.30 |
| 1 | O | 325 | ASP | CB-CG-OD1 | 6.38 | 124.04 | 118.30 |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-----------|-------|-------------|----------|
| 1 | Y | 424 | ASP | CB-CG-OD2 | -6.37 | 112.57 | 118.30 |
| 1 | X | 80 | THR | N-CA-CB | 6.35 | 122.37 | 110.30 |
| 1 | O | 68 | ASP | CB-CG-OD1 | -6.33 | 112.61 | 118.30 |
| 1 | Z | 414 | ALA | CB-CA-C | 6.33 | 119.59 | 110.10 |
| 1 | O | 83 | ARG | O-C-N | -6.32 | 112.59 | 122.70 |
| 1 | X | 14 | THR | N-CA-CB | -6.31 | 98.31 | 110.30 |
| 1 | Z | 351 | LEU | C-N-CA | -6.29 | 109.09 | 122.30 |
| 1 | Y | 409 | ASP | CB-CG-OD1 | 6.29 | 123.96 | 118.30 |
| 1 | Y | 154 | ARG | NE-CZ-NH1 | 6.28 | 123.44 | 120.30 |
| 1 | Z | 325 | ASP | CB-CG-OD2 | -6.28 | 112.64 | 118.30 |
| 1 | Y | 72 | ASP | CB-CG-OD1 | -6.28 | 112.65 | 118.30 |
| 1 | Z | 236 | ARG | N-CA-CB | -6.27 | 99.31 | 110.60 |
| 1 | O | 458 | ASP | CB-CG-OD2 | 6.25 | 123.93 | 118.30 |
| 1 | O | 398 | ASP | CB-CG-OD1 | -6.24 | 112.69 | 118.30 |
| 1 | Y | 409 | ASP | CB-CG-OD2 | -6.24 | 112.69 | 118.30 |
| 1 | O | 318 | ASP | CB-CG-OD2 | -6.23 | 112.69 | 118.30 |
| 1 | X | 318 | ASP | CB-CG-OD1 | 6.23 | 123.90 | 118.30 |
| 1 | X | 402 | ARG | NE-CZ-NH1 | 6.21 | 123.41 | 120.30 |
| 1 | X | 481 | TYR | CB-CG-CD1 | -6.21 | 117.27 | 121.00 |
| 1 | O | 198 | ASP | CB-CG-OD2 | 6.21 | 123.89 | 118.30 |
| 1 | Y | 357 | ASP | CB-CG-OD1 | 6.21 | 123.89 | 118.30 |
| 1 | X | 325 | ASP | CB-CG-OD2 | -6.20 | 112.72 | 118.30 |
| 1 | X | 147 | HIS | CB-CA-C | 6.19 | 122.78 | 110.40 |
| 1 | Y | 458 | ASP | CB-CG-OD1 | 6.17 | 123.85 | 118.30 |
| 1 | Z | 500 | ASP | CB-CG-OD2 | -6.16 | 112.76 | 118.30 |
| 1 | O | 83 | ARG | CA-C-N | 6.15 | 130.72 | 117.20 |
| 1 | O | 90 | GLU | N-CA-CB | 6.14 | 121.66 | 110.60 |
| 1 | Y | 166 | ASP | CB-CG-OD2 | 6.13 | 123.82 | 118.30 |
| 1 | Y | 156 | ARG | NE-CZ-NH1 | 6.13 | 123.36 | 120.30 |
| 1 | Z | 219 | ARG | NE-CZ-NH1 | 6.12 | 123.36 | 120.30 |
| 1 | Y | 200 | ASP | CB-CG-OD2 | -6.12 | 112.80 | 118.30 |
| 1 | O | 30 | VAL | CB-CA-C | -6.09 | 99.83 | 111.40 |
| 1 | Y | 219 | ARG | NE-CZ-NH1 | 6.08 | 123.34 | 120.30 |
| 1 | Y | 404 | HIS | CB-CA-C | 6.08 | 122.56 | 110.40 |
| 1 | Z | 245 | ASP | CB-CG-OD1 | 6.08 | 123.77 | 118.30 |
| 1 | Z | 424 | ASP | CB-CG-OD2 | -6.07 | 112.84 | 118.30 |
| 1 | X | 117 | ARG | CD-NE-CZ | 6.06 | 132.09 | 123.60 |
| 1 | Z | 147 | HIS | CA-CB-CG | -6.04 | 103.33 | 113.60 |
| 1 | Y | 83 | ARG | N-CA-C | 6.03 | 127.27 | 111.00 |
| 1 | X | 458 | ASP | CB-CG-OD2 | 6.01 | 123.71 | 118.30 |
| 1 | Z | 147 | HIS | CB-CA-C | 6.01 | 122.42 | 110.40 |
| 1 | X | 264 | THR | CA-CB-CG2 | -5.99 | 104.02 | 112.40 |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|-----|------|------------|-------|-------------|----------|
| 1 | Y | 429 | ARG | NE-CZ-NH2 | -5.98 | 117.31 | 120.30 |
| 1 | X | 409 | ASP | CB-CG-OD2 | -5.98 | 112.92 | 118.30 |
| 1 | Z | 83 | ARG | N-CA-C | 5.97 | 127.12 | 111.00 |
| 1 | O | 48 | ASP | CB-CG-OD1 | -5.97 | 112.93 | 118.30 |
| 1 | X | 499 | HIS | N-CA-CB | 5.96 | 121.32 | 110.60 |
| 1 | Y | 314 | GLN | CB-CA-C | 5.95 | 122.30 | 110.40 |
| 1 | Y | 118 | ASP | CB-CG-OD2 | -5.95 | 112.95 | 118.30 |
| 1 | Y | 133 | ASP | CB-CG-OD2 | -5.94 | 112.95 | 118.30 |
| 1 | X | 198 | ASP | CB-CG-OD1 | 5.91 | 123.62 | 118.30 |
| 1 | Y | 122 | ASP | CB-CG-OD1 | 5.91 | 123.62 | 118.30 |
| 1 | Z | 130 | LEU | CA-CB-CG | -5.91 | 101.71 | 115.30 |
| 1 | X | 224 | TYR | CB-CG-CD2 | 5.91 | 124.54 | 121.00 |
| 1 | X | 245 | ASP | CB-CG-OD1 | 5.90 | 123.61 | 118.30 |
| 1 | X | 404 | HIS | N-CA-CB | 5.90 | 121.22 | 110.60 |
| 1 | Z | 402 | ARG | NE-CZ-NH2 | -5.89 | 117.35 | 120.30 |
| 1 | O | 125 | ARG | NE-CZ-NH1 | 5.88 | 123.24 | 120.30 |
| 1 | X | 177 | ARG | N-CA-CB | 5.87 | 121.17 | 110.60 |
| 1 | Z | 72 | ASP | CB-CG-OD1 | -5.86 | 113.02 | 118.30 |
| 1 | X | 68 | ASP | CB-CG-OD2 | 5.86 | 123.57 | 118.30 |
| 1 | Y | 357 | ASP | CB-CG-OD2 | -5.85 | 113.03 | 118.30 |
| 1 | Y | 353 | ALA | CB-CA-C | -5.85 | 101.33 | 110.10 |
| 1 | O | 70 | SER | N-CA-CB | 5.85 | 119.27 | 110.50 |
| 1 | X | 198 | ASP | CB-CG-OD2 | -5.84 | 113.05 | 118.30 |
| 1 | Y | 402 | ARG | NE-CZ-NH2 | -5.82 | 117.39 | 120.30 |
| 1 | X | 398 | ASP | CB-CG-OD2 | 5.81 | 123.53 | 118.30 |
| 1 | O | 48 | ASP | CB-CG-OD2 | 5.79 | 123.51 | 118.30 |
| 1 | Z | 414 | ALA | N-CA-CB | 5.75 | 118.15 | 110.10 |
| 1 | O | 235 | THR | CA-CB-CG2 | -5.74 | 104.36 | 112.40 |
| 1 | Z | 284 | ASN | N-CA-C | 5.74 | 126.51 | 111.00 |
| 1 | Y | 14 | THR | OG1-CB-CG2 | 5.74 | 123.20 | 110.00 |
| 1 | Z | 5 | TYR | CB-CA-C | -5.74 | 98.92 | 110.40 |
| 1 | Z | 17 | ARG | NE-CZ-NH1 | 5.74 | 123.17 | 120.30 |
| 1 | O | 118 | ASP | CB-CA-C | 5.72 | 121.84 | 110.40 |
| 1 | X | 5 | TYR | CB-CA-C | -5.71 | 98.98 | 110.40 |
| 1 | O | 83 | ARG | N-CA-C | 5.70 | 126.39 | 111.00 |
| 1 | Z | 201 | ASP | CB-CG-OD1 | 5.70 | 123.43 | 118.30 |
| 1 | O | 409 | ASP | CB-CG-OD2 | -5.70 | 113.17 | 118.30 |
| 1 | Z | 146 | ASP | CB-CG-OD2 | -5.69 | 113.18 | 118.30 |
| 1 | X | 172 | LYS | N-CA-CB | 5.69 | 120.83 | 110.60 |
| 1 | O | 75 | ALA | N-CA-CB | 5.68 | 118.06 | 110.10 |
| 1 | O | 424 | ASP | CB-CG-OD2 | -5.68 | 113.19 | 118.30 |
| 1 | Y | 177 | ARG | NE-CZ-NH1 | 5.67 | 123.14 | 120.30 |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-----------|-------|-------------|----------|
| 1 | Y | 263 | ASN | N-CA-CB | 5.67 | 120.80 | 110.60 |
| 1 | O | 415 | ASN | CB-CA-C | -5.66 | 99.08 | 110.40 |
| 1 | Z | 133 | ASP | CB-CG-OD2 | -5.64 | 113.23 | 118.30 |
| 1 | O | 93 | THR | N-CA-CB | -5.63 | 99.60 | 110.30 |
| 1 | Y | 236 | ARG | NE-CZ-NH1 | 5.63 | 123.11 | 120.30 |
| 1 | Y | 269 | CYS | CB-CA-C | -5.62 | 99.15 | 110.40 |
| 1 | Z | 389 | ARG | NE-CZ-NH1 | 5.62 | 123.11 | 120.30 |
| 1 | X | 208 | ASP | CB-CG-OD1 | -5.62 | 113.24 | 118.30 |
| 1 | O | 483 | TYR | CB-CG-CD1 | 5.61 | 124.36 | 121.00 |
| 1 | X | 84 | GLU | N-CA-CB | 5.60 | 120.69 | 110.60 |
| 1 | Y | 482 | ARG | NE-CZ-NH2 | 5.59 | 123.09 | 120.30 |
| 1 | X | 83 | ARG | N-CA-C | 5.59 | 126.08 | 111.00 |
| 1 | Y | 378 | ARG | NE-CZ-NH2 | -5.58 | 117.51 | 120.30 |
| 1 | X | 11 | GLN | CB-CA-C | 5.58 | 121.57 | 110.40 |
| 1 | O | 122 | ASP | CB-CG-OD2 | -5.58 | 113.28 | 118.30 |
| 1 | Z | 471 | ARG | NE-CZ-NH1 | 5.58 | 123.09 | 120.30 |
| 1 | X | 189 | THR | CA-CB-CG2 | -5.56 | 104.62 | 112.40 |
| 1 | Z | 311 | ALA | CB-CA-C | 5.56 | 118.44 | 110.10 |
| 1 | Z | 357 | ASP | CB-CG-OD1 | 5.55 | 123.29 | 118.30 |
| 1 | Z | 118 | ASP | CB-CG-OD1 | 5.54 | 123.29 | 118.30 |
| 1 | X | 159 | GLU | N-CA-C | 5.54 | 125.95 | 111.00 |
| 1 | O | 325 | ASP | CB-CA-C | 5.53 | 121.47 | 110.40 |
| 1 | Z | 5 | TYR | CA-C-N | -5.53 | 105.03 | 117.20 |
| 1 | Y | 181 | THR | CA-CB-CG2 | -5.51 | 104.68 | 112.40 |
| 1 | O | 314 | GLN | CB-CA-C | -5.51 | 99.38 | 110.40 |
| 1 | Y | 10 | ASP | CB-CG-OD2 | 5.51 | 123.26 | 118.30 |
| 1 | O | 166 | ASP | CB-CG-OD2 | 5.51 | 123.25 | 118.30 |
| 1 | O | 292 | CYS | CB-CA-C | -5.49 | 99.42 | 110.40 |
| 1 | Y | 389 | ARG | NE-CZ-NH1 | 5.48 | 123.04 | 120.30 |
| 1 | Z | 47 | HIS | CA-CB-CG | 5.47 | 122.91 | 113.60 |
| 1 | O | 483 | TYR | CB-CG-CD2 | -5.47 | 117.72 | 121.00 |
| 1 | X | 388 | THR | N-CA-CB | -5.47 | 99.92 | 110.30 |
| 1 | X | 438 | VAL | CA-CB-CG1 | -5.46 | 102.71 | 110.90 |
| 1 | Y | 457 | LEU | CA-CB-CG | -5.46 | 102.75 | 115.30 |
| 1 | X | 357 | ASP | CB-CG-OD1 | 5.46 | 123.21 | 118.30 |
| 1 | Y | 166 | ASP | CB-CG-OD1 | -5.45 | 113.39 | 118.30 |
| 1 | O | 122 | ASP | N-CA-CB | 5.45 | 120.41 | 110.60 |
| 1 | Z | 408 | VAL | CB-CA-C | -5.45 | 101.05 | 111.40 |
| 1 | X | 398 | ASP | CB-CG-OD1 | -5.44 | 113.40 | 118.30 |
| 1 | X | 407 | ARG | NE-CZ-NH1 | 5.44 | 123.02 | 120.30 |
| 1 | Y | 17 | ARG | NE-CZ-NH2 | -5.43 | 117.59 | 120.30 |
| 1 | Y | 325 | ASP | CB-CG-OD1 | 5.42 | 123.18 | 118.30 |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-----------|-------|-------------|----------|
| 1 | O | 163 | GLY | C-N-CA | 5.42 | 135.25 | 121.70 |
| 1 | Z | 195 | HIS | CA-CB-CG | -5.41 | 104.41 | 113.60 |
| 1 | X | 357 | ASP | CB-CG-OD2 | -5.41 | 113.44 | 118.30 |
| 1 | O | 166 | ASP | CB-CG-OD1 | -5.40 | 113.44 | 118.30 |
| 1 | X | 269 | CYS | CA-CB-SG | -5.40 | 104.29 | 114.00 |
| 1 | X | 424 | ASP | CB-CG-OD2 | -5.39 | 113.45 | 118.30 |
| 1 | X | 479 | ARG | NE-CZ-NH1 | 5.38 | 122.99 | 120.30 |
| 1 | Y | 24 | ASP | CB-CG-OD2 | 5.37 | 123.14 | 118.30 |
| 1 | O | 245 | ASP | CB-CG-OD1 | 5.37 | 123.13 | 118.30 |
| 1 | Z | 386 | TYR | CB-CG-CD1 | -5.37 | 117.78 | 121.00 |
| 1 | Y | 80 | THR | N-CA-CB | 5.36 | 120.47 | 110.30 |
| 1 | O | 357 | ASP | CB-CG-OD1 | 5.35 | 123.11 | 118.30 |
| 1 | Z | 198 | ASP | CB-CG-OD2 | -5.35 | 113.48 | 118.30 |
| 1 | X | 90 | GLU | CB-CG-CD | -5.34 | 99.78 | 114.20 |
| 1 | Y | 326 | ALA | N-CA-CB | 5.33 | 117.56 | 110.10 |
| 1 | X | 432 | ARG | NE-CZ-NH2 | -5.33 | 117.64 | 120.30 |
| 1 | O | 300 | TYR | CA-CB-CG | -5.32 | 103.29 | 113.40 |
| 1 | Z | 389 | ARG | NE-CZ-NH2 | -5.31 | 117.64 | 120.30 |
| 1 | X | 475 | GLU | N-CA-CB | -5.30 | 101.05 | 110.60 |
| 1 | Y | 14 | THR | CA-CB-CG2 | 5.30 | 119.82 | 112.40 |
| 1 | Z | 211 | ARG | NE-CZ-NH1 | 5.29 | 122.95 | 120.30 |
| 1 | Z | 177 | ARG | NE-CZ-NH2 | -5.29 | 117.66 | 120.30 |
| 1 | Y | 171 | TRP | N-CA-CB | -5.28 | 101.10 | 110.60 |
| 1 | X | 281 | LYS | CB-CA-C | 5.27 | 120.93 | 110.40 |
| 1 | Y | 201 | ASP | CB-CG-OD1 | -5.26 | 113.56 | 118.30 |
| 1 | O | 334 | THR | CA-CB-CG2 | -5.26 | 105.04 | 112.40 |
| 1 | X | 33 | ARG | N-CA-CB | 5.26 | 120.06 | 110.60 |
| 1 | X | 83 | ARG | NE-CZ-NH2 | -5.26 | 117.67 | 120.30 |
| 1 | Y | 39 | TYR | CB-CG-CD2 | -5.25 | 117.85 | 121.00 |
| 1 | Z | 492 | ARG | NE-CZ-NH2 | -5.24 | 117.68 | 120.30 |
| 1 | X | 394 | ALA | CA-C-N | -5.24 | 105.67 | 117.20 |
| 1 | Y | 354 | PRO | CB-CA-C | -5.24 | 98.90 | 112.00 |
| 1 | Z | 432 | ARG | NE-CZ-NH2 | 5.24 | 122.92 | 120.30 |
| 1 | X | 72 | ASP | CB-CG-OD1 | -5.23 | 113.59 | 118.30 |
| 1 | Y | 441 | LEU | CB-CA-C | -5.23 | 100.26 | 110.20 |
| 1 | O | 303 | GLU | CG-CD-OE1 | -5.23 | 107.84 | 118.30 |
| 1 | Z | 196 | THR | N-CA-CB | -5.22 | 100.38 | 110.30 |
| 1 | O | 17 | ARG | NE-CZ-NH2 | -5.22 | 117.69 | 120.30 |
| 1 | Y | 154 | ARG | NE-CZ-NH2 | -5.22 | 117.69 | 120.30 |
| 1 | Y | 72 | ASP | CB-CG-OD2 | 5.20 | 122.98 | 118.30 |
| 1 | O | 196 | THR | N-CA-CB | -5.20 | 100.43 | 110.30 |
| 1 | O | 468 | ARG | NE-CZ-NH1 | 5.20 | 122.90 | 120.30 |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-----------|-------|-------------|----------|
| 1 | Z | 42 | PRO | N-CA-CB | 5.19 | 109.53 | 103.30 |
| 1 | Y | 184 | THR | CA-CB-CG2 | -5.18 | 105.14 | 112.40 |
| 1 | O | 153 | GLU | CA-CB-CG | -5.18 | 102.00 | 113.40 |
| 1 | O | 351 | LEU | C-N-CA | -5.18 | 111.43 | 122.30 |
| 1 | O | 355 | TYR | CB-CG-CD1 | -5.18 | 117.89 | 121.00 |
| 1 | Z | 33 | ARG | NE-CZ-NH2 | -5.17 | 117.72 | 120.30 |
| 1 | Z | 404 | HIS | CB-CA-C | 5.16 | 120.72 | 110.40 |
| 1 | X | 328 | ASP | CB-CG-OD2 | -5.15 | 113.66 | 118.30 |
| 1 | O | 438 | VAL | CA-CB-CG2 | -5.15 | 103.18 | 110.90 |
| 1 | Z | 319 | GLU | CG-CD-OE1 | -5.14 | 108.02 | 118.30 |
| 1 | X | 369 | ARG | NE-CZ-NH2 | -5.13 | 117.74 | 120.30 |
| 1 | X | 86 | THR | N-CA-CB | -5.12 | 100.57 | 110.30 |
| 1 | Z | 203 | MET | CA-CB-CG | -5.12 | 104.60 | 113.30 |
| 1 | X | 219 | ARG | NE-CZ-NH2 | -5.12 | 117.74 | 120.30 |
| 1 | Y | 323 | ILE | N-CA-C | -5.11 | 97.19 | 111.00 |
| 1 | Y | 468 | ARG | NE-CZ-NH2 | -5.11 | 117.75 | 120.30 |
| 1 | Y | 389 | ARG | NE-CZ-NH2 | -5.10 | 117.75 | 120.30 |
| 1 | Y | 117 | ARG | NE-CZ-NH1 | 5.10 | 122.85 | 120.30 |
| 1 | O | 83 | ARG | N-CA-CB | 5.10 | 119.78 | 110.60 |
| 1 | Y | 460 | LEU | CA-CB-CG | -5.08 | 103.61 | 115.30 |
| 1 | Y | 429 | ARG | NE-CZ-NH1 | 5.08 | 122.84 | 120.30 |
| 1 | Z | 157 | ARG | NE-CZ-NH1 | 5.08 | 122.84 | 120.30 |
| 1 | X | 188 | ARG | NE-CZ-NH2 | -5.07 | 117.76 | 120.30 |
| 1 | O | 133 | ASP | CB-CG-OD2 | 5.05 | 122.85 | 118.30 |
| 1 | Y | 326 | ALA | CB-CA-C | 5.05 | 117.67 | 110.10 |
| 1 | X | 481 | TYR | CA-CB-CG | -5.05 | 103.81 | 113.40 |
| 1 | O | 75 | ALA | CB-CA-C | -5.04 | 102.54 | 110.10 |
| 1 | Y | 76 | ALA | CB-CA-C | -5.03 | 102.56 | 110.10 |
| 1 | Y | 487 | LYS | CB-CA-C | 5.01 | 120.42 | 110.40 |
| 1 | Y | 77 | ILE | CB-CA-C | -5.00 | 101.59 | 111.60 |

All (3) chirality outliers are listed below:

| Mol | Chain | Res | Type | Atom |
|-----|-------|-----|------|------|
| 1 | Z | 149 | GLU | CA |
| 1 | X | 147 | HIS | CA |
| 1 | X | 404 | HIS | CA |

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1 | O | 3891 | 0 | 3804 | 450 | 0 |
| 1 | X | 3896 | 0 | 3811 | 414 | 0 |
| 1 | Y | 3921 | 0 | 3839 | 406 | 0 |
| 1 | Z | 3913 | 0 | 3841 | 448 | 0 |
| 2 | O | 10 | 0 | 0 | 2 | 0 |
| 2 | X | 5 | 0 | 0 | 0 | 0 |
| 2 | Y | 5 | 0 | 0 | 0 | 0 |
| 2 | Z | 10 | 0 | 0 | 2 | 0 |
| 3 | O | 6 | 0 | 8 | 1 | 0 |
| 3 | X | 6 | 0 | 8 | 1 | 0 |
| 3 | Y | 6 | 0 | 8 | 3 | 0 |
| 3 | Z | 6 | 0 | 8 | 7 | 0 |
| 4 | O | 29 | 0 | 0 | 3 | 0 |
| 4 | X | 42 | 0 | 0 | 7 | 0 |
| 4 | Y | 38 | 0 | 0 | 4 | 0 |
| 4 | Z | 31 | 0 | 0 | 2 | 0 |
| All | All | 15815 | 0 | 15327 | 1658 | 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 53.

All (1658) 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:Y:33:ARG:HH22 | 1:Z:58:SER:HB2 | 1.15 | 1.11 |
| 1:O:287:LEU:HD12 | 1:O:303:GLU:HG2 | 1.31 | 1.11 |
| 1:Y:456:ASN:ND2 | 1:Y:458:ASP:H | 1.51 | 1.08 |
| 1:Z:468:ARG:HG3 | 1:Z:468:ARG:HH11 | 1.19 | 1.07 |
| 1:Z:154:ARG:HB3 | 1:Z:159:GLU:HG3 | 1.32 | 1.05 |
| 1:O:17:ARG:HG3 | 1:O:32:GLN:HG3 | 1.38 | 1.05 |
| 1:Z:92:GLU:HG2 | 1:Z:93:THR:HG23 | 1.40 | 1.04 |
| 1:Z:112:CYS:HB3 | 1:Z:132:ILE:HG22 | 1.35 | 1.04 |
| 1:Z:320:MET:HE1 | 1:X:373:ALA:HA | 1.40 | 1.04 |
| 1:O:189:THR:HB | 1:O:191:LEU:HD12 | 1.37 | 1.03 |
| 1:O:128:THR:HG21 | 1:O:130:LEU:HD22 | 1.39 | 1.02 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:Z:125:ARG:HH11 | 1:Z:125:ARG:HB2 | 1.20 | 1.02 |
| 1:O:203:MET:HA | 1:O:206:VAL:HG23 | 1.41 | 1.00 |
| 1:O:330:GLU:HG3 | 1:O:415:ASN:HD21 | 1.23 | 1.00 |
| 1:Y:9:LEU:HB2 | 1:Y:79:ILE:HD12 | 1.42 | 1.00 |
| 1:Z:460:LEU:HA | 1:Z:463:LYS:HD2 | 1.44 | 0.99 |
| 1:Z:83:ARG:HH11 | 1:Z:83:ARG:HB2 | 1.24 | 0.99 |
| 1:Y:272:LEU:HG | 1:Y:303:GLU:HB2 | 1.42 | 0.98 |
| 1:Z:424:ASP:HB3 | 1:Z:474:ILE:HD12 | 1.42 | 0.98 |
| 1:Y:85:THR:HG23 | 1:Y:102:VAL:HA | 1.40 | 0.98 |
| 1:Y:219:ARG:HH22 | 1:Y:295:THR:HG23 | 1.25 | 0.98 |
| 1:X:17:ARG:HG3 | 1:X:32:GLN:HG2 | 1.40 | 0.98 |
| 1:O:261:ALA:HB2 | 1:O:273:MET:HB2 | 1.46 | 0.98 |
| 1:O:460:LEU:HD12 | 1:O:463:LYS:HE3 | 1.44 | 0.96 |
| 1:Z:415:ASN:HD21 | 1:Z:417:PHE:HB3 | 1.29 | 0.95 |
| 1:X:237:ILE:HG22 | 1:X:238:PRO:HD2 | 1.48 | 0.95 |
| 1:Y:33:ARG:NH2 | 1:Z:58:SER:HB2 | 1.84 | 0.92 |
| 1:Z:145:LEU:HB3 | 1:Z:152:ARG:NH1 | 1.84 | 0.92 |
| 1:X:475:GLU:HB3 | 1:X:478:GLU:HG2 | 1.49 | 0.92 |
| 1:Y:415:ASN:HD21 | 1:Y:417:PHE:HB3 | 1.34 | 0.92 |
| 1:X:396:GLN:HE21 | 1:X:403:LEU:H | 1.15 | 0.92 |
| 1:X:111:ILE:HD12 | 1:X:111:ILE:H | 1.32 | 0.92 |
| 1:Y:219:ARG:NH2 | 1:Y:295:THR:HG23 | 1.84 | 0.91 |
| 1:X:108:THR:HA | 1:X:111:ILE:HD13 | 1.50 | 0.91 |
| 1:Y:421:PHE:CZ | 1:Y:425:ILE:HD13 | 2.06 | 0.91 |
| 1:Z:261:ALA:HB2 | 1:Z:273:MET:HB2 | 1.54 | 0.90 |
| 1:X:124:ILE:HG12 | 1:X:203:MET:HE1 | 1.51 | 0.90 |
| 1:Z:174:THR:HG21 | 1:Z:178:VAL:HG13 | 1.53 | 0.90 |
| 1:Z:154:ARG:CB | 1:Z:159:GLU:HG3 | 2.02 | 0.90 |
| 1:O:127:ASN:HD22 | 1:O:193:ASN:ND2 | 1.70 | 0.89 |
| 1:O:161:LEU:HD22 | 1:O:179:HIS:CE1 | 2.07 | 0.88 |
| 1:O:460:LEU:HA | 1:O:463:LYS:HE2 | 1.55 | 0.88 |
| 1:Z:112:CYS:HB3 | 1:Z:132:ILE:CG2 | 2.01 | 0.88 |
| 1:X:154:ARG:HB3 | 1:X:159:GLU:HG2 | 1.54 | 0.88 |
| 1:Y:196:THR:HG22 | 1:Y:198:ASP:N | 1.88 | 0.88 |
| 1:Y:271:MET:HE2 | 1:Y:391:VAL:HG23 | 1.53 | 0.87 |
| 1:O:85:THR:HG23 | 1:O:102:VAL:HA | 1.55 | 0.87 |
| 1:Y:468:ARG:HG3 | 1:Y:468:ARG:HH11 | 1.40 | 0.87 |
| 1:Z:351:LEU:HD22 | 1:Z:360:ALA:CB | 2.03 | 0.87 |
| 1:Z:84:GLU:OE2 | 1:Z:188:ARG:HD2 | 1.74 | 0.86 |
| 1:Y:424:ASP:HB3 | 1:Y:474:ILE:HG21 | 1.56 | 0.86 |
| 1:Z:156:ARG:HG3 | 1:Z:156:ARG:HH11 | 1.38 | 0.86 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:Z:146:ASP:HB2 | 1:Z:147:HIS:CE1 | 2.10 | 0.86 |
| 1:O:127:ASN:HD22 | 1:O:193:ASN:HD21 | 1.24 | 0.86 |
| 1:Y:65:THR:HG21 | 1:Z:54:ALA:HA | 1.56 | 0.85 |
| 1:Y:180:VAL:HG23 | 1:Y:216:GLU:HG2 | 1.59 | 0.85 |
| 1:Y:344:VAL:HG22 | 1:Y:364:ILE:HD12 | 1.57 | 0.85 |
| 1:Y:475:GLU:HG2 | 1:Y:477:THR:HB | 1.57 | 0.85 |
| 1:Z:17:ARG:CG | 1:Z:32:GLN:HG2 | 2.05 | 0.85 |
| 1:O:128:THR:HG22 | 1:O:130:LEU:HD13 | 1.58 | 0.85 |
| 1:Z:152:ARG:O | 1:Z:156:ARG:HG2 | 1.76 | 0.85 |
| 1:Y:65:THR:CG2 | 1:Z:54:ALA:HA | 2.07 | 0.84 |
| 1:O:105:CYS:SG | 1:O:107:ARG:HD2 | 2.17 | 0.84 |
| 1:O:330:GLU:HG3 | 1:O:415:ASN:ND2 | 1.92 | 0.83 |
| 1:Y:323:ILE:HG22 | 1:Y:332:PHE:CD2 | 2.13 | 0.83 |
| 1:Y:456:ASN:HD21 | 1:Y:458:ASP:H | 1.24 | 0.83 |
| 1:O:457:LEU:HA | 1:O:460:LEU:HD23 | 1.61 | 0.83 |
| 1:Z:125:ARG:HH11 | 1:Z:125:ARG:CB | 1.92 | 0.83 |
| 1:X:154:ARG:HA | 1:X:157:ARG:HH11 | 1.41 | 0.83 |
| 1:O:193:ASN:HB3 | 1:O:196:THR:CG2 | 2.09 | 0.82 |
| 1:Y:475:GLU:HG2 | 1:Y:478:GLU:H | 1.43 | 0.82 |
| 1:Y:344:VAL:HG22 | 1:Y:364:ILE:CD1 | 2.09 | 0.82 |
| 1:Z:6:ILE:CG2 | 1:Z:21:MET:HB3 | 2.09 | 0.82 |
| 1:O:155:ALA:HB1 | 1:O:210:PRO:HG2 | 1.61 | 0.82 |
| 1:Y:396:GLN:HE22 | 1:Y:402:ARG:HD3 | 1.43 | 0.82 |
| 1:O:54:ALA:HA | 1:X:65:THR:HG21 | 1.61 | 0.82 |
| 1:Y:475:GLU:CG | 1:Y:477:THR:HB | 2.09 | 0.82 |
| 1:X:406:LEU:HD13 | 1:X:408:VAL:HG12 | 1.61 | 0.82 |
| 1:Z:320:MET:HE1 | 1:X:376:ILE:HD12 | 1.60 | 0.82 |
| 1:Y:328:ASP:HB3 | 1:Y:332:PHE:CE2 | 2.15 | 0.81 |
| 1:X:237:ILE:CG2 | 1:X:238:PRO:HD2 | 2.10 | 0.81 |
| 1:Z:315:TRP:CD1 | 1:Z:319:GLU:HG2 | 2.16 | 0.81 |
| 1:Z:23:HIS:HA | 1:Z:453:PHE:CE2 | 2.16 | 0.81 |
| 1:Z:387:GLN:O | 1:Z:390:ASP:HB2 | 1.78 | 0.81 |
| 1:Y:328:ASP:HB3 | 1:Y:332:PHE:HE2 | 1.43 | 0.81 |
| 1:Z:17:ARG:HG2 | 1:Z:32:GLN:HG2 | 1.63 | 0.81 |
| 1:X:154:ARG:NE | 1:X:159:GLU:HG2 | 1.96 | 0.81 |
| 1:Z:347:ALA:HB2 | 1:Z:351:LEU:HD13 | 1.63 | 0.81 |
| 1:O:359:TYR:CE1 | 1:O:499:HIS:HB3 | 2.16 | 0.80 |
| 1:Y:256:VAL:HG11 | 1:Y:294:PRO:CA | 2.11 | 0.80 |
| 1:X:111:ILE:CG2 | 1:X:139:THR:HG22 | 2.12 | 0.80 |
| 1:O:154:ARG:HB3 | 1:O:159:GLU:HB2 | 1.63 | 0.80 |
| 1:X:112:CYS:HB3 | 1:X:132:ILE:HG22 | 1.62 | 0.80 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:X:154:ARG:HB3 | 1:X:159:GLU:CG | 2.11 | 0.80 |
| 1:O:387:GLN:O | 1:O:390:ASP:HB2 | 1.83 | 0.79 |
| 1:Y:147:HIS:HB3 | 4:Y:539:HOH:O | 1.81 | 0.79 |
| 1:Y:422:GLN:O | 1:Y:426:LEU:HD22 | 1.82 | 0.79 |
| 1:O:460:LEU:HD22 | 1:O:460:LEU:H | 1.48 | 0.79 |
| 1:O:180:VAL:CG2 | 1:O:218:ARG:HG3 | 2.13 | 0.79 |
| 1:Z:320:MET:CE | 1:X:376:ILE:HD12 | 2.11 | 0.79 |
| 1:Z:415:ASN:ND2 | 1:Z:417:PHE:HB3 | 1.96 | 0.79 |
| 1:Y:161:LEU:HD22 | 1:Y:179:HIS:CE1 | 2.18 | 0.79 |
| 1:Z:83:ARG:HH11 | 1:Z:83:ARG:CB | 1.96 | 0.79 |
| 1:Y:80:THR:CG2 | 1:Y:245:ASP:HA | 2.12 | 0.78 |
| 1:X:256:VAL:HG11 | 1:X:294:PRO:HB3 | 1.63 | 0.78 |
| 1:Z:83:ARG:HB2 | 1:Z:83:ARG:NH1 | 1.98 | 0.78 |
| 1:Y:323:ILE:HG22 | 1:Y:332:PHE:CE2 | 2.19 | 0.78 |
| 1:X:83:ARG:HD2 | 1:X:244:GLY:HA3 | 1.65 | 0.78 |
| 1:Z:203:MET:HA | 1:Z:206:VAL:HG12 | 1.65 | 0.78 |
| 1:X:314:GLN:HG3 | 1:X:317:ARG:NH2 | 1.99 | 0.78 |
| 1:Y:54:ALA:HA | 1:Z:65:THR:CG2 | 2.14 | 0.78 |
| 1:Z:28:ILE:HG22 | 1:Z:29:SER:HB3 | 1.65 | 0.78 |
| 1:Z:21:MET:HA | 1:Z:26:ASN:O | 1.83 | 0.77 |
| 1:Z:458:ASP:HA | 1:Z:461:GLN:HG3 | 1.64 | 0.77 |
| 1:X:29:SER:HB3 | 1:X:63:VAL:CG2 | 2.13 | 0.77 |
| 1:Z:115:LEU:HA | 1:Z:120:LEU:HD12 | 1.66 | 0.77 |
| 1:O:17:ARG:HG3 | 1:O:32:GLN:CG | 2.15 | 0.77 |
| 1:Y:155:ALA:HB1 | 1:Y:213:MET:CE | 2.15 | 0.77 |
| 1:Y:155:ALA:HB1 | 1:Y:213:MET:HE2 | 1.66 | 0.77 |
| 1:Y:196:THR:HG22 | 1:Y:198:ASP:H | 1.49 | 0.77 |
| 1:Y:295:THR:HG22 | 1:Y:297:GLU:CD | 2.06 | 0.76 |
| 1:Z:174:THR:HG21 | 1:Z:178:VAL:CG1 | 2.15 | 0.76 |
| 1:X:80:THR:HG21 | 1:X:245:ASP:HA | 1.65 | 0.76 |
| 1:O:437:GLU:O | 1:O:441:LEU:HD23 | 1.85 | 0.76 |
| 1:O:237:ILE:HG23 | 1:O:238:PRO:HD2 | 1.66 | 0.76 |
| 1:X:459:GLU:C | 1:X:460:LEU:HD13 | 2.05 | 0.76 |
| 1:X:482:ARG:CB | 1:X:482:ARG:HH11 | 1.97 | 0.76 |
| 1:O:128:THR:HG21 | 1:O:130:LEU:CD2 | 2.14 | 0.76 |
| 1:Y:406:LEU:HD13 | 1:Y:408:VAL:CG1 | 2.16 | 0.76 |
| 1:X:159:GLU:O | 1:X:160:LEU:HD23 | 1.85 | 0.76 |
| 1:X:240:SER:HB2 | 1:X:450:ALA:HB3 | 1.66 | 0.76 |
| 1:O:173:MET:HB3 | 1:O:227:THR:HG21 | 1.68 | 0.76 |
| 1:Y:179:HIS:ND1 | 1:Y:215:PRO:HA | 2.00 | 0.76 |
| 1:X:330:GLU:HG3 | 1:X:415:ASN:HD21 | 1.50 | 0.76 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:O:403:LEU:HD23 | 1:O:405:ALA:O | 1.86 | 0.76 |
| 1:O:173:MET:HB3 | 1:O:227:THR:CG2 | 2.16 | 0.76 |
| 1:Y:271:MET:CE | 1:Y:391:VAL:HG23 | 2.15 | 0.76 |
| 1:Y:483:TYR:CE2 | 1:Y:487:LYS:HE2 | 2.21 | 0.76 |
| 1:O:173:MET:O | 1:O:227:THR:HG22 | 1.86 | 0.75 |
| 1:O:250:LEU:CD1 | 1:O:255:CYS:HB2 | 2.16 | 0.75 |
| 1:Y:48:ASP:HB3 | 1:Y:51:GLU:HB2 | 1.68 | 0.75 |
| 1:Z:362:GLY:HA3 | 1:X:367:LEU:HB2 | 1.67 | 0.75 |
| 1:Z:173:MET:O | 1:Z:227:THR:HG23 | 1.85 | 0.75 |
| 1:O:460:LEU:HA | 1:O:463:LYS:CE | 2.16 | 0.75 |
| 1:Z:170:ILE:CD1 | 1:Z:242:ILE:HD11 | 2.17 | 0.75 |
| 1:O:313:ILE:HD11 | 1:O:381:LEU:HD23 | 1.69 | 0.75 |
| 1:Y:121:GLU:O | 1:Y:125:ARG:HB2 | 1.85 | 0.75 |
| 1:O:154:ARG:HA | 1:O:159:GLU:HG3 | 1.68 | 0.74 |
| 1:O:421:PHE:O | 1:O:424:ASP:HB2 | 1.86 | 0.74 |
| 1:Y:54:ALA:HA | 1:Z:65:THR:HG21 | 1.69 | 0.74 |
| 1:O:193:ASN:HB3 | 1:O:196:THR:HG22 | 1.68 | 0.74 |
| 1:O:460:LEU:CD1 | 1:O:463:LYS:HE3 | 2.15 | 0.74 |
| 1:X:108:THR:CA | 1:X:111:ILE:HD13 | 2.16 | 0.74 |
| 1:O:201:ASP:O | 1:O:205:GLU:HB3 | 1.87 | 0.74 |
| 1:Z:6:ILE:HG22 | 1:Z:21:MET:HB3 | 1.68 | 0.74 |
| 1:O:54:ALA:HA | 1:X:65:THR:CG2 | 2.18 | 0.74 |
| 1:O:203:MET:HA | 1:O:206:VAL:CG2 | 2.17 | 0.74 |
| 1:Z:105:CYS:SG | 1:Z:107:ARG:HD2 | 2.28 | 0.74 |
| 1:X:422:GLN:HE21 | 1:X:426:LEU:HD22 | 1.52 | 0.74 |
| 1:O:130:LEU:HD23 | 1:O:190:MET:HG3 | 1.68 | 0.74 |
| 1:Y:83:ARG:NH1 | 1:Y:246:GLN:HG2 | 2.02 | 0.74 |
| 1:Y:256:VAL:HG11 | 1:Y:294:PRO:HA | 1.70 | 0.74 |
| 1:Z:203:MET:HA | 1:Z:206:VAL:CG1 | 2.17 | 0.74 |
| 1:Z:193:ASN:HB3 | 1:Z:196:THR:HG22 | 1.70 | 0.73 |
| 1:O:80:THR:HG21 | 1:O:245:ASP:HA | 1.69 | 0.73 |
| 1:O:65:THR:CG2 | 1:X:54:ALA:HA | 2.18 | 0.73 |
| 1:Z:424:ASP:O | 1:Z:479:ARG:NH1 | 2.20 | 0.73 |
| 1:X:124:ILE:HG12 | 1:X:203:MET:CE | 2.16 | 0.73 |
| 1:Y:468:ARG:HG3 | 1:Y:468:ARG:NH1 | 2.01 | 0.73 |
| 1:Z:378:ARG:O | 1:Z:382:GLU:HG3 | 1.88 | 0.73 |
| 1:Z:147:HIS:ND1 | 1:Z:147:HIS:N | 2.36 | 0.73 |
| 1:X:486:TRP:CD1 | 1:X:487:LYS:HD2 | 2.24 | 0.73 |
| 1:O:460:LEU:O | 1:O:463:LYS:HG2 | 1.89 | 0.73 |
| 1:Y:19:VAL:HG11 | 1:Y:27:ILE:HD12 | 1.69 | 0.73 |
| 1:X:21:MET:HA | 1:X:26:ASN:O | 1.88 | 0.73 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:X:478:GLU:O | 1:X:481:TYR:HB3 | 1.88 | 0.73 |
| 1:Y:90:GLU:HB2 | 1:Y:93:THR:OG1 | 1.89 | 0.73 |
| 1:Z:86:THR:OG1 | 1:Z:137:SER:HB3 | 1.88 | 0.73 |
| 1:O:455:GLN:HB3 | 1:O:459:GLU:OE2 | 1.89 | 0.72 |
| 1:Y:55:THR:O | 1:Y:59:THR:HG23 | 1.88 | 0.72 |
| 1:X:189:THR:OG1 | 1:X:191:LEU:HB2 | 1.89 | 0.72 |
| 1:X:410:GLY:O | 1:X:413:VAL:HG22 | 1.88 | 0.72 |
| 1:O:317:ARG:HB2 | 1:O:323:ILE:HD11 | 1.70 | 0.72 |
| 1:Z:332:PHE:HA | 1:Z:335:LYS:HD3 | 1.71 | 0.72 |
| 1:X:154:ARG:HA | 1:X:157:ARG:NH1 | 2.05 | 0.72 |
| 1:X:328:ASP:O | 1:X:331:TYR:HB3 | 1.88 | 0.72 |
| 1:Y:180:VAL:CG2 | 1:Y:218:ARG:HG3 | 2.20 | 0.72 |
| 1:X:483:TYR:O | 1:X:486:TRP:HB3 | 1.89 | 0.72 |
| 1:O:203:MET:CA | 1:O:206:VAL:HG23 | 2.19 | 0.72 |
| 1:Z:402:ARG:HG3 | 1:Z:402:ARG:HH11 | 1.54 | 0.72 |
| 1:Z:458:ASP:HA | 1:Z:461:GLN:CG | 2.19 | 0.72 |
| 1:X:3:LYS:N | 1:X:4:LYS:HZ3 | 1.87 | 0.72 |
| 1:X:111:ILE:HG21 | 1:X:139:THR:HG22 | 1.71 | 0.72 |
| 1:O:128:THR:CG2 | 1:O:130:LEU:HD22 | 2.19 | 0.71 |
| 1:X:418:LEU:HD13 | 1:X:419:MET:CE | 2.19 | 0.71 |
| 1:O:156:ARG:CG | 1:O:210:PRO:HG3 | 2.20 | 0.71 |
| 1:Y:112:CYS:HA | 1:Y:115:LEU:HD23 | 1.70 | 0.71 |
| 1:Y:434:GLU:HG3 | 1:Y:467:GLU:HB2 | 1.72 | 0.71 |
| 1:Z:84:GLU:HB2 | 1:Z:103:TRP:HB3 | 1.71 | 0.71 |
| 1:X:17:ARG:HD3 | 1:X:17:ARG:N | 2.05 | 0.71 |
| 1:Z:143:TRP:O | 1:Z:147:HIS:ND1 | 2.23 | 0.71 |
| 1:X:267:THR:HG23 | 1:X:311:ALA:HB2 | 1.71 | 0.71 |
| 1:O:17:ARG:HD3 | 1:O:17:ARG:N | 2.05 | 0.71 |
| 1:Y:80:THR:HG22 | 1:Y:245:ASP:HA | 1.71 | 0.71 |
| 1:X:295:THR:HG23 | 1:X:297:GLU:OE2 | 1.91 | 0.71 |
| 1:O:357:ASP:OD2 | 1:O:360:ALA:HB2 | 1.90 | 0.71 |
| 1:Y:458:ASP:HA | 1:Y:461:GLN:HE21 | 1.55 | 0.71 |
| 1:X:202:LYS:O | 1:X:206:VAL:HG23 | 1.89 | 0.71 |
| 1:X:434:GLU:HG3 | 1:X:467:GLU:HB2 | 1.71 | 0.71 |
| 1:X:482:ARG:HH11 | 1:X:482:ARG:CA | 2.03 | 0.71 |
| 1:O:80:THR:CG2 | 1:O:245:ASP:HA | 2.21 | 0.71 |
| 1:Z:154:ARG:CA | 1:Z:159:GLU:HG3 | 2.20 | 0.71 |
| 1:Z:157:ARG:HH11 | 1:Z:157:ARG:HB3 | 1.54 | 0.71 |
| 1:Z:340:ASN:HD22 | 1:Z:371:VAL:HG23 | 1.56 | 0.71 |
| 1:O:179:HIS:CD2 | 1:O:215:PRO:HB3 | 2.26 | 0.71 |
| 1:O:250:LEU:HD11 | 1:O:255:CYS:HB2 | 1.73 | 0.71 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:O:255:CYS:HB3 | 1:O:260:MET:HB3 | 1.73 | 0.71 |
| 1:Y:271:MET:HE2 | 1:Y:391:VAL:CG2 | 2.20 | 0.71 |
| 1:O:65:THR:HG23 | 1:X:54:ALA:HA | 1.73 | 0.71 |
| 1:Z:12:GLY:HA3 | 1:Z:17:ARG:NH1 | 2.06 | 0.71 |
| 1:Z:17:ARG:HG3 | 1:Z:32:GLN:HG2 | 1.73 | 0.71 |
| 1:O:124:ILE:HD13 | 1:O:203:MET:CE | 2.20 | 0.71 |
| 1:X:120:LEU:O | 1:X:124:ILE:HG13 | 1.90 | 0.71 |
| 1:O:254:LEU:O | 1:O:256:VAL:HG22 | 1.91 | 0.70 |
| 1:Y:50:MET:HA | 1:Y:50:MET:HE3 | 1.72 | 0.70 |
| 1:Y:156:ARG:O | 1:Y:212:GLU:HG2 | 1.91 | 0.70 |
| 1:Y:483:TYR:CD2 | 1:Y:487:LYS:HE2 | 2.27 | 0.70 |
| 1:Z:483:TYR:O | 1:Z:486:TRP:HB3 | 1.91 | 0.70 |
| 1:O:258:GLU:HB2 | 1:O:275:THR:C | 2.12 | 0.70 |
| 1:Y:469:GLU:HB3 | 1:Y:471:ARG:NH2 | 2.06 | 0.70 |
| 1:O:458:ASP:O | 1:O:461:GLN:HG3 | 1.91 | 0.70 |
| 1:Y:21:MET:HA | 1:Y:26:ASN:O | 1.91 | 0.70 |
| 1:Z:429:ARG:HG2 | 1:Z:471:ARG:HG2 | 1.74 | 0.70 |
| 1:Z:19:VAL:CG1 | 1:Z:27:ILE:HG23 | 2.22 | 0.70 |
| 1:X:435:VAL:HG11 | 1:X:441:LEU:HD11 | 1.73 | 0.70 |
| 1:O:224:TYR:CE2 | 1:O:242:ILE:HG13 | 2.26 | 0.70 |
| 1:Z:322:LEU:HD23 | 1:Z:322:LEU:N | 2.07 | 0.70 |
| 1:X:322:LEU:HD23 | 1:X:322:LEU:H | 1.56 | 0.70 |
| 1:O:84:GLU:OE2 | 1:O:188:ARG:HD2 | 1.92 | 0.70 |
| 1:Y:78:GLY:C | 1:Y:79:ILE:HD13 | 2.12 | 0.70 |
| 1:Z:146:ASP:HB2 | 1:Z:147:HIS:ND1 | 2.06 | 0.70 |
| 1:X:90:GLU:HB2 | 1:X:93:THR:OG1 | 1.92 | 0.70 |
| 1:O:251:PHE:CE2 | 1:O:446:LEU:HD13 | 2.27 | 0.70 |
| 1:Z:460:LEU:HA | 1:Z:463:LYS:CD | 2.22 | 0.70 |
| 1:X:3:LYS:HD3 | 1:X:72:ASP:O | 1.92 | 0.70 |
| 1:X:210:PRO:O | 1:X:213:MET:HG3 | 1.92 | 0.69 |
| 1:X:322:LEU:HD23 | 1:X:322:LEU:N | 2.06 | 0.69 |
| 1:Y:475:GLU:HB3 | 1:Y:478:GLU:HB2 | 1.73 | 0.69 |
| 1:Y:478:GLU:O | 1:Y:481:TYR:HB3 | 1.92 | 0.69 |
| 1:Z:267:THR:HG23 | 1:Z:311:ALA:HB2 | 1.73 | 0.69 |
| 1:X:80:THR:CG2 | 1:X:245:ASP:HA | 2.22 | 0.69 |
| 1:X:346:PRO:HA | 1:X:348:PHE:CE1 | 2.27 | 0.69 |
| 1:Y:90:GLU:HG3 | 1:Y:95:LYS:O | 1.92 | 0.69 |
| 1:O:265:TYR:HB3 | 1:O:412:ALA:HB3 | 1.74 | 0.69 |
| 1:O:483:TYR:O | 1:O:486:TRP:HB3 | 1.91 | 0.69 |
| 1:Z:313:ILE:HD11 | 1:Z:381:LEU:HD23 | 1.73 | 0.69 |
| 1:Y:90:GLU:OE2 | 1:Y:93:THR:HG21 | 1.93 | 0.69 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:O:196:THR:CG2 | 1:O:198:ASP:H | 2.06 | 0.69 |
| 1:X:313:ILE:HD12 | 1:X:313:ILE:H | 1.57 | 0.69 |
| 1:Z:80:THR:HG21 | 1:Z:248:ALA:CB | 2.23 | 0.69 |
| 1:O:83:ARG:NE | 3:O:504:GOL:O2 | 2.26 | 0.69 |
| 1:O:85:THR:HG23 | 1:O:102:VAL:CA | 2.22 | 0.69 |
| 1:Z:92:GLU:CG | 1:Z:93:THR:HG23 | 2.20 | 0.69 |
| 1:Z:147:HIS:N | 1:Z:147:HIS:HD1 | 1.91 | 0.69 |
| 1:X:64:LEU:CD2 | 1:X:69:ILE:HB | 2.22 | 0.69 |
| 1:X:64:LEU:HD23 | 1:X:69:ILE:HB | 1.75 | 0.69 |
| 1:X:250:LEU:HD12 | 1:X:255:CYS:HB2 | 1.75 | 0.68 |
| 1:O:128:THR:HG21 | 1:O:130:LEU:HB2 | 1.75 | 0.68 |
| 1:O:234:GLY:N | 2:O:502:SO4:O2 | 2.26 | 0.68 |
| 1:Z:6:ILE:HD13 | 1:Z:7:VAL:N | 2.08 | 0.68 |
| 1:Z:403:LEU:HD12 | 1:Z:403:LEU:H | 1.59 | 0.68 |
| 1:Y:85:THR:CG2 | 1:Y:102:VAL:HA | 2.22 | 0.68 |
| 1:Y:399:SER:HB2 | 1:Y:401:ILE:HD12 | 1.74 | 0.68 |
| 1:X:415:ASN:HD21 | 1:X:417:PHE:HB3 | 1.58 | 0.68 |
| 1:Z:468:ARG:HG3 | 1:Z:468:ARG:NH1 | 1.96 | 0.68 |
| 1:Z:328:ASP:O | 1:Z:331:TYR:HB3 | 1.93 | 0.68 |
| 1:O:202:LYS:HD3 | 1:O:206:VAL:HG22 | 1.75 | 0.68 |
| 1:Z:429:ARG:CG | 1:Z:471:ARG:HG2 | 2.24 | 0.68 |
| 1:Y:415:ASN:ND2 | 1:Y:417:PHE:HB3 | 2.08 | 0.68 |
| 1:O:415:ASN:HD21 | 1:O:417:PHE:HB3 | 1.59 | 0.67 |
| 1:X:227:THR:N | 1:X:237:ILE:O | 2.25 | 0.67 |
| 1:X:351:LEU:HD22 | 1:X:360:ALA:HB3 | 1.75 | 0.67 |
| 1:O:127:ASN:ND2 | 1:O:193:ASN:HD21 | 1.90 | 0.67 |
| 1:O:188:ARG:HH22 | 1:O:303:GLU:CD | 1.97 | 0.67 |
| 1:X:287:LEU:O | 1:X:302:LEU:HD23 | 1.94 | 0.67 |
| 1:X:347:ALA:HA | 4:X:523:HOH:O | 1.94 | 0.67 |
| 1:X:426:LEU:HB3 | 1:X:428:THR:HB | 1.76 | 0.67 |
| 1:X:415:ASN:ND2 | 1:X:417:PHE:HB3 | 2.09 | 0.67 |
| 1:Z:147:HIS:HB3 | 4:Z:535:HOH:O | 1.93 | 0.67 |
| 1:Z:278:LYS:HE3 | 1:Z:280:VAL:CG2 | 2.25 | 0.67 |
| 1:X:460:LEU:HD13 | 1:X:460:LEU:N | 2.09 | 0.67 |
| 1:O:155:ALA:CB | 1:O:210:PRO:HG2 | 2.24 | 0.67 |
| 1:Y:418:LEU:HD13 | 1:Y:419:MET:CE | 2.25 | 0.67 |
| 1:Z:237:ILE:HG23 | 1:Z:238:PRO:HD2 | 1.75 | 0.67 |
| 1:O:23:HIS:HA | 1:O:453:PHE:CE2 | 2.29 | 0.67 |
| 1:O:410:GLY:O | 1:O:413:VAL:HG22 | 1.93 | 0.67 |
| 1:Z:347:ALA:HB2 | 1:Z:351:LEU:CD1 | 2.25 | 0.67 |
| 1:X:186:ALA:O | 1:X:189:THR:HG23 | 1.94 | 0.67 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:Z:325:ASP:O | 1:Z:328:ASP:HB2 | 1.95 | 0.66 |
| 1:Z:460:LEU:O | 1:Z:463:LYS:HB2 | 1.95 | 0.66 |
| 1:O:216:GLU:OE2 | 1:O:218:ARG:HD3 | 1.95 | 0.66 |
| 1:Z:253:GLN:NE2 | 1:Z:409:ASP:OD2 | 2.27 | 0.66 |
| 1:Z:313:ILE:HD11 | 1:Z:381:LEU:CD2 | 2.25 | 0.66 |
| 1:X:29:SER:HB3 | 1:X:63:VAL:HG23 | 1.76 | 0.66 |
| 1:O:152:ARG:NH2 | 1:O:208:ASP:HB3 | 2.08 | 0.66 |
| 1:Z:44:TRP:HA | 1:Z:105:CYS:SG | 2.36 | 0.66 |
| 1:X:418:LEU:HD13 | 1:X:419:MET:HE2 | 1.77 | 0.66 |
| 1:Z:496:TRP:CZ3 | 1:X:488:LYS:HD2 | 2.31 | 0.66 |
| 1:O:86:THR:OG1 | 1:O:137:SER:HB3 | 1.96 | 0.66 |
| 1:O:141:VAL:HG11 | 1:O:209:ILE:HG12 | 1.76 | 0.66 |
| 1:O:150:GLY:O | 1:O:153:GLU:HB2 | 1.95 | 0.66 |
| 1:Y:201:ASP:OD1 | 1:Y:211:ARG:NH1 | 2.29 | 0.66 |
| 1:Z:83:ARG:NH1 | 3:Z:504:GOL:O2 | 2.28 | 0.66 |
| 1:Z:12:GLY:HA3 | 1:Z:17:ARG:HH12 | 1.61 | 0.66 |
| 1:Z:269:CYS:HB2 | 1:Z:306:VAL:HB | 1.77 | 0.66 |
| 1:X:179:HIS:CD2 | 1:X:215:PRO:HB3 | 2.30 | 0.66 |
| 1:Z:40:PRO:HG2 | 1:Z:44:TRP:HB3 | 1.77 | 0.66 |
| 1:Y:33:ARG:HH22 | 1:Z:58:SER:CB | 2.00 | 0.66 |
| 1:Y:83:ARG:HD3 | 1:Y:245:ASP:OD1 | 1.96 | 0.66 |
| 1:Z:203:MET:CA | 1:Z:206:VAL:HG12 | 2.25 | 0.66 |
| 1:Z:203:MET:O | 1:Z:206:VAL:HG12 | 1.96 | 0.66 |
| 1:X:108:THR:HB | 1:X:139:THR:HB | 1.78 | 0.66 |
| 1:Y:19:VAL:CG1 | 1:Y:27:ILE:HD12 | 2.25 | 0.66 |
| 1:Y:90:GLU:OE2 | 1:Y:95:LYS:HD2 | 1.96 | 0.66 |
| 1:X:148:VAL:HB | 1:X:151:SER:OG | 1.96 | 0.66 |
| 1:X:438:VAL:HA | 1:X:441:LEU:HD13 | 1.78 | 0.66 |
| 1:X:478:GLU:O | 1:X:482:ARG:HG2 | 1.96 | 0.66 |
| 1:Z:166:ASP:OD1 | 1:Z:166:ASP:N | 2.27 | 0.65 |
| 1:Z:466:ILE:N | 1:Z:466:ILE:HD13 | 2.10 | 0.65 |
| 1:O:128:THR:CG2 | 1:O:130:LEU:HB2 | 2.27 | 0.65 |
| 1:O:468:ARG:HD2 | 1:O:470:PHE:CE1 | 2.31 | 0.65 |
| 1:Y:174:THR:O | 1:Y:176:GLY:N | 2.29 | 0.65 |
| 1:Y:227:THR:N | 1:Y:237:ILE:O | 2.29 | 0.65 |
| 1:O:15:SER:O | 1:O:17:ARG:NH1 | 2.30 | 0.65 |
| 1:O:40:PRO:HG2 | 1:O:44:TRP:HB2 | 1.77 | 0.65 |
| 1:O:193:ASN:HB3 | 1:O:196:THR:HG21 | 1.78 | 0.65 |
| 1:Y:196:THR:CG2 | 1:Y:198:ASP:HB3 | 2.26 | 0.65 |
| 1:X:178:VAL:CG1 | 1:X:180:VAL:HB | 2.27 | 0.65 |
| 1:X:214:LEU:N | 1:X:214:LEU:HD23 | 2.11 | 0.65 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:X:219:ARG:NH2 | 1:X:295:THR:O | 2.29 | 0.65 |
| 1:Y:40:PRO:HD2 | 1:Y:44:TRP:HB2 | 1.77 | 0.65 |
| 1:Z:22:ASP:OD1 | 1:Z:24:ASP:N | 2.28 | 0.65 |
| 1:Z:157:ARG:HG3 | 1:Z:157:ARG:O | 1.96 | 0.65 |
| 1:Z:315:TRP:HD1 | 1:Z:319:GLU:HG2 | 1.57 | 0.65 |
| 1:O:123:TYR:O | 1:O:126:SER:N | 2.30 | 0.65 |
| 1:O:236:ARG:NH2 | 2:O:502:SO4:O2 | 2.30 | 0.65 |
| 1:Z:201:ASP:OD2 | 1:Z:211:ARG:NH1 | 2.30 | 0.65 |
| 1:X:406:LEU:CD1 | 1:X:408:VAL:HG12 | 2.26 | 0.65 |
| 1:O:211:ARG:HA | 1:O:214:LEU:HD13 | 1.78 | 0.65 |
| 1:X:22:ASP:OD1 | 1:X:24:ASP:N | 2.29 | 0.65 |
| 1:O:421:PHE:O | 1:O:425:ILE:HG22 | 1.96 | 0.65 |
| 1:Z:240:SER:HB2 | 1:Z:450:ALA:CB | 2.27 | 0.65 |
| 1:X:169:LEU:O | 1:X:173:MET:HG3 | 1.97 | 0.65 |
| 1:X:193:ASN:HB3 | 1:X:196:THR:CG2 | 2.27 | 0.65 |
| 1:O:156:ARG:HG2 | 1:O:210:PRO:HG3 | 1.78 | 0.65 |
| 1:Y:87:ILE:HD12 | 1:Y:168:TRP:CG | 2.32 | 0.65 |
| 1:Z:40:PRO:HG2 | 1:Z:44:TRP:CB | 2.25 | 0.65 |
| 1:Z:226:GLN:NE2 | 1:Z:236:ARG:HG2 | 2.12 | 0.65 |
| 1:O:202:LYS:HE2 | 1:O:205:GLU:HG2 | 1.78 | 0.64 |
| 1:O:261:ALA:HB2 | 1:O:273:MET:CB | 2.26 | 0.64 |
| 1:O:362:GLY:C | 1:Y:367:LEU:HB2 | 2.17 | 0.64 |
| 1:O:378:ARG:O | 1:O:382:GLU:HG3 | 1.96 | 0.64 |
| 1:Y:226:GLN:HG2 | 1:Y:238:PRO:HA | 1.79 | 0.64 |
| 1:Z:212:GLU:OE1 | 1:Z:212:GLU:N | 2.30 | 0.64 |
| 1:O:62:GLU:HB3 | 1:X:58:SER:OG | 1.98 | 0.64 |
| 1:O:127:ASN:ND2 | 1:O:193:ASN:ND2 | 2.43 | 0.64 |
| 1:Y:466:ILE:HD13 | 1:Y:466:ILE:O | 1.97 | 0.64 |
| 1:O:240:SER:HB2 | 1:O:450:ALA:CB | 2.27 | 0.64 |
| 1:Y:280:VAL:CG1 | 1:Y:302:LEU:HD21 | 2.28 | 0.64 |
| 1:O:283:GLU:HB2 | 1:O:398:ASP:OD1 | 1.97 | 0.64 |
| 1:Z:49:PRO:HB3 | 1:Z:87:ILE:HD13 | 1.80 | 0.64 |
| 1:O:211:ARG:HG2 | 1:O:211:ARG:O | 1.98 | 0.64 |
| 1:O:237:ILE:CG2 | 1:O:238:PRO:HD2 | 2.28 | 0.64 |
| 1:Y:418:LEU:HD13 | 1:Y:419:MET:HE2 | 1.80 | 0.64 |
| 1:Y:428:THR:HG22 | 1:Y:429:ARG:O | 1.98 | 0.64 |
| 1:Z:253:GLN:HG2 | 1:Z:438:VAL:HG21 | 1.80 | 0.64 |
| 1:X:105:CYS:SG | 1:X:107:ARG:HB3 | 2.36 | 0.64 |
| 1:Z:365:PHE:CZ | 1:Z:492:ARG:HB3 | 2.33 | 0.64 |
| 1:Z:497:GLU:HG2 | 4:Z:529:HOH:O | 1.98 | 0.64 |
| 1:X:180:VAL:CG2 | 1:X:218:ARG:HG3 | 2.27 | 0.64 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:O:442:GLY:O | 1:O:445:TYR:HB2 | 1.97 | 0.64 |
| 1:Z:320:MET:HE1 | 1:X:373:ALA:CA | 2.21 | 0.64 |
| 1:X:133:ASP:OD2 | 1:X:135:TYR:HB2 | 1.98 | 0.64 |
| 1:X:240:SER:HB2 | 1:X:450:ALA:CB | 2.28 | 0.64 |
| 1:O:458:ASP:HA | 1:O:461:GLN:CG | 2.28 | 0.64 |
| 1:Z:62:GLU:O | 1:Z:66:LYS:HB2 | 1.98 | 0.64 |
| 1:X:154:ARG:HB3 | 1:X:159:GLU:CB | 2.28 | 0.64 |
| 1:X:154:ARG:O | 1:X:159:GLU:HB2 | 1.98 | 0.64 |
| 1:O:124:ILE:HD13 | 1:O:203:MET:HE3 | 1.78 | 0.63 |
| 1:Y:68:ASP:C | 1:Y:69:ILE:HD13 | 2.19 | 0.63 |
| 1:Z:403:LEU:HD12 | 1:Z:403:LEU:N | 2.13 | 0.63 |
| 1:O:59:THR:O | 1:O:63:VAL:HG22 | 1.98 | 0.63 |
| 1:Y:376:ILE:HD13 | 1:Y:376:ILE:N | 2.13 | 0.63 |
| 1:Y:105:CYS:SG | 1:Y:107:ARG:HD2 | 2.39 | 0.63 |
| 1:Z:486:TRP:O | 1:Z:490:VAL:HG23 | 1.99 | 0.63 |
| 1:X:381:LEU:N | 1:X:381:LEU:HD23 | 2.11 | 0.63 |
| 1:O:458:ASP:HA | 1:O:461:GLN:HG3 | 1.81 | 0.63 |
| 1:Y:19:VAL:HG12 | 1:Y:27:ILE:HG23 | 1.81 | 0.63 |
| 1:O:456:ASN:O | 1:O:459:GLU:HG3 | 1.98 | 0.63 |
| 1:Z:226:GLN:HA | 1:Z:237:ILE:O | 1.98 | 0.63 |
| 1:O:174:THR:HA | 1:O:177:ARG:NH2 | 2.13 | 0.63 |
| 1:Z:351:LEU:HD22 | 1:Z:360:ALA:HB2 | 1.81 | 0.63 |
| 1:O:428:THR:HG22 | 1:O:429:ARG:O | 1.99 | 0.63 |
| 1:O:396:GLN:NE2 | 1:O:403:LEU:H | 1.95 | 0.63 |
| 1:Z:141:VAL:HG12 | 1:Z:145:LEU:HD22 | 1.80 | 0.63 |
| 1:Z:152:ARG:O | 1:Z:155:ALA:HB3 | 1.99 | 0.63 |
| 1:O:362:GLY:CA | 1:Y:367:LEU:HB2 | 2.28 | 0.62 |
| 1:O:462:GLU:CD | 1:O:462:GLU:H | 2.03 | 0.62 |
| 1:Y:415:ASN:ND2 | 1:Y:418:LEU:H | 1.97 | 0.62 |
| 1:X:313:ILE:HD12 | 1:X:313:ILE:N | 2.13 | 0.62 |
| 1:X:345:VAL:O | 1:X:362:GLY:HA2 | 1.99 | 0.62 |
| 1:O:85:THR:HA | 1:O:101:ILE:O | 1.99 | 0.62 |
| 1:X:108:THR:OG1 | 1:X:134:PRO:HB3 | 1.99 | 0.62 |
| 1:X:154:ARG:CZ | 1:X:159:GLU:HG2 | 2.28 | 0.62 |
| 1:X:471:ARG:NH1 | 1:X:471:ARG:HG3 | 2.12 | 0.62 |
| 1:X:111:ILE:HD12 | 1:X:111:ILE:N | 2.12 | 0.62 |
| 1:X:216:GLU:OE2 | 1:X:218:ARG:NH1 | 2.32 | 0.62 |
| 1:Y:65:THR:HG22 | 1:Y:66:LYS:N | 2.15 | 0.62 |
| 1:Y:325:ASP:O | 1:Y:328:ASP:HB2 | 1.99 | 0.62 |
| 1:Z:125:ARG:HB2 | 1:Z:125:ARG:NH1 | 2.05 | 0.62 |
| 1:Y:9:LEU:HB2 | 1:Y:79:ILE:CD1 | 2.25 | 0.62 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:Y:387:GLN:O | 1:Y:390:ASP:HB2 | 1.99 | 0.62 |
| 1:Z:83:ARG:NH1 | 3:Z:504:GOL:O1 | 2.27 | 0.62 |
| 1:Y:93:THR:OG1 | 1:Y:95:LYS:N | 2.29 | 0.62 |
| 1:Y:193:ASN:HB2 | 1:Y:200:ASP:OD2 | 2.00 | 0.62 |
| 1:X:152:ARG:HG2 | 1:X:152:ARG:HH11 | 1.65 | 0.62 |
| 1:O:496:TRP:CZ3 | 1:Y:488:LYS:HD2 | 2.34 | 0.62 |
| 1:Y:112:CYS:HB3 | 1:Y:132:ILE:HG22 | 1.81 | 0.62 |
| 1:Z:169:LEU:O | 1:Z:173:MET:HG3 | 1.99 | 0.62 |
| 1:O:313:ILE:HD11 | 1:O:381:LEU:CD2 | 2.29 | 0.62 |
| 1:Y:50:MET:HA | 1:Y:50:MET:CE | 2.30 | 0.62 |
| 1:Y:281:LYS:NZ | 1:Y:283:GLU:OE2 | 2.29 | 0.62 |
| 1:Y:295:THR:HG22 | 1:Y:297:GLU:OE1 | 2.00 | 0.62 |
| 1:O:260:MET:O | 1:O:273:MET:HA | 2.00 | 0.61 |
| 1:Z:23:HIS:HA | 1:Z:453:PHE:CZ | 2.35 | 0.61 |
| 1:O:71:SER:HA | 1:O:74:ILE:HD12 | 1.81 | 0.61 |
| 1:O:295:THR:OG1 | 1:O:297:GLU:HG2 | 2.00 | 0.61 |
| 1:Y:432:ARG:O | 1:Y:467:GLU:N | 2.34 | 0.61 |
| 1:Z:275:THR:O | 1:Z:278:LYS:HG2 | 2.01 | 0.61 |
| 1:Z:415:ASN:ND2 | 1:Z:418:LEU:H | 1.98 | 0.61 |
| 1:X:256:VAL:HG11 | 1:X:294:PRO:CB | 2.30 | 0.61 |
| 1:X:180:VAL:HG21 | 1:X:218:ARG:HG3 | 1.80 | 0.61 |
| 1:O:313:ILE:HD13 | 1:O:313:ILE:N | 2.16 | 0.61 |
| 1:O:415:ASN:ND2 | 1:O:418:LEU:H | 1.98 | 0.61 |
| 1:Y:170:ILE:HG22 | 1:Y:171:TRP:N | 2.14 | 0.61 |
| 1:Y:280:VAL:HG12 | 1:Y:302:LEU:HD21 | 1.82 | 0.61 |
| 1:Z:191:LEU:HD11 | 1:Z:209:ILE:HD13 | 1.81 | 0.61 |
| 1:Z:203:MET:SD | 1:Z:206:VAL:HG11 | 2.40 | 0.61 |
| 1:O:65:THR:HG23 | 1:X:54:ALA:CB | 2.31 | 0.61 |
| 1:X:84:GLU:HG2 | 1:X:103:TRP:HB3 | 1.83 | 0.61 |
| 1:X:389:ARG:HG2 | 1:X:483:TYR:CE1 | 2.36 | 0.61 |
| 1:Y:325:ASP:HB2 | 1:Y:328:ASP:OD1 | 2.00 | 0.61 |
| 1:Y:476:THR:O | 1:Y:479:ARG:N | 2.32 | 0.61 |
| 1:Z:476:THR:HA | 1:Z:479:ARG:HG2 | 1.82 | 0.61 |
| 1:O:432:ARG:NE | 1:O:467:GLU:OE1 | 2.34 | 0.61 |
| 1:Y:128:THR:OG1 | 1:Y:130:LEU:HB2 | 2.01 | 0.61 |
| 1:Y:180:VAL:HG21 | 1:Y:218:ARG:HG3 | 1.81 | 0.61 |
| 1:Y:17:ARG:HG3 | 1:Y:32:GLN:HG3 | 1.81 | 0.61 |
| 1:Y:115:LEU:N | 1:Y:115:LEU:HD22 | 2.15 | 0.61 |
| 1:Z:233:GLY:HA2 | 2:Z:502:SO4:O2 | 2.01 | 0.61 |
| 1:X:194:ILE:HG22 | 1:X:290:ILE:CD1 | 2.31 | 0.61 |
| 1:X:486:TRP:HD1 | 1:X:487:LYS:HD2 | 1.63 | 0.61 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:X:429:ARG:HA | 1:X:470:PHE:O | 2.00 | 0.60 |
| 1:X:12:GLY:HA3 | 1:X:17:ARG:HH12 | 1.65 | 0.60 |
| 1:O:328:ASP:O | 1:O:331:TYR:HB3 | 2.00 | 0.60 |
| 1:O:396:GLN:HE21 | 1:O:403:LEU:H | 1.49 | 0.60 |
| 1:O:415:ASN:ND2 | 1:O:417:PHE:HB3 | 2.16 | 0.60 |
| 1:Z:336:VAL:HG13 | 1:Z:338:ASN:O | 2.01 | 0.60 |
| 1:X:152:ARG:HH11 | 1:X:152:ARG:CG | 2.14 | 0.60 |
| 1:Y:351:LEU:HD22 | 1:Y:360:ALA:CB | 2.31 | 0.60 |
| 1:X:111:ILE:HG22 | 1:X:139:THR:HG22 | 1.83 | 0.60 |
| 1:X:194:ILE:HG22 | 1:X:290:ILE:HD12 | 1.82 | 0.60 |
| 1:X:258:GLU:HA | 1:X:274:ASN:O | 2.02 | 0.60 |
| 1:O:214:LEU:N | 1:O:214:LEU:HD12 | 2.16 | 0.60 |
| 1:Z:194:ILE:HD12 | 1:Z:300:TYR:CE2 | 2.37 | 0.60 |
| 1:X:386:TYR:HE1 | 1:X:425:ILE:CD1 | 2.14 | 0.60 |
| 1:O:458:ASP:OD1 | 1:O:458:ASP:N | 2.29 | 0.60 |
| 1:Y:48:ASP:OD1 | 1:Y:49:PRO:HD2 | 2.01 | 0.60 |
| 1:Z:138:GLY:N | 1:Z:189:THR:O | 2.33 | 0.60 |
| 1:Z:203:MET:C | 1:Z:206:VAL:HG12 | 2.21 | 0.60 |
| 1:O:362:GLY:HA3 | 1:Y:367:LEU:HB2 | 1.83 | 0.60 |
| 1:O:475:GLU:O | 1:O:477:THR:N | 2.35 | 0.60 |
| 1:Z:456:ASN:HD22 | 1:Z:458:ASP:N | 1.99 | 0.60 |
| 1:O:422:GLN:HA | 1:O:425:ILE:CG2 | 2.32 | 0.60 |
| 1:Y:458:ASP:HA | 1:Y:461:GLN:NE2 | 2.16 | 0.60 |
| 1:Y:316:LEU:HA | 1:Y:320:MET:HB2 | 1.84 | 0.60 |
| 1:X:293:GLY:O | 1:X:295:THR:N | 2.34 | 0.60 |
| 1:Z:457:LEU:O | 1:Z:461:GLN:HG2 | 2.02 | 0.60 |
| 1:O:202:LYS:HD3 | 1:O:202:LYS:C | 2.23 | 0.59 |
| 1:O:458:ASP:HA | 1:O:461:GLN:CD | 2.23 | 0.59 |
| 1:Y:61:VAL:HG21 | 1:Z:61:VAL:HG21 | 1.84 | 0.59 |
| 1:X:111:ILE:H | 1:X:111:ILE:CD1 | 2.08 | 0.59 |
| 1:X:80:THR:HG21 | 1:X:248:ALA:HB3 | 1.84 | 0.59 |
| 1:X:227:THR:O | 1:X:237:ILE:N | 2.31 | 0.59 |
| 1:X:471:ARG:HG3 | 1:X:471:ARG:HH11 | 1.66 | 0.59 |
| 1:O:179:HIS:NE2 | 1:O:215:PRO:HB3 | 2.18 | 0.59 |
| 1:O:200:ASP:OD1 | 1:O:202:LYS:HB3 | 2.02 | 0.59 |
| 1:O:497:GLU:HG3 | 1:O:498:GLU:N | 2.17 | 0.59 |
| 1:Z:237:ILE:CG2 | 1:Z:238:PRO:HD2 | 2.31 | 0.59 |
| 1:X:122:ASP:O | 1:X:126:SER:HB2 | 2.02 | 0.59 |
| 1:Z:403:LEU:H | 1:Z:403:LEU:CD1 | 2.15 | 0.59 |
| 1:Z:413:VAL:HG23 | 1:Z:436:ARG:HG2 | 1.85 | 0.59 |
| 1:X:258:GLU:HB3 | 1:X:276:GLY:N | 2.17 | 0.59 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:O:85:THR:CG2 | 1:O:102:VAL:HA | 2.28 | 0.59 |
| 1:O:156:ARG:HG3 | 1:O:210:PRO:HG3 | 1.83 | 0.59 |
| 1:Y:85:THR:HG23 | 1:Y:102:VAL:CA | 2.25 | 0.59 |
| 1:Y:328:ASP:O | 1:Y:331:TYR:HB3 | 2.01 | 0.59 |
| 1:O:84:GLU:HB2 | 1:O:103:TRP:HB3 | 1.83 | 0.59 |
| 1:O:331:TYR:O | 1:O:335:LYS:HG2 | 2.02 | 0.59 |
| 1:Z:402:ARG:HG3 | 1:Z:402:ARG:NH1 | 2.15 | 0.59 |
| 1:X:184:THR:O | 1:X:187:SER:HB3 | 2.03 | 0.59 |
| 1:X:396:GLN:HG2 | 1:X:401:ILE:O | 2.01 | 0.59 |
| 1:O:153:GLU:OE2 | 1:O:153:GLU:HA | 1.90 | 0.59 |
| 1:Y:19:VAL:CG1 | 1:Y:27:ILE:HG23 | 2.32 | 0.59 |
| 1:X:351:LEU:HD22 | 1:X:360:ALA:CB | 2.32 | 0.59 |
| 1:O:85:THR:HG23 | 1:O:101:ILE:C | 2.23 | 0.59 |
| 1:Y:406:LEU:HD13 | 1:Y:408:VAL:HG12 | 1.85 | 0.59 |
| 1:X:178:VAL:HG12 | 1:X:180:VAL:HB | 1.85 | 0.59 |
| 1:O:227:THR:N | 1:O:237:ILE:O | 2.34 | 0.59 |
| 1:O:271:MET:CE | 1:O:392:LEU:HD12 | 2.32 | 0.59 |
| 1:X:407:ARG:CZ | 1:X:466:ILE:HD11 | 2.32 | 0.59 |
| 1:Y:500:ASP:N | 1:Y:500:ASP:OD1 | 2.36 | 0.58 |
| 1:Z:49:PRO:O | 1:Z:52:ILE:HB | 2.03 | 0.58 |
| 1:Z:131:VAL:HG13 | 1:Z:132:ILE:N | 2.16 | 0.58 |
| 1:Z:460:LEU:CA | 1:Z:463:LYS:HD2 | 2.28 | 0.58 |
| 1:X:180:VAL:HG23 | 1:X:216:GLU:HG2 | 1.84 | 0.58 |
| 1:O:134:PRO:O | 1:O:140:LYS:NZ | 2.34 | 0.58 |
| 1:O:124:ILE:HD13 | 1:O:203:MET:HE1 | 1.85 | 0.58 |
| 1:Z:424:ASP:OD1 | 1:Z:473:GLY:N | 2.29 | 0.58 |
| 1:O:204:LEU:HD22 | 1:O:209:ILE:O | 2.03 | 0.58 |
| 1:O:316:LEU:HA | 1:O:320:MET:HB2 | 1.86 | 0.58 |
| 1:Y:256:VAL:HG11 | 1:Y:294:PRO:CB | 2.34 | 0.58 |
| 1:Z:36:GLU:HG3 | 1:Z:37:GLN:N | 2.19 | 0.58 |
| 1:Z:219:ARG:HG3 | 1:Z:222:GLU:OE1 | 2.03 | 0.58 |
| 1:X:193:ASN:HB3 | 1:X:196:THR:HG21 | 1.85 | 0.58 |
| 1:X:313:ILE:H | 1:X:313:ILE:CD1 | 2.16 | 0.58 |
| 1:X:415:ASN:C | 1:X:415:ASN:HD22 | 2.06 | 0.58 |
| 1:X:438:VAL:HA | 1:X:441:LEU:CD1 | 2.33 | 0.58 |
| 1:Y:20:VAL:O | 1:Y:28:ILE:N | 2.29 | 0.58 |
| 1:Y:475:GLU:OE1 | 1:Y:478:GLU:HB2 | 2.03 | 0.58 |
| 1:X:286:LEU:HD13 | 1:X:395:MET:CE | 2.34 | 0.58 |
| 1:Z:386:TYR:HB3 | 1:Z:486:TRP:CE2 | 2.38 | 0.58 |
| 1:X:47:HIS:CD2 | 1:X:82:GLN:HE22 | 2.21 | 0.58 |
| 1:X:130:LEU:HD12 | 1:X:190:MET:CB | 2.33 | 0.58 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:O:196:THR:HG21 | 4:O:514:HOH:O | 2.03 | 0.58 |
| 1:O:210:PRO:O | 1:O:213:MET:HG2 | 2.03 | 0.58 |
| 1:O:328:ASP:HB3 | 1:O:332:PHE:CE2 | 2.39 | 0.58 |
| 1:Y:80:THR:HG21 | 1:Y:245:ASP:HA | 1.84 | 0.58 |
| 1:Z:157:ARG:HH11 | 1:Z:157:ARG:CB | 2.17 | 0.58 |
| 1:Z:499:HIS:CD2 | 1:Z:500:ASP:H | 2.21 | 0.58 |
| 1:Y:217:VAL:C | 1:Y:218:ARG:HG2 | 2.24 | 0.58 |
| 1:Z:156:ARG:O | 1:Z:212:GLU:HG2 | 2.04 | 0.58 |
| 1:Z:330:GLU:O | 1:Z:334:THR:HG23 | 2.04 | 0.58 |
| 1:X:456:ASN:O | 1:X:459:GLU:HB2 | 2.02 | 0.58 |
| 1:Y:226:GLN:HA | 1:Y:237:ILE:O | 2.04 | 0.58 |
| 1:Z:106:ARG:HD2 | 1:Z:349:THR:O | 2.03 | 0.58 |
| 1:Z:343:TYR:O | 1:Z:364:ILE:HA | 2.04 | 0.58 |
| 1:Z:401:ILE:HG22 | 1:Z:402:ARG:N | 2.19 | 0.58 |
| 1:X:157:ARG:HH12 | 1:X:159:GLU:CD | 2.07 | 0.58 |
| 1:Y:123:TYR:CD2 | 1:Y:203:MET:HE3 | 2.38 | 0.57 |
| 1:O:29:SER:OG | 1:O:63:VAL:HG12 | 2.03 | 0.57 |
| 1:Z:265:TYR:HB3 | 1:Z:412:ALA:HB3 | 1.86 | 0.57 |
| 1:X:309:ALA:O | 1:X:312:SER:HB2 | 2.03 | 0.57 |
| 1:O:5:TYR:CE2 | 1:O:69:ILE:HG12 | 2.38 | 0.57 |
| 1:X:84:GLU:OE1 | 1:X:188:ARG:NH1 | 2.37 | 0.57 |
| 1:Y:33:ARG:HH21 | 1:Z:33:ARG:HH21 | 1.52 | 0.57 |
| 1:Y:491:LYS:HA | 1:Y:494:MET:CE | 2.34 | 0.57 |
| 1:Z:278:LYS:HE3 | 1:Z:280:VAL:HG23 | 1.85 | 0.57 |
| 1:X:352:GLY:N | 4:X:524:HOH:O | 2.36 | 0.57 |
| 1:O:261:ALA:HA | 1:O:272:LEU:O | 2.05 | 0.57 |
| 1:X:310:GLY:HA2 | 1:X:313:ILE:HD13 | 1.86 | 0.57 |
| 1:O:251:PHE:HE2 | 1:O:445:TYR:HB3 | 1.70 | 0.57 |
| 1:Y:54:ALA:HA | 1:Z:65:THR:HG23 | 1.85 | 0.57 |
| 1:Y:424:ASP:CB | 1:Y:474:ILE:HG21 | 2.29 | 0.57 |
| 1:Y:456:ASN:ND2 | 1:Y:458:ASP:N | 2.37 | 0.57 |
| 1:Y:491:LYS:HA | 1:Y:494:MET:HE2 | 1.87 | 0.57 |
| 1:Z:115:LEU:HA | 1:Z:120:LEU:CD1 | 2.32 | 0.57 |
| 1:O:174:THR:C | 1:O:175:GLN:HG2 | 2.24 | 0.57 |
| 1:Y:325:ASP:O | 1:Y:328:ASP:N | 2.29 | 0.57 |
| 1:X:423:SER:O | 1:X:427:GLY:N | 2.37 | 0.57 |
| 1:O:325:ASP:O | 1:O:328:ASP:N | 2.35 | 0.57 |
| 1:O:424:ASP:HA | 1:O:472:PRO:HA | 1.86 | 0.57 |
| 1:Y:77:ILE:HG22 | 1:Y:78:GLY:N | 2.20 | 0.57 |
| 1:Z:30:VAL:HG12 | 1:Z:31:SER:N | 2.20 | 0.57 |
| 1:X:478:GLU:HG3 | 1:X:479:ARG:N | 2.19 | 0.57 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:O:161:LEU:HD22 | 1:O:179:HIS:HE1 | 1.64 | 0.57 |
| 1:Y:38:ILE:O | 1:Y:45:VAL:HA | 2.03 | 0.57 |
| 1:Y:345:VAL:N | 1:Y:363:ALA:O | 2.33 | 0.57 |
| 1:X:457:LEU:O | 1:X:460:LEU:N | 2.31 | 0.57 |
| 1:X:422:GLN:NE2 | 1:X:426:LEU:HD22 | 2.19 | 0.57 |
| 1:O:70:SER:OG | 1:O:73:GLN:NE2 | 2.39 | 0.56 |
| 1:Z:422:GLN:HE21 | 1:Z:426:LEU:HD22 | 1.70 | 0.56 |
| 1:X:106:ARG:HD2 | 1:X:349:THR:O | 2.04 | 0.56 |
| 1:X:342:VAL:HG12 | 1:X:343:TYR:N | 2.20 | 0.56 |
| 1:O:30:VAL:HG12 | 1:O:31:SER:N | 2.19 | 0.56 |
| 1:Z:122:ASP:O | 1:Z:126:SER:HB2 | 2.04 | 0.56 |
| 1:Z:156:ARG:HD3 | 1:Z:210:PRO:HG3 | 1.86 | 0.56 |
| 1:Z:347:ALA:CB | 1:Z:351:LEU:HD13 | 2.33 | 0.56 |
| 1:X:200:ASP:O | 1:X:204:LEU:HD13 | 2.05 | 0.56 |
| 1:O:496:TRP:CE3 | 1:Y:488:LYS:HD2 | 2.40 | 0.56 |
| 1:X:249:ALA:HB2 | 1:X:439:THR:OG1 | 2.05 | 0.56 |
| 1:X:250:LEU:CD1 | 1:X:255:CYS:HB2 | 2.36 | 0.56 |
| 1:X:482:ARG:HH11 | 1:X:482:ARG:HB3 | 1.70 | 0.56 |
| 1:O:128:THR:HB | 1:O:130:LEU:H | 1.70 | 0.56 |
| 1:O:143:TRP:O | 1:O:147:HIS:ND1 | 2.31 | 0.56 |
| 1:Y:120:LEU:O | 1:Y:124:ILE:HG13 | 2.05 | 0.56 |
| 1:X:157:ARG:CZ | 1:X:157:ARG:HB2 | 2.35 | 0.56 |
| 1:X:401:ILE:HG22 | 1:X:403:LEU:HD12 | 1.87 | 0.56 |
| 1:Y:2:GLU:O | 1:Y:73:GLN:HA | 2.06 | 0.56 |
| 1:Y:13:THR:HG22 | 1:Y:13:THR:O | 2.06 | 0.56 |
| 1:Y:60:LEU:O | 1:Y:63:VAL:HG23 | 2.06 | 0.56 |
| 1:Z:62:GLU:HA | 1:Z:65:THR:HG22 | 1.87 | 0.56 |
| 1:Z:157:ARG:HH11 | 1:Z:157:ARG:CG | 2.19 | 0.56 |
| 1:Z:293:GLY:O | 1:Z:295:THR:N | 2.38 | 0.56 |
| 1:X:47:HIS:HD2 | 1:X:82:GLN:HE22 | 1.54 | 0.56 |
| 1:X:251:PHE:CE2 | 1:X:446:LEU:HD11 | 2.40 | 0.56 |
| 1:X:294:PRO:HD2 | 1:X:297:GLU:OE2 | 2.05 | 0.56 |
| 1:X:386:TYR:HE1 | 1:X:425:ILE:HD13 | 1.71 | 0.56 |
| 1:O:137:SER:OG | 1:O:189:THR:HA | 2.04 | 0.56 |
| 1:O:430:VAL:O | 1:O:469:GLU:HA | 2.05 | 0.56 |
| 1:Y:202:LYS:O | 1:Y:206:VAL:N | 2.29 | 0.56 |
| 1:Z:253:GLN:CG | 1:Z:438:VAL:HG21 | 2.35 | 0.56 |
| 1:Z:467:GLU:OE1 | 1:Z:468:ARG:HB2 | 2.06 | 0.56 |
| 1:X:437:GLU:C | 1:X:441:LEU:HD12 | 2.26 | 0.56 |
| 1:Y:9:LEU:HD13 | 1:Y:77:ILE:CG2 | 2.36 | 0.56 |
| 1:Z:295:THR:HB | 1:Z:297:GLU:HG2 | 1.86 | 0.56 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:O:196:THR:HG23 | 1:O:198:ASP:N | 2.21 | 0.56 |
| 1:O:204:LEU:CD2 | 1:O:209:ILE:HG22 | 2.36 | 0.56 |
| 1:Y:240:SER:O | 1:Y:447:ALA:HA | 2.05 | 0.56 |
| 1:Y:474:ILE:HG12 | 1:Y:475:GLU:N | 2.21 | 0.56 |
| 1:Z:191:LEU:O | 1:Z:199:TRP:HE3 | 1.89 | 0.56 |
| 1:O:40:PRO:HG2 | 1:O:44:TRP:CB | 2.35 | 0.56 |
| 1:O:317:ARG:HB2 | 1:O:323:ILE:CD1 | 2.35 | 0.56 |
| 1:Z:125:ARG:HH11 | 1:Z:125:ARG:CG | 2.19 | 0.56 |
| 1:Z:156:ARG:C | 1:Z:158:GLY:H | 2.08 | 0.56 |
| 1:O:189:THR:CB | 1:O:191:LEU:HD12 | 2.23 | 0.56 |
| 1:O:394:ALA:O | 1:O:397:ALA:HB3 | 2.05 | 0.56 |
| 1:Y:483:TYR:O | 1:Y:486:TRP:HB3 | 2.06 | 0.56 |
| 1:Z:108:THR:HB | 1:Z:139:THR:HB | 1.89 | 0.56 |
| 1:X:456:ASN:HD22 | 1:X:458:ASP:HB2 | 1.71 | 0.56 |
| 1:O:65:THR:HG21 | 1:X:54:ALA:HA | 1.88 | 0.55 |
| 1:O:124:ILE:HG23 | 1:O:203:MET:CE | 2.36 | 0.55 |
| 1:O:422:GLN:HA | 1:O:425:ILE:HG22 | 1.88 | 0.55 |
| 1:Y:269:CYS:HB2 | 1:Y:306:VAL:HB | 1.89 | 0.55 |
| 1:Z:320:MET:O | 1:Z:322:LEU:HD23 | 2.05 | 0.55 |
| 1:Z:394:ALA:O | 1:Z:397:ALA:HB3 | 2.06 | 0.55 |
| 1:O:104:GLN:HB3 | 1:O:349:THR:HG21 | 1.87 | 0.55 |
| 1:Y:346:PRO:HG3 | 4:Y:512:HOH:O | 2.06 | 0.55 |
| 1:O:15:SER:OG | 1:O:17:ARG:NH1 | 2.39 | 0.55 |
| 1:O:23:HIS:HA | 1:O:453:PHE:HE2 | 1.71 | 0.55 |
| 1:Y:28:ILE:N | 1:Y:28:ILE:HD13 | 2.20 | 0.55 |
| 1:Y:78:GLY:O | 1:Y:79:ILE:HD13 | 2.06 | 0.55 |
| 1:Y:123:TYR:HD2 | 1:Y:203:MET:HE3 | 1.71 | 0.55 |
| 1:Y:346:PRO:HA | 1:Y:348:PHE:CE1 | 2.41 | 0.55 |
| 1:Z:48:ASP:O | 1:Z:52:ILE:HG13 | 2.07 | 0.55 |
| 1:Z:351:LEU:HD22 | 1:Z:360:ALA:HB1 | 1.88 | 0.55 |
| 1:X:351:LEU:HB2 | 1:X:357:ASP:HB3 | 1.88 | 0.55 |
| 1:O:22:ASP:OD1 | 1:O:24:ASP:N | 2.39 | 0.55 |
| 1:O:401:ILE:HG13 | 1:O:402:ARG:N | 2.22 | 0.55 |
| 1:Z:318:ASP:O | 1:Z:321:LYS:HE2 | 2.07 | 0.55 |
| 1:O:164:THR:O | 1:O:167:THR:HB | 2.07 | 0.55 |
| 1:O:422:GLN:O | 1:O:426:LEU:HD22 | 2.07 | 0.55 |
| 1:Y:108:THR:HB | 1:Y:139:THR:HB | 1.88 | 0.55 |
| 1:X:251:PHE:CD2 | 1:X:446:LEU:HD11 | 2.42 | 0.55 |
| 1:X:378:ARG:O | 1:X:382:GLU:HG3 | 2.06 | 0.55 |
| 1:X:482:ARG:HH11 | 1:X:482:ARG:HA | 1.70 | 0.55 |
| 1:O:202:LYS:O | 1:O:205:GLU:HG2 | 2.06 | 0.55 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:Z:86:THR:HG23 | 1:Z:162:PHE:HE1 | 1.71 | 0.55 |
| 1:X:477:THR:O | 1:X:481:TYR:HB2 | 2.06 | 0.55 |
| 1:O:269:CYS:HB2 | 1:O:306:VAL:HB | 1.88 | 0.55 |
| 1:O:32:GLN:O | 1:O:33:ARG:HD3 | 2.07 | 0.55 |
| 1:O:124:ILE:HG21 | 1:O:190:MET:SD | 2.47 | 0.55 |
| 1:O:331:TYR:CZ | 1:O:335:LYS:HE3 | 2.42 | 0.55 |
| 1:Y:102:VAL:HG12 | 1:Y:103:TRP:N | 2.21 | 0.55 |
| 1:Z:210:PRO:O | 1:Z:213:MET:HG2 | 2.07 | 0.55 |
| 1:X:174:THR:O | 1:X:175:GLN:HG2 | 2.07 | 0.55 |
| 1:Y:82:GLN:O | 1:Y:82:GLN:HG3 | 2.07 | 0.55 |
| 1:Z:170:ILE:HD11 | 1:Z:242:ILE:HD11 | 1.88 | 0.55 |
| 1:O:70:SER:H | 1:O:73:GLN:HE22 | 1.55 | 0.55 |
| 1:Y:389:ARG:HH12 | 1:Y:479:ARG:HG3 | 1.72 | 0.55 |
| 1:X:15:SER:O | 1:X:17:ARG:NH1 | 2.39 | 0.55 |
| 1:X:83:ARG:NH1 | 3:X:503:GOL:O1 | 2.39 | 0.55 |
| 1:X:254:LEU:O | 1:X:256:VAL:N | 2.40 | 0.55 |
| 1:O:460:LEU:CA | 1:O:463:LYS:HE2 | 2.34 | 0.54 |
| 1:X:196:THR:HG22 | 1:X:198:ASP:H | 1.72 | 0.54 |
| 1:X:312:SER:O | 1:X:315:TRP:HB3 | 2.07 | 0.54 |
| 1:X:316:LEU:HA | 1:X:320:MET:HB2 | 1.88 | 0.54 |
| 1:O:64:LEU:CD2 | 1:O:74:ILE:HD11 | 2.37 | 0.54 |
| 1:O:460:LEU:O | 1:O:463:LYS:HE2 | 2.06 | 0.54 |
| 1:Y:222:GLU:O | 1:Y:240:SER:HA | 2.07 | 0.54 |
| 1:Z:316:LEU:HA | 1:Z:320:MET:HB2 | 1.88 | 0.54 |
| 1:Z:363:ALA:HA | 1:X:364:ILE:O | 2.08 | 0.54 |
| 1:X:110:GLU:O | 1:X:113:GLU:N | 2.40 | 0.54 |
| 1:Y:191:LEU:CD2 | 1:Y:207:LEU:HD12 | 2.37 | 0.54 |
| 1:Y:312:SER:O | 1:Y:315:TRP:HB3 | 2.07 | 0.54 |
| 1:Z:130:LEU:N | 1:Z:130:LEU:HD23 | 2.16 | 0.54 |
| 1:X:159:GLU:HB3 | 1:X:160:LEU:HG | 1.88 | 0.54 |
| 1:X:320:MET:O | 1:X:322:LEU:HD23 | 2.07 | 0.54 |
| 1:X:475:GLU:HG2 | 1:X:477:THR:OG1 | 2.07 | 0.54 |
| 1:Z:152:ARG:C | 1:Z:156:ARG:HG2 | 2.28 | 0.54 |
| 1:X:3:LYS:N | 1:X:4:LYS:NZ | 2.54 | 0.54 |
| 1:X:84:GLU:HG2 | 1:X:103:TRP:CB | 2.37 | 0.54 |
| 1:X:317:ARG:HB2 | 1:X:323:ILE:HG13 | 1.89 | 0.54 |
| 1:X:386:TYR:HB3 | 1:X:486:TRP:CE2 | 2.42 | 0.54 |
| 1:X:497:GLU:HG3 | 1:X:498:GLU:N | 2.22 | 0.54 |
| 1:O:196:THR:HG22 | 1:O:198:ASP:H | 1.72 | 0.54 |
| 1:Z:106:ARG:NH1 | 1:Z:307:PHE:HE2 | 2.04 | 0.54 |
| 1:Z:317:ARG:O | 1:Z:321:LYS:HA | 2.08 | 0.54 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:Z:188:ARG:HH22 | 1:Z:303:GLU:CD | 2.11 | 0.54 |
| 1:Z:399:SER:HB2 | 1:Z:401:ILE:HD12 | 1.90 | 0.54 |
| 1:Z:473:GLY:C | 1:Z:474:ILE:HG13 | 2.28 | 0.54 |
| 1:Z:133:ASP:CG | 1:Z:134:PRO:HD2 | 2.28 | 0.54 |
| 1:X:202:LYS:O | 1:X:205:GLU:HB3 | 2.08 | 0.54 |
| 1:X:213:MET:C | 1:X:214:LEU:HD23 | 2.28 | 0.54 |
| 1:O:332:PHE:HA | 1:O:374:ASN:HD21 | 1.73 | 0.54 |
| 1:Y:392:LEU:O | 1:Y:392:LEU:HG | 2.08 | 0.54 |
| 1:Z:240:SER:O | 1:Z:447:ALA:HA | 2.08 | 0.54 |
| 1:O:31:SER:HB3 | 1:O:62:GLU:OE2 | 2.07 | 0.54 |
| 1:Z:171:TRP:CE3 | 1:Z:172:LYS:HD2 | 2.43 | 0.54 |
| 1:Z:194:ILE:HD12 | 1:Z:300:TYR:HE2 | 1.72 | 0.54 |
| 1:Z:200:ASP:HB3 | 1:Z:203:MET:HB2 | 1.90 | 0.54 |
| 1:X:44:TRP:CE2 | 1:X:107:ARG:HB2 | 2.43 | 0.54 |
| 1:X:180:VAL:HG22 | 1:X:218:ARG:CG | 2.38 | 0.54 |
| 1:O:322:LEU:CD2 | 1:Y:322:LEU:HD21 | 2.37 | 0.53 |
| 1:Y:468:ARG:HH11 | 1:Y:468:ARG:CG | 2.15 | 0.53 |
| 1:Z:289:THR:O | 1:Z:301:ALA:N | 2.40 | 0.53 |
| 1:X:445:TYR:N | 1:X:445:TYR:CD1 | 2.75 | 0.53 |
| 1:O:92:GLU:HB3 | 1:O:93:THR:HG23 | 1.89 | 0.53 |
| 1:O:130:LEU:O | 1:O:131:VAL:HG23 | 2.08 | 0.53 |
| 1:O:402:ARG:HH21 | 1:O:404:HIS:CD2 | 2.26 | 0.53 |
| 1:Z:423:SER:O | 1:Z:427:GLY:N | 2.35 | 0.53 |
| 1:O:406:LEU:HD22 | 1:O:407:ARG:N | 2.23 | 0.53 |
| 1:O:457:LEU:O | 1:O:460:LEU:HB2 | 2.08 | 0.53 |
| 1:Y:174:THR:HG21 | 1:Y:178:VAL:HG13 | 1.90 | 0.53 |
| 1:Y:180:VAL:HG22 | 1:Y:218:ARG:HG3 | 1.90 | 0.53 |
| 1:Y:429:ARG:HG2 | 1:Y:469:GLU:CD | 2.28 | 0.53 |
| 1:Z:40:PRO:HG2 | 1:Z:44:TRP:HE3 | 1.72 | 0.53 |
| 1:Z:362:GLY:CA | 1:X:367:LEU:HB2 | 2.36 | 0.53 |
| 1:Z:422:GLN:NE2 | 1:Z:426:LEU:HD22 | 2.23 | 0.53 |
| 1:X:37:GLN:OE1 | 1:X:47:HIS:HE1 | 1.91 | 0.53 |
| 1:Y:40:PRO:HG2 | 1:Y:44:TRP:HE3 | 1.73 | 0.53 |
| 1:X:70:SER:O | 1:X:73:GLN:OE1 | 2.26 | 0.53 |
| 1:X:85:THR:HG23 | 1:X:102:VAL:HA | 1.91 | 0.53 |
| 1:O:70:SER:H | 1:O:73:GLN:NE2 | 2.06 | 0.53 |
| 1:Y:115:LEU:HD22 | 1:Y:115:LEU:H | 1.72 | 0.53 |
| 1:Y:406:LEU:HD13 | 1:Y:408:VAL:HG13 | 1.90 | 0.53 |
| 1:Z:92:GLU:HG2 | 1:Z:93:THR:N | 2.23 | 0.53 |
| 1:X:166:ASP:N | 1:X:166:ASP:OD1 | 2.41 | 0.53 |
| 1:O:128:THR:HG22 | 1:O:128:THR:O | 2.09 | 0.53 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:O:234:GLY:H | 1:O:236:ARG:NH2 | 2.06 | 0.53 |
| 1:X:144:ILE:O | 1:X:148:VAL:HG23 | 2.08 | 0.53 |
| 1:Y:127:ASN:HD22 | 1:Y:193:ASN:HD21 | 1.56 | 0.53 |
| 1:Y:169:LEU:O | 1:Y:173:MET:HG3 | 2.09 | 0.53 |
| 1:Y:182:ASP:OD2 | 1:Y:184:THR:HG23 | 2.09 | 0.53 |
| 1:Z:183:TYR:CE1 | 1:Z:217:VAL:HG12 | 2.43 | 0.53 |
| 1:Z:352:GLY:O | 1:Z:355:TYR:N | 2.37 | 0.53 |
| 1:Z:401:ILE:HG22 | 1:Z:402:ARG:H | 1.72 | 0.53 |
| 1:X:9:LEU:HD12 | 1:X:9:LEU:N | 2.24 | 0.53 |
| 1:X:253:GLN:O | 1:X:254:LEU:HB2 | 2.09 | 0.53 |
| 1:X:469:GLU:HG2 | 1:X:471:ARG:CZ | 2.38 | 0.53 |
| 1:O:51:GLU:O | 1:O:55:THR:HG23 | 2.09 | 0.53 |
| 1:O:65:THR:HG23 | 1:X:54:ALA:CA | 2.38 | 0.53 |
| 1:O:152:ARG:HH21 | 1:O:208:ASP:HB3 | 1.71 | 0.53 |
| 1:O:152:ARG:O | 1:O:156:ARG:HG3 | 2.08 | 0.53 |
| 1:Y:330:GLU:O | 1:Y:334:THR:HG23 | 2.09 | 0.53 |
| 1:Y:456:ASN:O | 1:Y:459:GLU:HB2 | 2.08 | 0.53 |
| 1:Z:19:VAL:HG12 | 1:Z:20:VAL:N | 2.23 | 0.53 |
| 1:Z:173:MET:HB3 | 1:Z:227:THR:HG21 | 1.90 | 0.53 |
| 1:O:156:ARG:HA | 1:O:212:GLU:OE1 | 2.09 | 0.53 |
| 1:Y:272:LEU:CG | 1:Y:303:GLU:HB2 | 2.28 | 0.53 |
| 1:Z:5:TYR:CE2 | 1:Z:69:ILE:HD13 | 2.43 | 0.53 |
| 1:X:90:GLU:HB2 | 1:X:93:THR:HG1 | 1.74 | 0.53 |
| 1:X:216:GLU:OE2 | 1:X:218:ARG:HD3 | 2.08 | 0.53 |
| 1:O:142:LYS:O | 1:O:146:ASP:OD1 | 2.26 | 0.53 |
| 1:Y:44:TRP:CD1 | 1:Y:44:TRP:N | 2.75 | 0.53 |
| 1:Z:162:PHE:CD1 | 1:Z:163:GLY:N | 2.77 | 0.53 |
| 1:X:19:VAL:HG11 | 1:X:27:ILE:CD1 | 2.39 | 0.53 |
| 1:Y:415:ASN:HD22 | 1:Y:418:LEU:H | 1.55 | 0.52 |
| 1:Z:389:ARG:O | 1:Z:393:GLU:HG2 | 2.09 | 0.52 |
| 1:X:65:THR:CG2 | 1:X:66:LYS:N | 2.72 | 0.52 |
| 1:X:476:THR:O | 1:X:479:ARG:N | 2.42 | 0.52 |
| 1:Y:297:GLU:OE1 | 1:Y:297:GLU:N | 2.33 | 0.52 |
| 1:Y:456:ASN:ND2 | 1:Y:458:ASP:OD1 | 2.42 | 0.52 |
| 1:Z:83:ARG:HH12 | 3:Z:504:GOL:C1 | 2.23 | 0.52 |
| 1:Z:499:HIS:CG | 1:Z:500:ASP:N | 2.77 | 0.52 |
| 1:X:44:TRP:CD1 | 1:X:44:TRP:N | 2.75 | 0.52 |
| 1:X:191:LEU:HD22 | 1:X:204:LEU:HD12 | 1.91 | 0.52 |
| 1:Y:9:LEU:HD13 | 1:Y:77:ILE:HG21 | 1.91 | 0.52 |
| 1:Z:83:ARG:NH1 | 3:Z:504:GOL:C2 | 2.72 | 0.52 |
| 1:Z:123:TYR:CE2 | 1:Z:202:LYS:HG2 | 2.45 | 0.52 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:O:253:GLN:NE2 | 1:O:407:ARG:HG3 | 2.24 | 0.52 |
| 1:Y:20:VAL:O | 1:Y:27:ILE:HA | 2.10 | 0.52 |
| 1:Z:311:ALA:HA | 1:Z:314:GLN:HG2 | 1.92 | 0.52 |
| 1:O:44:TRP:N | 1:O:44:TRP:CD1 | 2.75 | 0.52 |
| 1:O:62:GLU:HA | 1:O:65:THR:HG22 | 1.90 | 0.52 |
| 1:O:101:ILE:CG2 | 1:O:140:LYS:HG2 | 2.40 | 0.52 |
| 1:Y:49:PRO:HB3 | 1:Y:87:ILE:HD13 | 1.90 | 0.52 |
| 1:Z:135:TYR:OH | 3:Z:504:GOL:O1 | 2.24 | 0.52 |
| 1:O:82:GLN:NE2 | 1:O:85:THR:OG1 | 2.42 | 0.52 |
| 1:Y:98:TYR:CD2 | 1:Y:99:ASN:N | 2.78 | 0.52 |
| 1:X:174:THR:C | 1:X:175:GLN:HG2 | 2.30 | 0.52 |
| 1:Z:174:THR:CG2 | 1:Z:178:VAL:HG13 | 2.32 | 0.52 |
| 1:X:80:THR:HG22 | 1:X:245:ASP:N | 2.24 | 0.52 |
| 1:X:106:ARG:NH1 | 1:X:307:PHE:CE2 | 2.78 | 0.52 |
| 1:O:204:LEU:HD23 | 1:O:209:ILE:HB | 1.92 | 0.52 |
| 1:Y:137:SER:O | 1:Y:141:VAL:HG23 | 2.09 | 0.52 |
| 1:Y:430:VAL:O | 1:Y:469:GLU:HA | 2.09 | 0.52 |
| 1:Z:41:LYS:O | 1:Z:44:TRP:HB2 | 2.10 | 0.52 |
| 1:Z:115:LEU:N | 1:Z:115:LEU:HD12 | 2.25 | 0.52 |
| 1:Z:129:GLY:C | 1:Z:130:LEU:HD23 | 2.30 | 0.52 |
| 1:Z:461:GLN:C | 1:Z:463:LYS:H | 2.12 | 0.52 |
| 1:X:19:VAL:HG11 | 1:X:27:ILE:HD12 | 1.92 | 0.52 |
| 1:X:154:ARG:NH1 | 1:X:160:LEU:HD21 | 2.24 | 0.52 |
| 1:Z:357:ASP:OD2 | 1:Z:360:ALA:HB2 | 2.10 | 0.52 |
| 1:X:125:ARG:N | 4:X:534:HOH:O | 2.43 | 0.52 |
| 1:O:123:TYR:CZ | 1:O:202:LYS:HG3 | 2.45 | 0.51 |
| 1:O:196:THR:HG23 | 1:O:198:ASP:H | 1.75 | 0.51 |
| 1:O:317:ARG:HA | 1:O:323:ILE:CG1 | 2.40 | 0.51 |
| 1:O:317:ARG:O | 1:O:321:LYS:HA | 2.10 | 0.51 |
| 1:Y:103:TRP:CE3 | 1:Y:104:GLN:HG3 | 2.45 | 0.51 |
| 1:Y:396:GLN:NE2 | 1:Y:402:ARG:HA | 2.25 | 0.51 |
| 1:X:180:VAL:CG2 | 1:X:216:GLU:HG2 | 2.39 | 0.51 |
| 1:O:209:ILE:O | 1:O:209:ILE:HG22 | 2.10 | 0.51 |
| 1:Y:455:GLN:H | 1:Y:459:GLU:CD | 2.12 | 0.51 |
| 1:Z:386:TYR:HB3 | 1:Z:486:TRP:CD2 | 2.44 | 0.51 |
| 1:Z:436:ARG:N | 1:Z:436:ARG:HD2 | 2.25 | 0.51 |
| 1:X:196:THR:O | 1:X:196:THR:HG23 | 2.10 | 0.51 |
| 1:O:221:SER:O | 1:O:222:GLU:HB2 | 2.10 | 0.51 |
| 1:O:226:GLN:HA | 1:O:237:ILE:O | 2.11 | 0.51 |
| 1:Y:59:THR:O | 1:Y:63:VAL:HG22 | 2.10 | 0.51 |
| 1:Y:61:VAL:O | 1:Y:65:THR:HB | 2.10 | 0.51 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:Y:161:LEU:HD13 | 1:Y:179:HIS:CD2 | 2.45 | 0.51 |
| 1:Z:37:GLN:OE1 | 1:Z:47:HIS:HE1 | 1.93 | 0.51 |
| 1:Z:147:HIS:HD1 | 1:Z:147:HIS:H | 1.56 | 0.51 |
| 1:Z:156:ARG:HG3 | 1:Z:156:ARG:NH1 | 2.14 | 0.51 |
| 1:X:98:TYR:CD2 | 1:X:99:ASN:N | 2.78 | 0.51 |
| 1:X:85:THR:HA | 1:X:101:ILE:O | 2.10 | 0.51 |
| 1:X:241:GLY:C | 1:X:242:ILE:HG13 | 2.31 | 0.51 |
| 1:X:259:GLY:N | 1:X:274:ASN:O | 2.41 | 0.51 |
| 1:O:154:ARG:CA | 1:O:159:GLU:HG3 | 2.40 | 0.51 |
| 1:Y:351:LEU:HD22 | 1:Y:360:ALA:HB1 | 1.92 | 0.51 |
| 1:Y:428:THR:CG2 | 1:Y:429:ARG:N | 2.74 | 0.51 |
| 1:Z:415:ASN:O | 1:Z:419:MET:HG2 | 2.10 | 0.51 |
| 1:X:35:PHE:HE2 | 1:X:47:HIS:CD2 | 2.29 | 0.51 |
| 1:O:280:VAL:O | 1:O:288:THR:HG21 | 2.11 | 0.51 |
| 1:Z:179:HIS:ND1 | 1:Z:215:PRO:HA | 2.26 | 0.51 |
| 1:X:48:ASP:O | 1:X:51:GLU:N | 2.43 | 0.51 |
| 1:O:85:THR:HG23 | 1:O:101:ILE:O | 2.11 | 0.51 |
| 1:O:157:ARG:HB2 | 1:O:159:GLU:HG3 | 1.93 | 0.51 |
| 1:O:224:TYR:CZ | 1:O:242:ILE:HG13 | 2.46 | 0.51 |
| 1:Y:455:GLN:N | 1:Y:459:GLU:OE1 | 2.41 | 0.51 |
| 1:Z:40:PRO:CG | 1:Z:44:TRP:HB3 | 2.40 | 0.51 |
| 1:Z:298:VAL:O | 1:Z:299:ASN:OD1 | 2.28 | 0.51 |
| 1:X:153:GLU:O | 1:X:156:ARG:N | 2.42 | 0.51 |
| 1:Y:191:LEU:HD21 | 1:Y:207:LEU:CD1 | 2.41 | 0.51 |
| 1:Y:193:ASN:HB3 | 1:Y:196:THR:HB | 1.92 | 0.51 |
| 1:Y:441:LEU:HD13 | 1:Y:445:TYR:OH | 2.11 | 0.51 |
| 1:Z:49:PRO:HG2 | 1:Z:96:PRO:CG | 2.40 | 0.51 |
| 1:Z:120:LEU:O | 1:Z:124:ILE:HD12 | 2.10 | 0.51 |
| 1:Z:180:VAL:HG21 | 1:Z:218:ARG:HG3 | 1.91 | 0.51 |
| 1:O:166:ASP:OD1 | 1:O:166:ASP:N | 2.44 | 0.51 |
| 1:Y:219:ARG:HH22 | 1:Y:295:THR:CG2 | 2.09 | 0.51 |
| 1:Y:486:TRP:O | 1:Y:490:VAL:N | 2.37 | 0.51 |
| 1:Y:98:TYR:HD2 | 1:Y:99:ASN:O | 1.94 | 0.51 |
| 1:Z:428:THR:HG23 | 1:Z:429:ARG:O | 2.11 | 0.51 |
| 1:X:7:VAL:CG2 | 1:X:74:ILE:HG23 | 2.40 | 0.51 |
| 1:O:114:HIS:ND1 | 1:O:114:HIS:N | 2.56 | 0.50 |
| 1:O:384:ILE:HG22 | 1:O:385:ALA:N | 2.24 | 0.50 |
| 1:Y:80:THR:HG22 | 1:Y:245:ASP:CA | 2.37 | 0.50 |
| 1:Y:456:ASN:HD21 | 1:Y:458:ASP:CB | 2.23 | 0.50 |
| 1:Z:83:ARG:HH11 | 1:Z:83:ARG:CG | 2.24 | 0.50 |
| 1:O:57:SER:O | 1:O:60:LEU:HB3 | 2.12 | 0.50 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:O:121:GLU:HA | 1:O:132:ILE:HD11 | 1.93 | 0.50 |
| 1:O:250:LEU:HD11 | 1:O:255:CYS:CB | 2.40 | 0.50 |
| 1:Y:141:VAL:HG12 | 1:Y:145:LEU:HD22 | 1.92 | 0.50 |
| 1:Y:179:HIS:CE1 | 1:Y:215:PRO:HA | 2.46 | 0.50 |
| 1:Y:295:THR:N | 1:Y:297:GLU:OE1 | 2.38 | 0.50 |
| 1:Z:115:LEU:N | 1:Z:115:LEU:CD1 | 2.74 | 0.50 |
| 1:Z:415:ASN:HB3 | 1:Z:418:LEU:HB2 | 1.93 | 0.50 |
| 1:X:7:VAL:HA | 1:X:19:VAL:O | 2.12 | 0.50 |
| 1:X:251:PHE:HE1 | 1:X:293:GLY:O | 1.95 | 0.50 |
| 1:O:16:SER:C | 1:O:17:ARG:HD3 | 2.32 | 0.50 |
| 1:O:68:ASP:HB2 | 1:X:50:MET:CE | 2.41 | 0.50 |
| 1:Y:441:LEU:HD13 | 1:Y:445:TYR:CZ | 2.46 | 0.50 |
| 1:Z:48:ASP:HB3 | 1:Z:51:GLU:HB2 | 1.94 | 0.50 |
| 1:Z:51:GLU:O | 1:Z:55:THR:HG23 | 2.11 | 0.50 |
| 1:Z:348:PHE:CE2 | 1:X:367:LEU:HB3 | 2.46 | 0.50 |
| 1:O:98:TYR:CE2 | 1:O:101:ILE:HD11 | 2.47 | 0.50 |
| 1:Z:180:VAL:HG22 | 1:Z:181:THR:H | 1.77 | 0.50 |
| 1:Z:206:VAL:HG13 | 1:Z:207:LEU:N | 2.26 | 0.50 |
| 1:O:458:ASP:C | 1:O:461:GLN:HG3 | 2.32 | 0.50 |
| 1:Y:345:VAL:O | 1:Y:362:GLY:HA2 | 2.12 | 0.50 |
| 1:Y:369:ARG:HB2 | 4:Y:525:HOH:O | 2.11 | 0.50 |
| 1:Y:456:ASN:HD21 | 1:Y:458:ASP:N | 2.00 | 0.50 |
| 1:Z:80:THR:CG2 | 1:Z:248:ALA:HB2 | 2.41 | 0.50 |
| 1:Z:89:TRP:N | 1:Z:89:TRP:CE3 | 2.80 | 0.50 |
| 1:X:342:VAL:HG13 | 1:X:365:PHE:O | 2.11 | 0.50 |
| 1:O:108:THR:OG1 | 1:O:134:PRO:HB3 | 2.12 | 0.50 |
| 1:X:232:LYS:O | 1:X:233:GLY:O | 2.30 | 0.50 |
| 1:X:326:ALA:O | 1:X:329:SER:OG | 2.28 | 0.50 |
| 1:O:415:ASN:C | 1:O:415:ASN:HD22 | 2.15 | 0.50 |
| 1:Z:225:GLY:O | 1:Z:238:PRO:HA | 2.12 | 0.50 |
| 1:X:225:GLY:O | 1:X:238:PRO:HA | 2.11 | 0.50 |
| 1:O:332:PHE:O | 1:O:374:ASN:ND2 | 2.39 | 0.50 |
| 1:O:345:VAL:O | 1:O:362:GLY:HA2 | 2.12 | 0.50 |
| 1:O:368:THR:O | 1:O:371:VAL:HB | 2.12 | 0.50 |
| 1:Y:127:ASN:HD22 | 1:Y:193:ASN:ND2 | 2.10 | 0.50 |
| 1:Y:202:LYS:HG3 | 1:Y:206:VAL:HG23 | 1.93 | 0.50 |
| 1:Y:355:TYR:OH | 1:Y:390:ASP:OD2 | 2.29 | 0.50 |
| 1:Z:142:LYS:O | 1:Z:145:LEU:HB2 | 2.12 | 0.50 |
| 1:O:12:GLY:HA3 | 1:O:17:ARG:HH12 | 1.77 | 0.50 |
| 1:Y:317:ARG:NH1 | 1:Y:326:ALA:HB2 | 2.26 | 0.50 |
| 1:Z:294:PRO:HD2 | 1:Z:297:GLU:OE2 | 2.11 | 0.50 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:O:4:LYS:N | 1:O:73:GLN:O | 2.45 | 0.49 |
| 1:O:128:THR:HG21 | 1:O:130:LEU:CB | 2.41 | 0.49 |
| 1:O:149:GLU:CD | 1:O:149:GLU:H | 2.16 | 0.49 |
| 1:X:320:MET:HB3 | 1:X:322:LEU:HG | 1.94 | 0.49 |
| 1:X:330:GLU:HG3 | 1:X:415:ASN:ND2 | 2.24 | 0.49 |
| 1:O:85:THR:HG22 | 1:O:100:ALA:HB1 | 1.94 | 0.49 |
| 1:O:187:SER:HB3 | 1:O:289:THR:HG22 | 1.92 | 0.49 |
| 1:O:234:GLY:N | 1:O:236:ARG:HH21 | 2.10 | 0.49 |
| 1:O:250:LEU:HD12 | 1:O:255:CYS:HB2 | 1.92 | 0.49 |
| 1:Z:19:VAL:HG13 | 1:Z:27:ILE:HG23 | 1.94 | 0.49 |
| 1:X:295:THR:O | 1:X:295:THR:OG1 | 2.29 | 0.49 |
| 1:O:85:THR:HG23 | 1:O:102:VAL:N | 2.27 | 0.49 |
| 1:Z:140:LYS:O | 1:Z:144:ILE:HG13 | 2.12 | 0.49 |
| 1:Z:415:ASN:HD22 | 1:Z:417:PHE:N | 2.10 | 0.49 |
| 1:O:154:ARG:HB3 | 1:O:159:GLU:CB | 2.41 | 0.49 |
| 1:Y:93:THR:OG1 | 1:Y:95:LYS:HB3 | 2.12 | 0.49 |
| 1:Y:226:GLN:HB3 | 1:Y:236:ARG:HB3 | 1.94 | 0.49 |
| 1:Y:330:GLU:HG3 | 1:Y:415:ASN:ND2 | 2.27 | 0.49 |
| 1:Z:320:MET:HE3 | 1:X:373:ALA:HB2 | 1.95 | 0.49 |
| 1:O:28:ILE:N | 1:O:28:ILE:CD1 | 2.76 | 0.49 |
| 1:O:48:ASP:OD1 | 1:O:49:PRO:HD2 | 2.12 | 0.49 |
| 1:O:444:ALA:O | 1:O:447:ALA:N | 2.45 | 0.49 |
| 1:Y:84:GLU:OE2 | 1:Y:188:ARG:NH1 | 2.45 | 0.49 |
| 1:Z:174:THR:O | 1:Z:177:ARG:N | 2.29 | 0.49 |
| 1:X:351:LEU:HB3 | 1:X:355:TYR:HB2 | 1.95 | 0.49 |
| 1:O:153:GLU:O | 1:O:156:ARG:N | 2.45 | 0.49 |
| 1:O:308:MET:HE3 | 1:O:349:THR:HG23 | 1.95 | 0.49 |
| 1:Y:269:CYS:CB | 1:Y:306:VAL:HB | 2.42 | 0.49 |
| 1:Y:284:ASN:OD1 | 1:Y:398:ASP:OD1 | 2.30 | 0.49 |
| 1:Y:338:ASN:CB | 1:Y:482:ARG:HH22 | 2.25 | 0.49 |
| 1:Z:246:GLN:O | 1:Z:249:ALA:HB3 | 2.12 | 0.49 |
| 1:Z:392:LEU:C | 1:Z:392:LEU:HD23 | 2.33 | 0.49 |
| 1:Z:455:GLN:N | 1:Z:459:GLU:OE2 | 2.27 | 0.49 |
| 1:Z:432:ARG:HD2 | 1:Z:467:GLU:OE1 | 2.11 | 0.49 |
| 1:X:162:PHE:CG | 1:X:163:GLY:N | 2.79 | 0.49 |
| 1:X:435:VAL:HG12 | 1:X:435:VAL:O | 2.13 | 0.49 |
| 1:O:130:LEU:HD22 | 1:O:190:MET:HA | 1.94 | 0.49 |
| 1:O:155:ALA:CB | 1:O:213:MET:HE1 | 2.43 | 0.49 |
| 1:O:251:PHE:CE2 | 1:O:446:LEU:CD1 | 2.95 | 0.49 |
| 1:Z:401:ILE:CG2 | 1:Z:402:ARG:H | 2.26 | 0.49 |
| 1:Z:475:GLU:HG3 | 1:Z:478:GLU:OE1 | 2.12 | 0.49 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:Z:489:ALA:O | 1:Z:492:ARG:N | 2.46 | 0.49 |
| 1:X:258:GLU:HB3 | 1:X:276:GLY:CA | 2.42 | 0.49 |
| 1:X:286:LEU:HD13 | 1:X:395:MET:HE3 | 1.94 | 0.49 |
| 1:Y:80:THR:HG23 | 1:Y:248:ALA:HB2 | 1.95 | 0.49 |
| 1:Y:342:VAL:HG12 | 1:Y:343:TYR:N | 2.27 | 0.49 |
| 1:X:3:LYS:HA | 1:X:73:GLN:O | 2.13 | 0.49 |
| 1:X:126:SER:O | 1:X:195:HIS:HE1 | 1.95 | 0.49 |
| 1:X:164:THR:OG1 | 1:X:166:ASP:OD1 | 2.30 | 0.49 |
| 1:X:343:TYR:OH | 1:X:485:GLY:HA3 | 2.12 | 0.49 |
| 1:Y:33:ARG:NH2 | 1:Z:33:ARG:HH21 | 2.11 | 0.49 |
| 1:Y:85:THR:HG23 | 1:Y:101:ILE:O | 2.12 | 0.49 |
| 1:Z:331:TYR:CE2 | 1:Z:335:LYS:NZ | 2.79 | 0.49 |
| 1:X:196:THR:HG22 | 1:X:197:LEU:N | 2.28 | 0.49 |
| 1:X:263:ASN:HB2 | 1:X:406:LEU:HD11 | 1.95 | 0.49 |
| 1:X:396:GLN:NE2 | 1:X:403:LEU:H | 1.95 | 0.49 |
| 1:X:465:VAL:HG12 | 1:X:466:ILE:N | 2.28 | 0.49 |
| 1:X:482:ARG:HG2 | 1:X:482:ARG:H | 1.41 | 0.49 |
| 1:O:320:MET:HB3 | 1:O:322:LEU:HG | 1.94 | 0.48 |
| 1:O:332:PHE:HA | 1:O:374:ASN:ND2 | 2.27 | 0.48 |
| 1:Y:154:ARG:HB3 | 1:Y:159:GLU:HB2 | 1.95 | 0.48 |
| 1:Z:194:ILE:HG13 | 1:Z:195:HIS:CE1 | 2.48 | 0.48 |
| 1:X:64:LEU:HD22 | 1:X:69:ILE:HB | 1.94 | 0.48 |
| 1:X:320:MET:CE | 1:X:320:MET:HA | 2.37 | 0.48 |
| 1:X:331:TYR:O | 1:X:335:LYS:HG3 | 2.13 | 0.48 |
| 1:O:202:LYS:O | 1:O:206:VAL:HG22 | 2.13 | 0.48 |
| 1:O:372:ASN:O | 1:O:375:HIS:HB2 | 2.13 | 0.48 |
| 1:Y:221:SER:OG | 1:Y:446:LEU:O | 2.27 | 0.48 |
| 1:Z:284:ASN:OD1 | 1:Z:398:ASP:OD1 | 2.31 | 0.48 |
| 1:O:155:ALA:HB1 | 1:O:213:MET:CE | 2.43 | 0.48 |
| 1:O:180:VAL:HG21 | 1:O:218:ARG:HG3 | 1.95 | 0.48 |
| 1:O:422:GLN:CA | 1:O:425:ILE:HG22 | 2.43 | 0.48 |
| 1:O:478:GLU:O | 1:O:481:TYR:N | 2.47 | 0.48 |
| 1:Y:303:GLU:HG3 | 1:Y:304:GLY:N | 2.27 | 0.48 |
| 1:Z:223:VAL:HG22 | 1:Z:240:SER:HB3 | 1.95 | 0.48 |
| 1:X:6:ILE:HG21 | 1:X:444:ALA:HB1 | 1.94 | 0.48 |
| 1:O:142:LYS:CD | 1:O:207:LEU:HD22 | 2.43 | 0.48 |
| 1:O:245:ASP:O | 1:O:249:ALA:N | 2.45 | 0.48 |
| 1:O:422:GLN:NE2 | 1:O:426:LEU:HD22 | 2.27 | 0.48 |
| 1:Z:289:THR:O | 1:Z:300:TYR:HA | 2.14 | 0.48 |
| 1:Z:346:PRO:HG3 | 1:Z:383:SER:HB2 | 1.94 | 0.48 |
| 1:X:106:ARG:O | 1:X:108:THR:N | 2.46 | 0.48 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:X:180:VAL:HG22 | 1:X:218:ARG:HG2 | 1.95 | 0.48 |
| 1:O:147:HIS:HB3 | 4:O:533:HOH:O | 2.12 | 0.48 |
| 1:O:309:ALA:O | 1:O:312:SER:HB2 | 2.13 | 0.48 |
| 1:O:322:LEU:HD21 | 1:Y:322:LEU:HD21 | 1.95 | 0.48 |
| 1:Y:69:ILE:HD13 | 1:Y:69:ILE:N | 2.27 | 0.48 |
| 1:Z:40:PRO:HG2 | 1:Z:44:TRP:CE3 | 2.49 | 0.48 |
| 1:Z:95:LYS:HE3 | 1:Z:96:PRO:O | 2.13 | 0.48 |
| 1:Z:203:MET:HA | 1:Z:206:VAL:HG11 | 1.94 | 0.48 |
| 1:Z:382:GLU:OE2 | 1:Z:482:ARG:NH2 | 2.47 | 0.48 |
| 1:X:130:LEU:HD12 | 1:X:190:MET:HA | 1.94 | 0.48 |
| 1:X:130:LEU:CD1 | 1:X:190:MET:HB2 | 2.44 | 0.48 |
| 1:X:409:ASP:HB2 | 1:X:438:VAL:HG21 | 1.95 | 0.48 |
| 1:O:456:ASN:HD22 | 1:O:458:ASP:N | 2.11 | 0.48 |
| 1:O:468:ARG:HD2 | 1:O:470:PHE:CZ | 2.49 | 0.48 |
| 1:X:217:VAL:HG12 | 1:X:218:ARG:N | 2.28 | 0.48 |
| 1:O:47:HIS:O | 1:O:99:ASN:HB3 | 2.14 | 0.48 |
| 1:O:61:VAL:O | 1:O:65:THR:HB | 2.13 | 0.48 |
| 1:O:138:GLY:O | 1:O:141:VAL:HB | 2.13 | 0.48 |
| 1:O:250:LEU:HD13 | 1:O:262:LYS:HG2 | 1.96 | 0.48 |
| 1:O:340:ASN:HB2 | 1:O:375:HIS:CD2 | 2.49 | 0.48 |
| 1:O:459:GLU:O | 1:O:462:GLU:OE1 | 2.32 | 0.48 |
| 1:Y:338:ASN:HB3 | 1:Y:482:ARG:NH2 | 2.28 | 0.48 |
| 1:Y:451:VAL:O | 1:Y:451:VAL:HG23 | 2.14 | 0.48 |
| 1:Z:474:ILE:HG23 | 1:Z:478:GLU:HB2 | 1.94 | 0.48 |
| 1:X:457:LEU:HD23 | 1:X:457:LEU:HA | 1.63 | 0.48 |
| 1:O:346:PRO:HA | 1:O:348:PHE:CE1 | 2.49 | 0.48 |
| 1:Y:19:VAL:HG11 | 1:Y:27:ILE:CD1 | 2.42 | 0.48 |
| 1:Y:254:LEU:HD12 | 1:Y:254:LEU:HA | 1.73 | 0.48 |
| 1:Z:44:TRP:CD1 | 1:Z:44:TRP:N | 2.78 | 0.48 |
| 1:Z:48:ASP:OD1 | 1:Z:49:PRO:HD2 | 2.14 | 0.48 |
| 1:O:24:ASP:O | 1:O:25:ALA:HB3 | 2.14 | 0.48 |
| 1:O:128:THR:HG21 | 1:O:130:LEU:CG | 2.43 | 0.48 |
| 1:Y:170:ILE:CG2 | 1:Y:171:TRP:N | 2.73 | 0.48 |
| 1:Y:281:LYS:HD2 | 1:Y:281:LYS:O | 2.13 | 0.48 |
| 1:X:346:PRO:HA | 1:X:348:PHE:HE1 | 1.77 | 0.48 |
| 1:Y:210:PRO:HB2 | 1:Y:213:MET:HE2 | 1.94 | 0.47 |
| 1:Z:89:TRP:HB2 | 1:Z:95:LYS:O | 2.13 | 0.47 |
| 1:O:28:ILE:HG22 | 1:O:29:SER:HB3 | 1.95 | 0.47 |
| 1:O:89:TRP:HA | 1:O:96:PRO:HA | 1.96 | 0.47 |
| 1:O:130:LEU:CD2 | 1:O:190:MET:HG3 | 2.41 | 0.47 |
| 1:O:131:VAL:CG1 | 1:O:132:ILE:N | 2.77 | 0.47 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:O:342:VAL:HG12 | 1:O:343:TYR:N | 2.29 | 0.47 |
| 1:Y:33:ARG:NE | 1:Z:33:ARG:CZ | 2.77 | 0.47 |
| 1:O:258:GLU:HA | 1:O:274:ASN:O | 2.14 | 0.47 |
| 1:O:351:LEU:HB3 | 1:O:355:TYR:HB2 | 1.97 | 0.47 |
| 1:Y:204:LEU:N | 1:Y:204:LEU:HD23 | 2.29 | 0.47 |
| 1:Z:365:PHE:CE1 | 1:Z:492:ARG:HB3 | 2.49 | 0.47 |
| 1:Z:381:LEU:O | 1:Z:384:ILE:HB | 2.14 | 0.47 |
| 1:Z:481:TYR:O | 1:Z:484:ALA:HB3 | 2.13 | 0.47 |
| 1:X:153:GLU:O | 1:X:156:ARG:HB2 | 2.14 | 0.47 |
| 1:X:229:ILE:N | 4:X:525:HOH:O | 2.36 | 0.47 |
| 1:O:64:LEU:HD22 | 1:O:74:ILE:HD11 | 1.96 | 0.47 |
| 1:O:259:GLY:N | 1:O:274:ASN:O | 2.40 | 0.47 |
| 1:O:352:GLY:O | 1:O:355:TYR:N | 2.40 | 0.47 |
| 1:O:461:GLN:H | 1:O:461:GLN:HG2 | 1.32 | 0.47 |
| 1:Z:6:ILE:HG23 | 1:Z:21:MET:HB3 | 1.94 | 0.47 |
| 1:Z:124:ILE:HG13 | 1:Z:203:MET:CE | 2.44 | 0.47 |
| 1:X:264:THR:HG22 | 1:X:265:TYR:N | 2.28 | 0.47 |
| 1:X:289:THR:O | 1:X:301:ALA:N | 2.41 | 0.47 |
| 1:O:447:ALA:O | 1:O:450:ALA:HB3 | 2.15 | 0.47 |
| 1:Y:83:ARG:NH1 | 3:Y:503:GOL:C2 | 2.78 | 0.47 |
| 1:Z:346:PRO:HA | 1:Z:348:PHE:CE1 | 2.50 | 0.47 |
| 1:X:103:TRP:CZ3 | 1:X:104:GLN:HG3 | 2.49 | 0.47 |
| 1:X:114:HIS:CD2 | 1:X:114:HIS:N | 2.81 | 0.47 |
| 1:Y:102:VAL:CG1 | 1:Y:103:TRP:N | 2.77 | 0.47 |
| 1:Y:339:THR:HG22 | 1:Y:378:ARG:HG2 | 1.97 | 0.47 |
| 1:Z:154:ARG:HA | 1:Z:157:ARG:HG2 | 1.95 | 0.47 |
| 1:X:386:TYR:CE1 | 1:X:425:ILE:HD13 | 2.48 | 0.47 |
| 1:O:80:THR:HG23 | 1:O:248:ALA:HB2 | 1.96 | 0.47 |
| 1:O:125:ARG:O | 1:O:125:ARG:HG3 | 2.13 | 0.47 |
| 1:O:142:LYS:HD3 | 1:O:207:LEU:HD22 | 1.97 | 0.47 |
| 1:O:174:THR:CA | 1:O:177:ARG:NH2 | 2.78 | 0.47 |
| 1:O:242:ILE:HG22 | 1:O:243:ALA:N | 2.30 | 0.47 |
| 1:O:456:ASN:ND2 | 1:O:458:ASP:HB2 | 2.30 | 0.47 |
| 1:O:460:LEU:HD22 | 1:O:460:LEU:N | 2.22 | 0.47 |
| 1:O:461:GLN:O | 1:O:463:LYS:N | 2.48 | 0.47 |
| 1:Y:3:LYS:HZ3 | 1:Y:3:LYS:CB | 2.26 | 0.47 |
| 1:Y:3:LYS:HZ3 | 1:Y:75:ALA:HA | 1.79 | 0.47 |
| 1:Y:101:ILE:HG22 | 1:Y:140:LYS:HD3 | 1.96 | 0.47 |
| 1:Y:249:ALA:HB2 | 1:Y:439:THR:OG1 | 2.15 | 0.47 |
| 1:Z:6:ILE:HD13 | 1:Z:6:ILE:C | 2.34 | 0.47 |
| 1:Z:499:HIS:CG | 1:Z:500:ASP:H | 2.32 | 0.47 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:X:474:ILE:HG23 | 1:X:478:GLU:HG3 | 1.96 | 0.47 |
| 1:Y:24:ASP:O | 1:Y:25:ALA:HB3 | 2.14 | 0.47 |
| 1:Z:114:HIS:ND1 | 1:Z:114:HIS:N | 2.59 | 0.47 |
| 1:Z:293:GLY:C | 1:Z:295:THR:H | 2.18 | 0.47 |
| 1:Z:342:VAL:CG2 | 1:Z:371:VAL:HG21 | 2.45 | 0.47 |
| 1:X:74:ILE:N | 1:X:74:ILE:HD13 | 2.29 | 0.47 |
| 1:X:254:LEU:HD12 | 1:X:254:LEU:HA | 1.73 | 0.47 |
| 1:O:31:SER:CB | 1:O:62:GLU:HG3 | 2.44 | 0.47 |
| 1:O:492:ARG:HD3 | 1:Y:496:TRP:HZ3 | 1.80 | 0.47 |
| 1:O:492:ARG:HG2 | 1:O:492:ARG:HH11 | 1.78 | 0.47 |
| 1:Z:28:ILE:N | 1:Z:28:ILE:HD12 | 2.30 | 0.47 |
| 1:X:46:GLU:HA | 1:X:100:ALA:O | 2.14 | 0.47 |
| 1:X:302:LEU:HD23 | 1:X:302:LEU:HA | 1.77 | 0.47 |
| 1:O:415:ASN:HD22 | 1:O:417:PHE:N | 2.13 | 0.47 |
| 1:Y:114:HIS:N | 1:Y:114:HIS:CD2 | 2.81 | 0.47 |
| 1:Y:130:LEU:HD13 | 1:Y:136:PHE:CD2 | 2.50 | 0.47 |
| 1:Y:415:ASN:ND2 | 1:Y:417:PHE:H | 2.13 | 0.47 |
| 1:Z:115:LEU:CA | 1:Z:120:LEU:HD12 | 2.42 | 0.47 |
| 1:Z:234:GLY:H | 1:Z:236:ARG:NH2 | 2.13 | 0.47 |
| 1:Z:392:LEU:O | 1:Z:395:MET:HB3 | 2.15 | 0.47 |
| 1:Z:396:GLN:HG2 | 1:Z:401:ILE:O | 2.14 | 0.47 |
| 1:Z:408:VAL:HG22 | 1:Z:431:GLU:O | 2.14 | 0.47 |
| 1:X:6:ILE:HD12 | 1:X:453:PHE:CD2 | 2.50 | 0.47 |
| 1:X:478:GLU:HA | 1:X:481:TYR:CB | 2.44 | 0.47 |
| 1:O:54:ALA:HB2 | 1:X:65:THR:HG23 | 1.96 | 0.46 |
| 1:Y:280:VAL:HG13 | 1:Y:281:LYS:N | 2.30 | 0.46 |
| 1:Y:376:ILE:HD12 | 1:Y:376:ILE:HA | 1.69 | 0.46 |
| 1:Z:13:THR:OG1 | 2:Z:503:SO4:O1 | 2.29 | 0.46 |
| 1:X:241:GLY:O | 1:X:242:ILE:HG13 | 2.15 | 0.46 |
| 1:O:317:ARG:HA | 1:O:323:ILE:HG12 | 1.97 | 0.46 |
| 1:Y:270:PHE:HE1 | 4:Y:527:HOH:O | 1.98 | 0.46 |
| 1:Y:389:ARG:O | 1:Y:393:GLU:HG3 | 2.15 | 0.46 |
| 1:Z:80:THR:CG2 | 1:Z:248:ALA:CB | 2.93 | 0.46 |
| 1:Z:214:LEU:HB3 | 1:Z:215:PRO:HD2 | 1.98 | 0.46 |
| 1:Z:227:THR:N | 1:Z:237:ILE:O | 2.43 | 0.46 |
| 1:O:54:ALA:CB | 1:X:65:THR:HG23 | 2.46 | 0.46 |
| 1:Y:41:LYS:HD3 | 1:Y:44:TRP:CZ2 | 2.50 | 0.46 |
| 1:Y:98:TYR:CG | 1:Y:99:ASN:N | 2.83 | 0.46 |
| 1:Y:202:LYS:O | 1:Y:205:GLU:N | 2.49 | 0.46 |
| 1:Z:5:TYR:CE2 | 1:Z:69:ILE:CD1 | 2.99 | 0.46 |
| 1:Z:373:ALA:O | 1:Z:377:ILE:N | 2.44 | 0.46 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:X:180:VAL:CG2 | 1:X:218:ARG:CG | 2.92 | 0.46 |
| 1:X:286:LEU:CD1 | 1:X:395:MET:CE | 2.94 | 0.46 |
| 1:Y:112:CYS:SG | 1:Y:139:THR:HG21 | 2.55 | 0.46 |
| 1:Y:438:VAL:O | 1:Y:441:LEU:HB2 | 2.16 | 0.46 |
| 1:Z:12:GLY:O | 1:Z:35:PHE:HZ | 1.98 | 0.46 |
| 1:Z:85:THR:HG23 | 1:Z:102:VAL:HA | 1.97 | 0.46 |
| 1:X:196:THR:CG2 | 1:X:198:ASP:N | 2.78 | 0.46 |
| 1:X:346:PRO:CA | 1:X:348:PHE:CE1 | 2.97 | 0.46 |
| 1:O:214:LEU:N | 1:O:214:LEU:CD1 | 2.79 | 0.46 |
| 1:O:351:LEU:HD22 | 1:O:360:ALA:CB | 2.46 | 0.46 |
| 1:Y:179:HIS:CE1 | 1:Y:215:PRO:CA | 2.98 | 0.46 |
| 1:Y:415:ASN:HD22 | 1:Y:417:PHE:N | 2.14 | 0.46 |
| 1:Z:157:ARG:CG | 1:Z:157:ARG:NH1 | 2.78 | 0.46 |
| 1:Z:179:HIS:CE1 | 1:Z:215:PRO:HA | 2.50 | 0.46 |
| 1:Z:456:ASN:ND2 | 1:Z:459:GLU:N | 2.63 | 0.46 |
| 1:Z:494:MET:O | 1:Z:495:ALA:HB3 | 2.16 | 0.46 |
| 1:X:204:LEU:N | 1:X:204:LEU:CD1 | 2.79 | 0.46 |
| 1:X:263:ASN:CB | 1:X:406:LEU:HD11 | 2.45 | 0.46 |
| 1:X:459:GLU:HB3 | 1:X:460:LEU:HD13 | 1.97 | 0.46 |
| 1:O:234:GLY:H | 1:O:236:ARG:HH21 | 1.63 | 0.46 |
| 1:O:298:VAL:CG1 | 1:O:299:ASN:N | 2.79 | 0.46 |
| 1:O:340:ASN:HD22 | 1:O:371:VAL:HG23 | 1.81 | 0.46 |
| 1:Y:429:ARG:HG2 | 1:Y:469:GLU:OE2 | 2.15 | 0.46 |
| 1:X:179:HIS:NE2 | 1:X:215:PRO:HB3 | 2.31 | 0.46 |
| 1:X:196:THR:CG2 | 1:X:198:ASP:H | 2.29 | 0.46 |
| 1:X:348:PHE:CD1 | 1:X:348:PHE:N | 2.83 | 0.46 |
| 1:X:456:ASN:ND2 | 1:X:458:ASP:HB2 | 2.31 | 0.46 |
| 1:Y:256:VAL:HG12 | 1:Y:294:PRO:HG3 | 1.98 | 0.46 |
| 1:Z:143:TRP:CE3 | 1:Z:144:ILE:HA | 2.51 | 0.46 |
| 1:Z:146:ASP:HB2 | 1:Z:147:HIS:HD1 | 1.77 | 0.46 |
| 1:Z:332:PHE:O | 1:Z:335:LYS:HB2 | 2.16 | 0.46 |
| 1:Y:36:GLU:HG3 | 1:Y:37:GLN:N | 2.30 | 0.46 |
| 1:Y:136:PHE:O | 1:Y:140:LYS:HG3 | 2.16 | 0.46 |
| 1:Z:9:LEU:HD12 | 1:Z:9:LEU:HA | 1.61 | 0.46 |
| 1:Z:19:VAL:HG13 | 1:Z:27:ILE:CG2 | 2.46 | 0.46 |
| 1:X:270:PHE:N | 1:X:270:PHE:CD1 | 2.84 | 0.46 |
| 1:X:389:ARG:HG2 | 1:X:483:TYR:CZ | 2.50 | 0.46 |
| 1:O:26:ASN:O | 1:O:28:ILE:HD13 | 2.14 | 0.46 |
| 1:O:91:LYS:HB2 | 1:O:161:LEU:HG | 1.96 | 0.46 |
| 1:O:389:ARG:HB2 | 1:O:426:LEU:HD13 | 1.98 | 0.46 |
| 1:O:407:ARG:HA | 1:O:407:ARG:HD3 | 1.53 | 0.46 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:O:471:ARG:HA | 1:O:472:PRO:HD3 | 1.84 | 0.46 |
| 1:Y:54:ALA:CA | 1:Z:65:THR:HG23 | 2.46 | 0.46 |
| 1:Y:71:SER:HA | 1:Y:74:ILE:HD12 | 1.98 | 0.46 |
| 1:Y:161:LEU:HD22 | 1:Y:179:HIS:NE2 | 2.29 | 0.46 |
| 1:Z:124:ILE:HG13 | 1:Z:203:MET:HE2 | 1.98 | 0.46 |
| 1:X:24:ASP:N | 1:X:24:ASP:OD1 | 2.48 | 0.46 |
| 1:X:154:ARG:CB | 1:X:159:GLU:CB | 2.93 | 0.46 |
| 1:X:263:ASN:O | 1:X:408:VAL:HA | 2.16 | 0.46 |
| 1:O:496:TRP:CZ3 | 1:Y:488:LYS:HG2 | 2.51 | 0.46 |
| 1:Z:23:HIS:CA | 1:Z:453:PHE:CZ | 2.99 | 0.46 |
| 1:Z:115:LEU:HG | 1:Z:120:LEU:HD13 | 1.98 | 0.46 |
| 1:Z:308:MET:HE3 | 1:Z:311:ALA:HB3 | 1.98 | 0.46 |
| 1:Z:410:GLY:O | 1:Z:413:VAL:HG22 | 2.16 | 0.46 |
| 1:Z:456:ASN:HD22 | 1:Z:459:GLU:H | 1.63 | 0.46 |
| 1:X:41:LYS:HB2 | 1:X:42:PRO:CD | 2.46 | 0.46 |
| 1:X:154:ARG:NH2 | 1:X:159:GLU:CG | 2.79 | 0.46 |
| 1:X:438:VAL:N | 1:X:441:LEU:HD12 | 2.31 | 0.46 |
| 1:O:233:GLY:C | 1:O:235:THR:H | 2.17 | 0.45 |
| 1:O:332:PHE:CA | 1:O:374:ASN:ND2 | 2.79 | 0.45 |
| 1:O:406:LEU:HD23 | 1:O:406:LEU:HA | 1.61 | 0.45 |
| 1:Y:486:TRP:CE2 | 1:Y:490:VAL:CG2 | 2.99 | 0.45 |
| 1:Z:83:ARG:HH12 | 3:Z:504:GOL:C2 | 2.29 | 0.45 |
| 1:Z:118:ASP:HB2 | 1:Z:120:LEU:CD1 | 2.45 | 0.45 |
| 1:Z:157:ARG:HG2 | 1:Z:157:ARG:NH1 | 2.30 | 0.45 |
| 1:X:130:LEU:HD12 | 1:X:190:MET:CA | 2.47 | 0.45 |
| 1:O:460:LEU:H | 1:O:460:LEU:CD2 | 2.25 | 0.45 |
| 1:Y:280:VAL:HG11 | 1:Y:302:LEU:HD21 | 1.97 | 0.45 |
| 1:Z:101:ILE:HG23 | 1:Z:107:ARG:NH1 | 2.31 | 0.45 |
| 1:Z:271:MET:C | 1:Z:272:LEU:HD12 | 2.37 | 0.45 |
| 1:X:4:LYS:H | 1:X:4:LYS:HG2 | 1.51 | 0.45 |
| 1:Y:20:VAL:O | 1:Y:28:ILE:HG12 | 2.15 | 0.45 |
| 1:Y:433:PRO:O | 1:Y:467:GLU:HB3 | 2.16 | 0.45 |
| 1:Z:54:ALA:O | 1:Z:58:SER:OG | 2.29 | 0.45 |
| 1:Z:371:VAL:O | 1:Z:371:VAL:HG12 | 2.14 | 0.45 |
| 1:X:251:PHE:CE2 | 1:X:446:LEU:CD1 | 2.98 | 0.45 |
| 1:X:277:GLU:O | 1:X:300:TYR:HD2 | 1.99 | 0.45 |
| 1:X:478:GLU:HB2 | 4:X:545:HOH:O | 2.16 | 0.45 |
| 1:O:27:ILE:HD13 | 1:O:27:ILE:N | 2.31 | 0.45 |
| 1:O:27:ILE:HG22 | 1:O:28:ILE:N | 2.30 | 0.45 |
| 1:Y:165:VAL:O | 1:Y:169:LEU:HG | 2.16 | 0.45 |
| 1:Z:120:LEU:C | 1:Z:124:ILE:HD12 | 2.37 | 0.45 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:Z:162:PHE:CG | 1:Z:163:GLY:N | 2.81 | 0.45 |
| 1:Z:272:LEU:HG | 1:Z:303:GLU:HB2 | 1.97 | 0.45 |
| 1:Z:474:ILE:O | 1:Z:479:ARG:NH2 | 2.49 | 0.45 |
| 1:O:406:LEU:CD2 | 1:O:407:ARG:N | 2.79 | 0.45 |
| 1:O:468:ARG:HD3 | 1:O:469:GLU:N | 2.31 | 0.45 |
| 1:Y:110:GLU:O | 1:Y:113:GLU:HB2 | 2.17 | 0.45 |
| 1:Y:145:LEU:HD12 | 1:Y:145:LEU:HA | 1.58 | 0.45 |
| 1:Y:364:ILE:HG22 | 1:Y:365:PHE:N | 2.31 | 0.45 |
| 1:Y:474:ILE:HG21 | 1:Y:474:ILE:HD12 | 1.72 | 0.45 |
| 1:Z:50:MET:HE1 | 1:Z:168:TRP:HH2 | 1.81 | 0.45 |
| 1:Z:191:LEU:HA | 1:Z:191:LEU:HD23 | 1.54 | 0.45 |
| 1:Z:436:ARG:N | 1:Z:436:ARG:CD | 2.79 | 0.45 |
| 1:Z:456:ASN:HD22 | 1:Z:458:ASP:H | 1.65 | 0.45 |
| 1:X:39:TYR:HA | 1:X:40:PRO:HD2 | 1.63 | 0.45 |
| 1:O:402:ARG:NH2 | 1:O:404:HIS:HA | 2.31 | 0.45 |
| 1:O:457:LEU:HA | 1:O:457:LEU:HD22 | 1.73 | 0.45 |
| 1:Y:331:TYR:CE1 | 1:Y:335:LYS:HD3 | 2.52 | 0.45 |
| 1:Y:344:VAL:HG22 | 1:Y:364:ILE:HD13 | 1.94 | 0.45 |
| 1:Z:28:ILE:N | 1:Z:28:ILE:CD1 | 2.79 | 0.45 |
| 1:Z:401:ILE:CG2 | 1:Z:402:ARG:N | 2.79 | 0.45 |
| 1:X:130:LEU:HD12 | 1:X:190:MET:CG | 2.47 | 0.45 |
| 1:X:154:ARG:NH2 | 1:X:159:GLU:HG3 | 2.31 | 0.45 |
| 1:X:261:ALA:HA | 1:X:272:LEU:O | 2.17 | 0.45 |
| 1:X:428:THR:CG2 | 1:X:429:ARG:N | 2.79 | 0.45 |
| 1:O:44:TRP:N | 1:O:44:TRP:HD1 | 2.14 | 0.45 |
| 1:O:219:ARG:CG | 1:O:220:SER:N | 2.80 | 0.45 |
| 1:O:240:SER:HB2 | 1:O:450:ALA:HB3 | 1.96 | 0.45 |
| 1:O:246:GLN:OE1 | 1:O:246:GLN:HA | 2.16 | 0.45 |
| 1:O:271:MET:HE3 | 1:O:406:LEU:HD11 | 1.99 | 0.45 |
| 1:O:457:LEU:O | 1:O:460:LEU:N | 2.50 | 0.45 |
| 1:X:83:ARG:HH11 | 1:X:83:ARG:HB2 | 1.82 | 0.45 |
| 1:X:154:ARG:HE | 1:X:159:GLU:HG2 | 1.77 | 0.45 |
| 1:X:269:CYS:HB3 | 1:X:306:VAL:HB | 1.98 | 0.45 |
| 1:X:342:VAL:CG1 | 1:X:343:TYR:N | 2.79 | 0.45 |
| 1:O:27:ILE:N | 1:O:27:ILE:CD1 | 2.80 | 0.45 |
| 1:O:80:THR:HG21 | 1:O:248:ALA:CB | 2.46 | 0.45 |
| 1:Y:83:ARG:CZ | 1:Y:246:GLN:HG2 | 2.46 | 0.45 |
| 1:Y:103:TRP:CZ3 | 1:Y:104:GLN:HG2 | 2.51 | 0.45 |
| 1:Y:381:LEU:HD12 | 1:Y:417:PHE:CD2 | 2.52 | 0.45 |
| 1:O:353:ALA:CB | 1:O:354:PRO:HA | 2.40 | 0.45 |
| 1:Y:415:ASN:HD22 | 1:Y:417:PHE:H | 1.64 | 0.45 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:Z:15:SER:OG | 1:Z:17:ARG:HD2 | 2.16 | 0.45 |
| 1:Z:240:SER:HB2 | 1:Z:450:ALA:HB3 | 1.98 | 0.45 |
| 1:Z:335:LYS:HB3 | 1:Z:374:ASN:ND2 | 2.32 | 0.45 |
| 1:O:93:THR:OG1 | 1:O:94:GLY:N | 2.50 | 0.45 |
| 1:O:347:ALA:HB2 | 1:O:351:LEU:HD13 | 1.99 | 0.45 |
| 1:O:357:ASP:HA | 1:O:358:PRO:HD2 | 1.83 | 0.45 |
| 1:Y:403:LEU:HD13 | 1:Y:403:LEU:N | 2.32 | 0.45 |
| 1:Z:390:ASP:O | 1:Z:393:GLU:HB2 | 2.17 | 0.45 |
| 1:Z:473:GLY:O | 1:Z:474:ILE:HG13 | 2.17 | 0.45 |
| 1:Z:475:GLU:HG3 | 1:Z:475:GLU:H | 1.64 | 0.45 |
| 1:O:36:GLU:HG3 | 1:O:37:GLN:N | 2.31 | 0.44 |
| 1:O:410:GLY:O | 1:O:413:VAL:HG13 | 2.18 | 0.44 |
| 1:Y:19:VAL:CG1 | 1:Y:27:ILE:CG2 | 2.95 | 0.44 |
| 1:Y:69:ILE:HD12 | 1:Y:69:ILE:HA | 1.79 | 0.44 |
| 1:Y:202:LYS:O | 1:Y:206:VAL:HB | 2.17 | 0.44 |
| 1:Y:293:GLY:N | 1:Y:297:GLU:O | 2.28 | 0.44 |
| 1:Y:357:ASP:OD2 | 1:Y:494:MET:HB3 | 2.17 | 0.44 |
| 1:Z:5:TYR:O | 1:Z:75:ALA:N | 2.45 | 0.44 |
| 1:Z:124:ILE:HD13 | 1:Z:132:ILE:CG1 | 2.48 | 0.44 |
| 1:X:418:LEU:HD23 | 1:X:418:LEU:HA | 1.67 | 0.44 |
| 1:O:83:ARG:HE | 1:O:83:ARG:HB2 | 1.66 | 0.44 |
| 1:O:422:GLN:NE2 | 1:O:426:LEU:CD2 | 2.80 | 0.44 |
| 1:Y:274:ASN:HD21 | 1:Y:299:ASN:HD22 | 1.63 | 0.44 |
| 1:Z:323:ILE:HG22 | 1:Z:332:PHE:CE2 | 2.51 | 0.44 |
| 1:X:6:ILE:CG2 | 1:X:7:VAL:N | 2.79 | 0.44 |
| 1:X:192:PHE:HB2 | 1:X:199:TRP:CZ3 | 2.52 | 0.44 |
| 1:X:351:LEU:HD13 | 1:X:351:LEU:HA | 1.41 | 0.44 |
| 1:O:50:MET:O | 1:O:53:TRP:HB3 | 2.17 | 0.44 |
| 1:Y:156:ARG:C | 1:Y:158:GLY:H | 2.19 | 0.44 |
| 1:Y:328:ASP:O | 1:Y:331:TYR:N | 2.51 | 0.44 |
| 1:Y:475:GLU:CD | 1:Y:477:THR:HB | 2.37 | 0.44 |
| 1:Z:286:LEU:N | 1:Z:286:LEU:HD23 | 2.32 | 0.44 |
| 1:X:297:GLU:H | 1:X:297:GLU:HG3 | 1.24 | 0.44 |
| 1:X:344:VAL:HG23 | 1:X:379:ALA:CB | 2.48 | 0.44 |
| 1:O:78:GLY:HA2 | 1:O:447:ALA:HB2 | 1.99 | 0.44 |
| 1:O:359:TYR:CZ | 1:O:499:HIS:HB3 | 2.52 | 0.44 |
| 1:O:362:GLY:O | 1:Y:367:LEU:HB2 | 2.16 | 0.44 |
| 1:Y:338:ASN:CB | 1:Y:482:ARG:NH2 | 2.81 | 0.44 |
| 1:Y:486:TRP:CD1 | 1:Y:487:LYS:HG3 | 2.52 | 0.44 |
| 1:Z:266:GLY:N | 1:Z:268:GLY:O | 2.50 | 0.44 |
| 1:Z:351:LEU:N | 1:Z:357:ASP:O | 2.51 | 0.44 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:Z:403:LEU:N | 1:Z:403:LEU:CD1 | 2.78 | 0.44 |
| 1:Z:438:VAL:HA | 1:Z:441:LEU:HD12 | 2.00 | 0.44 |
| 1:X:483:TYR:O | 1:X:487:LYS:HG2 | 2.18 | 0.44 |
| 1:O:122:ASP:O | 1:O:126:SER:OG | 2.27 | 0.44 |
| 1:Y:3:LYS:HZ3 | 1:Y:3:LYS:HB3 | 1.83 | 0.44 |
| 1:Z:40:PRO:CG | 1:Z:44:TRP:HE3 | 2.30 | 0.44 |
| 1:Z:348:PHE:CD1 | 1:Z:348:PHE:N | 2.78 | 0.44 |
| 1:Z:430:VAL:O | 1:Z:469:GLU:HA | 2.17 | 0.44 |
| 1:X:322:LEU:N | 1:X:322:LEU:CD2 | 2.80 | 0.44 |
| 1:O:213:MET:HE3 | 1:O:213:MET:HB3 | 1.71 | 0.44 |
| 1:O:251:PHE:CZ | 1:O:446:LEU:CD1 | 3.01 | 0.44 |
| 1:O:457:LEU:O | 1:O:461:GLN:HG2 | 2.17 | 0.44 |
| 1:Y:44:TRP:N | 1:Y:44:TRP:HD1 | 2.14 | 0.44 |
| 1:Y:344:VAL:C | 1:Y:345:VAL:HG23 | 2.37 | 0.44 |
| 1:Z:81:ASN:N | 1:Z:81:ASN:ND2 | 2.66 | 0.44 |
| 1:O:163:GLY:HA2 | 4:O:529:HOH:O | 2.17 | 0.44 |
| 1:O:282:SER:OG | 1:O:398:ASP:OD2 | 2.28 | 0.44 |
| 1:O:466:ILE:O | 1:O:466:ILE:HG22 | 2.17 | 0.44 |
| 1:Y:83:ARG:HH11 | 3:Y:503:GOL:C2 | 2.31 | 0.44 |
| 1:Y:109:ALA:HA | 1:Y:134:PRO:HG3 | 2.00 | 0.44 |
| 1:Y:196:THR:O | 1:Y:197:LEU:HB2 | 2.18 | 0.44 |
| 1:X:109:ALA:HA | 1:X:134:PRO:HG3 | 2.00 | 0.44 |
| 1:X:125:ARG:HB2 | 4:X:534:HOH:O | 2.18 | 0.44 |
| 1:X:317:ARG:NE | 1:X:326:ALA:HB2 | 2.33 | 0.44 |
| 1:X:469:GLU:HG2 | 1:X:471:ARG:NH2 | 2.33 | 0.44 |
| 1:O:23:HIS:HE1 | 1:O:453:PHE:O | 2.00 | 0.44 |
| 1:O:330:GLU:O | 1:O:334:THR:OG1 | 2.28 | 0.44 |
| 1:Z:106:ARG:NH1 | 1:Z:307:PHE:CE2 | 2.85 | 0.44 |
| 1:Z:171:TRP:HE3 | 1:Z:172:LYS:HD2 | 1.82 | 0.44 |
| 1:X:182:ASP:OD2 | 1:X:220:SER:OG | 2.25 | 0.44 |
| 1:X:436:ARG:HE | 1:X:436:ARG:HB2 | 1.41 | 0.44 |
| 1:X:471:ARG:HH11 | 1:X:471:ARG:CG | 2.31 | 0.44 |
| 1:O:53:TRP:HE3 | 1:O:53:TRP:HA | 1.83 | 0.44 |
| 1:Y:196:THR:HG23 | 1:Y:198:ASP:HB3 | 1.98 | 0.44 |
| 1:Y:225:GLY:O | 1:Y:238:PRO:HA | 2.18 | 0.44 |
| 1:Y:439:THR:HG22 | 1:Y:440:ALA:N | 2.32 | 0.44 |
| 1:Y:486:TRP:HD1 | 1:Y:487:LYS:HG3 | 1.83 | 0.44 |
| 1:Z:170:ILE:HD13 | 1:Z:242:ILE:HD11 | 1.97 | 0.44 |
| 1:Z:188:ARG:HA | 1:Z:188:ARG:HD3 | 1.61 | 0.44 |
| 1:Z:193:ASN:OD1 | 1:Z:196:THR:HB | 2.18 | 0.44 |
| 1:X:314:GLN:HG3 | 1:X:317:ARG:HH21 | 1.79 | 0.44 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:O:441:LEU:N | 1:O:441:LEU:CD2 | 2.80 | 0.43 |
| 1:Y:84:GLU:HB2 | 1:Y:103:TRP:HB3 | 1.99 | 0.43 |
| 1:Y:338:ASN:N | 1:Y:338:ASN:HD22 | 2.16 | 0.43 |
| 1:Y:396:GLN:OE1 | 1:Y:402:ARG:HB2 | 2.18 | 0.43 |
| 1:Z:37:GLN:NE2 | 1:Z:47:HIS:CE1 | 2.86 | 0.43 |
| 1:Z:337:GLN:H | 1:Z:337:GLN:HG2 | 1.34 | 0.43 |
| 1:X:156:ARG:HH11 | 1:X:156:ARG:HD2 | 1.59 | 0.43 |
| 1:X:426:LEU:HD12 | 1:X:426:LEU:HA | 1.85 | 0.43 |
| 1:O:75:ALA:O | 1:O:76:ALA:HB2 | 2.18 | 0.43 |
| 1:O:232:LYS:O | 1:O:233:GLY:O | 2.36 | 0.43 |
| 1:Y:54:ALA:CB | 1:Z:65:THR:HG23 | 2.48 | 0.43 |
| 1:Y:184:THR:HG23 | 1:Y:184:THR:H | 1.44 | 0.43 |
| 1:X:286:LEU:CD1 | 1:X:395:MET:HE2 | 2.48 | 0.43 |
| 1:O:3:LYS:HA | 1:O:73:GLN:C | 2.38 | 0.43 |
| 1:O:317:ARG:HA | 1:O:323:ILE:HG13 | 2.00 | 0.43 |
| 1:Y:280:VAL:HG12 | 1:Y:280:VAL:O | 2.15 | 0.43 |
| 1:Y:441:LEU:O | 1:Y:444:ALA:HB3 | 2.18 | 0.43 |
| 1:Y:454:TRP:CD1 | 1:Y:460:LEU:HD21 | 2.53 | 0.43 |
| 1:Y:344:VAL:HG13 | 1:Y:364:ILE:HD13 | 1.99 | 0.43 |
| 1:Z:24:ASP:O | 1:Z:25:ALA:HB3 | 2.18 | 0.43 |
| 1:Z:37:GLN:HE22 | 1:Z:47:HIS:CE1 | 2.37 | 0.43 |
| 1:Z:80:THR:HG22 | 1:Z:243:ALA:O | 2.19 | 0.43 |
| 1:X:103:TRP:CE3 | 1:X:104:GLN:HG3 | 2.53 | 0.43 |
| 1:X:152:ARG:HG2 | 1:X:152:ARG:NH1 | 2.33 | 0.43 |
| 1:X:487:LYS:HB3 | 1:X:487:LYS:HE3 | 1.69 | 0.43 |
| 1:O:68:ASP:HB2 | 1:X:50:MET:HE2 | 2.00 | 0.43 |
| 1:O:446:LEU:HD12 | 1:O:446:LEU:HA | 1.58 | 0.43 |
| 1:O:475:GLU:C | 1:O:477:THR:H | 2.20 | 0.43 |
| 1:Y:57:SER:O | 1:Y:60:LEU:HB3 | 2.17 | 0.43 |
| 1:Y:271:MET:O | 1:Y:303:GLU:HA | 2.18 | 0.43 |
| 1:Z:17:ARG:HG3 | 1:Z:32:GLN:HA | 2.00 | 0.43 |
| 1:Z:182:ASP:HA | 1:Z:218:ARG:O | 2.18 | 0.43 |
| 1:Z:474:ILE:HG23 | 1:Z:478:GLU:CB | 2.48 | 0.43 |
| 1:X:17:ARG:HG3 | 1:X:32:GLN:CG | 2.29 | 0.43 |
| 1:O:128:THR:CG2 | 1:O:130:LEU:CB | 2.97 | 0.43 |
| 1:O:128:THR:CG2 | 1:O:130:LEU:HD13 | 2.39 | 0.43 |
| 1:O:255:CYS:HB3 | 1:O:260:MET:CB | 2.45 | 0.43 |
| 1:X:377:ILE:HG21 | 1:X:377:ILE:HD13 | 1.56 | 0.43 |
| 1:X:460:LEU:HD22 | 1:X:460:LEU:H | 1.83 | 0.43 |
| 1:O:436:ARG:C | 1:O:438:VAL:H | 2.22 | 0.43 |
| 1:O:458:ASP:CA | 1:O:461:GLN:HG3 | 2.47 | 0.43 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:Z:154:ARG:HB3 | 1:Z:159:GLU:CG | 2.24 | 0.43 |
| 1:Z:372:ASN:H | 1:Z:375:HIS:CE1 | 2.36 | 0.43 |
| 1:Z:456:ASN:HD22 | 1:Z:456:ASN:C | 2.22 | 0.43 |
| 1:Z:456:ASN:ND2 | 1:Z:459:GLU:H | 2.16 | 0.43 |
| 1:X:65:THR:HG23 | 1:X:66:LYS:N | 2.31 | 0.43 |
| 1:O:101:ILE:HG22 | 1:O:140:LYS:HG2 | 2.01 | 0.43 |
| 1:O:193:ASN:C | 1:O:195:HIS:H | 2.21 | 0.43 |
| 1:O:344:VAL:HG22 | 1:O:364:ILE:HG12 | 2.01 | 0.43 |
| 1:Y:93:THR:CB | 1:Y:95:LYS:HB3 | 2.48 | 0.43 |
| 1:Y:104:GLN:HB3 | 1:Y:349:THR:HG21 | 2.00 | 0.43 |
| 1:Y:250:LEU:CD1 | 1:Y:255:CYS:HB2 | 2.49 | 0.43 |
| 1:Y:335:LYS:HE3 | 1:Y:374:ASN:HD21 | 1.84 | 0.43 |
| 1:Y:421:PHE:CE2 | 1:Y:425:ILE:HD13 | 2.53 | 0.43 |
| 1:Y:462:GLU:OE1 | 1:Y:462:GLU:HA | 2.16 | 0.43 |
| 1:Z:95:LYS:HA | 1:Z:96:PRO:HD3 | 1.66 | 0.43 |
| 1:Z:402:ARG:HD2 | 1:Z:404:HIS:CE1 | 2.54 | 0.43 |
| 1:X:6:ILE:CD1 | 1:X:453:PHE:CD2 | 3.01 | 0.43 |
| 1:X:402:ARG:HE | 1:X:402:ARG:HB2 | 1.43 | 0.43 |
| 1:X:474:ILE:HG23 | 1:X:478:GLU:CG | 2.48 | 0.43 |
| 1:O:80:THR:HG21 | 1:O:248:ALA:HB3 | 2.01 | 0.43 |
| 1:O:124:ILE:H | 1:O:124:ILE:HG12 | 1.24 | 0.43 |
| 1:O:168:TRP:O | 1:O:172:LYS:HG2 | 2.19 | 0.43 |
| 1:Y:95:LYS:O | 1:Y:95:LYS:HG2 | 2.19 | 0.43 |
| 1:Y:164:THR:HB | 1:Y:166:ASP:OD1 | 2.19 | 0.43 |
| 1:Y:396:GLN:CD | 1:Y:402:ARG:HA | 2.39 | 0.43 |
| 1:Y:456:ASN:HD21 | 1:Y:458:ASP:CG | 2.22 | 0.43 |
| 1:Z:152:ARG:O | 1:Z:156:ARG:N | 2.35 | 0.43 |
| 1:X:422:GLN:O | 1:X:426:LEU:HD22 | 2.19 | 0.43 |
| 1:X:482:ARG:HA | 1:X:482:ARG:NH1 | 2.33 | 0.43 |
| 1:O:192:PHE:HB2 | 1:O:199:TRP:CZ3 | 2.54 | 0.43 |
| 1:Y:90:GLU:HB2 | 1:Y:93:THR:HG1 | 1.82 | 0.43 |
| 1:Y:253:GLN:O | 1:Y:254:LEU:HB2 | 2.18 | 0.43 |
| 1:Z:115:LEU:CD1 | 1:Z:115:LEU:H | 2.32 | 0.43 |
| 1:X:90:GLU:HA | 1:X:160:LEU:CD2 | 2.49 | 0.43 |
| 1:X:191:LEU:HD21 | 1:X:207:LEU:CD1 | 2.49 | 0.43 |
| 1:X:282:SER:HA | 1:X:398:ASP:OD2 | 2.18 | 0.43 |
| 1:X:432:ARG:HA | 1:X:433:PRO:HD2 | 1.87 | 0.43 |
| 1:O:88:VAL:HA | 1:O:161:LEU:O | 2.18 | 0.42 |
| 1:Y:30:VAL:O | 1:Y:66:LYS:NZ | 2.31 | 0.42 |
| 1:Y:194:ILE:HG22 | 1:Y:290:ILE:HD11 | 1.99 | 0.42 |
| 1:Y:256:VAL:CG1 | 1:Y:294:PRO:CG | 2.97 | 0.42 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:Y:293:GLY:HA3 | 1:Y:297:GLU:CD | 2.40 | 0.42 |
| 1:Z:66:LYS:HB3 | 1:Z:66:LYS:HE3 | 1.80 | 0.42 |
| 1:Z:168:TRP:CZ3 | 1:Z:172:LYS:HD3 | 2.54 | 0.42 |
| 1:X:6:ILE:CD1 | 1:X:453:PHE:CG | 3.02 | 0.42 |
| 1:X:421:PHE:O | 1:X:424:ASP:HB2 | 2.19 | 0.42 |
| 1:O:80:THR:CG2 | 1:O:248:ALA:CB | 2.97 | 0.42 |
| 1:O:202:LYS:HD3 | 1:O:206:VAL:CG2 | 2.47 | 0.42 |
| 1:O:382:GLU:HB3 | 1:O:421:PHE:CE2 | 2.54 | 0.42 |
| 1:Y:15:SER:OG | 1:Y:17:ARG:NH1 | 2.52 | 0.42 |
| 1:Y:115:LEU:HD13 | 1:Y:115:LEU:HA | 1.62 | 0.42 |
| 1:Y:351:LEU:CD2 | 1:Y:360:ALA:CB | 2.97 | 0.42 |
| 1:Z:124:ILE:CG1 | 1:Z:203:MET:HE1 | 2.49 | 0.42 |
| 1:Z:137:SER:OG | 1:Z:189:THR:HA | 2.19 | 0.42 |
| 1:O:67:ALA:CB | 1:O:69:ILE:HD12 | 2.49 | 0.42 |
| 1:O:142:LYS:HD3 | 1:O:207:LEU:CD2 | 2.49 | 0.42 |
| 1:O:184:THR:H | 1:O:184:THR:HG23 | 1.47 | 0.42 |
| 1:O:211:ARG:CA | 1:O:214:LEU:HD13 | 2.48 | 0.42 |
| 1:O:264:THR:CG2 | 1:O:265:TYR:N | 2.81 | 0.42 |
| 1:O:422:GLN:HE21 | 1:O:426:LEU:HD22 | 1.83 | 0.42 |
| 1:Y:28:ILE:HD12 | 1:Y:28:ILE:HG23 | 1.80 | 0.42 |
| 1:Y:237:ILE:HG23 | 1:Y:238:PRO:HD2 | 2.01 | 0.42 |
| 1:Y:409:ASP:CB | 1:Y:438:VAL:HG21 | 2.49 | 0.42 |
| 1:Y:488:LYS:HB3 | 1:Y:488:LYS:HE3 | 1.82 | 0.42 |
| 1:Y:494:MET:O | 1:Y:495:ALA:HB3 | 2.19 | 0.42 |
| 1:X:154:ARG:C | 1:X:159:GLU:HB2 | 2.40 | 0.42 |
| 1:X:190:MET:N | 4:X:518:HOH:O | 2.51 | 0.42 |
| 1:O:335:LYS:HB2 | 1:O:374:ASN:ND2 | 2.33 | 0.42 |
| 1:Y:130:LEU:N | 1:Y:130:LEU:HD23 | 2.33 | 0.42 |
| 1:Y:180:VAL:HG22 | 1:Y:216:GLU:O | 2.20 | 0.42 |
| 1:Y:491:LYS:HA | 1:Y:494:MET:HG3 | 2.01 | 0.42 |
| 1:Z:183:TYR:CD2 | 1:Z:298:VAL:CG2 | 3.03 | 0.42 |
| 1:Z:496:TRP:CZ3 | 1:X:488:LYS:CD | 3.01 | 0.42 |
| 1:X:104:GLN:HB3 | 1:X:349:THR:HG21 | 2.01 | 0.42 |
| 1:X:264:THR:O | 1:X:269:CYS:HA | 2.20 | 0.42 |
| 1:X:432:ARG:NH2 | 1:X:468:ARG:HD3 | 2.35 | 0.42 |
| 1:O:19:VAL:HG12 | 1:O:20:VAL:N | 2.34 | 0.42 |
| 1:O:82:GLN:HA | 1:O:245:ASP:OD2 | 2.20 | 0.42 |
| 1:O:396:GLN:HE21 | 1:O:403:LEU:HB2 | 1.85 | 0.42 |
| 1:Z:103:TRP:HB2 | 1:Z:135:TYR:CE1 | 2.54 | 0.42 |
| 1:Z:206:VAL:CG1 | 1:Z:207:LEU:N | 2.83 | 0.42 |
| 1:Z:219:ARG:O | 1:Z:224:TYR:OH | 2.28 | 0.42 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:Z:458:ASP:CA | 1:Z:461:GLN:HG3 | 2.44 | 0.42 |
| 1:X:180:VAL:HG11 | 1:X:224:TYR:HB3 | 2.02 | 0.42 |
| 1:X:460:LEU:N | 1:X:460:LEU:HD22 | 2.35 | 0.42 |
| 1:O:130:LEU:HD12 | 1:O:130:LEU:HA | 1.60 | 0.42 |
| 1:O:207:LEU:HD23 | 1:O:207:LEU:HA | 1.91 | 0.42 |
| 1:O:307:PHE:HD2 | 1:O:349:THR:O | 2.02 | 0.42 |
| 1:O:425:ILE:O | 1:O:425:ILE:HG13 | 2.18 | 0.42 |
| 1:O:471:ARG:CB | 1:O:472:PRO:HD2 | 2.48 | 0.42 |
| 1:Y:47:HIS:CE1 | 1:Y:102:VAL:HG21 | 2.55 | 0.42 |
| 1:Z:135:TYR:O | 1:Z:140:LYS:NZ | 2.49 | 0.42 |
| 1:Z:391:VAL:CG2 | 1:Z:392:LEU:N | 2.76 | 0.42 |
| 1:Z:453:PHE:CE2 | 1:Z:454:TRP:CZ2 | 3.08 | 0.42 |
| 1:X:254:LEU:HD11 | 1:X:457:LEU:HD22 | 1.99 | 0.42 |
| 1:O:33:ARG:HH12 | 1:O:62:GLU:CD | 2.23 | 0.42 |
| 1:O:108:THR:HG22 | 1:O:143:TRP:HB2 | 2.01 | 0.42 |
| 1:O:359:TYR:O | 1:O:497:GLU:N | 2.40 | 0.42 |
| 1:O:435:VAL:HG23 | 1:O:437:GLU:OE1 | 2.19 | 0.42 |
| 1:Y:145:LEU:HD12 | 1:Y:151:SER:OG | 2.19 | 0.42 |
| 1:Y:191:LEU:HD21 | 1:Y:207:LEU:HD13 | 2.01 | 0.42 |
| 1:Z:457:LEU:HD23 | 1:Z:457:LEU:HA | 1.47 | 0.42 |
| 1:X:47:HIS:O | 1:X:99:ASN:HB3 | 2.20 | 0.42 |
| 1:O:80:THR:HG22 | 1:O:245:ASP:N | 2.34 | 0.42 |
| 1:Y:33:ARG:NH2 | 1:Z:33:ARG:NH2 | 2.68 | 0.42 |
| 1:Y:486:TRP:CE2 | 1:Y:490:VAL:HG21 | 2.55 | 0.42 |
| 1:Z:156:ARG:HG2 | 1:Z:156:ARG:H | 1.66 | 0.42 |
| 1:Z:492:ARG:NH1 | 1:X:492:ARG:O | 2.53 | 0.42 |
| 1:X:171:TRP:CE2 | 1:X:176:GLY:HA2 | 2.54 | 0.42 |
| 1:X:320:MET:CE | 1:X:320:MET:CA | 2.97 | 0.42 |
| 1:X:381:LEU:O | 1:X:384:ILE:HB | 2.20 | 0.42 |
| 1:X:386:TYR:HE1 | 1:X:425:ILE:HD11 | 1.84 | 0.42 |
| 1:X:431:GLU:O | 1:X:433:PRO:HD3 | 2.19 | 0.42 |
| 1:X:446:LEU:HD12 | 1:X:446:LEU:HA | 1.84 | 0.42 |
| 1:O:38:ILE:HB | 1:O:46:GLU:O | 2.20 | 0.42 |
| 1:O:245:ASP:O | 1:O:248:ALA:HB3 | 2.19 | 0.42 |
| 1:O:308:MET:HE3 | 1:Y:369:ARG:HG3 | 2.02 | 0.42 |
| 1:Y:133:ASP:OD1 | 1:Y:135:TYR:HB2 | 2.20 | 0.42 |
| 1:Z:153:GLU:CD | 1:Z:153:GLU:H | 2.21 | 0.42 |
| 1:X:152:ARG:CG | 1:X:152:ARG:NH1 | 2.79 | 0.42 |
| 1:X:191:LEU:CD2 | 1:X:207:LEU:HD12 | 2.50 | 0.42 |
| 1:X:433:PRO:O | 1:X:467:GLU:HB3 | 2.20 | 0.42 |
| 1:Y:174:THR:C | 1:Y:176:GLY:H | 2.22 | 0.42 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:Z:137:SER:HA | 1:Z:140:LYS:HD2 | 2.02 | 0.42 |
| 1:Z:179:HIS:CE1 | 1:Z:215:PRO:CA | 3.03 | 0.42 |
| 1:Z:270:PHE:CD1 | 1:Z:270:PHE:N | 2.87 | 0.42 |
| 1:Z:456:ASN:ND2 | 1:Z:459:GLU:HG3 | 2.35 | 0.42 |
| 1:X:249:ALA:O | 1:X:253:GLN:N | 2.53 | 0.42 |
| 1:X:409:ASP:CB | 1:X:438:VAL:HG21 | 2.49 | 0.42 |
| 1:O:9:LEU:HD12 | 1:O:9:LEU:HA | 1.60 | 0.41 |
| 1:O:25:ALA:HB3 | 1:O:463:LYS:CD | 2.50 | 0.41 |
| 1:O:259:GLY:HA2 | 1:O:273:MET:HE1 | 2.02 | 0.41 |
| 1:O:289:THR:HB | 1:O:290:ILE:H | 1.48 | 0.41 |
| 1:Y:9:LEU:HD23 | 1:Y:56:GLN:CG | 2.50 | 0.41 |
| 1:Y:87:ILE:HD13 | 1:Y:87:ILE:HG21 | 1.86 | 0.41 |
| 1:Z:142:LYS:HG3 | 1:Z:146:ASP:OD2 | 2.20 | 0.41 |
| 1:X:83:ARG:NH1 | 1:X:246:GLN:HG2 | 2.35 | 0.41 |
| 1:X:130:LEU:HD12 | 1:X:190:MET:HG3 | 2.02 | 0.41 |
| 1:X:420:GLN:OE1 | 1:X:471:ARG:O | 2.37 | 0.41 |
| 1:O:103:TRP:CZ3 | 1:O:104:GLN:HG3 | 2.56 | 0.41 |
| 1:O:325:ASP:O | 1:O:328:ASP:HB2 | 2.20 | 0.41 |
| 1:O:340:ASN:HB2 | 1:O:375:HIS:NE2 | 2.35 | 0.41 |
| 1:O:353:ALA:HB1 | 1:O:354:PRO:HA | 2.01 | 0.41 |
| 1:O:360:ALA:O | 1:O:361:ARG:HD3 | 2.19 | 0.41 |
| 1:Y:108:THR:HG21 | 1:Y:139:THR:C | 2.41 | 0.41 |
| 1:Y:263:ASN:O | 1:Y:408:VAL:HA | 2.19 | 0.41 |
| 1:Y:342:VAL:HG21 | 1:Y:371:VAL:HG11 | 2.01 | 0.41 |
| 1:Y:475:GLU:CB | 1:Y:478:GLU:HB2 | 2.48 | 0.41 |
| 1:Z:71:SER:O | 1:Z:74:ILE:HD12 | 2.21 | 0.41 |
| 1:Z:103:TRP:CD2 | 3:Z:504:GOL:H11 | 2.55 | 0.41 |
| 1:Z:351:LEU:HB3 | 1:Z:355:TYR:HB2 | 2.02 | 0.41 |
| 1:Z:426:LEU:HD12 | 1:Z:426:LEU:HA | 1.77 | 0.41 |
| 1:X:323:ILE:HD12 | 1:X:326:ALA:HA | 2.01 | 0.41 |
| 1:X:415:ASN:HD22 | 1:X:416:ASN:N | 2.19 | 0.41 |
| 1:O:38:ILE:O | 1:O:40:PRO:HD3 | 2.19 | 0.41 |
| 1:O:353:ALA:HA | 1:O:354:PRO:HA | 1.67 | 0.41 |
| 1:Y:33:ARG:HB2 | 1:Y:59:THR:CG2 | 2.50 | 0.41 |
| 1:Y:50:MET:O | 1:Y:53:TRP:HB3 | 2.20 | 0.41 |
| 1:Y:226:GLN:HG2 | 1:Y:238:PRO:CA | 2.47 | 0.41 |
| 1:Y:323:ILE:HD12 | 1:Y:326:ALA:HA | 2.02 | 0.41 |
| 1:Y:429:ARG:NH1 | 1:Y:469:GLU:OE2 | 2.54 | 0.41 |
| 1:Y:433:PRO:HA | 1:Y:466:ILE:HA | 2.01 | 0.41 |
| 1:Z:124:ILE:HD13 | 1:Z:132:ILE:HG12 | 2.01 | 0.41 |
| 1:Z:315:TRP:O | 1:Z:319:GLU:HB2 | 2.19 | 0.41 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:Z:397:ALA:HB3 | 1:Z:398:ASP:H | 1.58 | 0.41 |
| 1:X:217:VAL:CG1 | 1:X:218:ARG:N | 2.83 | 0.41 |
| 1:X:248:ALA:O | 1:X:442:GLY:HA3 | 2.20 | 0.41 |
| 1:O:128:THR:CB | 1:O:130:LEU:HB2 | 2.51 | 0.41 |
| 1:Y:95:LYS:HB3 | 1:Y:95:LYS:HE2 | 1.81 | 0.41 |
| 1:Y:286:LEU:HD13 | 1:Y:395:MET:HE2 | 2.01 | 0.41 |
| 1:Y:294:PRO:HD2 | 1:Y:297:GLU:OE2 | 2.21 | 0.41 |
| 1:Y:316:LEU:HD11 | 1:Y:380:THR:HG21 | 2.02 | 0.41 |
| 1:Y:352:GLY:O | 1:Y:353:ALA:HB2 | 2.20 | 0.41 |
| 1:Z:81:ASN:HB2 | 1:Z:165:VAL:CG1 | 2.50 | 0.41 |
| 1:Z:191:LEU:HD22 | 1:Z:204:LEU:HD13 | 2.03 | 0.41 |
| 1:X:156:ARG:HG3 | 1:X:210:PRO:HG3 | 2.02 | 0.41 |
| 1:X:179:HIS:CE1 | 1:X:215:PRO:HA | 2.56 | 0.41 |
| 1:X:344:VAL:HG23 | 1:X:379:ALA:HB3 | 2.02 | 0.41 |
| 1:O:53:TRP:HA | 1:O:53:TRP:CE3 | 2.55 | 0.41 |
| 1:O:345:VAL:HA | 1:O:346:PRO:HD3 | 1.50 | 0.41 |
| 1:O:381:LEU:HD12 | 1:O:417:PHE:CD2 | 2.56 | 0.41 |
| 1:Y:97:ILE:HD12 | 1:Y:148:VAL:HG21 | 2.01 | 0.41 |
| 1:Y:267:THR:HG23 | 1:Y:311:ALA:HB2 | 2.02 | 0.41 |
| 1:Y:289:THR:HG23 | 1:Y:301:ALA:HB3 | 2.02 | 0.41 |
| 1:Y:294:PRO:O | 1:Y:457:LEU:HD12 | 2.20 | 0.41 |
| 1:Y:469:GLU:O | 1:Y:471:ARG:NH1 | 2.54 | 0.41 |
| 1:X:179:HIS:CE1 | 1:X:215:PRO:CA | 3.04 | 0.41 |
| 1:Z:113:GLU:O | 1:Z:117:ARG:HG2 | 2.20 | 0.41 |
| 1:X:108:THR:CB | 1:X:139:THR:HB | 2.47 | 0.41 |
| 1:X:433:PRO:HA | 1:X:465:VAL:O | 2.20 | 0.41 |
| 1:O:128:THR:HB | 1:O:130:LEU:HB2 | 2.03 | 0.41 |
| 1:O:205:GLU:CG | 1:O:206:VAL:N | 2.82 | 0.41 |
| 1:Y:33:ARG:HH21 | 1:Z:33:ARG:NH2 | 2.16 | 0.41 |
| 1:Y:256:VAL:CG1 | 1:Y:294:PRO:CD | 2.99 | 0.41 |
| 1:Z:80:THR:HG21 | 1:Z:248:ALA:HB3 | 2.02 | 0.41 |
| 1:Z:86:THR:HG23 | 1:Z:162:PHE:CE1 | 2.52 | 0.41 |
| 1:X:64:LEU:HD22 | 1:X:69:ILE:CG2 | 2.50 | 0.41 |
| 1:X:90:GLU:HA | 1:X:160:LEU:HD23 | 2.03 | 0.41 |
| 1:O:64:LEU:HD21 | 1:O:74:ILE:HD11 | 2.02 | 0.41 |
| 1:O:153:GLU:N | 1:O:153:GLU:OE1 | 2.53 | 0.41 |
| 1:O:486:TRP:O | 1:O:490:VAL:HG23 | 2.21 | 0.41 |
| 1:Y:305:ALA:O | 1:Y:353:ALA:HB3 | 2.21 | 0.41 |
| 1:Y:317:ARG:NH1 | 1:Y:326:ALA:CB | 2.83 | 0.41 |
| 1:Y:331:TYR:O | 1:Y:335:LYS:HG3 | 2.20 | 0.41 |
| 1:Z:153:GLU:HB2 | 1:Z:154:ARG:H | 1.31 | 0.41 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:Z:345:VAL:HG11 | 1:Z:493:ALA:HB3 | 2.03 | 0.41 |
| 1:Z:396:GLN:HA | 1:Z:399:SER:HG | 1.86 | 0.41 |
| 1:Z:461:GLN:HE21 | 1:Z:461:GLN:HB3 | 1.35 | 0.41 |
| 1:X:249:ALA:O | 1:X:253:GLN:HB2 | 2.20 | 0.41 |
| 1:X:438:VAL:CA | 1:X:441:LEU:CD1 | 2.99 | 0.41 |
| 1:O:155:ALA:CB | 1:O:213:MET:CE | 2.99 | 0.41 |
| 1:O:340:ASN:ND2 | 1:O:371:VAL:HG23 | 2.36 | 0.41 |
| 1:Y:33:ARG:HH12 | 1:Y:62:GLU:CD | 2.24 | 0.41 |
| 1:Y:33:ARG:HE | 1:Z:33:ARG:NH2 | 2.19 | 0.41 |
| 1:Y:68:ASP:O | 1:Y:69:ILE:HD13 | 2.20 | 0.41 |
| 1:Y:188:ARG:HA | 1:Y:188:ARG:HD2 | 1.63 | 0.41 |
| 1:Y:230:GLY:HA3 | 1:Z:228:ASN:O | 2.21 | 0.41 |
| 1:Y:338:ASN:HB3 | 1:Y:482:ARG:HH22 | 1.84 | 0.41 |
| 1:Y:476:THR:HG22 | 1:Y:477:THR:N | 2.35 | 0.41 |
| 1:Z:49:PRO:HB2 | 1:Z:168:TRP:CZ2 | 2.55 | 0.41 |
| 1:Z:60:LEU:HD12 | 1:Z:60:LEU:C | 2.39 | 0.41 |
| 1:Z:87:ILE:O | 1:Z:163:GLY:N | 2.54 | 0.41 |
| 1:Z:117:ARG:HG2 | 1:Z:117:ARG:H | 1.63 | 0.41 |
| 1:Z:125:ARG:NH1 | 1:Z:125:ARG:CG | 2.78 | 0.41 |
| 1:Z:131:VAL:O | 1:Z:131:VAL:HG12 | 2.18 | 0.41 |
| 1:Z:205:GLU:CG | 1:Z:206:VAL:N | 2.81 | 0.41 |
| 1:Z:396:GLN:O | 1:Z:400:GLY:N | 2.44 | 0.41 |
| 1:Z:492:ARG:HD2 | 1:X:496:TRP:HZ3 | 1.86 | 0.41 |
| 1:Z:496:TRP:CH2 | 1:X:488:LYS:HD2 | 2.56 | 0.41 |
| 1:X:174:THR:HB | 1:X:177:ARG:NH1 | 2.36 | 0.41 |
| 1:X:288:THR:HG22 | 1:X:289:THR:N | 2.31 | 0.41 |
| 1:X:435:VAL:CG1 | 1:X:441:LEU:HD11 | 2.47 | 0.41 |
| 1:X:438:VAL:N | 1:X:441:LEU:CD1 | 2.84 | 0.41 |
| 1:O:171:TRP:CE2 | 1:O:176:GLY:HA2 | 2.56 | 0.41 |
| 1:O:271:MET:CE | 1:O:392:LEU:CD1 | 2.98 | 0.41 |
| 1:O:340:ASN:HD22 | 1:O:371:VAL:CG2 | 2.34 | 0.41 |
| 1:O:369:ARG:NH1 | 1:Y:104:GLN:OE1 | 2.54 | 0.41 |
| 1:Y:33:ARG:NE | 1:Z:33:ARG:NH2 | 2.69 | 0.41 |
| 1:Y:62:GLU:HB2 | 1:Z:58:SER:HB3 | 2.02 | 0.41 |
| 1:Y:172:LYS:HD2 | 1:Y:172:LYS:HA | 1.93 | 0.41 |
| 1:Y:424:ASP:CB | 1:Y:474:ILE:CG2 | 2.99 | 0.41 |
| 1:X:169:LEU:HA | 1:X:169:LEU:HD23 | 1.90 | 0.41 |
| 1:X:222:GLU:O | 1:X:240:SER:HA | 2.21 | 0.41 |
| 1:O:254:LEU:HA | 1:O:254:LEU:HD12 | 1.80 | 0.40 |
| 1:Y:175:GLN:CA | 1:Y:175:GLN:NE2 | 2.82 | 0.40 |
| 1:Y:483:TYR:CE2 | 1:Y:487:LYS:CE | 2.98 | 0.40 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:X:29:SER:CB | 1:X:63:VAL:HG23 | 2.48 | 0.40 |
| 1:X:328:ASP:HB3 | 1:X:332:PHE:CE2 | 2.56 | 0.40 |
| 1:X:414:ALA:HB2 | 1:X:436:ARG:NH1 | 2.36 | 0.40 |
| 1:O:62:GLU:HA | 1:O:65:THR:CG2 | 2.50 | 0.40 |
| 1:O:193:ASN:OD1 | 1:O:195:HIS:HB2 | 2.20 | 0.40 |
| 1:Y:83:ARG:NH1 | 3:Y:503:GOL:H2 | 2.37 | 0.40 |
| 1:Y:457:LEU:HA | 1:Y:457:LEU:HD23 | 1.66 | 0.40 |
| 1:Z:111:ILE:O | 1:Z:115:LEU:HD13 | 2.21 | 0.40 |
| 1:X:95:LYS:HA | 1:X:96:PRO:HD3 | 1.90 | 0.40 |
| 1:X:223:VAL:O | 1:X:223:VAL:HG12 | 2.21 | 0.40 |
| 1:Y:30:VAL:HG12 | 1:Y:31:SER:N | 2.36 | 0.40 |
| 1:Y:486:TRP:CZ2 | 1:Y:490:VAL:CG2 | 3.04 | 0.40 |
| 1:Z:154:ARG:HB3 | 1:Z:154:ARG:HE | 1.42 | 0.40 |
| 1:Z:253:GLN:O | 1:Z:254:LEU:HB2 | 2.21 | 0.40 |
| 1:Z:475:GLU:O | 1:Z:478:GLU:N | 2.50 | 0.40 |
| 1:X:194:ILE:HG22 | 1:X:290:ILE:HD11 | 2.03 | 0.40 |
| 1:X:384:ILE:O | 1:X:387:GLN:HB2 | 2.21 | 0.40 |
| 1:X:478:GLU:HA | 1:X:481:TYR:HB2 | 2.02 | 0.40 |
| 1:X:499:HIS:H | 1:X:499:HIS:CD2 | 2.39 | 0.40 |
| 1:O:44:TRP:C | 1:O:45:VAL:HG23 | 2.41 | 0.40 |
| 1:O:48:ASP:HA | 1:O:49:PRO:HD3 | 1.91 | 0.40 |
| 1:O:112:CYS:SG | 1:O:134:PRO:HD3 | 2.62 | 0.40 |
| 1:O:192:PHE:HB2 | 1:O:199:TRP:CE3 | 2.56 | 0.40 |
| 1:O:286:LEU:N | 1:O:286:LEU:HD23 | 2.37 | 0.40 |
| 1:O:488:LYS:HD3 | 1:Y:496:TRP:CZ3 | 2.55 | 0.40 |
| 1:Y:21:MET:HG2 | 1:Y:25:ALA:C | 2.41 | 0.40 |
| 1:Y:418:LEU:CD1 | 1:Y:419:MET:CE | 2.98 | 0.40 |
| 1:Z:98:TYR:OH | 1:Z:107:ARG:NH2 | 2.55 | 0.40 |
| 1:Z:314:GLN:NE2 | 1:X:369:ARG:HH22 | 2.19 | 0.40 |
| 1:Z:316:LEU:HA | 1:Z:316:LEU:HD23 | 1.79 | 0.40 |
| 1:Z:413:VAL:HG23 | 1:Z:436:ARG:CG | 2.50 | 0.40 |
| 1:Z:427:GLY:C | 1:Z:472:PRO:HG3 | 2.42 | 0.40 |
| 1:X:145:LEU:HA | 1:X:145:LEU:HD12 | 1.61 | 0.40 |
| 1:X:347:ALA:O | 1:X:361:ARG:HA | 2.21 | 0.40 |
| 1:X:407:ARG:NH1 | 1:X:466:ILE:HD11 | 2.37 | 0.40 |
| 1:X:478:GLU:HA | 1:X:481:TYR:HB3 | 2.03 | 0.40 |
| 1:O:80:THR:HG22 | 1:O:245:ASP:HA | 1.97 | 0.40 |
| 1:O:204:LEU:CD2 | 1:O:209:ILE:CG2 | 2.99 | 0.40 |
| 1:Y:271:MET:HE2 | 1:Y:271:MET:HB3 | 1.84 | 0.40 |
| 1:Z:81:ASN:N | 1:Z:81:ASN:HD22 | 2.19 | 0.40 |
| 1:Z:124:ILE:CG1 | 1:Z:203:MET:CE | 2.98 | 0.40 |

Continued on next page...

Continued from previous page...

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:Z:166:ASP:CG | 1:Z:167:THR:H | 2.23 | 0.40 |
| 1:Z:183:TYR:HB3 | 1:Z:290:ILE:HD13 | 2.03 | 0.40 |
| 1:Z:281:LYS:NZ | 1:Z:281:LYS:HB3 | 2.36 | 0.40 |
| 1:Z:337:GLN:HE21 | 1:Z:337:GLN:HB3 | 1.40 | 0.40 |
| 1:Z:346:PRO:CG | 1:Z:383:SER:HB2 | 2.51 | 0.40 |
| 1:Z:456:ASN:O | 1:Z:459:GLU:HB2 | 2.22 | 0.40 |
| 1:X:482:ARG:CA | 1:X:482:ARG:NH1 | 2.79 | 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 | O | 495/501 (99%) | 420 (85%) | 58 (12%) | 17 (3%) | 3 3 |
| 1 | X | 496/501 (99%) | 436 (88%) | 42 (8%) | 18 (4%) | 3 2 |
| 1 | Y | 497/501 (99%) | 442 (89%) | 46 (9%) | 9 (2%) | 8 9 |
| 1 | Z | 496/501 (99%) | 448 (90%) | 39 (8%) | 9 (2%) | 8 9 |
| All | All | 1984/2004 (99%) | 1746 (88%) | 185 (9%) | 53 (3%) | 5 4 |

All (53) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | O | 149 | GLU |
| 1 | O | 232 | LYS |
| 1 | O | 233 | GLY |
| 1 | O | 461 | GLN |
| 1 | Y | 175 | GLN |
| 1 | Z | 149 | GLU |
| 1 | Z | 476 | THR |
| 1 | X | 107 | ARG |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | X | 159 | GLU |
| 1 | X | 233 | GLY |
| 1 | X | 322 | LEU |
| 1 | X | 438 | VAL |
| 1 | O | 326 | ALA |
| 1 | O | 462 | GLU |
| 1 | O | 464 | ALA |
| 1 | O | 476 | THR |
| 1 | Y | 325 | ASP |
| 1 | Y | 453 | PHE |
| 1 | Z | 153 | GLU |
| 1 | Z | 284 | ASN |
| 1 | X | 149 | GLU |
| 1 | X | 326 | ALA |
| 1 | X | 450 | ALA |
| 1 | X | 477 | THR |
| 1 | O | 71 | SER |
| 1 | Y | 138 | GLY |
| 1 | Z | 232 | LYS |
| 1 | Z | 233 | GLY |
| 1 | Z | 294 | PRO |
| 1 | X | 153 | GLU |
| 1 | X | 223 | VAL |
| 1 | O | 92 | GLU |
| 1 | O | 99 | ASN |
| 1 | O | 309 | ALA |
| 1 | Y | 92 | GLU |
| 1 | X | 294 | PRO |
| 1 | X | 458 | ASP |
| 1 | X | 463 | LYS |
| 1 | X | 476 | THR |
| 1 | O | 222 | GLU |
| 1 | Y | 177 | ARG |
| 1 | Y | 353 | ALA |
| 1 | Y | 477 | THR |
| 1 | Z | 397 | ALA |
| 1 | Z | 398 | ASP |
| 1 | O | 294 | PRO |
| 1 | Y | 438 | VAL |
| 1 | X | 157 | ARG |
| 1 | X | 138 | GLY |
| 1 | X | 206 | VAL |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | O | 442 | GLY |
| 1 | O | 472 | PRO |
| 1 | O | 194 | ILE |

5.3.2 Protein sidechains [i](#)

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

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

| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|-----|-------|-----------------|------------|-----------|-------------|---|
| 1 | O | 404/413 (98%) | 299 (74%) | 105 (26%) | 0 | 0 |
| 1 | X | 404/413 (98%) | 309 (76%) | 95 (24%) | 1 | 0 |
| 1 | Y | 408/413 (99%) | 322 (79%) | 86 (21%) | 1 | 1 |
| 1 | Z | 408/413 (99%) | 308 (76%) | 100 (24%) | 0 | 0 |
| All | All | 1624/1652 (98%) | 1238 (76%) | 386 (24%) | 0 | 0 |

All (386) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | O | 6 | ILE |
| 1 | O | 9 | LEU |
| 1 | O | 11 | GLN |
| 1 | O | 17 | ARG |
| 1 | O | 24 | ASP |
| 1 | O | 27 | ILE |
| 1 | O | 28 | ILE |
| 1 | O | 29 | SER |
| 1 | O | 31 | SER |
| 1 | O | 32 | GLN |
| 1 | O | 33 | ARG |
| 1 | O | 52 | ILE |
| 1 | O | 63 | VAL |
| 1 | O | 65 | THR |
| 1 | O | 69 | ILE |
| 1 | O | 71 | SER |
| 1 | O | 72 | ASP |
| 1 | O | 80 | THR |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | O | 82 | GLN |
| 1 | O | 90 | GLU |
| 1 | O | 91 | LYS |
| 1 | O | 92 | GLU |
| 1 | O | 95 | LYS |
| 1 | O | 97 | ILE |
| 1 | O | 107 | ARG |
| 1 | O | 113 | GLU |
| 1 | O | 118 | ASP |
| 1 | O | 124 | ILE |
| 1 | O | 125 | ARG |
| 1 | O | 126 | SER |
| 1 | O | 130 | LEU |
| 1 | O | 131 | VAL |
| 1 | O | 137 | SER |
| 1 | O | 146 | ASP |
| 1 | O | 149 | GLU |
| 1 | O | 153 | GLU |
| 1 | O | 154 | ARG |
| 1 | O | 164 | THR |
| 1 | O | 169 | LEU |
| 1 | O | 175 | GLN |
| 1 | O | 177 | ARG |
| 1 | O | 189 | THR |
| 1 | O | 190 | MET |
| 1 | O | 191 | LEU |
| 1 | O | 196 | THR |
| 1 | O | 198 | ASP |
| 1 | O | 200 | ASP |
| 1 | O | 201 | ASP |
| 1 | O | 202 | LYS |
| 1 | O | 205 | GLU |
| 1 | O | 206 | VAL |
| 1 | O | 211 | ARG |
| 1 | O | 215 | PRO |
| 1 | O | 219 | ARG |
| 1 | O | 229 | ILE |
| 1 | O | 235 | THR |
| 1 | O | 236 | ARG |
| 1 | O | 245 | ASP |
| 1 | O | 253 | GLN |
| 1 | O | 254 | LEU |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | O | 257 | LYS |
| 1 | O | 258 | GLU |
| 1 | O | 262 | LYS |
| 1 | O | 277 | GLU |
| 1 | O | 287 | LEU |
| 1 | O | 297 | GLU |
| 1 | O | 303 | GLU |
| 1 | O | 313 | ILE |
| 1 | O | 314 | GLN |
| 1 | O | 319 | GLU |
| 1 | O | 321 | LYS |
| 1 | O | 325 | ASP |
| 1 | O | 334 | THR |
| 1 | O | 335 | LYS |
| 1 | O | 351 | LEU |
| 1 | O | 389 | ARG |
| 1 | O | 393 | GLU |
| 1 | O | 401 | ILE |
| 1 | O | 403 | LEU |
| 1 | O | 406 | LEU |
| 1 | O | 415 | ASN |
| 1 | O | 418 | LEU |
| 1 | O | 422 | GLN |
| 1 | O | 426 | LEU |
| 1 | O | 429 | ARG |
| 1 | O | 436 | ARG |
| 1 | O | 438 | VAL |
| 1 | O | 439 | THR |
| 1 | O | 446 | LEU |
| 1 | O | 449 | LEU |
| 1 | O | 455 | GLN |
| 1 | O | 456 | ASN |
| 1 | O | 457 | LEU |
| 1 | O | 458 | ASP |
| 1 | O | 461 | GLN |
| 1 | O | 463 | LYS |
| 1 | O | 468 | ARG |
| 1 | O | 476 | THR |
| 1 | O | 477 | THR |
| 1 | O | 478 | GLU |
| 1 | O | 479 | ARG |
| 1 | O | 482 | ARG |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | O | 487 | LYS |
| 1 | O | 492 | ARG |
| 1 | O | 494 | MET |
| 1 | Y | 3 | LYS |
| 1 | Y | 17 | ARG |
| 1 | Y | 21 | MET |
| 1 | Y | 26 | ASN |
| 1 | Y | 29 | SER |
| 1 | Y | 33 | ARG |
| 1 | Y | 51 | GLU |
| 1 | Y | 63 | VAL |
| 1 | Y | 65 | THR |
| 1 | Y | 69 | ILE |
| 1 | Y | 71 | SER |
| 1 | Y | 79 | ILE |
| 1 | Y | 80 | THR |
| 1 | Y | 83 | ARG |
| 1 | Y | 87 | ILE |
| 1 | Y | 91 | LYS |
| 1 | Y | 95 | LYS |
| 1 | Y | 107 | ARG |
| 1 | Y | 132 | ILE |
| 1 | Y | 136 | PHE |
| 1 | Y | 137 | SER |
| 1 | Y | 145 | LEU |
| 1 | Y | 152 | ARG |
| 1 | Y | 153 | GLU |
| 1 | Y | 157 | ARG |
| 1 | Y | 164 | THR |
| 1 | Y | 170 | ILE |
| 1 | Y | 177 | ARG |
| 1 | Y | 178 | VAL |
| 1 | Y | 182 | ASP |
| 1 | Y | 188 | ARG |
| 1 | Y | 216 | GLU |
| 1 | Y | 217 | VAL |
| 1 | Y | 224 | TYR |
| 1 | Y | 227 | THR |
| 1 | Y | 238 | PRO |
| 1 | Y | 254 | LEU |
| 1 | Y | 257 | LYS |
| 1 | Y | 262 | LYS |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | Y | 269 | CYS |
| 1 | Y | 277 | GLU |
| 1 | Y | 281 | LYS |
| 1 | Y | 295 | THR |
| 1 | Y | 303 | GLU |
| 1 | Y | 314 | GLN |
| 1 | Y | 317 | ARG |
| 1 | Y | 319 | GLU |
| 1 | Y | 321 | LYS |
| 1 | Y | 324 | ASN |
| 1 | Y | 325 | ASP |
| 1 | Y | 327 | TYR |
| 1 | Y | 328 | ASP |
| 1 | Y | 337 | GLN |
| 1 | Y | 338 | ASN |
| 1 | Y | 351 | LEU |
| 1 | Y | 364 | ILE |
| 1 | Y | 376 | ILE |
| 1 | Y | 392 | LEU |
| 1 | Y | 401 | ILE |
| 1 | Y | 403 | LEU |
| 1 | Y | 406 | LEU |
| 1 | Y | 415 | ASN |
| 1 | Y | 418 | LEU |
| 1 | Y | 423 | SER |
| 1 | Y | 425 | ILE |
| 1 | Y | 426 | LEU |
| 1 | Y | 429 | ARG |
| 1 | Y | 436 | ARG |
| 1 | Y | 437 | GLU |
| 1 | Y | 439 | THR |
| 1 | Y | 449 | LEU |
| 1 | Y | 456 | ASN |
| 1 | Y | 459 | GLU |
| 1 | Y | 460 | LEU |
| 1 | Y | 461 | GLN |
| 1 | Y | 462 | GLU |
| 1 | Y | 463 | LYS |
| 1 | Y | 466 | ILE |
| 1 | Y | 468 | ARG |
| 1 | Y | 471 | ARG |
| 1 | Y | 474 | ILE |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | Y | 479 | ARG |
| 1 | Y | 488 | LYS |
| 1 | Y | 491 | LYS |
| 1 | Y | 492 | ARG |
| 1 | Y | 500 | ASP |
| 1 | Z | 3 | LYS |
| 1 | Z | 6 | ILE |
| 1 | Z | 9 | LEU |
| 1 | Z | 11 | GLN |
| 1 | Z | 21 | MET |
| 1 | Z | 29 | SER |
| 1 | Z | 32 | GLN |
| 1 | Z | 33 | ARG |
| 1 | Z | 41 | LYS |
| 1 | Z | 51 | GLU |
| 1 | Z | 63 | VAL |
| 1 | Z | 69 | ILE |
| 1 | Z | 70 | SER |
| 1 | Z | 72 | ASP |
| 1 | Z | 73 | GLN |
| 1 | Z | 80 | THR |
| 1 | Z | 82 | GLN |
| 1 | Z | 83 | ARG |
| 1 | Z | 91 | LYS |
| 1 | Z | 92 | GLU |
| 1 | Z | 95 | LYS |
| 1 | Z | 107 | ARG |
| 1 | Z | 117 | ARG |
| 1 | Z | 121 | GLU |
| 1 | Z | 125 | ARG |
| 1 | Z | 126 | SER |
| 1 | Z | 131 | VAL |
| 1 | Z | 137 | SER |
| 1 | Z | 140 | LYS |
| 1 | Z | 142 | LYS |
| 1 | Z | 145 | LEU |
| 1 | Z | 147 | HIS |
| 1 | Z | 152 | ARG |
| 1 | Z | 154 | ARG |
| 1 | Z | 156 | ARG |
| 1 | Z | 157 | ARG |
| 1 | Z | 159 | GLU |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | Z | 166 | ASP |
| 1 | Z | 175 | GLN |
| 1 | Z | 177 | ARG |
| 1 | Z | 178 | VAL |
| 1 | Z | 180 | VAL |
| 1 | Z | 182 | ASP |
| 1 | Z | 196 | THR |
| 1 | Z | 197 | LEU |
| 1 | Z | 198 | ASP |
| 1 | Z | 202 | LYS |
| 1 | Z | 204 | LEU |
| 1 | Z | 205 | GLU |
| 1 | Z | 214 | LEU |
| 1 | Z | 216 | GLU |
| 1 | Z | 219 | ARG |
| 1 | Z | 227 | THR |
| 1 | Z | 228 | ASN |
| 1 | Z | 236 | ARG |
| 1 | Z | 262 | LYS |
| 1 | Z | 278 | LYS |
| 1 | Z | 281 | LYS |
| 1 | Z | 284 | ASN |
| 1 | Z | 307 | PHE |
| 1 | Z | 318 | ASP |
| 1 | Z | 319 | GLU |
| 1 | Z | 320 | MET |
| 1 | Z | 321 | LYS |
| 1 | Z | 322 | LEU |
| 1 | Z | 335 | LYS |
| 1 | Z | 336 | VAL |
| 1 | Z | 337 | GLN |
| 1 | Z | 351 | LEU |
| 1 | Z | 364 | ILE |
| 1 | Z | 369 | ARG |
| 1 | Z | 371 | VAL |
| 1 | Z | 402 | ARG |
| 1 | Z | 406 | LEU |
| 1 | Z | 415 | ASN |
| 1 | Z | 416 | ASN |
| 1 | Z | 418 | LEU |
| 1 | Z | 425 | ILE |
| 1 | Z | 426 | LEU |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | Z | 428 | THR |
| 1 | Z | 431 | GLU |
| 1 | Z | 437 | GLU |
| 1 | Z | 438 | VAL |
| 1 | Z | 439 | THR |
| 1 | Z | 449 | LEU |
| 1 | Z | 455 | GLN |
| 1 | Z | 456 | ASN |
| 1 | Z | 457 | LEU |
| 1 | Z | 461 | GLN |
| 1 | Z | 463 | LYS |
| 1 | Z | 465 | VAL |
| 1 | Z | 466 | ILE |
| 1 | Z | 468 | ARG |
| 1 | Z | 475 | GLU |
| 1 | Z | 477 | THR |
| 1 | Z | 478 | GLU |
| 1 | Z | 490 | VAL |
| 1 | Z | 494 | MET |
| 1 | Z | 497 | GLU |
| 1 | Z | 500 | ASP |
| 1 | X | 4 | LYS |
| 1 | X | 6 | ILE |
| 1 | X | 11 | GLN |
| 1 | X | 17 | ARG |
| 1 | X | 28 | ILE |
| 1 | X | 29 | SER |
| 1 | X | 30 | VAL |
| 1 | X | 66 | LYS |
| 1 | X | 71 | SER |
| 1 | X | 72 | ASP |
| 1 | X | 80 | THR |
| 1 | X | 82 | GLN |
| 1 | X | 83 | ARG |
| 1 | X | 107 | ARG |
| 1 | X | 117 | ARG |
| 1 | X | 118 | ASP |
| 1 | X | 120 | LEU |
| 1 | X | 121 | GLU |
| 1 | X | 125 | ARG |
| 1 | X | 131 | VAL |
| 1 | X | 137 | SER |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | X | 145 | LEU |
| 1 | X | 151 | SER |
| 1 | X | 152 | ARG |
| 1 | X | 157 | ARG |
| 1 | X | 159 | GLU |
| 1 | X | 168 | TRP |
| 1 | X | 175 | GLN |
| 1 | X | 177 | ARG |
| 1 | X | 180 | VAL |
| 1 | X | 182 | ASP |
| 1 | X | 188 | ARG |
| 1 | X | 190 | MET |
| 1 | X | 196 | THR |
| 1 | X | 197 | LEU |
| 1 | X | 202 | LYS |
| 1 | X | 204 | LEU |
| 1 | X | 205 | GLU |
| 1 | X | 211 | ARG |
| 1 | X | 213 | MET |
| 1 | X | 214 | LEU |
| 1 | X | 216 | GLU |
| 1 | X | 221 | SER |
| 1 | X | 222 | GLU |
| 1 | X | 224 | TYR |
| 1 | X | 226 | GLN |
| 1 | X | 229 | ILE |
| 1 | X | 235 | THR |
| 1 | X | 237 | ILE |
| 1 | X | 254 | LEU |
| 1 | X | 257 | LYS |
| 1 | X | 262 | LYS |
| 1 | X | 269 | CYS |
| 1 | X | 272 | LEU |
| 1 | X | 277 | GLU |
| 1 | X | 278 | LYS |
| 1 | X | 282 | SER |
| 1 | X | 295 | THR |
| 1 | X | 297 | GLU |
| 1 | X | 313 | ILE |
| 1 | X | 314 | GLN |
| 1 | X | 317 | ARG |
| 1 | X | 318 | ASP |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | X | 321 | LYS |
| 1 | X | 322 | LEU |
| 1 | X | 325 | ASP |
| 1 | X | 328 | ASP |
| 1 | X | 329 | SER |
| 1 | X | 351 | LEU |
| 1 | X | 389 | ARG |
| 1 | X | 392 | LEU |
| 1 | X | 395 | MET |
| 1 | X | 402 | ARG |
| 1 | X | 406 | LEU |
| 1 | X | 415 | ASN |
| 1 | X | 418 | LEU |
| 1 | X | 420 | GLN |
| 1 | X | 425 | ILE |
| 1 | X | 426 | LEU |
| 1 | X | 436 | ARG |
| 1 | X | 441 | LEU |
| 1 | X | 446 | LEU |
| 1 | X | 449 | LEU |
| 1 | X | 455 | GLN |
| 1 | X | 459 | GLU |
| 1 | X | 460 | LEU |
| 1 | X | 468 | ARG |
| 1 | X | 469 | GLU |
| 1 | X | 477 | THR |
| 1 | X | 479 | ARG |
| 1 | X | 482 | ARG |
| 1 | X | 487 | LYS |
| 1 | X | 492 | ARG |
| 1 | X | 498 | GLU |
| 1 | X | 499 | HIS |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (66) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | O | 11 | GLN |
| 1 | O | 23 | HIS |
| 1 | O | 47 | HIS |
| 1 | O | 73 | GLN |
| 1 | O | 81 | ASN |
| 1 | O | 82 | GLN |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | O | 127 | ASN |
| 1 | O | 179 | HIS |
| 1 | O | 185 | ASN |
| 1 | O | 253 | GLN |
| 1 | O | 299 | ASN |
| 1 | O | 324 | ASN |
| 1 | O | 374 | ASN |
| 1 | O | 396 | GLN |
| 1 | O | 415 | ASN |
| 1 | O | 422 | GLN |
| 1 | O | 455 | GLN |
| 1 | O | 456 | ASN |
| 1 | Y | 47 | HIS |
| 1 | Y | 114 | HIS |
| 1 | Y | 127 | ASN |
| 1 | Y | 175 | GLN |
| 1 | Y | 179 | HIS |
| 1 | Y | 195 | HIS |
| 1 | Y | 299 | ASN |
| 1 | Y | 314 | GLN |
| 1 | Y | 338 | ASN |
| 1 | Y | 374 | ASN |
| 1 | Y | 396 | GLN |
| 1 | Y | 415 | ASN |
| 1 | Y | 456 | ASN |
| 1 | Y | 461 | GLN |
| 1 | Z | 23 | HIS |
| 1 | Z | 47 | HIS |
| 1 | Z | 73 | GLN |
| 1 | Z | 81 | ASN |
| 1 | Z | 127 | ASN |
| 1 | Z | 185 | ASN |
| 1 | Z | 226 | GLN |
| 1 | Z | 228 | ASN |
| 1 | Z | 314 | GLN |
| 1 | Z | 337 | GLN |
| 1 | Z | 340 | ASN |
| 1 | Z | 374 | ASN |
| 1 | Z | 415 | ASN |
| 1 | Z | 420 | GLN |
| 1 | Z | 455 | GLN |
| 1 | Z | 456 | ASN |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | Z | 461 | GLN |
| 1 | Z | 499 | HIS |
| 1 | X | 23 | HIS |
| 1 | X | 47 | HIS |
| 1 | X | 81 | ASN |
| 1 | X | 114 | HIS |
| 1 | X | 127 | ASN |
| 1 | X | 147 | HIS |
| 1 | X | 185 | ASN |
| 1 | X | 195 | HIS |
| 1 | X | 226 | GLN |
| 1 | X | 299 | ASN |
| 1 | X | 337 | GLN |
| 1 | X | 396 | GLN |
| 1 | X | 415 | ASN |
| 1 | X | 420 | GLN |
| 1 | X | 422 | GLN |
| 1 | X | 499 | HIS |

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

10 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the

expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|-----|------|-------|-----|------|--------------|------|----------|-------------|------|----------|
| | | | | | Counts | RMSZ | # Z > 2 | Counts | RMSZ | # Z > 2 |
| 2 | SO4 | Z | 502 | - | 4,4,4 | 1.06 | 0 | 6,6,6 | 0.25 | 0 |
| 3 | GOL | Z | 504 | - | 5,5,5 | 0.20 | 0 | 5,5,5 | 0.79 | 0 |
| 2 | SO4 | O | 502 | - | 4,4,4 | 1.33 | 1 (25%) | 6,6,6 | 0.36 | 0 |
| 2 | SO4 | O | 503 | - | 4,4,4 | 1.76 | 2 (50%) | 6,6,6 | 0.46 | 0 |
| 3 | GOL | X | 503 | - | 5,5,5 | 0.31 | 0 | 5,5,5 | 0.73 | 0 |
| 2 | SO4 | X | 502 | - | 4,4,4 | 1.78 | 1 (25%) | 6,6,6 | 0.23 | 0 |
| 3 | GOL | Y | 503 | - | 5,5,5 | 0.35 | 0 | 5,5,5 | 0.30 | 0 |
| 2 | SO4 | Z | 503 | - | 4,4,4 | 1.74 | 1 (25%) | 6,6,6 | 0.35 | 0 |
| 2 | SO4 | Y | 502 | - | 4,4,4 | 1.56 | 1 (25%) | 6,6,6 | 0.52 | 0 |
| 3 | GOL | O | 504 | - | 5,5,5 | 0.88 | 0 | 5,5,5 | 0.74 | 0 |

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

| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|-----|------|-------|-----|------|---------|----------|-------|
| 3 | GOL | Z | 504 | - | - | 1/4/4/4 | - |
| 3 | GOL | Y | 503 | - | - | 2/4/4/4 | - |
| 3 | GOL | X | 503 | - | - | 0/4/4/4 | - |
| 3 | GOL | O | 504 | - | - | 0/4/4/4 | - |

All (6) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|-------|-------|-------------|----------|
| 2 | X | 502 | SO4 | O1-S | 3.00 | 1.62 | 1.46 |
| 2 | O | 503 | SO4 | O3-S | 2.80 | 1.71 | 1.47 |
| 2 | Y | 502 | SO4 | O3-S | 2.71 | 1.70 | 1.47 |
| 2 | O | 502 | SO4 | O1-S | -2.52 | 1.32 | 1.46 |
| 2 | Z | 503 | SO4 | O2-S | 2.32 | 1.58 | 1.46 |
| 2 | O | 503 | SO4 | O4-S | 2.00 | 1.64 | 1.47 |

There are no bond angle outliers.

There are no chirality outliers.

All (3) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms |
|-----|-------|-----|------|-------------|
| 3 | Y | 503 | GOL | O1-C1-C2-C3 |
| 3 | Z | 504 | GOL | O1-C1-C2-C3 |
| 3 | Y | 503 | GOL | O1-C1-C2-O2 |

There are no ring outliers.

7 monomers are involved in 16 short contacts:

| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|-----|------|---------|--------------|
| 2 | Z | 502 | SO4 | 1 | 0 |
| 3 | Z | 504 | GOL | 7 | 0 |
| 2 | O | 502 | SO4 | 2 | 0 |
| 3 | X | 503 | GOL | 1 | 0 |
| 3 | Y | 503 | GOL | 3 | 0 |
| 2 | Z | 503 | SO4 | 1 | 0 |
| 3 | O | 504 | GOL | 1 | 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

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

| Mol | Chain | Analysed | <RSRZ> | #RSRZ>2 | OWAB(Å ²) | Q<0.9 |
|-----|-------|-----------------|--------|---------------|-----------------------|-------|
| 1 | O | 497/501 (99%) | 0.11 | 23 (4%) 32 35 | 10, 36, 67, 75 | 0 |
| 1 | X | 498/501 (99%) | -0.01 | 17 (3%) 45 48 | 13, 34, 67, 75 | 0 |
| 1 | Y | 499/501 (99%) | -0.07 | 10 (2%) 65 66 | 13, 34, 65, 75 | 0 |
| 1 | Z | 498/501 (99%) | -0.09 | 16 (3%) 47 50 | 12, 33, 62, 75 | 0 |
| All | All | 1992/2004 (99%) | -0.02 | 66 (3%) 46 49 | 10, 34, 65, 75 | 0 |

All (66) RSRZ outliers are listed below:

| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 1 | Y | 158 | GLY | 5.6 |
| 1 | Y | 499 | HIS | 4.9 |
| 1 | Y | 327 | TYR | 4.9 |
| 1 | O | 460 | LEU | 4.8 |
| 1 | X | 460 | LEU | 4.4 |
| 1 | O | 463 | LYS | 4.2 |
| 1 | O | 326 | ALA | 4.1 |
| 1 | O | 456 | ASN | 4.0 |
| 1 | Y | 475 | GLU | 3.9 |
| 1 | O | 306 | VAL | 3.7 |
| 1 | Z | 476 | THR | 3.6 |
| 1 | Z | 500 | ASP | 3.1 |
| 1 | Y | 157 | ARG | 3.0 |
| 1 | O | 457 | LEU | 3.0 |
| 1 | O | 476 | THR | 2.9 |
| 1 | Y | 500 | ASP | 2.9 |
| 1 | X | 327 | TYR | 2.9 |
| 1 | Y | 148 | VAL | 2.9 |
| 1 | O | 103 | TRP | 2.9 |
| 1 | O | 305 | ALA | 2.9 |
| 1 | X | 157 | ARG | 2.9 |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 1 | Z | 306 | VAL | 2.8 |
| 1 | O | 269 | CYS | 2.8 |
| 1 | O | 270 | PHE | 2.7 |
| 1 | Y | 153 | GLU | 2.7 |
| 1 | O | 153 | GLU | 2.6 |
| 1 | O | 327 | TYR | 2.6 |
| 1 | Z | 477 | THR | 2.6 |
| 1 | O | 307 | PHE | 2.6 |
| 1 | O | 123 | TYR | 2.6 |
| 1 | X | 153 | GLU | 2.6 |
| 1 | Z | 327 | TYR | 2.5 |
| 1 | X | 264 | THR | 2.5 |
| 1 | X | 243 | ALA | 2.5 |
| 1 | X | 326 | ALA | 2.5 |
| 1 | Z | 404 | HIS | 2.5 |
| 1 | O | 353 | ALA | 2.5 |
| 1 | Z | 499 | HIS | 2.5 |
| 1 | O | 391 | VAL | 2.4 |
| 1 | Z | 307 | PHE | 2.4 |
| 1 | O | 25 | ALA | 2.4 |
| 1 | Z | 325 | ASP | 2.3 |
| 1 | X | 474 | ILE | 2.3 |
| 1 | Y | 103 | TRP | 2.3 |
| 1 | X | 267 | THR | 2.3 |
| 1 | X | 477 | THR | 2.3 |
| 1 | Z | 463 | LYS | 2.3 |
| 1 | O | 477 | THR | 2.2 |
| 1 | O | 202 | LYS | 2.2 |
| 1 | X | 307 | PHE | 2.2 |
| 1 | Z | 305 | ALA | 2.2 |
| 1 | X | 475 | GLU | 2.2 |
| 1 | Z | 267 | THR | 2.1 |
| 1 | Z | 103 | TRP | 2.1 |
| 1 | X | 103 | TRP | 2.1 |
| 1 | O | 212 | GLU | 2.1 |
| 1 | Z | 326 | ALA | 2.1 |
| 1 | X | 464 | ALA | 2.1 |
| 1 | Y | 151 | SER | 2.1 |
| 1 | Z | 151 | SER | 2.1 |
| 1 | Z | 153 | GLU | 2.1 |
| 1 | X | 23 | HIS | 2.1 |
| 1 | X | 279 | ALA | 2.1 |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 1 | X | 25 | ALA | 2.1 |
| 1 | O | 351 | LEU | 2.1 |
| 1 | O | 149 | GLU | 2.0 |

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

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

6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

6.4 Ligands [i](#)

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

| Mol | Type | Chain | Res | Atoms | RSCC | RSR | B-factors(Å ²) | Q<0.9 |
|-----|------|-------|-----|-------|------|------|----------------------------|-------|
| 2 | SO4 | O | 503 | 5/5 | 0.93 | 0.24 | 37,48,75,75 | 0 |
| 3 | GOL | O | 504 | 6/6 | 0.94 | 0.31 | 12,23,29,40 | 0 |
| 2 | SO4 | Y | 502 | 5/5 | 0.95 | 0.27 | 36,67,75,75 | 0 |
| 2 | SO4 | Z | 503 | 5/5 | 0.96 | 0.26 | 51,60,75,75 | 0 |
| 2 | SO4 | X | 502 | 5/5 | 0.97 | 0.33 | 30,75,75,75 | 0 |
| 3 | GOL | X | 503 | 6/6 | 0.97 | 0.30 | 5,20,29,35 | 0 |
| 3 | GOL | Z | 504 | 6/6 | 0.98 | 0.26 | 5,16,20,54 | 0 |
| 3 | GOL | Y | 503 | 6/6 | 0.99 | 0.27 | 11,18,30,63 | 0 |
| 2 | SO4 | Z | 502 | 5/5 | 0.99 | 0.10 | 27,48,75,75 | 0 |
| 2 | SO4 | O | 502 | 5/5 | 0.99 | 0.11 | 11,36,68,75 | 0 |

6.5 Other polymers [i](#)

There are no such residues in this entry.