



Full wwPDB X-ray Structure Validation Report ⓘ

Aug 16, 2023 – 02:04 PM EDT

PDB ID : 1ZOF
Title : Crystal structure of alkyl hydroperoxide-reductase (AhpC) from *Helicobacter Pylori*
Authors : Papinutto, E.; Windle, H.J.; Cendron, L.; Battistutta, R.; Kelleher, D.; Zantotti, G.
Deposited on : 2005-05-13
Resolution : 2.95 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
Xtriage (Phenix) : 1.13
EDS : 2.35
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.35

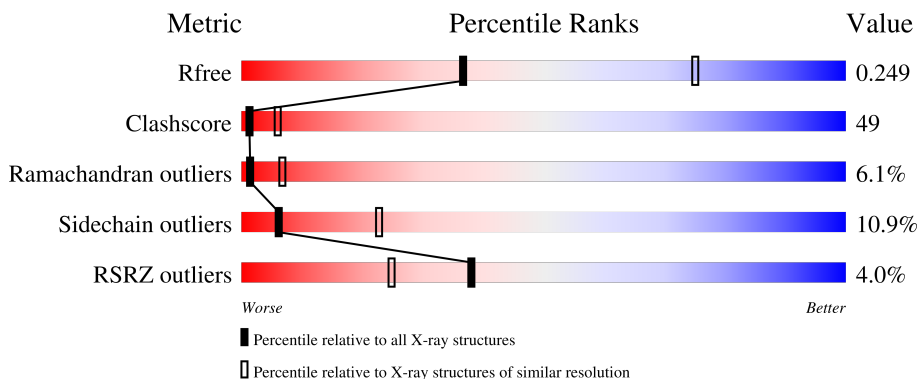
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.95 Å.

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



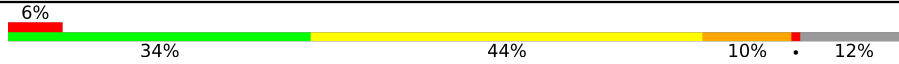

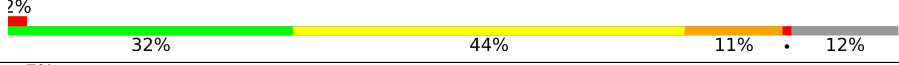
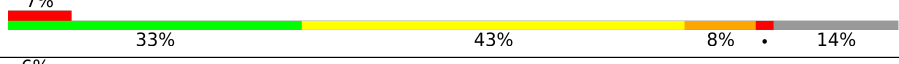
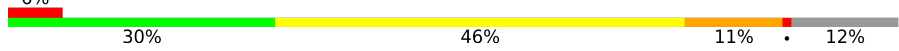
| Metric | Whole archive (#Entries) | Similar resolution (#Entries, resolution range(Å)) |
|-----------------------|-----------------------------|---|
| R_{free} | 130704 | 3104 (3.00-2.92) |
| Clashscore | 141614 | 3462 (3.00-2.92) |
| Ramachandran outliers | 138981 | 3340 (3.00-2.92) |
| Sidechain outliers | 138945 | 3343 (3.00-2.92) |
| RSRZ outliers | 127900 | 2986 (3.00-2.92) |

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 | A | 198 | 2% 35% 40% 9% 14% |
| 1 | B | 198 | 0% 30% 47% 10% 12% |
| 1 | C | 198 | 2% 32% 44% 8% 14% |
| 1 | D | 198 | 4% 28% 49% 9% 12% |
| 1 | E | 198 | 6% 30% 46% 9% 14% |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|--|
| 1 | F | 198 |  |
| 1 | G | 198 |  |
| 1 | H | 198 |  |
| 1 | I | 198 |  |
| 1 | J | 198 |  |

2 Entry composition [i](#)

There are 2 unique types of molecules in this entry. The entry contains 13770 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 alkyl hydroperoxide-reductase.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| | | | Total | C | N | O | S | | | |
| 1 | A | 170 | 1349 | 871 | 226 | 245 | 7 | 0 | 0 | 0 |
| 1 | B | 175 | 1392 | 899 | 236 | 250 | 7 | 0 | 0 | 0 |
| 1 | C | 170 | 1349 | 871 | 226 | 245 | 7 | 0 | 0 | 0 |
| 1 | D | 175 | 1392 | 899 | 236 | 250 | 7 | 0 | 0 | 0 |
| 1 | E | 170 | 1349 | 871 | 226 | 245 | 7 | 0 | 0 | 0 |
| 1 | F | 175 | 1392 | 899 | 236 | 250 | 7 | 0 | 0 | 0 |
| 1 | G | 170 | 1349 | 871 | 226 | 245 | 7 | 0 | 0 | 0 |
| 1 | H | 175 | 1392 | 899 | 236 | 250 | 7 | 0 | 0 | 0 |
| 1 | I | 170 | 1349 | 871 | 226 | 245 | 7 | 0 | 0 | 0 |
| 1 | J | 175 | 1392 | 899 | 236 | 250 | 7 | 0 | 0 | 0 |

There are 10 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|---------------------|------------|
| A | 2 | VAL | LEU | engineered mutation | UNP P56876 |
| B | 2 | VAL | LEU | engineered mutation | UNP P56876 |
| C | 2 | VAL | LEU | engineered mutation | UNP P56876 |
| D | 2 | VAL | LEU | engineered mutation | UNP P56876 |
| E | 2 | VAL | LEU | engineered mutation | UNP P56876 |
| F | 2 | VAL | LEU | engineered mutation | UNP P56876 |
| G | 2 | VAL | LEU | engineered mutation | UNP P56876 |
| H | 2 | VAL | LEU | engineered mutation | UNP P56876 |
| I | 2 | VAL | LEU | engineered mutation | UNP P56876 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|---------------------|------------|
| J | 2 | VAL | LEU | engineered mutation | UNP P56876 |

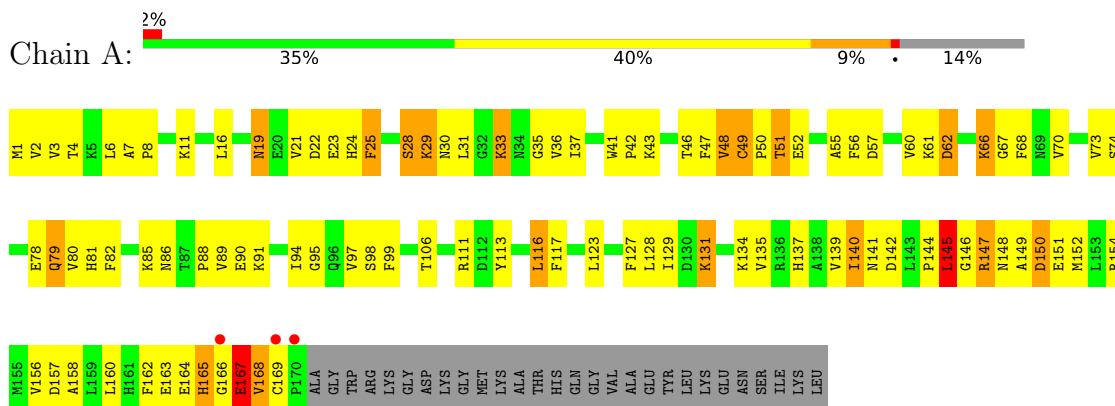
- Molecule 2 is water.

| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|-----|-------|----------|------------------|---------|---------|
| 2 | A | 14 | Total O 14 14 | 0 | 0 |
| 2 | B | 8 | Total O 8 8 | 0 | 0 |
| 2 | C | 9 | Total O 9 9 | 0 | 0 |
| 2 | D | 6 | Total O 6 6 | 0 | 0 |
| 2 | E | 9 | Total O 9 9 | 0 | 0 |
| 2 | F | 7 | Total O 7 7 | 0 | 0 |
| 2 | G | 2 | Total O 2 2 | 0 | 0 |
| 2 | H | 2 | Total O 2 2 | 0 | 0 |
| 2 | I | 2 | Total O 2 2 | 0 | 0 |
| 2 | J | 6 | Total O 6 6 | 0 | 0 |

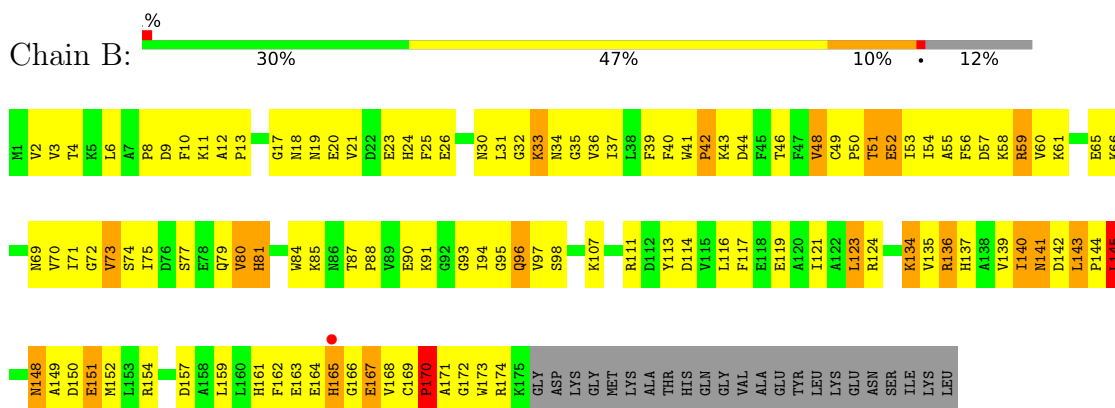
3 Residue-property plots [i](#)

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

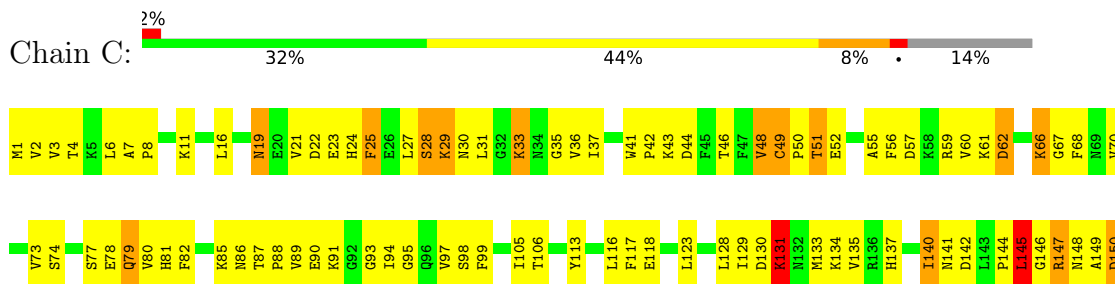
- Molecule 1: alkyl hydroperoxide-reductase

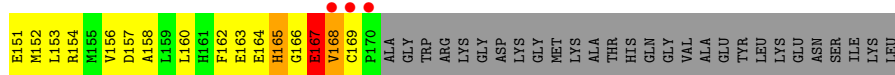


- Molecule 1: alkyl hydroperoxide-reductase

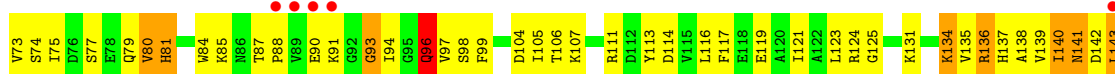


- Molecule 1: alkyl hydroperoxide-reductase

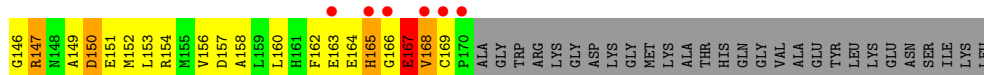




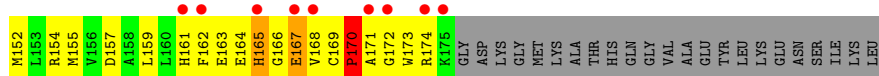
- Molecule 1: alkyl hydroperoxide-reductase



- Molecule 1: alkyl hydroperoxide-reductase

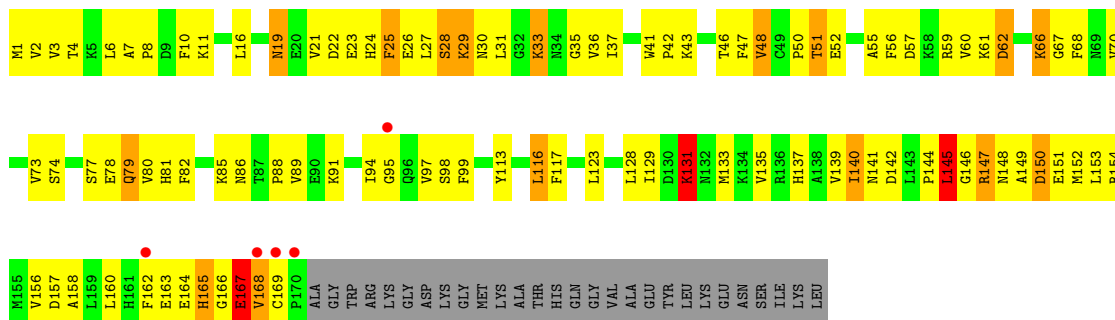


- Molecule 1: alkyl hydroperoxide-reductase

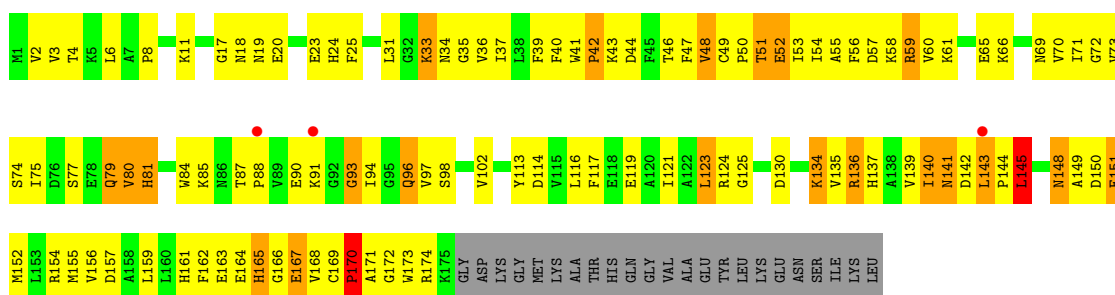


- Molecule 1: alkyl hydroperoxide-reductase

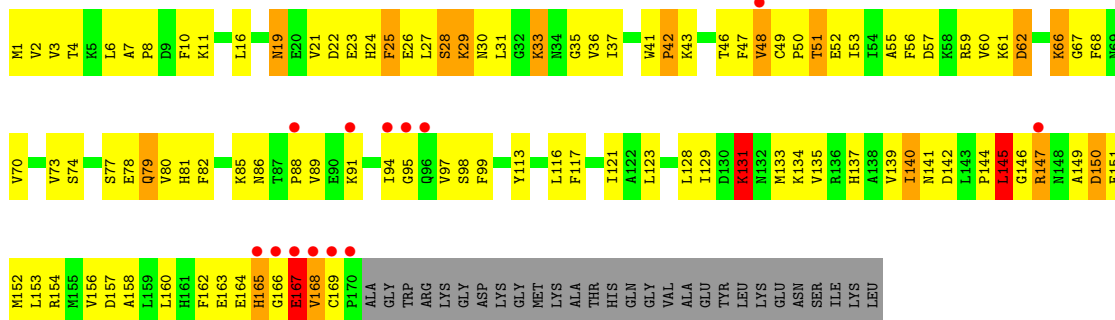




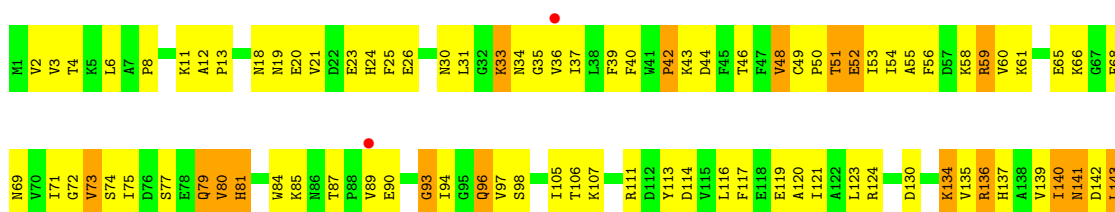
- Molecule 1: alkyl hydroperoxide-reductase



- Molecule 1: alkyl hydroperoxide-reductase



- Molecule 1: alkyl hydroperoxide-reductase



| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| P144 | L145 | G146 | R147 | N148 | A149 | D150 | E151 | M152 | L153 | R154 | M155 | V156 | D157 | A158 | L159 | L160 | H161 | F162 | E163 | E164 | H165 | G166 | V168 | C169 | P170 | A171 | G172 | W173 | R174 | R175 | GLY | ASP | LYS | LYS | GLY | MET | LYS | ALA | THR | HIS | GLN | GLY | VAL | ALA | GLU | TYR | LEU | LYS | GLU | ASN | SER | ILE | LYS | LEU |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

4 Data and refinement statistics

| Property | Value | Source |
|---|---|------------------|
| Space group | C 1 2 1 | Depositor |
| Cell constants a, b, c, α , β , γ | 193.86Å 138.42Å 127.54Å 90.00° 125.70° 90.00° | Depositor |
| Resolution (Å) | 52.80 – 2.95 52.80 – 2.90 | Depositor EDS |
| % Data completeness (in resolution range) | 99.9 (52.80-2.95) 99.8 (52.80-2.90) | Depositor EDS |
| R_{merge} | 0.09 | Depositor |
| R_{sym} | (Not available) | Depositor |
| $\langle I/\sigma(I) \rangle$ ¹ | 2.02 (at 2.91Å) | Xtrriage |
| Refinement program | CNS 1.1 | Depositor |
| R, R_{free} | 0.236 , 0.260 0.227 , 0.249 | Depositor DCC |
| R_{free} test set | 4943 reflections (8.17%) | wwPDB-VP |
| Wilson B-factor (Å ²) | 63.3 | Xtrriage |
| Anisotropy | 0.325 | Xtrriage |
| Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²) | 0.37 , 72.9 | EDS |
| L-test for twinning ² | $\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$ | Xtrriage |
| Estimated twinning fraction | No twinning to report. | Xtrriage |
| F_o, F_c correlation | 0.92 | EDS |
| Total number of atoms | 13770 | wwPDB-VP |
| Average B, all atoms (Å ²) | 59.0 | wwPDB-VP |

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.20% of the height of the origin peak. No significant pseudotranslation is detected.*

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](#)

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

| Mol | Chain | Bond lengths | | Bond angles | |
|-----|-------|--------------|---------|-------------|---------|
| | | RMSZ | # Z >5 | RMSZ | # Z >5 |
| 1 | A | 0.48 | 0/1381 | 0.67 | 0/1867 |
| 1 | B | 0.54 | 0/1426 | 0.70 | 0/1927 |
| 1 | C | 0.49 | 0/1381 | 0.67 | 0/1867 |
| 1 | D | 0.55 | 0/1426 | 0.69 | 0/1927 |
| 1 | E | 0.49 | 0/1381 | 0.67 | 0/1867 |
| 1 | F | 0.51 | 0/1426 | 0.67 | 0/1927 |
| 1 | G | 0.46 | 0/1381 | 0.65 | 0/1867 |
| 1 | H | 0.50 | 0/1426 | 0.68 | 0/1927 |
| 1 | I | 0.50 | 0/1381 | 0.67 | 0/1867 |
| 1 | J | 0.54 | 0/1426 | 0.68 | 0/1927 |
| All | All | 0.51 | 0/14035 | 0.67 | 0/18970 |

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1 | A | 1349 | 0 | 1340 | 128 | 1 |
| 1 | B | 1392 | 0 | 1384 | 171 | 0 |
| 1 | C | 1349 | 0 | 1340 | 131 | 1 |
| 1 | D | 1392 | 0 | 1384 | 165 | 0 |
| 1 | E | 1349 | 0 | 1340 | 134 | 0 |
| 1 | F | 1392 | 0 | 1384 | 151 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1 | G | 1349 | 0 | 1340 | 122 | 0 |
| 1 | H | 1392 | 0 | 1384 | 158 | 0 |
| 1 | I | 1349 | 0 | 1340 | 131 | 0 |
| 1 | J | 1392 | 0 | 1384 | 155 | 0 |
| 2 | A | 14 | 0 | 0 | 2 | 0 |
| 2 | B | 8 | 0 | 0 | 4 | 0 |
| 2 | C | 9 | 0 | 0 | 1 | 0 |
| 2 | D | 6 | 0 | 0 | 2 | 0 |
| 2 | E | 9 | 0 | 0 | 4 | 0 |
| 2 | F | 7 | 0 | 0 | 0 | 0 |
| 2 | G | 2 | 0 | 0 | 0 | 0 |
| 2 | H | 2 | 0 | 0 | 0 | 0 |
| 2 | I | 2 | 0 | 0 | 1 | 0 |
| 2 | J | 6 | 0 | 0 | 1 | 0 |
| All | All | 13770 | 0 | 13620 | 1332 | 1 |

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 49.

All (1332) 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:J:53:ILE:HD12 | 1:J:53:ILE:H | 1.24 | 1.01 |
| 1:B:53:ILE:HD12 | 1:B:53:ILE:H | 1.27 | 0.99 |
| 1:B:3:VAL:HA | 1:B:135:VAL:HG23 | 1.42 | 0.98 |
| 1:H:53:ILE:HD12 | 1:H:53:ILE:H | 1.29 | 0.98 |
| 1:C:137:HIS:HD2 | 1:D:141:ASN:HB2 | 1.25 | 0.97 |
| 1:F:3:VAL:HA | 1:F:135:VAL:HG23 | 1.46 | 0.97 |
| 1:H:3:VAL:HA | 1:H:135:VAL:HG23 | 1.47 | 0.96 |
| 1:D:3:VAL:HA | 1:D:135:VAL:HG23 | 1.46 | 0.96 |
| 1:J:3:VAL:HA | 1:J:135:VAL:HG23 | 1.48 | 0.96 |
| 1:G:137:HIS:HD2 | 1:H:141:ASN:HB2 | 1.30 | 0.96 |
| 1:F:53:ILE:H | 1:F:53:ILE:HD12 | 1.27 | 0.96 |
| 1:I:137:HIS:HD2 | 1:J:141:ASN:HB2 | 1.28 | 0.95 |
| 1:C:160:LEU:HA | 1:C:163:GLU:HG2 | 1.49 | 0.95 |
| 1:A:160:LEU:HA | 1:A:163:GLU:HG2 | 1.49 | 0.94 |
| 1:J:116:LEU:HD11 | 1:J:119:GLU:HA | 1.51 | 0.93 |
| 1:H:169:CYS:HB2 | 1:H:170:PRO:HD2 | 1.51 | 0.93 |
| 1:D:53:ILE:HD12 | 1:D:53:ILE:H | 1.35 | 0.92 |
| 1:E:160:LEU:HA | 1:E:163:GLU:HG2 | 1.52 | 0.92 |
| 1:B:169:CYS:HB2 | 1:B:170:PRO:HD2 | 1.51 | 0.92 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:160:LEU:HA | 1:G:163:GLU:HG2 | 1.52 | 0.90 |
| 1:D:169:CYS:HB2 | 1:D:170:PRO:HD2 | 1.54 | 0.90 |
| 1:F:169:CYS:HB2 | 1:F:170:PRO:HD2 | 1.52 | 0.89 |
| 1:D:2:VAL:HG12 | 1:D:135:VAL:HG21 | 1.54 | 0.89 |
| 1:D:43:LYS:HD2 | 1:E:79:GLN:HG3 | 1.52 | 0.89 |
| 1:I:160:LEU:HA | 1:I:163:GLU:HG2 | 1.51 | 0.88 |
| 1:D:116:LEU:HD11 | 1:D:119:GLU:HA | 1.55 | 0.88 |
| 1:H:2:VAL:HG12 | 1:H:135:VAL:HG21 | 1.55 | 0.88 |
| 1:F:18:ASN:OD1 | 1:F:20:GLU:HG2 | 1.74 | 0.87 |
| 1:F:116:LEU:HD11 | 1:F:119:GLU:HA | 1.57 | 0.87 |
| 1:F:2:VAL:HG12 | 1:F:135:VAL:HG21 | 1.56 | 0.86 |
| 1:B:48:VAL:HG22 | 1:B:49:CYS:H | 1.40 | 0.86 |
| 1:E:137:HIS:HD2 | 1:F:141:ASN:HB2 | 1.41 | 0.86 |
| 1:J:2:VAL:HG12 | 1:J:135:VAL:HG21 | 1.57 | 0.85 |
| 1:B:18:ASN:OD1 | 1:B:20:GLU:HG2 | 1.77 | 0.85 |
| 1:J:169:CYS:HB2 | 1:J:170:PRO:HD2 | 1.55 | 0.85 |
| 1:H:48:VAL:HG22 | 1:H:49:CYS:H | 1.42 | 0.85 |
| 1:J:48:VAL:HG22 | 1:J:49:CYS:H | 1.42 | 0.85 |
| 1:D:48:VAL:HG22 | 1:D:49:CYS:H | 1.42 | 0.84 |
| 1:F:48:VAL:HG22 | 1:F:49:CYS:H | 1.42 | 0.84 |
| 1:E:88:PRO:HB2 | 1:E:91:LYS:HB2 | 1.58 | 0.84 |
| 1:D:18:ASN:OD1 | 1:D:20:GLU:HG2 | 1.78 | 0.83 |
| 1:H:18:ASN:OD1 | 1:H:20:GLU:HG2 | 1.78 | 0.83 |
| 1:H:116:LEU:HD11 | 1:H:119:GLU:HA | 1.61 | 0.82 |
| 1:A:137:HIS:HD2 | 1:B:141:ASN:HB2 | 1.40 | 0.82 |
| 1:B:33:LYS:HG3 | 1:B:34:ASN:ND2 | 1.94 | 0.82 |
| 1:C:88:PRO:HB2 | 1:C:91:LYS:HB2 | 1.61 | 0.82 |
| 1:C:137:HIS:CD2 | 1:D:141:ASN:HB2 | 2.13 | 0.82 |
| 1:I:88:PRO:HB2 | 1:I:91:LYS:HB2 | 1.60 | 0.82 |
| 1:B:116:LEU:HD11 | 1:B:119:GLU:HA | 1.61 | 0.82 |
| 1:F:136:ARG:HA | 1:F:136:ARG:HH11 | 1.45 | 0.82 |
| 1:G:85:LYS:HA | 1:G:94:ILE:HG22 | 1.60 | 0.81 |
| 1:B:85:LYS:HA | 1:B:94:ILE:HG22 | 1.62 | 0.81 |
| 1:I:137:HIS:CD2 | 1:J:141:ASN:HB2 | 2.16 | 0.81 |
| 1:B:42:PRO:HB3 | 1:B:121:ILE:HD12 | 1.61 | 0.80 |
| 1:I:85:LYS:HA | 1:I:94:ILE:HG22 | 1.63 | 0.80 |
| 1:E:147:ARG:HB3 | 1:E:147:ARG:HH11 | 1.47 | 0.80 |
| 1:C:123:LEU:HD23 | 1:C:140:ILE:HD11 | 1.64 | 0.80 |
| 1:A:88:PRO:HB2 | 1:A:91:LYS:HB2 | 1.63 | 0.79 |
| 1:A:85:LYS:HA | 1:A:94:ILE:HG22 | 1.63 | 0.79 |
| 1:G:123:LEU:HD23 | 1:G:140:ILE:HD11 | 1.62 | 0.79 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:137:HIS:CD2 | 1:H:141:ASN:HB2 | 2.16 | 0.79 |
| 1:C:85:LYS:HA | 1:C:94:ILE:HG22 | 1.63 | 0.79 |
| 1:D:117:PHE:HB2 | 1:D:123:LEU:HD13 | 1.63 | 0.78 |
| 1:H:117:PHE:HB2 | 1:H:123:LEU:HD13 | 1.65 | 0.78 |
| 1:B:136:ARG:HH11 | 1:B:136:ARG:HA | 1.49 | 0.78 |
| 1:G:88:PRO:HB2 | 1:G:91:LYS:HB2 | 1.64 | 0.78 |
| 1:B:3:VAL:HA | 1:B:135:VAL:CG2 | 2.14 | 0.78 |
| 1:H:36:VAL:HG13 | 1:H:69:ASN:O | 1.84 | 0.77 |
| 1:B:2:VAL:HG12 | 1:B:135:VAL:HG21 | 1.65 | 0.77 |
| 1:B:53:ILE:H | 1:B:53:ILE:CD1 | 1.98 | 0.77 |
| 1:F:85:LYS:HA | 1:F:94:ILE:HG22 | 1.65 | 0.77 |
| 1:G:147:ARG:HH11 | 1:G:147:ARG:HB3 | 1.48 | 0.77 |
| 1:D:85:LYS:HA | 1:D:94:ILE:HG22 | 1.65 | 0.77 |
| 1:A:147:ARG:HH11 | 1:A:147:ARG:HB3 | 1.49 | 0.77 |
| 1:F:43:LYS:HD2 | 1:G:79:GLN:HG3 | 1.68 | 0.76 |
| 1:E:123:LEU:HD23 | 1:E:140:ILE:HD11 | 1.65 | 0.76 |
| 1:D:143:LEU:HB3 | 1:D:145:LEU:HD11 | 1.66 | 0.76 |
| 1:F:3:VAL:HA | 1:F:135:VAL:CG2 | 2.16 | 0.76 |
| 1:H:85:LYS:HA | 1:H:94:ILE:HG22 | 1.65 | 0.76 |
| 1:I:123:LEU:HD23 | 1:I:140:ILE:HD11 | 1.65 | 0.76 |
| 1:E:85:LYS:HA | 1:E:94:ILE:HG22 | 1.67 | 0.76 |
| 1:J:33:LYS:HG3 | 1:J:34:ASN:ND2 | 1.99 | 0.76 |
| 1:H:43:LYS:HD2 | 1:I:79:GLN:HG3 | 1.68 | 0.75 |
| 1:A:3:VAL:CB | 1:B:140:ILE:HD11 | 2.17 | 0.74 |
| 1:B:117:PHE:HB2 | 1:B:123:LEU:HD13 | 1.69 | 0.74 |
| 1:H:136:ARG:HA | 1:H:136:ARG:HH11 | 1.53 | 0.74 |
| 1:H:33:LYS:HB2 | 1:H:33:LYS:NZ | 2.02 | 0.74 |
| 1:A:123:LEU:HD23 | 1:A:140:ILE:HD11 | 1.69 | 0.74 |
| 1:D:6:LEU:HD23 | 1:D:134:LYS:HD2 | 1.70 | 0.74 |
| 1:F:117:PHE:HB2 | 1:F:123:LEU:HD13 | 1.70 | 0.74 |
| 1:J:18:ASN:OD1 | 1:J:20:GLU:HG2 | 1.88 | 0.74 |
| 1:H:143:LEU:HB3 | 1:H:145:LEU:HD11 | 1.67 | 0.74 |
| 1:B:36:VAL:HG22 | 1:B:69:ASN:HB2 | 1.69 | 0.74 |
| 1:G:33:LYS:HE2 | 1:G:33:LYS:H | 1.52 | 0.74 |
| 1:D:36:VAL:HG22 | 1:D:69:ASN:HB2 | 1.70 | 0.73 |
| 1:D:36:VAL:HG11 | 1:D:71:ILE:HD12 | 1.69 | 0.73 |
| 1:J:19:ASN:OD1 | 1:J:85:LYS:HD3 | 1.88 | 0.73 |
| 1:F:36:VAL:HG13 | 1:F:69:ASN:O | 1.89 | 0.73 |
| 1:C:147:ARG:HH11 | 1:C:147:ARG:HB3 | 1.54 | 0.73 |
| 1:G:33:LYS:HE2 | 1:G:33:LYS:N | 2.04 | 0.73 |
| 1:H:3:VAL:HA | 1:H:135:VAL:CG2 | 2.19 | 0.73 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:J:6:LEU:HD23 | 1:J:134:LYS:HD2 | 1.70 | 0.73 |
| 1:J:53:ILE:H | 1:J:53:ILE:CD1 | 1.99 | 0.73 |
| 1:B:43:LYS:HD2 | 1:C:79:GLN:HG3 | 1.68 | 0.73 |
| 1:A:33:LYS:HE2 | 1:A:33:LYS:N | 2.05 | 0.72 |
| 1:E:33:LYS:H | 1:E:33:LYS:HE2 | 1.54 | 0.72 |
| 1:F:6:LEU:HD23 | 1:F:134:LYS:HD2 | 1.71 | 0.72 |
| 1:D:42:PRO:HB3 | 1:D:121:ILE:HD12 | 1.71 | 0.72 |
| 1:D:48:VAL:HG13 | 1:D:49:CYS:N | 2.05 | 0.72 |
| 1:H:6:LEU:HD23 | 1:H:134:LYS:HD2 | 1.70 | 0.72 |
| 1:H:77:SER:OG | 1:H:80:VAL:HG12 | 1.89 | 0.72 |
| 1:I:147:ARG:HH11 | 1:I:147:ARG:HB3 | 1.53 | 0.72 |
| 1:B:52:GLU:HG2 | 1:B:124:ARG:NH1 | 2.04 | 0.72 |
| 1:F:53:ILE:H | 1:F:53:ILE:CD1 | 2.00 | 0.72 |
| 1:J:123:LEU:HD23 | 1:J:140:ILE:HD13 | 1.71 | 0.72 |
| 1:H:52:GLU:HG2 | 1:H:124:ARG:NH1 | 2.05 | 0.71 |
| 1:D:117:PHE:HB2 | 1:D:123:LEU:CD1 | 2.20 | 0.71 |
| 1:J:87:THR:O | 1:J:93:GLY:HA3 | 1.90 | 0.71 |
| 1:F:140:ILE:HD12 | 1:F:141:ASN:N | 2.05 | 0.71 |
| 1:I:33:LYS:HE2 | 1:I:33:LYS:N | 2.06 | 0.71 |
| 1:A:137:HIS:CD2 | 1:B:141:ASN:HB2 | 2.25 | 0.71 |
| 1:A:142:ASP:CG | 1:B:136:ARG:HH12 | 1.93 | 0.71 |
| 1:F:48:VAL:HG13 | 1:F:49:CYS:N | 2.04 | 0.71 |
| 1:F:55:ALA:O | 1:F:59:ARG:HD3 | 1.90 | 0.71 |
| 1:J:33:LYS:HB2 | 1:J:33:LYS:NZ | 2.06 | 0.71 |
| 1:J:85:LYS:HA | 1:J:94:ILE:HG22 | 1.72 | 0.71 |
| 1:A:160:LEU:HA | 1:A:163:GLU:CG | 2.21 | 0.71 |
| 1:E:137:HIS:CD2 | 1:F:141:ASN:HB2 | 2.23 | 0.71 |
| 1:F:117:PHE:HB2 | 1:F:123:LEU:CD1 | 2.21 | 0.71 |
| 1:D:55:ALA:O | 1:D:59:ARG:HD3 | 1.90 | 0.71 |
| 1:E:36:VAL:HG12 | 1:E:37:ILE:H | 1.55 | 0.71 |
| 1:F:77:SER:OG | 1:F:80:VAL:HG12 | 1.91 | 0.71 |
| 1:G:36:VAL:HG12 | 1:G:37:ILE:H | 1.55 | 0.71 |
| 1:C:36:VAL:HG12 | 1:C:37:ILE:H | 1.56 | 0.70 |
| 1:I:33:LYS:HE2 | 1:I:33:LYS:H | 1.55 | 0.70 |
| 1:I:169:CYS:HG | 1:J:49:CYS:HG | 1.39 | 0.70 |
| 1:D:3:VAL:HA | 1:D:135:VAL:CG2 | 2.19 | 0.70 |
| 1:J:66:LYS:HE2 | 1:J:157:ASP:OD1 | 1.91 | 0.70 |
| 1:A:3:VAL:HG21 | 1:B:140:ILE:HD11 | 1.73 | 0.70 |
| 1:A:33:LYS:HE2 | 1:A:33:LYS:H | 1.56 | 0.70 |
| 1:H:8:PRO:HG2 | 1:H:113:TYR:CE1 | 2.27 | 0.70 |
| 1:J:143:LEU:CG | 1:J:144:PRO:HD2 | 2.22 | 0.70 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:52:GLU:HG2 | 1:D:124:ARG:NH1 | 2.07 | 0.70 |
| 1:G:142:ASP:CG | 1:H:136:ARG:HH12 | 1.94 | 0.70 |
| 1:J:136:ARG:HH11 | 1:J:136:ARG:HA | 1.57 | 0.70 |
| 1:A:140:ILE:HG13 | 1:B:3:VAL:HG21 | 1.74 | 0.70 |
| 1:D:61:LYS:O | 1:D:65:GLU:HG3 | 1.92 | 0.70 |
| 1:F:61:LYS:O | 1:F:65:GLU:HG3 | 1.92 | 0.70 |
| 1:B:6:LEU:HD23 | 1:B:134:LYS:HD2 | 1.73 | 0.69 |
| 1:A:3:VAL:HG11 | 1:B:140:ILE:HD11 | 1.74 | 0.69 |
| 1:E:142:ASP:CG | 1:F:136:ARG:HH12 | 1.95 | 0.69 |
| 1:D:143:LEU:CG | 1:D:144:PRO:HD2 | 2.22 | 0.69 |
| 1:J:143:LEU:HB3 | 1:J:145:LEU:HD11 | 1.73 | 0.69 |
| 1:D:140:ILE:HD12 | 1:D:141:ASN:N | 2.07 | 0.69 |
| 1:F:143:LEU:CG | 1:F:144:PRO:HD2 | 2.22 | 0.69 |
| 1:A:36:VAL:HG12 | 1:A:37:ILE:H | 1.56 | 0.69 |
| 1:B:117:PHE:HB2 | 1:B:123:LEU:CD1 | 2.22 | 0.69 |
| 1:C:160:LEU:HA | 1:C:163:GLU:CG | 2.20 | 0.69 |
| 1:D:43:LYS:HD2 | 1:E:79:GLN:CG | 2.21 | 0.69 |
| 1:E:160:LEU:HA | 1:E:163:GLU:CG | 2.22 | 0.69 |
| 1:C:169:CYS:HG | 1:D:49:CYS:HG | 1.40 | 0.69 |
| 1:H:48:VAL:HG22 | 1:H:49:CYS:N | 2.08 | 0.69 |
| 1:F:52:GLU:HG2 | 1:F:124:ARG:NH1 | 2.08 | 0.69 |
| 1:H:48:VAL:HG13 | 1:H:49:CYS:N | 2.06 | 0.69 |
| 1:J:3:VAL:HA | 1:J:135:VAL:CG2 | 2.22 | 0.69 |
| 1:B:48:VAL:HG22 | 1:B:49:CYS:N | 2.07 | 0.69 |
| 1:B:87:THR:O | 1:B:93:GLY:HA3 | 1.93 | 0.69 |
| 1:B:48:VAL:HG13 | 1:B:49:CYS:N | 2.06 | 0.68 |
| 1:I:36:VAL:HG12 | 1:I:37:ILE:H | 1.57 | 0.68 |
| 1:B:143:LEU:CG | 1:B:144:PRO:HD2 | 2.22 | 0.68 |
| 1:C:33:LYS:N | 1:C:33:LYS:HE2 | 2.08 | 0.68 |
| 1:G:140:ILE:HG13 | 1:H:3:VAL:HG21 | 1.74 | 0.68 |
| 1:D:136:ARG:HA | 1:D:136:ARG:HH11 | 1.59 | 0.68 |
| 1:E:33:LYS:HE2 | 1:E:33:LYS:N | 2.08 | 0.68 |
| 1:D:56:PHE:CZ | 1:D:149:ALA:HA | 2.28 | 0.68 |
| 1:C:33:LYS:HE2 | 1:C:33:LYS:H | 1.59 | 0.68 |
| 1:D:48:VAL:HG22 | 1:D:49:CYS:N | 2.08 | 0.68 |
| 1:E:74:SER:HB3 | 1:E:81:HIS:HE1 | 1.59 | 0.68 |
| 1:I:74:SER:HB3 | 1:I:81:HIS:HE1 | 1.58 | 0.68 |
| 1:A:62:ASP:OD2 | 1:A:62:ASP:N | 2.25 | 0.68 |
| 1:B:19:ASN:OD1 | 1:B:85:LYS:HD3 | 1.94 | 0.67 |
| 1:I:160:LEU:HA | 1:I:163:GLU:CG | 2.22 | 0.67 |
| 1:J:48:VAL:HG13 | 1:J:49:CYS:N | 2.09 | 0.67 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:79:GLN:HG3 | 1:J:43:LYS:HD2 | 1.75 | 0.67 |
| 1:F:140:ILE:HD12 | 1:F:140:ILE:C | 2.15 | 0.67 |
| 1:H:33:LYS:HG3 | 1:H:34:ASN:ND2 | 2.10 | 0.67 |
| 1:E:62:ASP:OD2 | 1:E:62:ASP:N | 2.27 | 0.67 |
| 1:F:36:VAL:HG22 | 1:F:69:ASN:HB2 | 1.76 | 0.67 |
| 1:B:36:VAL:HG13 | 1:B:69:ASN:O | 1.94 | 0.67 |
| 1:H:140:ILE:HD12 | 1:H:141:ASN:N | 2.09 | 0.67 |
| 1:H:143:LEU:CG | 1:H:144:PRO:HD2 | 2.24 | 0.67 |
| 1:J:55:ALA:O | 1:J:59:ARG:HD3 | 1.94 | 0.67 |
| 1:B:79:GLN:HG3 | 1:C:43:LYS:HD3 | 1.77 | 0.67 |
| 1:F:48:VAL:HG22 | 1:F:49:CYS:N | 2.08 | 0.67 |
| 1:J:60:VAL:HG21 | 1:J:98:SER:OG | 1.94 | 0.67 |
| 1:I:62:ASP:OD2 | 1:I:62:ASP:N | 2.28 | 0.67 |
| 1:E:11:LYS:CE | 1:E:24:HIS:HB3 | 2.25 | 0.67 |
| 1:J:56:PHE:CZ | 1:J:149:ALA:HA | 2.30 | 0.67 |
| 1:A:33:LYS:HD2 | 1:A:67:GLY:HA2 | 1.77 | 0.66 |
| 1:D:60:VAL:HG21 | 1:D:98:SER:OG | 1.95 | 0.66 |
| 1:H:60:VAL:HG21 | 1:H:98:SER:OG | 1.95 | 0.66 |
| 1:D:123:LEU:HD23 | 1:D:140:ILE:HD13 | 1.77 | 0.66 |
| 1:J:117:PHE:HB2 | 1:J:123:LEU:HD13 | 1.76 | 0.66 |
| 1:G:160:LEU:HA | 1:G:163:GLU:CG | 2.24 | 0.66 |
| 1:H:87:THR:O | 1:H:93:GLY:HA3 | 1.94 | 0.66 |
| 1:H:53:ILE:H | 1:H:53:ILE:CD1 | 2.03 | 0.66 |
| 1:I:11:LYS:CE | 1:I:24:HIS:HB3 | 2.25 | 0.66 |
| 1:A:74:SER:HB3 | 1:A:81:HIS:HE1 | 1.60 | 0.66 |
| 1:J:48:VAL:HG22 | 1:J:49:CYS:N | 2.10 | 0.66 |
| 1:E:3:VAL:HG11 | 1:F:140:ILE:HD11 | 1.78 | 0.66 |
| 1:G:62:ASP:OD2 | 1:G:62:ASP:N | 2.27 | 0.66 |
| 1:B:140:ILE:C | 1:B:140:ILE:HD12 | 2.15 | 0.66 |
| 1:C:62:ASP:N | 1:C:62:ASP:OD2 | 2.27 | 0.66 |
| 1:I:3:VAL:HG11 | 1:J:140:ILE:HD11 | 1.78 | 0.66 |
| 1:J:53:ILE:HD12 | 1:J:53:ILE:N | 2.05 | 0.66 |
| 1:D:87:THR:O | 1:D:93:GLY:HA3 | 1.96 | 0.66 |
| 1:B:59:ARG:HH21 | 1:B:150:ASP:HB2 | 1.61 | 0.65 |
| 1:D:131:LYS:HE2 | 2:D:202:HOH:O | 1.96 | 0.65 |
| 1:H:36:VAL:HG22 | 1:H:69:ASN:HB2 | 1.77 | 0.65 |
| 1:C:3:VAL:HG11 | 1:D:140:ILE:HD11 | 1.78 | 0.65 |
| 1:D:53:ILE:H | 1:D:53:ILE:CD1 | 2.09 | 0.65 |
| 1:D:143:LEU:HD23 | 1:D:144:PRO:HD2 | 1.79 | 0.65 |
| 1:E:117:PHE:HB2 | 1:E:123:LEU:HD13 | 1.78 | 0.65 |
| 1:F:36:VAL:HG12 | 1:F:37:ILE:N | 2.11 | 0.65 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:53:ILE:HD12 | 1:B:53:ILE:N | 2.08 | 0.65 |
| 1:H:140:ILE:HD12 | 1:H:140:ILE:C | 2.16 | 0.65 |
| 1:I:167:GLU:O | 1:I:169:CYS:N | 2.30 | 0.65 |
| 1:E:36:VAL:HG12 | 1:E:37:ILE:N | 2.11 | 0.65 |
| 1:E:140:ILE:HG13 | 1:F:3:VAL:HG21 | 1.79 | 0.65 |
| 1:B:61:LYS:O | 1:B:65:GLU:HG3 | 1.97 | 0.65 |
| 1:C:74:SER:HB3 | 1:C:81:HIS:HE1 | 1.60 | 0.65 |
| 1:D:33:LYS:HB2 | 1:D:33:LYS:NZ | 2.12 | 0.65 |
| 1:G:3:VAL:HG11 | 1:H:140:ILE:HD11 | 1.79 | 0.65 |
| 1:B:143:LEU:HB3 | 1:B:145:LEU:HD11 | 1.77 | 0.65 |
| 1:E:169:CYS:HG | 1:F:49:CYS:HG | 1.44 | 0.65 |
| 1:G:36:VAL:HG12 | 1:G:37:ILE:N | 2.13 | 0.65 |
| 1:H:36:VAL:HG12 | 1:H:37:ILE:N | 2.12 | 0.65 |
| 1:F:33:LYS:HB2 | 1:F:33:LYS:NZ | 2.12 | 0.64 |
| 1:B:56:PHE:CZ | 1:B:149:ALA:HA | 2.33 | 0.64 |
| 1:C:6:LEU:HD23 | 1:C:7:ALA:O | 1.97 | 0.64 |
| 1:C:36:VAL:HG12 | 1:C:37:ILE:N | 2.12 | 0.64 |
| 1:B:33:LYS:HB2 | 1:B:33:LYS:NZ | 2.12 | 0.64 |
| 1:C:57:ASP:O | 1:C:60:VAL:HG22 | 1.98 | 0.64 |
| 1:F:143:LEU:HB3 | 1:F:145:LEU:HD11 | 1.79 | 0.64 |
| 1:A:36:VAL:HG12 | 1:A:37:ILE:N | 2.13 | 0.64 |
| 1:D:169:CYS:HB2 | 1:D:170:PRO:CD | 2.28 | 0.64 |
| 1:B:36:VAL:HG11 | 1:B:71:ILE:HD12 | 1.79 | 0.64 |
| 1:F:59:ARG:NH2 | 1:F:150:ASP:HB2 | 2.13 | 0.64 |
| 1:C:117:PHE:HB2 | 1:C:123:LEU:HD13 | 1.79 | 0.64 |
| 1:F:19:ASN:OD1 | 1:F:85:LYS:HD3 | 1.97 | 0.64 |
| 1:G:74:SER:HB3 | 1:G:81:HIS:HE1 | 1.62 | 0.64 |
| 1:I:57:ASP:O | 1:I:60:VAL:HG22 | 1.98 | 0.64 |
| 1:I:3:VAL:CB | 1:J:140:ILE:HD11 | 2.28 | 0.64 |
| 1:D:19:ASN:OD1 | 1:D:85:LYS:HD3 | 1.98 | 0.64 |
| 1:J:59:ARG:NH2 | 1:J:150:ASP:HB2 | 2.13 | 0.64 |
| 1:G:167:GLU:O | 1:G:169:CYS:N | 2.31 | 0.63 |
| 1:J:36:VAL:HG22 | 1:J:69:ASN:HB2 | 1.79 | 0.63 |
| 1:F:59:ARG:HH21 | 1:F:150:ASP:HB2 | 1.62 | 0.63 |
| 1:A:11:LYS:CE | 1:A:24:HIS:HB3 | 2.28 | 0.63 |
| 1:I:36:VAL:HG12 | 1:I:37:ILE:N | 2.13 | 0.63 |
| 1:D:11:LYS:HE3 | 1:D:24:HIS:HB3 | 1.81 | 0.63 |
| 1:I:142:ASP:CG | 1:J:136:ARG:HH12 | 2.02 | 0.63 |
| 1:A:3:VAL:CG2 | 1:B:140:ILE:HD11 | 2.28 | 0.63 |
| 1:E:167:GLU:O | 1:E:169:CYS:N | 2.30 | 0.63 |
| 1:G:117:PHE:HB2 | 1:G:123:LEU:HD13 | 1.80 | 0.63 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:167:GLU:O | 1:C:169:CYS:N | 2.32 | 0.63 |
| 1:H:169:CYS:HB2 | 1:H:170:PRO:CD | 2.27 | 0.63 |
| 1:J:36:VAL:HG12 | 1:J:37:ILE:N | 2.13 | 0.63 |
| 1:J:140:ILE:HD12 | 1:J:141:ASN:N | 2.14 | 0.63 |
| 1:C:11:LYS:CE | 1:C:24:HIS:HB3 | 2.29 | 0.63 |
| 1:E:33:LYS:HD2 | 1:E:67:GLY:HA2 | 1.81 | 0.63 |
| 1:G:33:LYS:HD2 | 1:G:67:GLY:HA2 | 1.81 | 0.63 |
| 1:A:167:GLU:O | 1:A:169:CYS:N | 2.32 | 0.63 |
| 1:J:61:LYS:O | 1:J:65:GLU:HG3 | 1.99 | 0.63 |
| 1:C:8:PRO:HD2 | 1:C:113:TYR:CZ | 2.33 | 0.62 |
| 1:C:140:ILE:HG13 | 1:D:3:VAL:HG21 | 1.80 | 0.62 |
| 1:J:59:ARG:HH21 | 1:J:150:ASP:HB2 | 1.63 | 0.62 |
| 1:B:169:CYS:HB2 | 1:B:170:PRO:CD | 2.27 | 0.62 |
| 1:F:8:PRO:HG2 | 1:F:113:TYR:CE1 | 2.35 | 0.62 |
| 1:D:77:SER:OG | 1:D:80:VAL:HG12 | 2.00 | 0.62 |
| 1:F:143:LEU:HG | 1:F:144:PRO:HD2 | 1.80 | 0.62 |
| 1:H:19:ASN:OD1 | 1:H:85:LYS:HD3 | 1.99 | 0.62 |
| 1:A:57:ASP:O | 1:A:60:VAL:HG22 | 1.98 | 0.62 |
| 1:H:59:ARG:HH21 | 1:H:150:ASP:HB2 | 1.64 | 0.62 |
| 1:H:79:GLN:HG3 | 1:I:43:LYS:HD3 | 1.81 | 0.62 |
| 1:A:3:VAL:CG1 | 1:B:140:ILE:HD11 | 2.30 | 0.62 |
| 1:E:11:LYS:HE3 | 1:E:24:HIS:HB3 | 1.82 | 0.62 |
| 1:B:31:LEU:HA | 1:B:36:VAL:HG21 | 1.81 | 0.62 |
| 1:C:37:ILE:HD12 | 1:C:152:MET:HE3 | 1.81 | 0.62 |
| 1:G:11:LYS:CE | 1:G:24:HIS:HB3 | 2.30 | 0.62 |
| 1:A:19:ASN:HD21 | 1:A:85:LYS:HE2 | 1.64 | 0.62 |
| 1:A:78:GLU:OE2 | 1:A:78:GLU:N | 2.32 | 0.62 |
| 1:B:140:ILE:HD12 | 1:B:141:ASN:N | 2.15 | 0.62 |
| 1:B:174:ARG:HG3 | 1:B:174:ARG:HH11 | 1.64 | 0.62 |
| 1:H:61:LYS:O | 1:H:65:GLU:HG3 | 1.99 | 0.62 |
| 1:I:19:ASN:HD21 | 1:I:85:LYS:HE2 | 1.63 | 0.61 |
| 1:B:66:LYS:HE2 | 1:B:157:ASP:OD1 | 1.99 | 0.61 |
| 1:F:53:ILE:HD12 | 1:F:53:ILE:N | 2.08 | 0.61 |
| 1:G:48:VAL:HG22 | 1:H:167:GLU:OE1 | 2.00 | 0.61 |
| 1:J:117:PHE:HB2 | 1:J:123:LEU:CD1 | 2.29 | 0.61 |
| 1:J:140:ILE:HD12 | 1:J:140:ILE:C | 2.20 | 0.61 |
| 1:F:60:VAL:HG21 | 1:F:98:SER:OG | 2.01 | 0.61 |
| 1:E:57:ASP:O | 1:E:60:VAL:HG22 | 1.99 | 0.61 |
| 1:F:136:ARG:NH1 | 1:F:136:ARG:HB3 | 2.16 | 0.61 |
| 1:H:55:ALA:O | 1:H:59:ARG:HD3 | 2.01 | 0.61 |
| 1:I:11:LYS:HE3 | 1:I:24:HIS:HB3 | 1.82 | 0.61 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:I:23:GLU:HA | 1:I:23:GLU:OE1 | 2.01 | 0.61 |
| 1:I:33:LYS:HD2 | 1:I:67:GLY:HA2 | 1.81 | 0.61 |
| 1:B:55:ALA:O | 1:B:59:ARG:HD3 | 2.01 | 0.60 |
| 1:D:140:ILE:HD12 | 1:D:140:ILE:C | 2.21 | 0.60 |
| 1:F:136:ARG:HH11 | 1:F:136:ARG:CA | 2.13 | 0.60 |
| 1:H:42:PRO:HB3 | 1:H:121:ILE:HD12 | 1.82 | 0.60 |
| 1:I:31:LEU:HA | 1:I:36:VAL:CG2 | 2.31 | 0.60 |
| 1:G:11:LYS:HE3 | 1:G:24:HIS:HB3 | 1.82 | 0.60 |
| 1:G:141:ASN:HB3 | 1:H:137:HIS:CD2 | 2.37 | 0.60 |
| 1:B:36:VAL:HG12 | 1:B:37:ILE:N | 2.16 | 0.60 |
| 1:B:168:VAL:O | 1:B:169:CYS:HB3 | 2.00 | 0.60 |
| 1:H:56:PHE:CZ | 1:H:149:ALA:HA | 2.37 | 0.60 |
| 1:G:33:LYS:HE3 | 1:G:67:GLY:HA2 | 1.82 | 0.60 |
| 1:G:85:LYS:HA | 1:G:94:ILE:CG2 | 2.29 | 0.60 |
| 1:I:85:LYS:HA | 1:I:94:ILE:CG2 | 2.31 | 0.60 |
| 1:J:159:LEU:O | 1:J:163:GLU:HB2 | 2.02 | 0.60 |
| 1:C:33:LYS:HD2 | 1:C:67:GLY:HA2 | 1.82 | 0.60 |
| 1:I:41:TRP:CE2 | 1:I:74:SER:HB2 | 2.37 | 0.60 |
| 1:J:77:SER:OG | 1:J:80:VAL:HG12 | 2.02 | 0.60 |
| 1:C:19:ASN:HD21 | 1:C:85:LYS:HE2 | 1.66 | 0.60 |
| 1:D:59:ARG:HH21 | 1:D:150:ASP:HB2 | 1.67 | 0.60 |
| 1:E:31:LEU:HA | 1:E:36:VAL:CG2 | 2.32 | 0.60 |
| 1:A:41:TRP:CE2 | 1:A:74:SER:HB2 | 2.36 | 0.60 |
| 1:B:77:SER:OG | 1:B:80:VAL:HG12 | 2.01 | 0.60 |
| 1:D:53:ILE:HD12 | 1:D:53:ILE:N | 2.13 | 0.60 |
| 1:I:168:VAL:HG12 | 2:I:200:HOH:O | 2.02 | 0.60 |
| 1:A:117:PHE:HB2 | 1:A:123:LEU:HD13 | 1.84 | 0.59 |
| 1:B:31:LEU:HA | 1:B:36:VAL:CG2 | 2.31 | 0.59 |
| 1:D:33:LYS:HG3 | 1:D:34:ASN:ND2 | 2.16 | 0.59 |
| 1:H:143:LEU:HD23 | 1:H:144:PRO:HD2 | 1.84 | 0.59 |
| 1:C:50:PRO:O | 1:C:52:GLU:N | 2.34 | 0.59 |
| 1:E:31:LEU:N | 1:E:31:LEU:HD22 | 2.17 | 0.59 |
| 1:F:87:THR:O | 1:F:93:GLY:HA3 | 2.02 | 0.59 |
| 1:G:57:ASP:O | 1:G:60:VAL:HG22 | 2.01 | 0.59 |
| 1:J:36:VAL:HG13 | 1:J:69:ASN:O | 2.02 | 0.59 |
| 1:C:78:GLU:HG2 | 1:C:79:GLN:NE2 | 2.18 | 0.59 |
| 1:E:117:PHE:HB2 | 1:E:123:LEU:CD1 | 2.33 | 0.59 |
| 1:G:41:TRP:CE2 | 1:G:74:SER:HB2 | 2.37 | 0.59 |
| 1:I:31:LEU:N | 1:I:31:LEU:HD22 | 2.18 | 0.59 |
| 1:A:6:LEU:HD23 | 1:A:7:ALA:O | 2.02 | 0.59 |
| 1:A:140:ILE:HD12 | 1:A:141:ASN:N | 2.17 | 0.59 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:169:CYS:CB | 1:D:170:PRO:HD2 | 2.30 | 0.59 |
| 1:D:135:VAL:HG23 | 1:D:135:VAL:O | 2.02 | 0.59 |
| 1:J:151:GLU:HA | 1:J:154:ARG:NH1 | 2.18 | 0.59 |
| 1:A:11:LYS:HE3 | 1:A:24:HIS:HB3 | 1.84 | 0.59 |
| 1:D:174:ARG:HG3 | 1:D:174:ARG:HH11 | 1.66 | 0.59 |
| 1:G:3:VAL:CB | 1:H:140:ILE:HD11 | 2.32 | 0.59 |
| 1:J:169:CYS:HB2 | 1:J:170:PRO:CD | 2.28 | 0.59 |
| 1:J:143:LEU:HG | 1:J:144:PRO:HD2 | 1.82 | 0.59 |
| 1:I:78:GLU:OE2 | 1:I:78:GLU:N | 2.33 | 0.59 |
| 1:A:85:LYS:HA | 1:A:94:ILE:CG2 | 2.32 | 0.59 |
| 1:A:23:GLU:HA | 1:A:23:GLU:OE1 | 2.03 | 0.58 |
| 1:F:174:ARG:HG3 | 1:F:174:ARG:HH11 | 1.68 | 0.58 |
| 1:H:143:LEU:HB3 | 1:H:145:LEU:CD1 | 2.32 | 0.58 |
| 1:H:169:CYS:CB | 1:H:170:PRO:HD2 | 2.28 | 0.58 |
| 1:I:117:PHE:HB2 | 1:I:123:LEU:HD13 | 1.84 | 0.58 |
| 1:B:43:LYS:HD2 | 1:C:79:GLN:CG | 2.33 | 0.58 |
| 1:D:31:LEU:HA | 1:D:36:VAL:HG21 | 1.85 | 0.58 |
| 1:G:31:LEU:HA | 1:G:36:VAL:CG2 | 2.32 | 0.58 |
| 1:A:68:PHE:CE2 | 1:A:156:VAL:HG13 | 2.39 | 0.58 |
| 1:I:117:PHE:HB2 | 1:I:123:LEU:CD1 | 2.34 | 0.58 |
| 1:I:144:PRO:O | 1:I:146:GLY:N | 2.37 | 0.58 |
| 1:J:44:ASP:HA | 1:J:84:TRP:CZ3 | 2.39 | 0.58 |
| 1:A:33:LYS:HE3 | 1:A:67:GLY:HA2 | 1.86 | 0.58 |
| 1:C:11:LYS:HE3 | 1:C:24:HIS:HB3 | 1.84 | 0.58 |
| 1:E:78:GLU:OE2 | 1:E:78:GLU:N | 2.33 | 0.58 |
| 1:C:85:LYS:HA | 1:C:94:ILE:CG2 | 2.31 | 0.58 |
| 1:D:36:VAL:HG12 | 1:D:37:ILE:N | 2.18 | 0.58 |
| 1:H:31:LEU:HA | 1:H:36:VAL:HG21 | 1.86 | 0.58 |
| 1:E:23:GLU:OE1 | 1:E:23:GLU:HA | 2.03 | 0.58 |
| 1:G:117:PHE:HB2 | 1:G:123:LEU:CD1 | 2.34 | 0.58 |
| 1:H:74:SER:HB3 | 1:H:81:HIS:HE1 | 1.68 | 0.58 |
| 1:H:143:LEU:CB | 1:H:145:LEU:HD11 | 2.34 | 0.58 |
| 1:C:142:ASP:CG | 1:D:136:ARG:HH12 | 2.06 | 0.58 |
| 1:E:41:TRP:CE2 | 1:E:74:SER:HB2 | 2.38 | 0.58 |
| 1:F:123:LEU:HD23 | 1:F:140:ILE:HD13 | 1.86 | 0.58 |
| 1:G:23:GLU:OE1 | 1:G:23:GLU:HA | 2.03 | 0.58 |
| 1:H:174:ARG:HG3 | 1:H:174:ARG:HH11 | 1.68 | 0.58 |
| 1:I:48:VAL:HG22 | 1:J:167:GLU:OE1 | 2.04 | 0.58 |
| 1:C:144:PRO:O | 1:C:146:GLY:N | 2.37 | 0.57 |
| 1:G:33:LYS:CE | 1:G:67:GLY:HA2 | 2.34 | 0.57 |
| 1:I:141:ASN:HB3 | 1:J:137:HIS:CD2 | 2.39 | 0.57 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:J:52:GLU:HG2 | 1:J:124:ARG:NH1 | 2.18 | 0.57 |
| 1:D:161:HIS:HB3 | 1:D:165:HIS:HE1 | 1.69 | 0.57 |
| 1:D:168:VAL:O | 1:D:169:CYS:HB3 | 2.03 | 0.57 |
| 1:J:31:LEU:HA | 1:J:36:VAL:CG2 | 2.35 | 0.57 |
| 1:H:36:VAL:CG1 | 1:H:37:ILE:N | 2.67 | 0.57 |
| 1:A:31:LEU:HA | 1:A:36:VAL:CG2 | 2.34 | 0.57 |
| 1:B:59:ARG:NH2 | 1:B:150:ASP:HB2 | 2.18 | 0.57 |
| 1:B:143:LEU:HD23 | 1:B:144:PRO:HD2 | 1.87 | 0.57 |
| 1:C:41:TRP:CE2 | 1:C:74:SER:HB2 | 2.40 | 0.57 |
| 1:I:33:LYS:HE3 | 1:I:67:GLY:HA2 | 1.86 | 0.57 |
| 1:A:89:VAL:HG23 | 1:B:172:GLY:O | 2.05 | 0.57 |
| 1:F:36:VAL:CG1 | 1:F:37:ILE:N | 2.66 | 0.57 |
| 1:G:19:ASN:HD21 | 1:G:85:LYS:HE2 | 1.69 | 0.57 |
| 1:J:40:PHE:CD2 | 1:J:73:VAL:HG22 | 2.39 | 0.57 |
| 1:B:36:VAL:CG1 | 1:B:37:ILE:N | 2.67 | 0.57 |
| 1:C:152:MET:O | 1:C:156:VAL:HG23 | 2.05 | 0.57 |
| 1:D:69:ASN:HB3 | 2:D:200:HOH:O | 2.03 | 0.57 |
| 1:E:48:VAL:HG22 | 1:F:167:GLU:OE1 | 2.04 | 0.57 |
| 1:E:50:PRO:O | 1:E:52:GLU:N | 2.38 | 0.57 |
| 1:G:37:ILE:HD12 | 1:G:152:MET:HE3 | 1.87 | 0.57 |
| 1:C:89:VAL:HG23 | 1:D:172:GLY:O | 2.05 | 0.57 |
| 1:D:143:LEU:HB3 | 1:D:145:LEU:CD1 | 2.34 | 0.57 |
| 1:D:143:LEU:CD2 | 1:D:144:PRO:HD2 | 2.34 | 0.57 |
| 1:E:144:PRO:O | 1:E:146:GLY:N | 2.38 | 0.57 |
| 1:G:6:LEU:HD23 | 1:G:7:ALA:O | 2.04 | 0.57 |
| 1:A:50:PRO:O | 1:A:52:GLU:N | 2.37 | 0.57 |
| 1:A:82:PHE:CE2 | 1:A:86:ASN:ND2 | 2.73 | 0.57 |
| 1:B:135:VAL:HG23 | 1:B:135:VAL:O | 2.03 | 0.57 |
| 1:B:143:LEU:CB | 1:B:144:PRO:HD2 | 2.35 | 0.57 |
| 1:F:66:LYS:HE2 | 1:F:157:ASP:OD1 | 2.04 | 0.57 |
| 1:F:135:VAL:HG23 | 1:F:135:VAL:O | 2.04 | 0.57 |
| 1:G:164:GLU:HB2 | 1:G:165:HIS:ND1 | 2.20 | 0.57 |
| 1:D:36:VAL:HG13 | 1:D:69:ASN:O | 2.03 | 0.57 |
| 1:D:148:ASN:HA | 1:D:151:GLU:HB3 | 1.86 | 0.57 |
| 1:F:168:VAL:O | 1:F:169:CYS:HB3 | 2.05 | 0.57 |
| 1:D:136:ARG:NH1 | 1:D:136:ARG:HB3 | 2.20 | 0.57 |
| 1:D:66:LYS:HE2 | 1:D:157:ASP:OD1 | 2.05 | 0.56 |
| 1:G:50:PRO:O | 1:G:52:GLU:N | 2.38 | 0.56 |
| 1:H:31:LEU:HA | 1:H:36:VAL:CG2 | 2.34 | 0.56 |
| 1:H:148:ASN:HA | 1:H:151:GLU:HB3 | 1.87 | 0.56 |
| 1:C:31:LEU:HA | 1:C:36:VAL:CG2 | 2.35 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:78:GLU:HG2 | 1:A:79:GLN:NE2 | 2.20 | 0.56 |
| 1:A:144:PRO:O | 1:A:146:GLY:N | 2.38 | 0.56 |
| 1:A:164:GLU:HB2 | 1:A:165:HIS:ND1 | 2.20 | 0.56 |
| 1:B:169:CYS:CB | 1:B:170:PRO:HD2 | 2.31 | 0.56 |
| 1:D:152:MET:O | 1:D:156:VAL:HG23 | 2.05 | 0.56 |
| 1:E:33:LYS:HE3 | 1:E:67:GLY:HA2 | 1.86 | 0.56 |
| 1:E:35:GLY:HA3 | 1:E:129:ILE:O | 2.06 | 0.56 |
| 1:H:43:LYS:HD2 | 1:I:79:GLN:CG | 2.35 | 0.56 |
| 1:H:159:LEU:O | 1:H:163:GLU:HB2 | 2.05 | 0.56 |
| 1:J:174:ARG:HG3 | 1:J:174:ARG:HH11 | 1.69 | 0.56 |
| 1:F:137:HIS:CE1 | 1:F:155:MET:HG3 | 2.40 | 0.56 |
| 1:C:78:GLU:OE2 | 1:C:78:GLU:N | 2.35 | 0.56 |
| 1:G:3:VAL:HG12 | 1:G:4:THR:HG23 | 1.88 | 0.56 |
| 1:G:35:GLY:HA3 | 1:G:129:ILE:O | 2.06 | 0.56 |
| 1:I:46:THR:OG1 | 1:I:48:VAL:HG12 | 2.06 | 0.56 |
| 1:J:159:LEU:O | 1:J:159:LEU:HD23 | 2.05 | 0.56 |
| 1:B:168:VAL:HG22 | 1:B:169:CYS:N | 2.21 | 0.56 |
| 1:C:3:VAL:HG12 | 1:C:4:THR:HG23 | 1.87 | 0.56 |
| 1:H:117:PHE:HB2 | 1:H:123:LEU:CD1 | 2.34 | 0.56 |
| 1:J:36:VAL:CG1 | 1:J:37:ILE:N | 2.69 | 0.56 |
| 1:A:33:LYS:CE | 1:A:67:GLY:HA2 | 2.36 | 0.56 |
| 1:F:56:PHE:CZ | 1:F:149:ALA:HA | 2.41 | 0.56 |
| 1:H:54:ILE:O | 1:H:58:LYS:HG2 | 2.05 | 0.56 |
| 1:H:168:VAL:HG22 | 1:H:169:CYS:N | 2.20 | 0.56 |
| 1:I:35:GLY:HA3 | 1:I:129:ILE:O | 2.05 | 0.56 |
| 1:A:78:GLU:CD | 1:A:79:GLN:HE21 | 2.08 | 0.56 |
| 1:C:23:GLU:OE1 | 1:C:23:GLU:HA | 2.06 | 0.56 |
| 1:F:31:LEU:HA | 1:F:36:VAL:HG21 | 1.88 | 0.56 |
| 1:H:66:LYS:HE2 | 1:H:157:ASP:OD1 | 2.06 | 0.56 |
| 1:D:85:LYS:HE2 | 1:D:97:VAL:CG2 | 2.36 | 0.56 |
| 1:F:169:CYS:CB | 1:F:170:PRO:HD2 | 2.32 | 0.56 |
| 1:B:52:GLU:HB2 | 1:B:53:ILE:HD12 | 1.88 | 0.55 |
| 1:C:68:PHE:CE2 | 1:C:156:VAL:HG13 | 2.41 | 0.55 |
| 1:E:85:LYS:HE3 | 1:E:97:VAL:HG22 | 1.88 | 0.55 |
| 1:J:169:CYS:CB | 1:J:170:PRO:HD2 | 2.31 | 0.55 |
| 1:A:168:VAL:O | 1:A:168:VAL:HG13 | 2.05 | 0.55 |
| 1:D:31:LEU:HA | 1:D:36:VAL:CG2 | 2.35 | 0.55 |
| 1:D:79:GLN:HG3 | 1:E:43:LYS:HD3 | 1.88 | 0.55 |
| 1:E:164:GLU:HB2 | 1:E:165:HIS:ND1 | 2.22 | 0.55 |
| 1:G:152:MET:O | 1:G:156:VAL:HG23 | 2.06 | 0.55 |
| 1:A:66:LYS:HE2 | 2:A:199:HOH:O | 2.05 | 0.55 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:44:ASP:HA | 1:B:84:TRP:CZ3 | 2.40 | 0.55 |
| 1:E:21:VAL:HG13 | 1:E:21:VAL:O | 2.06 | 0.55 |
| 1:E:152:MET:O | 1:E:156:VAL:HG23 | 2.06 | 0.55 |
| 1:G:169:CYS:HG | 1:H:49:CYS:HG | 1.55 | 0.55 |
| 1:I:3:VAL:CG1 | 1:J:140:ILE:HD11 | 2.36 | 0.55 |
| 1:J:42:PRO:HB3 | 1:J:121:ILE:HD12 | 1.89 | 0.55 |
| 1:J:161:HIS:HB3 | 1:J:165:HIS:HE1 | 1.71 | 0.55 |
| 1:C:117:PHE:HB2 | 1:C:123:LEU:CD1 | 2.36 | 0.55 |
| 1:C:164:GLU:HB2 | 1:C:165:HIS:ND1 | 2.22 | 0.55 |
| 1:E:78:GLU:HG2 | 1:E:79:GLN:NE2 | 2.22 | 0.55 |
| 1:D:88:PRO:CG | 1:D:91:LYS:HD2 | 2.36 | 0.55 |
| 1:G:89:VAL:HG23 | 1:H:172:GLY:O | 2.07 | 0.55 |
| 1:J:143:LEU:HB3 | 1:J:145:LEU:CD1 | 2.36 | 0.55 |
| 1:J:143:LEU:CB | 1:J:144:PRO:HD2 | 2.37 | 0.55 |
| 1:B:148:ASN:HA | 1:B:151:GLU:HB3 | 1.88 | 0.55 |
| 1:B:173:TRP:HB3 | 2:B:199:HOH:O | 2.06 | 0.55 |
| 1:C:48:VAL:HG22 | 1:D:167:GLU:OE1 | 2.07 | 0.55 |
| 1:D:59:ARG:NH2 | 1:D:150:ASP:HB2 | 2.22 | 0.55 |
| 1:F:169:CYS:HB2 | 1:F:170:PRO:CD | 2.29 | 0.55 |
| 1:G:78:GLU:HG2 | 1:G:79:GLN:NE2 | 2.22 | 0.55 |
| 1:I:11:LYS:HE2 | 1:I:24:HIS:HB3 | 1.89 | 0.55 |
| 1:A:3:VAL:HG21 | 1:B:140:ILE:CD1 | 2.37 | 0.55 |
| 1:E:85:LYS:HA | 1:E:94:ILE:CG2 | 2.33 | 0.55 |
| 1:G:3:VAL:HG12 | 1:G:4:THR:CG2 | 2.37 | 0.55 |
| 1:J:164:GLU:C | 1:J:166:GLY:H | 2.10 | 0.55 |
| 1:E:74:SER:HB3 | 1:E:81:HIS:CE1 | 2.42 | 0.55 |
| 1:G:144:PRO:O | 1:G:146:GLY:N | 2.40 | 0.55 |
| 1:I:140:ILE:HG13 | 1:J:3:VAL:HG21 | 1.88 | 0.55 |
| 1:A:117:PHE:HB2 | 1:A:123:LEU:CD1 | 2.37 | 0.55 |
| 1:D:35:GLY:O | 1:D:36:VAL:HG23 | 2.07 | 0.55 |
| 1:F:23:GLU:HA | 1:F:23:GLU:OE1 | 2.06 | 0.55 |
| 1:G:131:LYS:HD2 | 1:G:131:LYS:N | 2.22 | 0.55 |
| 1:H:168:VAL:O | 1:H:169:CYS:HB3 | 2.07 | 0.55 |
| 1:I:3:VAL:HG12 | 1:I:4:THR:HG23 | 1.88 | 0.55 |
| 1:I:164:GLU:HB2 | 1:I:165:HIS:ND1 | 2.22 | 0.55 |
| 1:G:31:LEU:HD22 | 1:G:31:LEU:N | 2.21 | 0.55 |
| 1:C:168:VAL:HG13 | 1:C:168:VAL:O | 2.06 | 0.54 |
| 1:E:31:LEU:HD22 | 1:E:31:LEU:H | 1.72 | 0.54 |
| 1:G:3:VAL:C | 1:G:4:THR:HG23 | 2.28 | 0.54 |
| 1:H:143:LEU:HG | 1:H:144:PRO:HD2 | 1.90 | 0.54 |
| 1:I:131:LYS:HD2 | 1:I:131:LYS:N | 2.22 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:I:168:VAL:O | 1:I:168:VAL:HG13 | 2.07 | 0.54 |
| 1:B:77:SER:OG | 1:B:79:GLN:HG2 | 2.07 | 0.54 |
| 1:D:143:LEU:CB | 1:D:145:LEU:HD11 | 2.34 | 0.54 |
| 1:E:33:LYS:CE | 1:E:67:GLY:HA2 | 2.38 | 0.54 |
| 1:H:59:ARG:NH2 | 1:H:150:ASP:HB2 | 2.21 | 0.54 |
| 1:I:6:LEU:HD23 | 1:I:7:ALA:O | 2.08 | 0.54 |
| 1:J:23:GLU:OE1 | 1:J:23:GLU:HA | 2.07 | 0.54 |
| 1:C:35:GLY:HA3 | 1:C:129:ILE:O | 2.07 | 0.54 |
| 1:D:36:VAL:CG1 | 1:D:37:ILE:N | 2.69 | 0.54 |
| 1:E:16:LEU:HB3 | 2:E:203:HOH:O | 2.07 | 0.54 |
| 1:G:68:PHE:CE2 | 1:G:156:VAL:HG13 | 2.42 | 0.54 |
| 1:G:168:VAL:O | 1:G:168:VAL:HG13 | 2.07 | 0.54 |
| 1:J:152:MET:O | 1:J:156:VAL:HG23 | 2.08 | 0.54 |
| 1:A:3:VAL:HG12 | 1:A:4:THR:HG23 | 1.90 | 0.54 |
| 1:C:3:VAL:CB | 1:D:140:ILE:HD11 | 2.36 | 0.54 |
| 1:C:33:LYS:HE3 | 1:C:67:GLY:HA2 | 1.88 | 0.54 |
| 1:C:140:ILE:HD12 | 1:C:141:ASN:N | 2.22 | 0.54 |
| 1:B:148:ASN:HD22 | 1:B:149:ALA:N | 2.06 | 0.54 |
| 1:I:3:VAL:HG21 | 1:J:140:ILE:HD11 | 1.89 | 0.54 |
| 1:I:68:PHE:CE2 | 1:I:156:VAL:HG13 | 2.43 | 0.54 |
| 1:A:21:VAL:O | 1:A:21:VAL:HG13 | 2.08 | 0.54 |
| 1:A:31:LEU:N | 1:A:31:LEU:HD22 | 2.23 | 0.54 |
| 1:I:74:SER:HB3 | 1:I:81:HIS:CE1 | 2.41 | 0.54 |
| 1:I:78:GLU:HG2 | 1:I:79:GLN:NE2 | 2.23 | 0.54 |
| 1:B:107:LYS:HB2 | 1:B:111:ARG:NH2 | 2.23 | 0.54 |
| 1:E:168:VAL:HG13 | 1:E:168:VAL:O | 2.07 | 0.54 |
| 1:G:85:LYS:HE3 | 1:G:97:VAL:HG22 | 1.90 | 0.54 |
| 1:A:56:PHE:O | 1:A:60:VAL:HG13 | 2.08 | 0.54 |
| 1:E:6:LEU:HD23 | 1:E:7:ALA:O | 2.07 | 0.54 |
| 1:F:12:ALA:HB1 | 1:F:13:PRO:HD2 | 1.90 | 0.54 |
| 1:H:151:GLU:HA | 1:H:154:ARG:NH1 | 2.23 | 0.54 |
| 1:I:33:LYS:CE | 1:I:67:GLY:HA2 | 2.38 | 0.54 |
| 1:I:89:VAL:HG23 | 1:J:172:GLY:O | 2.08 | 0.54 |
| 1:A:35:GLY:HA3 | 1:A:129:ILE:O | 2.07 | 0.54 |
| 1:B:60:VAL:HG21 | 1:B:98:SER:OG | 2.08 | 0.54 |
| 1:C:3:VAL:C | 1:C:4:THR:HG23 | 2.28 | 0.54 |
| 1:D:85:LYS:HE2 | 1:D:97:VAL:HG22 | 1.90 | 0.54 |
| 1:D:88:PRO:HG2 | 1:D:91:LYS:HD2 | 1.89 | 0.54 |
| 1:E:140:ILE:HD12 | 1:E:141:ASN:N | 2.23 | 0.54 |
| 1:F:43:LYS:HD2 | 1:G:79:GLN:CG | 2.37 | 0.54 |
| 1:A:43:LYS:HD3 | 1:J:79:GLN:HG3 | 1.89 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:E:19:ASN:HD21 | 1:E:85:LYS:HE2 | 1.73 | 0.54 |
| 1:F:31:LEU:HA | 1:F:36:VAL:CG2 | 2.38 | 0.54 |
| 1:G:78:GLU:OE2 | 1:G:78:GLU:N | 2.34 | 0.54 |
| 1:I:50:PRO:O | 1:I:52:GLU:N | 2.40 | 0.54 |
| 1:B:136:ARG:HH11 | 1:B:136:ARG:CA | 2.20 | 0.53 |
| 1:C:82:PHE:CE2 | 1:C:86:ASN:ND2 | 2.76 | 0.53 |
| 1:F:139:VAL:O | 1:F:139:VAL:HG13 | 2.08 | 0.53 |
| 1:I:3:VAL:C | 1:I:4:THR:HG23 | 2.28 | 0.53 |
| 1:J:143:LEU:CB | 1:J:145:LEU:HD11 | 2.38 | 0.53 |
| 1:A:66:LYS:HE2 | 1:A:157:ASP:OD1 | 2.08 | 0.53 |
| 1:E:66:LYS:HE2 | 1:E:157:ASP:OD1 | 2.09 | 0.53 |
| 1:E:68:PHE:CE2 | 1:E:156:VAL:HG13 | 2.42 | 0.53 |
| 1:E:89:VAL:HG23 | 1:F:172:GLY:O | 2.08 | 0.53 |
| 1:I:140:ILE:HD12 | 1:I:141:ASN:N | 2.23 | 0.53 |
| 1:J:135:VAL:HG23 | 1:J:135:VAL:O | 2.08 | 0.53 |
| 1:C:74:SER:HB3 | 1:C:81:HIS:CE1 | 2.42 | 0.53 |
| 1:F:162:PHE:O | 1:F:166:GLY:HA2 | 2.07 | 0.53 |
| 1:A:142:ASP:OD1 | 1:B:136:ARG:NH1 | 2.41 | 0.53 |
| 1:B:55:ALA:HB1 | 1:B:149:ALA:HB3 | 1.89 | 0.53 |
| 1:C:6:LEU:HD23 | 1:C:6:LEU:C | 2.29 | 0.53 |
| 1:D:90:GLU:H | 1:D:90:GLU:CD | 2.12 | 0.53 |
| 1:D:164:GLU:C | 1:D:166:GLY:H | 2.11 | 0.53 |
| 1:E:37:ILE:HD12 | 1:E:152:MET:HE3 | 1.90 | 0.53 |
| 1:J:8:PRO:HG2 | 1:J:113:TYR:CE1 | 2.44 | 0.53 |
| 1:J:33:LYS:HB2 | 1:J:33:LYS:HZ3 | 1.72 | 0.53 |
| 1:B:159:LEU:O | 1:B:163:GLU:HB2 | 2.08 | 0.53 |
| 1:C:33:LYS:CE | 1:C:67:GLY:HA2 | 2.39 | 0.53 |
| 1:D:159:LEU:O | 1:D:163:GLU:HB2 | 2.09 | 0.53 |
| 1:F:52:GLU:HB2 | 1:F:53:ILE:HD12 | 1.91 | 0.53 |
| 1:J:31:LEU:HA | 1:J:36:VAL:HG21 | 1.89 | 0.53 |
| 1:A:131:LYS:N | 1:A:131:LYS:HD2 | 2.23 | 0.53 |
| 1:B:35:GLY:O | 1:B:36:VAL:HG23 | 2.09 | 0.53 |
| 1:B:143:LEU:HB2 | 2:B:201:HOH:O | 2.08 | 0.53 |
| 1:C:3:VAL:HG12 | 1:C:4:THR:CG2 | 2.38 | 0.53 |
| 1:I:3:VAL:HG12 | 1:I:4:THR:CG2 | 2.39 | 0.53 |
| 1:J:74:SER:HB3 | 1:J:81:HIS:HE1 | 1.74 | 0.53 |
| 1:A:3:VAL:C | 1:A:4:THR:HG23 | 2.29 | 0.53 |
| 1:A:46:THR:OG1 | 1:A:48:VAL:HG12 | 2.09 | 0.53 |
| 1:H:164:GLU:C | 1:H:166:GLY:H | 2.11 | 0.53 |
| 1:A:6:LEU:HD23 | 1:A:6:LEU:C | 2.29 | 0.53 |
| 1:G:66:LYS:HE2 | 1:G:157:ASP:OD1 | 2.09 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:J:77:SER:OG | 1:J:79:GLN:HG2 | 2.09 | 0.53 |
| 1:B:50:PRO:O | 1:B:51:THR:C | 2.47 | 0.52 |
| 1:C:31:LEU:N | 1:C:31:LEU:HD22 | 2.24 | 0.52 |
| 1:E:3:VAL:HG12 | 1:E:4:THR:HG23 | 1.91 | 0.52 |
| 1:E:11:LYS:HE2 | 1:E:24:HIS:HB3 | 1.90 | 0.52 |
| 1:H:52:GLU:HG2 | 1:H:124:ARG:HH11 | 1.72 | 0.52 |
| 1:J:162:PHE:O | 1:J:166:GLY:HA2 | 2.08 | 0.52 |
| 1:A:74:SER:HB3 | 1:A:81:HIS:CE1 | 2.42 | 0.52 |
| 1:A:147:ARG:HH11 | 1:A:147:ARG:CB | 2.20 | 0.52 |
| 1:C:3:VAL:CG1 | 1:D:140:ILE:HD11 | 2.39 | 0.52 |
| 1:D:23:GLU:HA | 1:D:23:GLU:OE1 | 2.09 | 0.52 |
| 1:E:3:VAL:C | 1:E:4:THR:HG23 | 2.30 | 0.52 |
| 1:E:3:VAL:CB | 1:F:140:ILE:HD11 | 2.38 | 0.52 |
| 1:E:131:LYS:HD2 | 1:E:131:LYS:N | 2.23 | 0.52 |
| 1:G:3:VAL:CG1 | 1:H:140:ILE:HD11 | 2.39 | 0.52 |
| 1:J:54:ILE:O | 1:J:58:LYS:HG2 | 2.09 | 0.52 |
| 1:B:85:LYS:HE2 | 1:B:97:VAL:CG2 | 2.40 | 0.52 |
| 1:F:48:VAL:CG2 | 1:F:49:CYS:H | 2.14 | 0.52 |
| 1:F:50:PRO:O | 1:F:51:THR:C | 2.47 | 0.52 |
| 1:J:137:HIS:CE1 | 1:J:155:MET:HG3 | 2.44 | 0.52 |
| 1:A:37:ILE:HG23 | 1:A:152:MET:HE2 | 1.92 | 0.52 |
| 1:F:48:VAL:HG13 | 1:F:49:CYS:H | 1.73 | 0.52 |
| 1:F:148:ASN:HA | 1:F:151:GLU:HB3 | 1.90 | 0.52 |
| 1:G:140:ILE:HD12 | 1:G:141:ASN:N | 2.24 | 0.52 |
| 1:H:136:ARG:HB3 | 1:H:136:ARG:NH1 | 2.25 | 0.52 |
| 1:I:31:LEU:HD22 | 1:I:31:LEU:H | 1.74 | 0.52 |
| 1:J:90:GLU:CD | 1:J:90:GLU:H | 2.12 | 0.52 |
| 1:G:56:PHE:O | 1:G:60:VAL:HG13 | 2.10 | 0.52 |
| 1:J:161:HIS:HB3 | 1:J:165:HIS:CE1 | 2.44 | 0.52 |
| 1:A:49:CYS:HB3 | 1:A:51:THR:HG23 | 1.92 | 0.52 |
| 1:B:54:ILE:O | 1:B:58:LYS:HG2 | 2.10 | 0.52 |
| 1:F:77:SER:O | 1:F:80:VAL:HG13 | 2.08 | 0.52 |
| 1:F:159:LEU:O | 1:F:163:GLU:HB2 | 2.09 | 0.52 |
| 1:B:164:GLU:C | 1:B:166:GLY:H | 2.13 | 0.52 |
| 1:D:143:LEU:HG | 1:D:144:PRO:HD2 | 1.90 | 0.52 |
| 1:F:168:VAL:HG22 | 1:F:169:CYS:N | 2.25 | 0.52 |
| 1:H:143:LEU:CD2 | 1:H:144:PRO:HD2 | 2.39 | 0.52 |
| 1:I:37:ILE:HG23 | 1:I:152:MET:HE2 | 1.91 | 0.52 |
| 1:E:3:VAL:CG1 | 1:F:140:ILE:HD11 | 2.39 | 0.52 |
| 1:G:28:SER:C | 1:G:31:LEU:HD21 | 2.31 | 0.52 |
| 1:G:142:ASP:OD1 | 1:H:136:ARG:NH1 | 2.40 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:J:168:VAL:O | 1:J:169:CYS:HB3 | 2.10 | 0.52 |
| 1:G:11:LYS:HA | 1:G:25:PHE:O | 2.09 | 0.52 |
| 1:H:53:ILE:HD12 | 1:H:53:ILE:N | 2.12 | 0.52 |
| 1:I:66:LYS:HE2 | 1:I:157:ASP:OD1 | 2.10 | 0.52 |
| 1:J:151:GLU:C | 1:J:151:GLU:OE1 | 2.49 | 0.52 |
| 1:B:85:LYS:HE2 | 1:B:97:VAL:HG22 | 1.92 | 0.51 |
| 1:B:143:LEU:HG | 1:B:144:PRO:HD2 | 1.90 | 0.51 |
| 1:C:46:THR:OG1 | 1:C:48:VAL:HG12 | 2.10 | 0.51 |
| 1:H:168:VAL:HG22 | 1:H:169:CYS:H | 1.76 | 0.51 |
| 1:J:60:VAL:HG23 | 1:J:61:LYS:HE2 | 1.91 | 0.51 |
| 1:B:151:GLU:OE1 | 1:B:151:GLU:C | 2.48 | 0.51 |
| 1:H:50:PRO:O | 1:H:51:THR:C | 2.48 | 0.51 |
| 1:I:78:GLU:CD | 1:I:79:GLN:HE21 | 2.13 | 0.51 |
| 1:D:143:LEU:CB | 1:D:144:PRO:HD2 | 2.40 | 0.51 |
| 1:F:164:GLU:C | 1:F:166:GLY:H | 2.13 | 0.51 |
| 1:G:21:VAL:HG13 | 1:G:21:VAL:O | 2.10 | 0.51 |
| 1:H:77:SER:O | 1:H:80:VAL:HG13 | 2.11 | 0.51 |
| 1:I:37:ILE:HD12 | 1:I:152:MET:HE3 | 1.92 | 0.51 |
| 1:A:3:VAL:HB | 1:B:140:ILE:HD11 | 1.93 | 0.51 |
| 1:A:152:MET:O | 1:A:156:VAL:HG23 | 2.10 | 0.51 |
| 1:C:66:LYS:HE2 | 1:C:157:ASP:OD1 | 2.09 | 0.51 |
| 1:E:3:VAL:HG12 | 1:E:4:THR:CG2 | 2.40 | 0.51 |
| 1:G:46:THR:OG1 | 1:G:48:VAL:HG12 | 2.09 | 0.51 |
| 1:H:88:PRO:CG | 1:H:91:LYS:HD2 | 2.41 | 0.51 |
| 1:E:60:VAL:HG23 | 1:E:61:LYS:N | 2.25 | 0.51 |
| 1:H:57:ASP:O | 1:H:60:VAL:HG22 | 2.10 | 0.51 |
| 1:A:8:PRO:HD2 | 1:A:113:TYR:CZ | 2.45 | 0.51 |
| 1:B:33:LYS:HB2 | 1:B:33:LYS:HZ3 | 1.75 | 0.51 |
| 1:C:56:PHE:O | 1:C:60:VAL:HG13 | 2.10 | 0.51 |
| 1:C:150:ASP:OD2 | 1:C:154:ARG:HD2 | 2.10 | 0.51 |
| 1:F:90:GLU:H | 1:F:90:GLU:CD | 2.13 | 0.51 |
| 1:H:33:LYS:HB2 | 1:H:33:LYS:HZ2 | 1.72 | 0.51 |
| 1:B:48:VAL:CG2 | 1:B:49:CYS:H | 2.13 | 0.51 |
| 1:D:148:ASN:N | 1:D:148:ASN:HD22 | 2.07 | 0.51 |
| 1:E:56:PHE:O | 1:E:60:VAL:HG13 | 2.11 | 0.51 |
| 1:H:90:GLU:CD | 1:H:90:GLU:H | 2.14 | 0.51 |
| 1:H:159:LEU:O | 1:H:159:LEU:HD23 | 2.10 | 0.51 |
| 1:I:169:CYS:SG | 1:J:49:CYS:SG | 3.01 | 0.51 |
| 1:A:3:VAL:HG12 | 1:A:4:THR:CG2 | 2.40 | 0.51 |
| 1:C:78:GLU:CD | 1:C:79:GLN:HE21 | 2.14 | 0.51 |
| 1:C:131:LYS:HD2 | 1:C:131:LYS:N | 2.26 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:E:11:LYS:HA | 1:E:25:PHE:O | 2.10 | 0.51 |
| 1:F:77:SER:OG | 1:F:79:GLN:HG2 | 2.11 | 0.51 |
| 1:G:8:PRO:HD2 | 1:G:113:TYR:CZ | 2.46 | 0.51 |
| 1:H:161:HIS:HB3 | 1:H:165:HIS:HE1 | 1.75 | 0.51 |
| 1:F:159:LEU:O | 1:F:159:LEU:HD23 | 2.10 | 0.51 |
| 1:G:6:LEU:HD23 | 1:G:6:LEU:C | 2.31 | 0.51 |
| 1:J:11:LYS:HE3 | 1:J:24:HIS:HB3 | 1.91 | 0.51 |
| 1:B:143:LEU:CD2 | 1:B:144:PRO:HD2 | 2.40 | 0.50 |
| 1:F:55:ALA:HB1 | 1:F:149:ALA:HB3 | 1.94 | 0.50 |
| 1:I:152:MET:O | 1:I:156:VAL:HG23 | 2.10 | 0.50 |
| 1:B:168:VAL:HG22 | 1:B:169:CYS:H | 1.76 | 0.50 |
| 1:E:46:THR:OG1 | 1:E:48:VAL:HG12 | 2.11 | 0.50 |
| 1:F:85:LYS:HA | 1:F:94:ILE:CG2 | 2.40 | 0.50 |
| 1:F:143:LEU:HB3 | 1:F:145:LEU:CD1 | 2.42 | 0.50 |
| 1:H:23:GLU:OE1 | 1:H:23:GLU:HA | 2.10 | 0.50 |
| 1:I:85:LYS:HE3 | 1:I:97:VAL:HG22 | 1.94 | 0.50 |
| 1:F:40:PHE:CD2 | 1:F:73:VAL:HG22 | 2.46 | 0.50 |
| 1:A:131:LYS:HD2 | 1:A:131:LYS:H | 1.75 | 0.50 |
| 1:E:28:SER:C | 1:E:31:LEU:HD21 | 2.32 | 0.50 |
| 1:A:28:SER:C | 1:A:31:LEU:HD21 | 2.31 | 0.50 |
| 1:B:79:GLN:CG | 1:C:43:LYS:HD3 | 2.41 | 0.50 |
| 1:B:90:GLU:CD | 1:B:90:GLU:H | 2.15 | 0.50 |
| 1:B:143:LEU:CB | 1:B:145:LEU:HD11 | 2.42 | 0.50 |
| 1:C:85:LYS:HE3 | 1:C:97:VAL:HG22 | 1.92 | 0.50 |
| 1:D:12:ALA:HB1 | 1:D:13:PRO:HD2 | 1.93 | 0.50 |
| 1:J:36:VAL:HG11 | 1:J:71:ILE:HD12 | 1.93 | 0.50 |
| 1:A:79:GLN:CG | 1:J:43:LYS:HD2 | 2.41 | 0.50 |
| 1:A:85:LYS:HE3 | 1:A:97:VAL:HG22 | 1.93 | 0.50 |
| 1:H:152:MET:O | 1:H:156:VAL:HG23 | 2.11 | 0.50 |
| 1:I:11:LYS:HA | 1:I:25:PHE:O | 2.11 | 0.50 |
| 1:J:139:VAL:HG12 | 1:J:152:MET:HE3 | 1.93 | 0.50 |
| 1:B:11:LYS:HA | 1:B:25:PHE:O | 2.11 | 0.50 |
| 1:B:94:ILE:HG23 | 1:B:95:GLY:O | 2.11 | 0.50 |
| 1:B:139:VAL:HG13 | 1:B:139:VAL:O | 2.12 | 0.50 |
| 1:E:75:ILE:HG13 | 2:E:199:HOH:O | 2.11 | 0.50 |
| 1:I:6:LEU:HD23 | 1:I:6:LEU:C | 2.32 | 0.50 |
| 1:J:31:LEU:HD22 | 1:J:36:VAL:CG2 | 2.42 | 0.50 |
| 1:J:50:PRO:O | 1:J:51:THR:C | 2.49 | 0.50 |
| 1:A:11:LYS:HE2 | 1:A:24:HIS:HB3 | 1.92 | 0.50 |
| 1:A:150:ASP:OD2 | 1:A:154:ARG:HD2 | 2.12 | 0.50 |
| 1:E:141:ASN:HB3 | 1:F:137:HIS:CD2 | 2.46 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:E:147:ARG:HH11 | 1:E:147:ARG:CB | 2.20 | 0.50 |
| 1:I:142:ASP:OD1 | 1:J:136:ARG:NH1 | 2.42 | 0.50 |
| 1:C:60:VAL:HG23 | 1:C:61:LYS:N | 2.27 | 0.50 |
| 1:D:8:PRO:HG2 | 1:D:113:TYR:CE1 | 2.47 | 0.50 |
| 1:E:78:GLU:CD | 1:E:79:GLN:HE21 | 2.14 | 0.50 |
| 1:F:42:PRO:HD3 | 1:F:124:ARG:HG3 | 1.93 | 0.50 |
| 1:F:148:ASN:N | 1:F:148:ASN:HD22 | 2.09 | 0.50 |
| 1:G:60:VAL:HG23 | 1:G:61:LYS:N | 2.26 | 0.50 |
| 1:D:50:PRO:O | 1:D:51:THR:C | 2.51 | 0.49 |
| 1:F:42:PRO:HB3 | 1:F:121:ILE:HD12 | 1.94 | 0.49 |
| 1:A:48:VAL:HG22 | 1:B:167:GLU:OE1 | 2.12 | 0.49 |
| 1:B:2:VAL:O | 1:B:135:VAL:CG2 | 2.60 | 0.49 |
| 1:C:21:VAL:O | 1:C:21:VAL:HG13 | 2.12 | 0.49 |
| 1:C:59:ARG:HG3 | 1:C:59:ARG:HH11 | 1.77 | 0.49 |
| 1:G:82:PHE:CE2 | 1:G:86:ASN:ND2 | 2.79 | 0.49 |
| 1:H:11:LYS:HA | 1:H:25:PHE:O | 2.12 | 0.49 |
| 1:B:60:VAL:HG23 | 1:B:61:LYS:HE2 | 1.93 | 0.49 |
| 1:D:161:HIS:HB3 | 1:D:165:HIS:CE1 | 2.46 | 0.49 |
| 1:E:142:ASP:OD1 | 1:F:136:ARG:NH1 | 2.45 | 0.49 |
| 1:F:151:GLU:HA | 1:F:154:ARG:NH1 | 2.26 | 0.49 |
| 1:I:60:VAL:HG23 | 1:I:61:LYS:N | 2.27 | 0.49 |
| 1:D:148:ASN:N | 1:D:148:ASN:ND2 | 2.61 | 0.49 |
| 1:E:85:LYS:HE3 | 1:E:97:VAL:H | 1.78 | 0.49 |
| 1:F:59:ARG:NH2 | 1:F:150:ASP:CB | 2.76 | 0.49 |
| 1:H:40:PHE:CD2 | 1:H:73:VAL:HG22 | 2.47 | 0.49 |
| 1:I:28:SER:C | 1:I:31:LEU:HD21 | 2.32 | 0.49 |
| 1:I:56:PHE:O | 1:I:60:VAL:HG13 | 2.12 | 0.49 |
| 1:C:28:SER:C | 1:C:31:LEU:HD21 | 2.33 | 0.49 |
| 1:E:147:ARG:O | 1:E:151:GLU:HG2 | 2.12 | 0.49 |
| 1:G:128:LEU:N | 1:G:152:MET:HE1 | 2.27 | 0.49 |
| 1:J:55:ALA:HB1 | 1:J:149:ALA:HB3 | 1.94 | 0.49 |
| 1:C:128:LEU:N | 1:C:152:MET:HE1 | 2.28 | 0.49 |
| 1:D:54:ILE:O | 1:D:58:LYS:HG2 | 2.13 | 0.49 |
| 1:E:16:LEU:HD11 | 1:E:22:ASP:HB2 | 1.95 | 0.49 |
| 1:F:143:LEU:CB | 1:F:144:PRO:HD2 | 2.43 | 0.49 |
| 1:G:78:GLU:CD | 1:G:79:GLN:HE21 | 2.15 | 0.49 |
| 1:H:36:VAL:HG11 | 1:H:71:ILE:HD12 | 1.94 | 0.49 |
| 1:H:123:LEU:HD23 | 1:H:140:ILE:HD13 | 1.93 | 0.49 |
| 1:H:136:ARG:HH11 | 1:H:136:ARG:CA | 2.23 | 0.49 |
| 1:J:68:PHE:CE2 | 1:J:156:VAL:HG13 | 2.48 | 0.49 |
| 1:A:33:LYS:CD | 1:A:67:GLY:HA2 | 2.41 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:60:VAL:HG23 | 1:A:61:LYS:N | 2.27 | 0.49 |
| 1:D:11:LYS:HA | 1:D:25:PHE:O | 2.12 | 0.49 |
| 1:E:49:CYS:HB3 | 1:E:51:THR:HG23 | 1.94 | 0.49 |
| 1:E:88:PRO:O | 1:E:91:LYS:N | 2.44 | 0.49 |
| 1:F:57:ASP:O | 1:F:60:VAL:HG22 | 2.12 | 0.49 |
| 1:G:131:LYS:HD2 | 1:G:131:LYS:H | 1.78 | 0.49 |
| 1:H:148:ASN:N | 1:H:148:ASN:HD22 | 2.10 | 0.49 |
| 1:D:116:LEU:HD11 | 1:D:119:GLU:CA | 2.35 | 0.49 |
| 1:F:8:PRO:HG2 | 1:F:113:TYR:CZ | 2.48 | 0.49 |
| 1:G:74:SER:HB3 | 1:G:81:HIS:CE1 | 2.45 | 0.49 |
| 1:B:61:LYS:HA | 1:B:61:LYS:HD3 | 1.65 | 0.49 |
| 1:B:139:VAL:HG12 | 1:B:152:MET:HE3 | 1.94 | 0.49 |
| 1:D:48:VAL:HG13 | 1:D:49:CYS:H | 1.74 | 0.49 |
| 1:J:148:ASN:HA | 1:J:151:GLU:HB3 | 1.95 | 0.49 |
| 1:C:157:ASP:O | 1:C:158:ALA:C | 2.51 | 0.49 |
| 1:H:88:PRO:HG2 | 1:H:91:LYS:HD2 | 1.95 | 0.49 |
| 1:I:147:ARG:O | 1:I:151:GLU:HG2 | 2.12 | 0.49 |
| 1:J:168:VAL:HG22 | 1:J:169:CYS:N | 2.28 | 0.49 |
| 1:H:52:GLU:HB2 | 1:H:53:ILE:HD12 | 1.94 | 0.48 |
| 1:I:82:PHE:CE2 | 1:I:86:ASN:ND2 | 2.81 | 0.48 |
| 1:F:79:GLN:HG3 | 1:G:43:LYS:HD3 | 1.95 | 0.48 |
| 1:H:135:VAL:HG23 | 1:H:135:VAL:O | 2.12 | 0.48 |
| 1:B:143:LEU:HB3 | 1:B:145:LEU:CD1 | 2.43 | 0.48 |
| 1:F:139:VAL:HG12 | 1:F:152:MET:HE3 | 1.95 | 0.48 |
| 1:I:131:LYS:HD2 | 1:I:131:LYS:H | 1.78 | 0.48 |
| 1:J:105:ILE:HG23 | 1:J:106:THR:HG23 | 1.96 | 0.48 |
| 1:J:148:ASN:HD22 | 1:J:149:ALA:N | 2.11 | 0.48 |
| 1:A:151:GLU:OE2 | 1:B:154:ARG:HD2 | 2.13 | 0.48 |
| 1:D:39:PHE:HE2 | 1:D:70:VAL:HG12 | 1.77 | 0.48 |
| 1:E:82:PHE:CE2 | 1:E:86:ASN:ND2 | 2.81 | 0.48 |
| 1:G:85:LYS:HE3 | 1:G:97:VAL:H | 1.78 | 0.48 |
| 1:H:46:THR:OG1 | 1:H:48:VAL:HG12 | 2.14 | 0.48 |
| 1:I:139:VAL:HG13 | 1:I:139:VAL:O | 2.13 | 0.48 |
| 1:B:12:ALA:HB1 | 1:B:13:PRO:HD2 | 1.95 | 0.48 |
| 1:B:116:LEU:CD1 | 1:B:119:GLU:HA | 2.40 | 0.48 |
| 1:B:135:VAL:CG2 | 1:B:135:VAL:O | 2.62 | 0.48 |
| 1:C:147:ARG:O | 1:C:151:GLU:HG2 | 2.13 | 0.48 |
| 1:D:151:GLU:OE1 | 1:D:155:MET:HG2 | 2.14 | 0.48 |
| 1:G:147:ARG:HH11 | 1:G:147:ARG:CB | 2.20 | 0.48 |
| 1:H:35:GLY:O | 1:H:36:VAL:HG23 | 2.13 | 0.48 |
| 1:I:49:CYS:HB3 | 1:I:51:THR:HG23 | 1.95 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:A:68:PHE:HE2 | 1:A:156:VAL:HG13 | 1.77 | 0.48 |
| 1:B:39:PHE:HE2 | 1:B:70:VAL:HG12 | 1.79 | 0.48 |
| 1:C:11:LYS:HE2 | 1:C:24:HIS:HB3 | 1.95 | 0.48 |
| 1:G:33:LYS:CD | 1:G:67:GLY:HA2 | 2.43 | 0.48 |
| 1:I:33:LYS:CD | 1:I:67:GLY:HA2 | 2.44 | 0.48 |
| 1:A:157:ASP:O | 1:A:158:ALA:C | 2.51 | 0.48 |
| 1:E:1:MET:HE2 | 1:F:114:ASP:O | 2.13 | 0.48 |
| 1:F:85:LYS:HE2 | 1:F:97:VAL:CG2 | 2.44 | 0.48 |
| 1:H:33:LYS:HB2 | 1:H:33:LYS:HZ3 | 1.76 | 0.48 |
| 1:H:44:ASP:HA | 1:H:84:TRP:CZ3 | 2.49 | 0.48 |
| 1:J:143:LEU:HB2 | 2:J:203:HOH:O | 2.13 | 0.48 |
| 1:G:31:LEU:HA | 1:G:36:VAL:HG21 | 1.96 | 0.48 |
| 1:A:150:ASP:O | 1:A:154:ARG:HG3 | 2.14 | 0.47 |
| 1:B:151:GLU:HA | 1:B:154:ARG:NH1 | 2.29 | 0.47 |
| 1:B:162:PHE:O | 1:B:166:GLY:HA2 | 2.13 | 0.47 |
| 1:D:151:GLU:HA | 1:D:154:ARG:NH1 | 2.29 | 0.47 |
| 1:G:37:ILE:HG23 | 1:G:152:MET:HE2 | 1.95 | 0.47 |
| 1:H:143:LEU:CB | 1:H:144:PRO:HD2 | 2.44 | 0.47 |
| 1:B:136:ARG:NH1 | 1:B:136:ARG:HB3 | 2.29 | 0.47 |
| 1:C:151:GLU:OE2 | 1:D:154:ARG:HD2 | 2.13 | 0.47 |
| 1:F:33:LYS:HB2 | 1:F:33:LYS:HZ3 | 1.78 | 0.47 |
| 1:H:48:VAL:HG13 | 1:H:49:CYS:H | 1.75 | 0.47 |
| 1:A:1:MET:HE2 | 1:B:114:ASP:O | 2.13 | 0.47 |
| 1:B:159:LEU:O | 1:B:159:LEU:HD23 | 2.14 | 0.47 |
| 1:C:25:PHE:C | 1:C:25:PHE:CD2 | 2.87 | 0.47 |
| 1:D:60:VAL:HG23 | 1:D:61:LYS:HE2 | 1.96 | 0.47 |
| 1:E:151:GLU:OE2 | 1:F:154:ARG:HD2 | 2.15 | 0.47 |
| 1:F:136:ARG:NH1 | 1:F:136:ARG:CB | 2.77 | 0.47 |
| 1:H:79:GLN:CG | 1:I:43:LYS:HD3 | 2.44 | 0.47 |
| 1:H:162:PHE:O | 1:H:166:GLY:HA2 | 2.14 | 0.47 |
| 1:I:16:LEU:HD11 | 1:I:22:ASP:HB2 | 1.96 | 0.47 |
| 1:G:150:ASP:O | 1:G:154:ARG:HG3 | 2.14 | 0.47 |
| 1:A:16:LEU:HD11 | 1:A:22:ASP:HB2 | 1.97 | 0.47 |
| 1:G:147:ARG:O | 1:G:151:GLU:HG2 | 2.14 | 0.47 |
| 1:D:164:GLU:O | 1:D:166:GLY:N | 2.47 | 0.47 |
| 1:E:33:LYS:CD | 1:E:67:GLY:HA2 | 2.44 | 0.47 |
| 1:E:70:VAL:O | 1:E:99:PHE:HB2 | 2.14 | 0.47 |
| 1:A:142:ASP:OD2 | 1:B:136:ARG:NH1 | 2.47 | 0.47 |
| 1:B:26:GLU:O | 1:B:30:ASN:ND2 | 2.47 | 0.47 |
| 1:D:55:ALA:HB1 | 1:D:149:ALA:HB3 | 1.97 | 0.47 |
| 1:D:136:ARG:HH11 | 1:D:136:ARG:CA | 2.26 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:F:135:VAL:CG2 | 1:F:135:VAL:O | 2.63 | 0.47 |
| 1:H:39:PHE:O | 1:H:72:GLY:HA2 | 2.14 | 0.47 |
| 1:H:151:GLU:OE1 | 1:H:155:MET:HG2 | 2.15 | 0.47 |
| 1:I:1:MET:HE2 | 1:J:114:ASP:O | 2.14 | 0.47 |
| 1:I:151:GLU:OE2 | 1:J:154:ARG:HD2 | 2.14 | 0.47 |
| 1:B:161:HIS:HB3 | 1:B:165:HIS:HE1 | 1.80 | 0.47 |
| 1:E:31:LEU:HA | 1:E:36:VAL:HG21 | 1.97 | 0.47 |
| 1:E:131:LYS:HD2 | 1:E:131:LYS:H | 1.79 | 0.47 |
| 1:F:85:LYS:HE2 | 1:F:97:VAL:HG22 | 1.96 | 0.47 |
| 1:I:2:VAL:HG12 | 1:I:135:VAL:HG11 | 1.97 | 0.47 |
| 1:I:85:LYS:HE3 | 1:I:97:VAL:H | 1.80 | 0.47 |
| 1:I:147:ARG:HH11 | 1:I:147:ARG:CB | 2.24 | 0.47 |
| 1:J:130:ASP:OD2 | 1:J:136:ARG:HD3 | 2.15 | 0.47 |
| 1:A:82:PHE:CZ | 1:A:86:ASN:ND2 | 2.83 | 0.47 |
| 1:F:136:ARG:HA | 1:F:136:ARG:NH1 | 2.22 | 0.47 |
| 1:D:74:SER:HB3 | 1:D:81:HIS:HE1 | 1.80 | 0.47 |
| 1:F:143:LEU:CB | 1:F:145:LEU:HD11 | 2.44 | 0.47 |
| 1:F:148:ASN:N | 1:F:148:ASN:ND2 | 2.63 | 0.47 |
| 1:G:2:VAL:HG12 | 1:G:135:VAL:HG11 | 1.97 | 0.47 |
| 1:J:26:GLU:O | 1:J:30:ASN:ND2 | 2.46 | 0.47 |
| 1:B:52:GLU:HG2 | 1:B:124:ARG:HH12 | 1.80 | 0.46 |
| 1:C:33:LYS:CD | 1:C:67:GLY:HA2 | 2.45 | 0.46 |
| 1:D:21:VAL:O | 1:D:21:VAL:HG23 | 2.15 | 0.46 |
| 1:J:42:PRO:HD3 | 1:J:124:ARG:HG3 | 1.96 | 0.46 |
| 1:J:136:ARG:NH1 | 1:J:136:ARG:HB3 | 2.29 | 0.46 |
| 1:C:49:CYS:HB3 | 1:C:51:THR:HG23 | 1.97 | 0.46 |
| 1:E:6:LEU:HD23 | 1:E:6:LEU:C | 2.34 | 0.46 |
| 1:H:35:GLY:C | 1:H:36:VAL:HG23 | 2.35 | 0.46 |
| 1:J:164:GLU:O | 1:J:166:GLY:N | 2.46 | 0.46 |
| 1:D:145:LEU:H | 1:D:145:LEU:HG | 1.33 | 0.46 |
| 1:D:168:VAL:HG22 | 1:D:169:CYS:N | 2.31 | 0.46 |
| 1:E:134:LYS:HB2 | 1:E:134:LYS:HE2 | 1.68 | 0.46 |
| 1:F:94:ILE:HG23 | 1:F:95:GLY:O | 2.15 | 0.46 |
| 1:B:41:TRP:CE2 | 1:B:74:SER:HB2 | 2.50 | 0.46 |
| 1:D:52:GLU:HG2 | 1:D:124:ARG:HH11 | 1.77 | 0.46 |
| 1:E:157:ASP:O | 1:E:158:ALA:C | 2.52 | 0.46 |
| 1:H:75:ILE:HD12 | 1:H:75:ILE:C | 2.35 | 0.46 |
| 1:J:151:GLU:HA | 1:J:154:ARG:HH12 | 1.81 | 0.46 |
| 1:C:147:ARG:HH11 | 1:C:147:ARG:CB | 2.24 | 0.46 |
| 1:E:47:PHE:C | 1:F:173:TRP:HH2 | 2.19 | 0.46 |
| 1:G:157:ASP:O | 1:G:158:ALA:C | 2.53 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:H:139:VAL:O | 1:H:139:VAL:HG13 | 2.16 | 0.46 |
| 1:J:3:VAL:C | 1:J:4:THR:HG23 | 2.36 | 0.46 |
| 1:B:55:ALA:CB | 1:B:149:ALA:HB3 | 2.46 | 0.46 |
| 1:F:161:HIS:HB3 | 1:F:165:HIS:CE1 | 2.50 | 0.46 |
| 1:G:11:LYS:HE2 | 1:G:24:HIS:HB3 | 1.97 | 0.46 |
| 1:A:89:VAL:O | 1:B:173:TRP:O | 2.34 | 0.46 |
| 1:B:48:VAL:HG13 | 1:B:49:CYS:H | 1.76 | 0.46 |
| 1:F:74:SER:HB3 | 1:F:81:HIS:HE1 | 1.81 | 0.46 |
| 1:G:16:LEU:HD11 | 1:G:22:ASP:HB2 | 1.98 | 0.46 |
| 1:I:59:ARG:HG3 | 1:I:59:ARG:HH11 | 1.80 | 0.46 |
| 1:B:35:GLY:C | 1:B:36:VAL:HG23 | 2.36 | 0.46 |
| 1:B:49:CYS:HA | 1:B:50:PRO:HD3 | 1.74 | 0.46 |
| 1:D:159:LEU:O | 1:D:159:LEU:HD23 | 2.16 | 0.46 |
| 1:E:8:PRO:HD2 | 1:E:113:TYR:CZ | 2.51 | 0.46 |
| 1:F:161:HIS:HB3 | 1:F:165:HIS:HE1 | 1.80 | 0.46 |
| 1:F:168:VAL:HG22 | 1:F:169:CYS:H | 1.80 | 0.46 |
| 1:G:3:VAL:HG21 | 1:H:140:ILE:HD11 | 1.98 | 0.46 |
| 1:G:131:LYS:H | 1:G:131:LYS:CD | 2.29 | 0.46 |
| 1:I:157:ASP:O | 1:I:158:ALA:C | 2.54 | 0.46 |
| 1:J:49:CYS:HA | 1:J:50:PRO:HD3 | 1.74 | 0.46 |
| 1:A:147:ARG:O | 1:A:151:GLU:HG2 | 2.14 | 0.46 |
| 1:B:23:GLU:HA | 1:B:23:GLU:OE1 | 2.14 | 0.46 |
| 1:D:162:PHE:O | 1:D:166:GLY:HA2 | 2.15 | 0.46 |
| 1:E:162:PHE:HA | 1:E:165:HIS:O | 2.16 | 0.46 |
| 1:H:3:VAL:C | 1:H:4:THR:HG23 | 2.36 | 0.46 |
| 1:H:55:ALA:HB1 | 1:H:149:ALA:HB3 | 1.96 | 0.46 |
| 1:H:164:GLU:O | 1:H:166:GLY:N | 2.46 | 0.46 |
| 1:I:89:VAL:O | 1:J:173:TRP:O | 2.33 | 0.46 |
| 1:B:136:ARG:HA | 1:B:136:ARG:NH1 | 2.25 | 0.46 |
| 1:D:39:PHE:O | 1:D:72:GLY:HA2 | 2.16 | 0.46 |
| 1:G:139:VAL:HG13 | 1:G:139:VAL:O | 2.15 | 0.46 |
| 1:H:137:HIS:CE1 | 1:H:155:MET:HG3 | 2.51 | 0.46 |
| 1:I:31:LEU:HA | 1:I:36:VAL:HG21 | 1.96 | 0.46 |
| 1:I:131:LYS:H | 1:I:131:LYS:CD | 2.29 | 0.46 |
| 1:C:31:LEU:HA | 1:C:36:VAL:HG21 | 1.98 | 0.45 |
| 1:D:6:LEU:HD23 | 1:D:6:LEU:HA | 1.79 | 0.45 |
| 1:D:141:ASN:ND2 | 1:D:143:LEU:H | 2.14 | 0.45 |
| 1:F:44:ASP:HA | 1:F:84:TRP:CZ3 | 2.51 | 0.45 |
| 1:H:74:SER:HB3 | 1:H:81:HIS:CE1 | 2.49 | 0.45 |
| 1:H:161:HIS:HB3 | 1:H:165:HIS:CE1 | 2.51 | 0.45 |
| 1:I:3:VAL:CG2 | 1:J:140:ILE:HD11 | 2.45 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:J:61:LYS:HA | 1:J:61:LYS:HD3 | 1.67 | 0.45 |
| 1:J:136:ARG:HH11 | 1:J:136:ARG:CA | 2.26 | 0.45 |
| 1:B:123:LEU:HD23 | 1:B:140:ILE:HD13 | 1.98 | 0.45 |
| 1:C:55:ALA:HB1 | 1:C:149:ALA:HB3 | 1.97 | 0.45 |
| 1:F:48:VAL:CG1 | 1:F:49:CYS:N | 2.73 | 0.45 |
| 1:F:61:LYS:HA | 1:F:61:LYS:HD3 | 1.74 | 0.45 |
| 1:A:139:VAL:HG13 | 1:A:139:VAL:O | 2.16 | 0.45 |
| 1:C:68:PHE:HE2 | 1:C:156:VAL:HG13 | 1.81 | 0.45 |
| 1:C:165:HIS:ND1 | 1:C:165:HIS:N | 2.49 | 0.45 |
| 1:D:49:CYS:HA | 1:D:50:PRO:HD3 | 1.71 | 0.45 |
| 1:I:8:PRO:HD2 | 1:I:113:TYR:CZ | 2.51 | 0.45 |
| 1:I:55:ALA:HB1 | 1:I:149:ALA:HB3 | 1.98 | 0.45 |
| 1:C:44:ASP:OD1 | 1:C:81:HIS:ND1 | 2.46 | 0.45 |
| 1:D:53:ILE:HG23 | 1:D:99:PHE:HZ | 1.81 | 0.45 |
| 1:G:31:LEU:HD22 | 1:G:31:LEU:H | 1.80 | 0.45 |
| 1:H:11:LYS:HE3 | 1:H:24:HIS:HB3 | 1.98 | 0.45 |
| 1:H:39:PHE:HE2 | 1:H:70:VAL:HG12 | 1.81 | 0.45 |
| 1:H:96:GLN:HE21 | 1:H:96:GLN:HB3 | 1.52 | 0.45 |
| 1:J:3:VAL:O | 1:J:4:THR:HG23 | 2.16 | 0.45 |
| 1:J:55:ALA:CB | 1:J:149:ALA:HB3 | 2.47 | 0.45 |
| 1:A:3:VAL:HG11 | 1:B:140:ILE:CD1 | 2.46 | 0.45 |
| 1:A:131:LYS:H | 1:A:131:LYS:CD | 2.29 | 0.45 |
| 1:A:141:ASN:HB3 | 1:B:137:HIS:CD2 | 2.50 | 0.45 |
| 1:G:77:SER:OG | 1:G:80:VAL:HG13 | 2.16 | 0.45 |
| 1:H:85:LYS:HE2 | 1:H:97:VAL:CG2 | 2.46 | 0.45 |
| 1:J:136:ARG:HA | 1:J:136:ARG:NH1 | 2.28 | 0.45 |
| 1:B:74:SER:HA | 2:B:200:HOH:O | 2.16 | 0.45 |
| 1:C:70:VAL:O | 1:C:99:PHE:HB2 | 2.17 | 0.45 |
| 1:I:150:ASP:OD2 | 1:I:154:ARG:HD2 | 2.17 | 0.45 |
| 1:J:2:VAL:O | 1:J:135:VAL:CG2 | 2.65 | 0.45 |
| 1:A:111:ARG:HG3 | 1:A:116:LEU:HD12 | 1.99 | 0.45 |
| 1:B:6:LEU:HD23 | 1:B:6:LEU:HA | 1.83 | 0.45 |
| 1:B:8:PRO:HG2 | 1:B:113:TYR:CE1 | 2.52 | 0.45 |
| 1:D:42:PRO:HD3 | 1:D:124:ARG:HG3 | 1.99 | 0.45 |
| 1:E:128:LEU:N | 1:E:152:MET:HE1 | 2.31 | 0.45 |
| 1:F:89:VAL:HG23 | 1:F:90:GLU:N | 2.32 | 0.45 |
| 1:H:50:PRO:HB3 | 1:H:94:ILE:HD11 | 1.98 | 0.45 |
| 1:H:148:ASN:N | 1:H:148:ASN:ND2 | 2.63 | 0.45 |
| 1:J:142:ASP:C | 1:J:142:ASP:OD2 | 2.55 | 0.45 |
| 1:A:85:LYS:HE3 | 1:A:97:VAL:H | 1.81 | 0.45 |
| 1:B:11:LYS:HE3 | 1:B:24:HIS:HB3 | 1.99 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:164:GLU:O | 1:B:166:GLY:N | 2.46 | 0.45 |
| 1:C:85:LYS:HE3 | 1:C:97:VAL:H | 1.80 | 0.45 |
| 1:D:139:VAL:HG13 | 1:D:139:VAL:O | 2.17 | 0.45 |
| 1:F:52:GLU:HG2 | 1:F:124:ARG:HH11 | 1.78 | 0.45 |
| 1:H:48:VAL:CG2 | 1:H:49:CYS:H | 2.14 | 0.45 |
| 1:I:3:VAL:HB | 1:J:140:ILE:HD11 | 1.98 | 0.45 |
| 1:I:21:VAL:O | 1:I:21:VAL:HG13 | 2.16 | 0.45 |
| 1:I:88:PRO:O | 1:I:91:LYS:N | 2.45 | 0.45 |
| 1:I:95:GLY:O | 1:I:97:VAL:HG13 | 2.16 | 0.45 |
| 1:D:50:PRO:HB3 | 1:D:94:ILE:HD11 | 1.98 | 0.45 |
| 1:F:35:GLY:C | 1:F:36:VAL:HG23 | 2.38 | 0.45 |
| 1:F:60:VAL:HG23 | 1:F:61:LYS:N | 2.32 | 0.45 |
| 1:F:96:GLN:HE21 | 1:F:96:GLN:HB3 | 1.56 | 0.45 |
| 1:G:162:PHE:HA | 1:G:165:HIS:O | 2.16 | 0.45 |
| 1:H:35:GLY:O | 1:H:36:VAL:CG2 | 2.64 | 0.45 |
| 1:A:128:LEU:N | 1:A:152:MET:HE1 | 2.32 | 0.45 |
| 1:C:2:VAL:HG12 | 1:C:135:VAL:HG11 | 1.99 | 0.45 |
| 1:C:88:PRO:O | 1:C:91:LYS:N | 2.47 | 0.45 |
| 1:C:150:ASP:O | 1:C:154:ARG:HG3 | 2.17 | 0.45 |
| 1:D:104:ASP:OD2 | 1:D:107:LYS:HA | 2.16 | 0.45 |
| 1:E:131:LYS:H | 1:E:131:LYS:CD | 2.30 | 0.45 |
| 1:F:136:ARG:HB3 | 1:F:136:ARG:CZ | 2.46 | 0.45 |
| 1:G:169:CYS:HG | 1:H:49:CYS:CB | 2.30 | 0.45 |
| 1:H:8:PRO:HG2 | 1:H:113:TYR:CZ | 2.52 | 0.45 |
| 1:H:49:CYS:HA | 1:H:50:PRO:HD3 | 1.73 | 0.45 |
| 1:J:94:ILE:HD12 | 1:J:94:ILE:HA | 1.82 | 0.45 |
| 1:A:37:ILE:HD12 | 1:A:152:MET:HE3 | 1.98 | 0.44 |
| 1:C:11:LYS:HA | 1:C:25:PHE:O | 2.16 | 0.44 |
| 1:D:61:LYS:HA | 1:D:61:LYS:HD3 | 1.74 | 0.44 |
| 1:E:59:ARG:HD3 | 1:E:153:LEU:HD22 | 2.00 | 0.44 |
| 1:G:27:LEU:O | 1:G:29:LYS:N | 2.50 | 0.44 |
| 1:G:59:ARG:HD3 | 1:G:153:LEU:HD22 | 1.99 | 0.44 |
| 1:I:27:LEU:C | 1:I:29:LYS:H | 2.21 | 0.44 |
| 1:J:48:VAL:HG13 | 1:J:49:CYS:H | 1.80 | 0.44 |
| 1:B:50:PRO:HB3 | 1:B:94:ILE:HD11 | 1.98 | 0.44 |
| 1:E:111:ARG:HG3 | 1:E:116:LEU:HD12 | 1.99 | 0.44 |
| 1:F:46:THR:OG1 | 1:F:48:VAL:HG12 | 2.17 | 0.44 |
| 1:J:59:ARG:NH2 | 1:J:150:ASP:CB | 2.78 | 0.44 |
| 1:A:31:LEU:HD22 | 1:A:31:LEU:H | 1.81 | 0.44 |
| 1:A:146:GLY:HA2 | 2:A:206:HOH:O | 2.17 | 0.44 |
| 1:D:11:LYS:CE | 1:D:24:HIS:HB3 | 2.47 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:41:TRP:CE2 | 1:D:74:SER:HB2 | 2.53 | 0.44 |
| 1:E:68:PHE:HE2 | 1:E:156:VAL:HG13 | 1.82 | 0.44 |
| 1:F:51:THR:OG1 | 1:F:52:GLU:N | 2.51 | 0.44 |
| 1:H:61:LYS:HA | 1:H:61:LYS:HD3 | 1.76 | 0.44 |
| 1:I:27:LEU:O | 1:I:29:LYS:N | 2.50 | 0.44 |
| 1:J:75:ILE:C | 1:J:75:ILE:HD12 | 2.38 | 0.44 |
| 1:A:31:LEU:HA | 1:A:36:VAL:HG21 | 1.99 | 0.44 |
| 1:C:118:GLU:N | 2:C:202:HOH:O | 2.50 | 0.44 |
| 1:D:77:SER:O | 1:D:80:VAL:HG13 | 2.17 | 0.44 |
| 1:D:96:GLN:HE21 | 1:D:96:GLN:HB3 | 1.52 | 0.44 |
| 1:D:135:VAL:CG2 | 1:D:135:VAL:O | 2.63 | 0.44 |
| 1:I:162:PHE:HA | 1:I:165:HIS:O | 2.18 | 0.44 |
| 1:I:163:GLU:HA | 1:I:163:GLU:OE1 | 2.17 | 0.44 |
| 1:J:139:VAL:HG13 | 1:J:139:VAL:O | 2.17 | 0.44 |
| 1:A:11:LYS:HA | 1:A:25:PHE:O | 2.17 | 0.44 |
| 1:B:174:ARG:HH11 | 1:B:174:ARG:CG | 2.30 | 0.44 |
| 1:E:2:VAL:HG12 | 1:E:135:VAL:HG11 | 2.00 | 0.44 |
| 1:F:49:CYS:HA | 1:F:50:PRO:HD3 | 1.72 | 0.44 |
| 1:F:55:ALA:CB | 1:F:149:ALA:HB3 | 2.47 | 0.44 |
| 1:I:70:VAL:O | 1:I:99:PHE:HB2 | 2.18 | 0.44 |
| 1:J:85:LYS:HE2 | 1:J:97:VAL:CG2 | 2.48 | 0.44 |
| 1:C:6:LEU:HD23 | 1:C:7:ALA:C | 2.37 | 0.44 |
| 1:H:169:CYS:CB | 1:H:170:PRO:CD | 2.92 | 0.44 |
| 1:I:165:HIS:ND1 | 1:I:165:HIS:N | 2.52 | 0.44 |
| 1:J:74:SER:HB3 | 1:J:81:HIS:CE1 | 2.51 | 0.44 |
| 1:A:25:PHE:C | 1:A:25:PHE:CD2 | 2.91 | 0.44 |
| 1:A:134:LYS:HB2 | 1:A:134:LYS:HE2 | 1.67 | 0.44 |
| 1:B:42:PRO:HD3 | 1:B:124:ARG:HG3 | 2.00 | 0.44 |
| 1:B:75:ILE:C | 1:B:75:ILE:HD12 | 2.38 | 0.44 |
| 1:C:95:GLY:O | 1:C:97:VAL:HG13 | 2.17 | 0.44 |
| 1:E:55:ALA:HB1 | 1:E:149:ALA:HB3 | 1.99 | 0.44 |
| 1:E:150:ASP:OD2 | 1:E:154:ARG:HD2 | 2.17 | 0.44 |
| 1:F:139:VAL:HG12 | 1:F:152:MET:CE | 2.47 | 0.44 |
| 1:C:59:ARG:HD3 | 1:C:153:LEU:HD22 | 1.99 | 0.44 |
| 1:C:141:ASN:HB3 | 1:D:137:HIS:CD2 | 2.53 | 0.44 |
| 1:D:79:GLN:CG | 1:E:43:LYS:HD3 | 2.48 | 0.44 |
| 1:F:35:GLY:O | 1:F:36:VAL:HG23 | 2.18 | 0.44 |
| 1:G:1:MET:HE2 | 1:H:114:ASP:O | 2.18 | 0.44 |
| 1:G:68:PHE:HE2 | 1:G:156:VAL:HG13 | 1.82 | 0.44 |
| 1:H:49:CYS:HB2 | 1:H:51:THR:HG23 | 1.98 | 0.44 |
| 1:A:162:PHE:HA | 1:A:165:HIS:O | 2.18 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:162:PHE:HA | 1:C:165:HIS:O | 2.18 | 0.44 |
| 1:D:33:LYS:HB2 | 1:D:33:LYS:HZ2 | 1.82 | 0.44 |
| 1:J:135:VAL:CG2 | 1:J:135:VAL:O | 2.65 | 0.44 |
| 1:J:140:ILE:C | 1:J:140:ILE:CD1 | 2.83 | 0.44 |
| 1:J:159:LEU:HD23 | 1:J:159:LEU:C | 2.38 | 0.44 |
| 1:C:16:LEU:HD11 | 1:C:22:ASP:HB2 | 2.00 | 0.43 |
| 1:D:169:CYS:CB | 1:D:170:PRO:CD | 2.92 | 0.43 |
| 1:F:54:ILE:O | 1:F:58:LYS:HG2 | 2.17 | 0.43 |
| 1:F:116:LEU:HD11 | 1:F:119:GLU:CA | 2.39 | 0.43 |
| 1:J:50:PRO:HB3 | 1:J:94:ILE:HD11 | 2.00 | 0.43 |
| 1:B:35:GLY:O | 1:B:36:VAL:CG2 | 2.65 | 0.43 |
| 1:C:131:LYS:HD2 | 1:C:131:LYS:H | 1.82 | 0.43 |
| 1:D:35:GLY:C | 1:D:36:VAL:HG23 | 2.37 | 0.43 |
| 1:D:137:HIS:CE1 | 1:D:155:MET:HG3 | 2.52 | 0.43 |
| 1:F:105:ILE:HG23 | 1:F:106:THR:HG23 | 2.00 | 0.43 |
| 1:H:141:ASN:HD21 | 1:H:143:LEU:HB2 | 1.83 | 0.43 |
| 1:I:68:PHE:HE2 | 1:I:156:VAL:HG13 | 1.82 | 0.43 |
| 1:J:89:VAL:HG23 | 1:J:90:GLU:N | 2.32 | 0.43 |
| 1:B:74:SER:HB3 | 1:B:81:HIS:HE1 | 1.83 | 0.43 |
| 1:E:139:VAL:O | 1:E:139:VAL:HG13 | 2.18 | 0.43 |
| 1:F:60:VAL:HG23 | 1:F:61:LYS:HE2 | 2.00 | 0.43 |
| 1:F:136:ARG:HH11 | 1:F:136:ARG:CB | 2.31 | 0.43 |
| 1:H:135:VAL:CG2 | 1:H:135:VAL:O | 2.67 | 0.43 |
| 1:I:25:PHE:CD2 | 1:I:25:PHE:C | 2.91 | 0.43 |
| 1:I:134:LYS:HE2 | 1:I:134:LYS:HB2 | 1.66 | 0.43 |
| 1:A:2:VAL:HG12 | 1:A:135:VAL:HG11 | 2.00 | 0.43 |
| 1:A:55:ALA:HB1 | 1:A:149:ALA:HB3 | 2.00 | 0.43 |
| 1:C:27:LEU:O | 1:C:29:LYS:N | 2.52 | 0.43 |
| 1:C:123:LEU:HB3 | 1:C:140:ILE:HD13 | 1.99 | 0.43 |
| 1:D:105:ILE:HG23 | 1:D:106:THR:HG23 | 2.01 | 0.43 |
| 1:I:150:ASP:O | 1:I:154:ARG:HG3 | 2.18 | 0.43 |
| 1:A:164:GLU:HB2 | 1:A:165:HIS:H | 1.68 | 0.43 |
| 1:B:60:VAL:HG23 | 1:B:61:LYS:N | 2.33 | 0.43 |
| 1:D:107:LYS:HB2 | 1:D:111:ARG:NH2 | 2.34 | 0.43 |
| 1:E:59:ARG:HG3 | 1:E:59:ARG:HH11 | 1.82 | 0.43 |
| 1:E:95:GLY:O | 1:E:97:VAL:HG13 | 2.19 | 0.43 |
| 1:F:33:LYS:HG3 | 1:F:34:ASN:ND2 | 2.33 | 0.43 |
| 1:J:169:CYS:CB | 1:J:170:PRO:CD | 2.93 | 0.43 |
| 1:B:59:ARG:NH2 | 1:B:150:ASP:CB | 2.81 | 0.43 |
| 1:C:144:PRO:O | 1:C:145:LEU:C | 2.57 | 0.43 |
| 1:C:162:PHE:O | 1:C:163:GLU:C | 2.57 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:33:LYS:HB2 | 1:D:33:LYS:HZ3 | 1.83 | 0.43 |
| 1:E:27:LEU:C | 1:E:29:LYS:H | 2.22 | 0.43 |
| 1:G:82:PHE:CZ | 1:G:86:ASN:ND2 | 2.87 | 0.43 |
| 1:H:55:ALA:CB | 1:H:149:ALA:HB3 | 2.49 | 0.43 |
| 1:B:174:ARG:N | 2:B:199:HOH:O | 2.48 | 0.43 |
| 1:C:36:VAL:CG1 | 1:C:37:ILE:H | 2.30 | 0.43 |
| 1:C:77:SER:OG | 1:C:80:VAL:HG13 | 2.19 | 0.43 |
| 1:D:48:VAL:CG2 | 1:D:49:CYS:H | 2.14 | 0.43 |
| 1:D:151:GLU:OE1 | 1:D:155:MET:CG | 2.67 | 0.43 |
| 1:D:168:VAL:HG22 | 1:D:169:CYS:H | 1.83 | 0.43 |
| 1:E:85:LYS:CA | 1:E:94:ILE:HG22 | 2.44 | 0.43 |
| 1:E:162:PHE:CD1 | 1:E:167:GLU:OE1 | 2.72 | 0.43 |
| 1:G:3:VAL:HB | 1:H:140:ILE:HD11 | 2.00 | 0.43 |
| 1:I:31:LEU:H | 1:I:31:LEU:CD2 | 2.32 | 0.43 |
| 1:A:78:GLU:CD | 1:A:79:GLN:NE2 | 2.72 | 0.43 |
| 1:C:123:LEU:HB3 | 1:C:140:ILE:CD1 | 2.49 | 0.43 |
| 1:C:134:LYS:HB2 | 1:C:134:LYS:HE2 | 1.67 | 0.43 |
| 1:H:47:PHE:CZ | 1:I:79:GLN:HA | 2.53 | 0.43 |
| 1:J:143:LEU:HD23 | 1:J:144:PRO:HD2 | 2.01 | 0.43 |
| 1:A:106:THR:HG22 | 1:J:120:ALA:HB2 | 2.01 | 0.43 |
| 1:B:10:PHE:CD1 | 1:B:10:PHE:C | 2.92 | 0.43 |
| 1:G:95:GLY:O | 1:G:97:VAL:HG13 | 2.19 | 0.43 |
| 1:H:6:LEU:HD23 | 1:H:6:LEU:HA | 1.78 | 0.43 |
| 1:I:6:LEU:HA | 1:I:133:MET:O | 2.19 | 0.43 |
| 1:B:17:GLY:C | 1:B:19:ASN:H | 2.21 | 0.43 |
| 1:E:44:ASP:OD1 | 1:E:81:HIS:ND1 | 2.51 | 0.43 |
| 1:F:143:LEU:CD2 | 1:F:144:PRO:HD2 | 2.49 | 0.43 |
| 1:G:55:ALA:HB1 | 1:G:149:ALA:HB3 | 2.00 | 0.43 |
| 1:B:31:LEU:HD22 | 1:B:36:VAL:CG2 | 2.49 | 0.42 |
| 1:B:51:THR:OG1 | 1:B:52:GLU:N | 2.52 | 0.42 |
| 1:B:142:ASP:OD2 | 1:B:142:ASP:C | 2.57 | 0.42 |
| 1:D:49:CYS:HB2 | 1:D:51:THR:HG23 | 2.00 | 0.42 |
| 1:E:25:PHE:C | 1:E:25:PHE:CD2 | 2.92 | 0.42 |
| 1:F:6:LEU:HD23 | 1:F:6:LEU:HA | 1.81 | 0.42 |
| 1:I:144:PRO:O | 1:I:145:LEU:C | 2.57 | 0.42 |
| 1:J:51:THR:OG1 | 1:J:52:GLU:N | 2.52 | 0.42 |
| 1:A:6:LEU:HD23 | 1:A:7:ALA:C | 2.39 | 0.42 |
| 1:A:162:PHE:O | 1:A:163:GLU:C | 2.57 | 0.42 |
| 1:C:36:VAL:CG1 | 1:C:37:ILE:N | 2.81 | 0.42 |
| 1:D:88:PRO:HD2 | 1:D:91:LYS:HD2 | 1.99 | 0.42 |
| 1:E:31:LEU:H | 1:E:31:LEU:CD2 | 2.32 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:E:89:VAL:O | 1:F:173:TRP:O | 2.37 | 0.42 |
| 1:J:11:LYS:HA | 1:J:25:PHE:O | 2.19 | 0.42 |
| 1:C:27:LEU:C | 1:C:29:LYS:H | 2.22 | 0.42 |
| 1:C:31:LEU:HD22 | 1:C:31:LEU:H | 1.84 | 0.42 |
| 1:E:37:ILE:HG23 | 1:E:152:MET:HE2 | 2.00 | 0.42 |
| 1:F:130:ASP:OD1 | 1:F:130:ASP:C | 2.58 | 0.42 |
| 1:G:142:ASP:OD2 | 1:H:136:ARG:NH1 | 2.51 | 0.42 |
| 1:H:130:ASP:OD2 | 1:H:136:ARG:HD3 | 2.18 | 0.42 |
| 1:J:143:LEU:HG | 1:J:144:PRO:CD | 2.49 | 0.42 |
| 1:B:96:GLN:HE21 | 1:B:96:GLN:HB3 | 1.52 | 0.42 |
| 1:C:22:ASP:OD1 | 1:C:23:GLU:N | 2.53 | 0.42 |
| 1:D:60:VAL:HG23 | 1:D:61:LYS:N | 2.34 | 0.42 |
| 1:E:6:LEU:HA | 1:E:133:MET:O | 2.18 | 0.42 |
| 1:E:12:ALA:HB1 | 1:E:13:PRO:CD | 2.50 | 0.42 |
| 1:F:77:SER:HG | 1:F:80:VAL:HG12 | 1.84 | 0.42 |
| 1:F:88:PRO:CG | 1:F:91:LYS:HD2 | 2.49 | 0.42 |
| 1:G:47:PHE:C | 1:H:173:TRP:HH2 | 2.22 | 0.42 |
| 1:G:89:VAL:O | 1:H:173:TRP:O | 2.37 | 0.42 |
| 1:G:151:GLU:OE2 | 1:H:154:ARG:HD2 | 2.20 | 0.42 |
| 1:H:151:GLU:HA | 1:H:154:ARG:HH12 | 1.84 | 0.42 |
| 1:H:159:LEU:HD23 | 1:H:159:LEU:C | 2.40 | 0.42 |
| 1:B:44:ASP:HA | 1:B:84:TRP:CH2 | 2.54 | 0.42 |
| 1:B:46:THR:OG1 | 1:B:48:VAL:HG12 | 2.20 | 0.42 |
| 1:C:128:LEU:HB2 | 1:C:152:MET:CE | 2.49 | 0.42 |
| 1:D:35:GLY:O | 1:D:36:VAL:CG2 | 2.67 | 0.42 |
| 1:D:55:ALA:CB | 1:D:149:ALA:HB3 | 2.49 | 0.42 |
| 1:D:125:GLY:HA2 | 1:D:140:ILE:HA | 2.01 | 0.42 |
| 1:E:150:ASP:O | 1:E:154:ARG:HG3 | 2.18 | 0.42 |
| 1:F:3:VAL:C | 1:F:4:THR:HG23 | 2.40 | 0.42 |
| 1:G:165:HIS:ND1 | 1:G:165:HIS:N | 2.48 | 0.42 |
| 1:H:151:GLU:OE1 | 1:H:151:GLU:C | 2.58 | 0.42 |
| 1:I:123:LEU:HB3 | 1:I:140:ILE:CD1 | 2.49 | 0.42 |
| 1:C:37:ILE:HG23 | 1:C:152:MET:HE2 | 2.01 | 0.42 |
| 1:D:59:ARG:NH2 | 1:D:150:ASP:CB | 2.82 | 0.42 |
| 1:D:116:LEU:CD1 | 1:D:119:GLU:HA | 2.38 | 0.42 |
| 1:E:27:LEU:O | 1:E:29:LYS:N | 2.52 | 0.42 |
| 1:H:42:PRO:HD3 | 1:H:124:ARG:HG3 | 2.02 | 0.42 |
| 1:J:46:THR:OG1 | 1:J:48:VAL:HG12 | 2.19 | 0.42 |
| 1:B:3:VAL:O | 1:B:4:THR:OG1 | 2.28 | 0.42 |
| 1:B:40:PHE:CD2 | 1:B:73:VAL:HG22 | 2.54 | 0.42 |
| 1:E:163:GLU:OE1 | 1:E:163:GLU:HA | 2.20 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-----------------|--------------------------|-------------------|
| 1:F:143:LEU:HD23 | 1:F:144:PRO:HD2 | 2.00 | 0.42 |
| 1:I:28:SER:C | 1:I:29:LYS:HD2 | 2.39 | 0.42 |
| 1:J:174:ARG:HH11 | 1:J:174:ARG:CG | 2.32 | 0.42 |
| 1:A:139:VAL:HG23 | 1:B:137:HIS:NE2 | 2.34 | 0.42 |
| 1:A:144:PRO:O | 1:A:145:LEU:C | 2.58 | 0.42 |
| 1:B:21:VAL:O | 1:B:21:VAL:HG23 | 2.18 | 0.42 |
| 1:B:39:PHE:O | 1:B:72:GLY:HA2 | 2.19 | 0.42 |
| 1:B:139:VAL:HG12 | 1:B:152:MET:CE | 2.49 | 0.42 |
| 1:D:141:ASN:ND2 | 1:D:142:ASP:N | 2.67 | 0.42 |
| 1:D:170:PRO:O | 1:D:172:GLY:N | 2.52 | 0.42 |
| 1:F:164:GLU:O | 1:F:166:GLY:N | 2.52 | 0.42 |
| 1:G:25:PHE:C | 1:G:25:PHE:CD2 | 2.93 | 0.42 |
| 1:G:162:PHE:CD1 | 1:G:167:GLU:OE1 | 2.73 | 0.42 |
| 1:J:12:ALA:HB1 | 1:J:13:PRO:HD2 | 2.01 | 0.42 |
| 1:B:88:PRO:HG2 | 1:B:91:LYS:HD2 | 2.02 | 0.42 |
| 1:B:161:HIS:HB3 | 1:B:165:HIS:CE1 | 2.54 | 0.42 |
| 1:E:22:ASP:OD1 | 1:E:23:GLU:N | 2.53 | 0.42 |
| 1:G:27:LEU:C | 1:G:29:LYS:H | 2.23 | 0.42 |
| 1:H:59:ARG:NH2 | 1:H:150:ASP:CB | 2.82 | 0.42 |
| 1:J:21:VAL:O | 1:J:21:VAL:HG23 | 2.19 | 0.42 |
| 1:A:24:HIS:ND1 | 1:A:24:HIS:N | 2.68 | 0.42 |
| 1:C:1:MET:HE2 | 1:D:114:ASP:O | 2.20 | 0.42 |
| 1:C:24:HIS:ND1 | 1:C:24:HIS:N | 2.67 | 0.42 |
| 1:D:46:THR:OG1 | 1:D:48:VAL:HG12 | 2.19 | 0.42 |
| 1:E:10:PHE:O | 1:E:26:GLU:HA | 2.20 | 0.42 |
| 1:E:146:GLY:HA2 | 2:E:201:HOH:O | 2.18 | 0.42 |
| 1:F:21:VAL:O | 1:F:21:VAL:HG23 | 2.20 | 0.42 |
| 1:G:10:PHE:O | 1:G:26:GLU:HA | 2.20 | 0.42 |
| 1:H:151:GLU:OE1 | 1:H:155:MET:CG | 2.68 | 0.42 |
| 1:I:53:ILE:HG23 | 1:I:99:PHE:HZ | 1.84 | 0.42 |
| 1:I:77:SER:OG | 1:I:80:VAL:HG13 | 2.19 | 0.42 |
| 1:I:128:LEU:N | 1:I:152:MET:HE1 | 2.34 | 0.42 |
| 1:A:57:ASP:O | 1:A:60:VAL:HG13 | 2.20 | 0.41 |
| 1:C:25:PHE:C | 1:C:25:PHE:HD2 | 2.23 | 0.41 |
| 1:D:137:HIS:CD2 | 1:D:138:ALA:N | 2.87 | 0.41 |
| 1:D:151:GLU:OE1 | 1:D:151:GLU:C | 2.59 | 0.41 |
| 1:E:128:LEU:HB2 | 1:E:152:MET:CE | 2.50 | 0.41 |
| 1:A:85:LYS:CA | 1:A:94:ILE:HG22 | 2.42 | 0.41 |
| 1:A:95:GLY:O | 1:A:97:VAL:HG13 | 2.19 | 0.41 |
| 1:C:82:PHE:CZ | 1:C:86:ASN:ND2 | 2.88 | 0.41 |
| 1:C:87:THR:HB | 1:C:93:GLY:HA3 | 2.01 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:E:20:GLU:HA | 1:E:20:GLU:OE2 | 2.21 | 0.41 |
| 1:E:36:VAL:CG1 | 1:E:37:ILE:H | 2.29 | 0.41 |
| 1:E:82:PHE:CZ | 1:E:86:ASN:ND2 | 2.89 | 0.41 |
| 1:G:50:PRO:O | 1:G:51:THR:C | 2.59 | 0.41 |
| 1:G:144:PRO:O | 1:G:145:LEU:C | 2.58 | 0.41 |
| 1:I:19:ASN:ND2 | 1:I:85:LYS:HE2 | 2.34 | 0.41 |
| 1:I:47:PHE:C | 1:J:173:TRP:HH2 | 2.24 | 0.41 |
| 1:J:35:GLY:C | 1:J:36:VAL:HG23 | 2.40 | 0.41 |
| 1:J:168:VAL:HG22 | 1:J:169:CYS:H | 1.85 | 0.41 |
| 1:A:70:VAL:O | 1:A:99:PHE:HB2 | 2.20 | 0.41 |
| 1:B:57:ASP:O | 1:B:60:VAL:HG22 | 2.20 | 0.41 |
| 1:C:169:CYS:HG | 1:D:49:CYS:CB | 2.33 | 0.41 |
| 1:D:136:ARG:HB3 | 1:D:136:ARG:CZ | 2.49 | 0.41 |
| 1:F:169:CYS:CB | 1:F:170:PRO:CD | 2.96 | 0.41 |
| 1:G:150:ASP:OD2 | 1:G:154:ARG:HD2 | 2.20 | 0.41 |
| 1:H:17:GLY:C | 1:H:19:ASN:H | 2.24 | 0.41 |
| 1:A:31:LEU:HD12 | 1:A:36:VAL:HG23 | 2.02 | 0.41 |
| 1:C:68:PHE:CD2 | 1:C:156:VAL:HG13 | 2.55 | 0.41 |
| 1:C:131:LYS:H | 1:C:131:LYS:CD | 2.33 | 0.41 |
| 1:E:6:LEU:HD23 | 1:E:7:ALA:C | 2.41 | 0.41 |
| 1:G:6:LEU:HD23 | 1:G:7:ALA:C | 2.40 | 0.41 |
| 1:I:123:LEU:HB3 | 1:I:140:ILE:HD13 | 2.03 | 0.41 |
| 1:C:78:GLU:CG | 1:C:79:GLN:NE2 | 2.83 | 0.41 |
| 1:D:18:ASN:OD1 | 1:D:18:ASN:C | 2.59 | 0.41 |
| 1:D:57:ASP:O | 1:D:60:VAL:HG22 | 2.20 | 0.41 |
| 1:H:125:GLY:HA2 | 1:H:140:ILE:HA | 2.02 | 0.41 |
| 1:J:6:LEU:HD23 | 1:J:6:LEU:HA | 1.77 | 0.41 |
| 1:J:116:LEU:HD11 | 1:J:119:GLU:CA | 2.36 | 0.41 |
| 1:C:148:ASN:N | 1:C:148:ASN:HD22 | 2.18 | 0.41 |
| 1:F:94:ILE:HD12 | 1:F:94:ILE:HA | 1.85 | 0.41 |
| 1:G:59:ARG:HG3 | 1:G:59:ARG:HH11 | 1.86 | 0.41 |
| 1:I:162:PHE:O | 1:I:163:GLU:C | 2.58 | 0.41 |
| 1:J:143:LEU:CD2 | 1:J:144:PRO:HD2 | 2.50 | 0.41 |
| 1:B:148:ASN:HD22 | 1:B:149:ALA:H | 1.68 | 0.41 |
| 1:D:75:ILE:C | 1:D:75:ILE:HD12 | 2.41 | 0.41 |
| 1:D:174:ARG:HH11 | 1:D:174:ARG:CG | 2.30 | 0.41 |
| 1:F:53:ILE:HG23 | 1:F:99:PHE:HZ | 1.86 | 0.41 |
| 1:G:70:VAL:O | 1:G:99:PHE:HB2 | 2.19 | 0.41 |
| 1:G:148:ASN:HD22 | 1:G:148:ASN:N | 2.19 | 0.41 |
| 1:B:9:ASP:OD1 | 1:B:10:PHE:N | 2.51 | 0.41 |
| 1:B:159:LEU:HD23 | 1:B:159:LEU:C | 2.40 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:D:45:PHE:CZ | 1:D:84:TRP:HA | 2.56 | 0.41 |
| 1:D:49:CYS:C | 1:D:51:THR:H | 2.24 | 0.41 |
| 1:E:17:GLY:N | 2:E:203:HOH:O | 2.37 | 0.41 |
| 1:G:85:LYS:CA | 1:G:94:ILE:HG22 | 2.40 | 0.41 |
| 1:G:116:LEU:HA | 1:G:116:LEU:HD23 | 1.82 | 0.41 |
| 1:A:78:GLU:CG | 1:A:79:GLN:NE2 | 2.83 | 0.41 |
| 1:B:79:GLN:NE2 | 1:C:43:LYS:NZ | 2.69 | 0.41 |
| 1:B:88:PRO:CG | 1:B:91:LYS:HD2 | 2.51 | 0.41 |
| 1:C:130:ASP:C | 1:C:130:ASP:OD1 | 2.59 | 0.41 |
| 1:C:164:GLU:HB2 | 1:C:165:HIS:H | 1.70 | 0.41 |
| 1:E:22:ASP:OD1 | 1:E:24:HIS:N | 2.53 | 0.41 |
| 1:E:77:SER:OG | 1:E:80:VAL:HG13 | 2.21 | 0.41 |
| 1:E:123:LEU:HB3 | 1:E:140:ILE:HD13 | 2.02 | 0.41 |
| 1:E:169:CYS:SG | 1:F:49:CYS:SG | 3.04 | 0.41 |
| 1:F:49:CYS:HB2 | 1:F:51:THR:HG23 | 2.02 | 0.41 |
| 1:G:123:LEU:HB3 | 1:G:140:ILE:HD13 | 2.03 | 0.41 |
| 1:H:73:VAL:HB | 1:H:102:VAL:HB | 2.03 | 0.41 |
| 1:I:85:LYS:CA | 1:I:94:ILE:HG22 | 2.41 | 0.41 |
| 1:J:52:GLU:HB2 | 1:J:53:ILE:HD12 | 2.02 | 0.41 |
| 1:J:66:LYS:CE | 1:J:157:ASP:OD1 | 2.66 | 0.41 |
| 1:J:148:ASN:HD22 | 1:J:148:ASN:N | 2.18 | 0.41 |
| 1:A:68:PHE:CD2 | 1:A:156:VAL:HG13 | 2.56 | 0.41 |
| 1:A:163:GLU:HA | 1:A:163:GLU:OE1 | 2.21 | 0.41 |
| 1:B:32:GLY:H | 1:B:36:VAL:HG23 | 1.86 | 0.41 |
| 1:B:148:ASN:N | 1:B:148:ASN:ND2 | 2.69 | 0.41 |
| 1:C:6:LEU:HA | 1:C:133:MET:O | 2.21 | 0.41 |
| 1:C:6:LEU:CD2 | 1:C:7:ALA:O | 2.67 | 0.41 |
| 1:D:136:ARG:NH1 | 1:D:136:ARG:CB | 2.83 | 0.41 |
| 1:E:123:LEU:HB3 | 1:E:140:ILE:CD1 | 2.51 | 0.41 |
| 1:F:142:ASP:OD2 | 1:F:142:ASP:C | 2.60 | 0.41 |
| 1:H:41:TRP:CE2 | 1:H:74:SER:HB2 | 2.57 | 0.41 |
| 1:H:60:VAL:HG23 | 1:H:61:LYS:N | 2.36 | 0.41 |
| 1:H:60:VAL:HG23 | 1:H:61:LYS:HE2 | 2.02 | 0.41 |
| 1:H:136:ARG:HA | 1:H:136:ARG:NH1 | 2.28 | 0.41 |
| 1:I:36:VAL:CG1 | 1:I:37:ILE:N | 2.81 | 0.41 |
| 1:I:162:PHE:CD1 | 1:I:167:GLU:OE1 | 2.74 | 0.41 |
| 1:J:39:PHE:O | 1:J:72:GLY:HA2 | 2.20 | 0.41 |
| 1:A:162:PHE:CD1 | 1:A:167:GLU:OE1 | 2.74 | 0.40 |
| 1:C:85:LYS:CA | 1:C:94:ILE:HG22 | 2.41 | 0.40 |
| 1:D:32:GLY:H | 1:D:36:VAL:HG23 | 1.85 | 0.40 |
| 1:F:11:LYS:HA | 1:F:25:PHE:O | 2.21 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:G:88:PRO:O | 1:G:91:LYS:N | 2.50 | 0.40 |
| 1:H:3:VAL:O | 1:H:4:THR:HG23 | 2.21 | 0.40 |
| 1:H:88:PRO:HB3 | 1:H:90:GLU:OE2 | 2.21 | 0.40 |
| 1:I:42:PRO:HB3 | 1:I:121:ILE:HD12 | 2.03 | 0.40 |
| 1:A:28:SER:C | 1:A:29:LYS:HD2 | 2.41 | 0.40 |
| 1:B:124:ARG:NH1 | 1:B:124:ARG:HG2 | 2.37 | 0.40 |
| 1:C:163:GLU:HA | 1:C:163:GLU:OE1 | 2.20 | 0.40 |
| 1:F:75:ILE:HD12 | 1:F:75:ILE:C | 2.41 | 0.40 |
| 1:F:174:ARG:HH11 | 1:F:174:ARG:CG | 2.32 | 0.40 |
| 1:G:68:PHE:CD2 | 1:G:156:VAL:HG13 | 2.56 | 0.40 |
| 1:B:75:ILE:HB | 1:B:107:LYS:HZ2 | 1.86 | 0.40 |
| 1:B:169:CYS:O | 1:B:170:PRO:C | 2.60 | 0.40 |
| 1:C:105:ILE:HG23 | 1:C:106:THR:HG23 | 2.04 | 0.40 |
| 1:D:2:VAL:O | 1:D:135:VAL:CG2 | 2.70 | 0.40 |
| 1:D:44:ASP:HA | 1:D:84:TRP:CZ3 | 2.56 | 0.40 |
| 1:D:77:SER:OG | 1:D:79:GLN:HG2 | 2.21 | 0.40 |
| 1:E:65:GLU:C | 1:E:67:GLY:H | 2.25 | 0.40 |
| 1:E:80:VAL:O | 1:E:81:HIS:C | 2.60 | 0.40 |
| 1:G:163:GLU:OE1 | 1:G:163:GLU:HA | 2.21 | 0.40 |
| 1:I:10:PHE:O | 1:I:26:GLU:HA | 2.21 | 0.40 |
| 1:I:24:HIS:ND1 | 1:I:24:HIS:N | 2.69 | 0.40 |
| 1:A:47:PHE:C | 1:B:173:TRP:HH2 | 2.24 | 0.40 |
| 1:A:148:ASN:N | 1:A:148:ASN:HD22 | 2.20 | 0.40 |
| 1:B:49:CYS:C | 1:B:51:THR:H | 2.24 | 0.40 |
| 1:B:161:HIS:O | 1:B:164:GLU:N | 2.53 | 0.40 |
| 1:D:40:PHE:CD1 | 1:D:40:PHE:N | 2.90 | 0.40 |
| 1:D:40:PHE:CD2 | 1:D:73:VAL:HG22 | 2.57 | 0.40 |
| 1:D:148:ASN:HD22 | 1:D:149:ALA:N | 2.19 | 0.40 |
| 1:F:88:PRO:HG2 | 1:F:91:LYS:HD2 | 2.02 | 0.40 |
| 1:G:6:LEU:HA | 1:G:133:MET:O | 2.22 | 0.40 |
| 1:H:142:ASP:OD2 | 1:H:142:ASP:C | 2.59 | 0.40 |
| 1:H:145:LEU:H | 1:H:145:LEU:HG | 1.41 | 0.40 |
| 1:I:22:ASP:OD1 | 1:I:23:GLU:N | 2.55 | 0.40 |
| 1:J:107:LYS:HB2 | 1:J:111:ARG:NH2 | 2.37 | 0.40 |
| 1:A:123:LEU:HB3 | 1:A:140:ILE:CD1 | 2.52 | 0.40 |
| 1:A:127:PHE:C | 1:A:152:MET:HE1 | 2.42 | 0.40 |
| 1:B:169:CYS:CB | 1:B:170:PRO:CD | 2.94 | 0.40 |
| 1:E:36:VAL:CG1 | 1:E:37:ILE:N | 2.80 | 0.40 |
| 1:E:162:PHE:O | 1:E:163:GLU:C | 2.58 | 0.40 |
| 1:I:59:ARG:HD3 | 1:I:153:LEU:HD22 | 2.04 | 0.40 |
| 1:J:116:LEU:C | 1:J:116:LEU:HD13 | 2.42 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|-----------------|--------------------------|-------------------|
| 1:J:161:HIS:CB | 1:J:165:HIS:HE1 | 2.33 | 0.40 |

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

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|-----------------------|--------------------------|-------------------|
| 1:A:90:GLU:OE2 | 1:C:90:GLU:OE2[4_555] | 2.06 | 0.14 |

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|-----|-------|-----------------|------------|-----------|----------|-------------|----|
| 1 | A | 168/198 (85%) | 133 (79%) | 24 (14%) | 11 (6%) | 1 | 5 |
| 1 | B | 173/198 (87%) | 138 (80%) | 27 (16%) | 8 (5%) | 2 | 11 |
| 1 | C | 168/198 (85%) | 134 (80%) | 22 (13%) | 12 (7%) | 1 | 4 |
| 1 | D | 173/198 (87%) | 141 (82%) | 22 (13%) | 10 (6%) | 1 | 7 |
| 1 | E | 168/198 (85%) | 134 (80%) | 22 (13%) | 12 (7%) | 1 | 4 |
| 1 | F | 173/198 (87%) | 138 (80%) | 27 (16%) | 8 (5%) | 2 | 11 |
| 1 | G | 168/198 (85%) | 133 (79%) | 23 (14%) | 12 (7%) | 1 | 4 |
| 1 | H | 173/198 (87%) | 136 (79%) | 28 (16%) | 9 (5%) | 2 | 9 |
| 1 | I | 168/198 (85%) | 133 (79%) | 23 (14%) | 12 (7%) | 1 | 4 |
| 1 | J | 173/198 (87%) | 140 (81%) | 23 (13%) | 10 (6%) | 1 | 7 |
| All | All | 1705/1980 (86%) | 1360 (80%) | 241 (14%) | 104 (6%) | 1 | 7 |

All (104) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 51 | THR |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | A | 145 | LEU |
| 1 | A | 168 | VAL |
| 1 | B | 48 | VAL |
| 1 | B | 170 | PRO |
| 1 | C | 51 | THR |
| 1 | C | 145 | LEU |
| 1 | C | 168 | VAL |
| 1 | D | 48 | VAL |
| 1 | D | 170 | PRO |
| 1 | E | 51 | THR |
| 1 | E | 145 | LEU |
| 1 | E | 168 | VAL |
| 1 | F | 48 | VAL |
| 1 | F | 170 | PRO |
| 1 | G | 51 | THR |
| 1 | G | 145 | LEU |
| 1 | G | 168 | VAL |
| 1 | H | 48 | VAL |
| 1 | H | 170 | PRO |
| 1 | I | 51 | THR |
| 1 | I | 145 | LEU |
| 1 | I | 168 | VAL |
| 1 | J | 48 | VAL |
| 1 | J | 170 | PRO |
| 1 | A | 28 | SER |
| 1 | A | 30 | ASN |
| 1 | A | 166 | GLY |
| 1 | A | 167 | GLU |
| 1 | B | 145 | LEU |
| 1 | B | 165 | HIS |
| 1 | B | 171 | ALA |
| 1 | C | 30 | ASN |
| 1 | C | 166 | GLY |
| 1 | C | 167 | GLU |
| 1 | D | 145 | LEU |
| 1 | D | 165 | HIS |
| 1 | D | 171 | ALA |
| 1 | E | 19 | ASN |
| 1 | E | 28 | SER |
| 1 | E | 30 | ASN |
| 1 | E | 166 | GLY |
| 1 | E | 167 | GLU |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | F | 145 | LEU |
| 1 | F | 171 | ALA |
| 1 | G | 19 | ASN |
| 1 | G | 28 | SER |
| 1 | G | 30 | ASN |
| 1 | G | 166 | GLY |
| 1 | G | 167 | GLU |
| 1 | H | 145 | LEU |
| 1 | H | 165 | HIS |
| 1 | H | 171 | ALA |
| 1 | I | 28 | SER |
| 1 | I | 30 | ASN |
| 1 | I | 166 | GLY |
| 1 | I | 167 | GLU |
| 1 | J | 145 | LEU |
| 1 | J | 165 | HIS |
| 1 | J | 171 | ALA |
| 1 | A | 19 | ASN |
| 1 | A | 66 | LYS |
| 1 | C | 19 | ASN |
| 1 | C | 28 | SER |
| 1 | C | 131 | LYS |
| 1 | F | 51 | THR |
| 1 | F | 165 | HIS |
| 1 | I | 19 | ASN |
| 1 | B | 52 | GLU |
| 1 | C | 66 | LYS |
| 1 | C | 150 | ASP |
| 1 | D | 42 | PRO |
| 1 | E | 66 | LYS |
| 1 | E | 131 | LYS |
| 1 | E | 150 | ASP |
| 1 | G | 66 | LYS |
| 1 | G | 131 | LYS |
| 1 | H | 42 | PRO |
| 1 | H | 52 | GLU |
| 1 | I | 66 | LYS |
| 1 | I | 131 | LYS |
| 1 | I | 150 | ASP |
| 1 | J | 42 | PRO |
| 1 | J | 51 | THR |
| 1 | A | 150 | ASP |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | B | 51 | THR |
| 1 | D | 51 | THR |
| 1 | D | 52 | GLU |
| 1 | D | 96 | GLN |
| 1 | F | 42 | PRO |
| 1 | G | 150 | ASP |
| 1 | H | 51 | THR |
| 1 | J | 52 | GLU |
| 1 | A | 42 | PRO |
| 1 | C | 42 | PRO |
| 1 | D | 93 | GLY |
| 1 | J | 96 | GLN |
| 1 | B | 42 | PRO |
| 1 | F | 93 | GLY |
| 1 | J | 93 | GLY |
| 1 | E | 42 | PRO |
| 1 | I | 42 | PRO |
| 1 | G | 42 | PRO |
| 1 | H | 93 | GLY |

5.3.2 Protein sidechains [i](#)

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

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

| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles |
|-----|-------|---------------|-----------|----------|-------------|
| 1 | A | 147/168 (88%) | 130 (88%) | 17 (12%) | 5 20 |
| 1 | B | 150/168 (89%) | 133 (89%) | 17 (11%) | 6 21 |
| 1 | C | 147/168 (88%) | 131 (89%) | 16 (11%) | 6 23 |
| 1 | D | 150/168 (89%) | 134 (89%) | 16 (11%) | 6 23 |
| 1 | E | 147/168 (88%) | 132 (90%) | 15 (10%) | 7 25 |
| 1 | F | 150/168 (89%) | 134 (89%) | 16 (11%) | 6 23 |
| 1 | G | 147/168 (88%) | 132 (90%) | 15 (10%) | 7 25 |
| 1 | H | 150/168 (89%) | 133 (89%) | 17 (11%) | 6 21 |
| 1 | I | 147/168 (88%) | 132 (90%) | 15 (10%) | 7 25 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles |
|-----|-------|-----------------|------------|-----------|-------------|
| 1 | J | 150/168 (89%) | 132 (88%) | 18 (12%) | 5 19 |
| All | All | 1485/1680 (88%) | 1323 (89%) | 162 (11%) | 6 23 |

All (162) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 25 | PHE |
| 1 | A | 29 | LYS |
| 1 | A | 33 | LYS |
| 1 | A | 48 | VAL |
| 1 | A | 49 | CYS |
| 1 | A | 62 | ASP |
| 1 | A | 73 | VAL |
| 1 | A | 79 | GLN |
| 1 | A | 80 | VAL |
| 1 | A | 98 | SER |
| 1 | A | 116 | LEU |
| 1 | A | 131 | LYS |
| 1 | A | 140 | ILE |
| 1 | A | 145 | LEU |
| 1 | A | 147 | ARG |
| 1 | A | 165 | HIS |
| 1 | A | 167 | GLU |
| 1 | B | 33 | LYS |
| 1 | B | 59 | ARG |
| 1 | B | 73 | VAL |
| 1 | B | 80 | VAL |
| 1 | B | 81 | HIS |
| 1 | B | 96 | GLN |
| 1 | B | 123 | LEU |
| 1 | B | 134 | LYS |
| 1 | B | 136 | ARG |
| 1 | B | 140 | ILE |
| 1 | B | 141 | ASN |
| 1 | B | 143 | LEU |
| 1 | B | 145 | LEU |
| 1 | B | 148 | ASN |
| 1 | B | 151 | GLU |
| 1 | B | 167 | GLU |
| 1 | B | 170 | PRO |
| 1 | C | 25 | PHE |
| 1 | C | 29 | LYS |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | C | 33 | LYS |
| 1 | C | 48 | VAL |
| 1 | C | 49 | CYS |
| 1 | C | 62 | ASP |
| 1 | C | 73 | VAL |
| 1 | C | 79 | GLN |
| 1 | C | 98 | SER |
| 1 | C | 116 | LEU |
| 1 | C | 131 | LYS |
| 1 | C | 140 | ILE |
| 1 | C | 145 | LEU |
| 1 | C | 147 | ARG |
| 1 | C | 165 | HIS |
| 1 | C | 167 | GLU |
| 1 | D | 33 | LYS |
| 1 | D | 59 | ARG |
| 1 | D | 80 | VAL |
| 1 | D | 81 | HIS |
| 1 | D | 96 | GLN |
| 1 | D | 134 | LYS |
| 1 | D | 136 | ARG |
| 1 | D | 140 | ILE |
| 1 | D | 141 | ASN |
| 1 | D | 143 | LEU |
| 1 | D | 145 | LEU |
| 1 | D | 148 | ASN |
| 1 | D | 151 | GLU |
| 1 | D | 160 | LEU |
| 1 | D | 167 | GLU |
| 1 | D | 170 | PRO |
| 1 | E | 25 | PHE |
| 1 | E | 29 | LYS |
| 1 | E | 33 | LYS |
| 1 | E | 48 | VAL |
| 1 | E | 62 | ASP |
| 1 | E | 73 | VAL |
| 1 | E | 79 | GLN |
| 1 | E | 98 | SER |
| 1 | E | 116 | LEU |
| 1 | E | 131 | LYS |
| 1 | E | 140 | ILE |
| 1 | E | 145 | LEU |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | E | 147 | ARG |
| 1 | E | 165 | HIS |
| 1 | E | 167 | GLU |
| 1 | F | 33 | LYS |
| 1 | F | 59 | ARG |
| 1 | F | 73 | VAL |
| 1 | F | 80 | VAL |
| 1 | F | 81 | HIS |
| 1 | F | 96 | GLN |
| 1 | F | 134 | LYS |
| 1 | F | 136 | ARG |
| 1 | F | 140 | ILE |
| 1 | F | 141 | ASN |
| 1 | F | 143 | LEU |
| 1 | F | 145 | LEU |
| 1 | F | 148 | ASN |
| 1 | F | 151 | GLU |
| 1 | F | 167 | GLU |
| 1 | F | 170 | PRO |
| 1 | G | 25 | PHE |
| 1 | G | 29 | LYS |
| 1 | G | 33 | LYS |
| 1 | G | 48 | VAL |
| 1 | G | 62 | ASP |
| 1 | G | 73 | VAL |
| 1 | G | 79 | GLN |
| 1 | G | 98 | SER |
| 1 | G | 116 | LEU |
| 1 | G | 131 | LYS |
| 1 | G | 140 | ILE |
| 1 | G | 145 | LEU |
| 1 | G | 147 | ARG |
| 1 | G | 165 | HIS |
| 1 | G | 167 | GLU |
| 1 | H | 33 | LYS |
| 1 | H | 59 | ARG |
| 1 | H | 79 | GLN |
| 1 | H | 80 | VAL |
| 1 | H | 81 | HIS |
| 1 | H | 96 | GLN |
| 1 | H | 123 | LEU |
| 1 | H | 134 | LYS |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | H | 136 | ARG |
| 1 | H | 140 | ILE |
| 1 | H | 141 | ASN |
| 1 | H | 143 | LEU |
| 1 | H | 145 | LEU |
| 1 | H | 148 | ASN |
| 1 | H | 151 | GLU |
| 1 | H | 167 | GLU |
| 1 | H | 170 | PRO |
| 1 | I | 25 | PHE |
| 1 | I | 29 | LYS |
| 1 | I | 33 | LYS |
| 1 | I | 48 | VAL |
| 1 | I | 62 | ASP |
| 1 | I | 73 | VAL |
| 1 | I | 79 | GLN |
| 1 | I | 98 | SER |
| 1 | I | 116 | LEU |
| 1 | I | 131 | LYS |
| 1 | I | 140 | ILE |
| 1 | I | 145 | LEU |
| 1 | I | 147 | ARG |
| 1 | I | 165 | HIS |
| 1 | I | 167 | GLU |
| 1 | J | 33 | LYS |
| 1 | J | 59 | ARG |
| 1 | J | 73 | VAL |
| 1 | J | 79 | GLN |
| 1 | J | 80 | VAL |
| 1 | J | 81 | HIS |
| 1 | J | 96 | GLN |
| 1 | J | 134 | LYS |
| 1 | J | 136 | ARG |
| 1 | J | 140 | ILE |
| 1 | J | 141 | ASN |
| 1 | J | 143 | LEU |
| 1 | J | 145 | LEU |
| 1 | J | 148 | ASN |
| 1 | J | 151 | GLU |
| 1 | J | 160 | LEU |
| 1 | J | 167 | GLU |
| 1 | J | 170 | PRO |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (60) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 19 | ASN |
| 1 | A | 79 | GLN |
| 1 | A | 137 | HIS |
| 1 | A | 141 | ASN |
| 1 | A | 148 | ASN |
| 1 | B | 34 | ASN |
| 1 | B | 69 | ASN |
| 1 | B | 79 | GLN |
| 1 | B | 141 | ASN |
| 1 | B | 148 | ASN |
| 1 | B | 161 | HIS |
| 1 | B | 165 | HIS |
| 1 | C | 19 | ASN |
| 1 | C | 79 | GLN |
| 1 | C | 137 | HIS |
| 1 | C | 141 | ASN |
| 1 | C | 148 | ASN |
| 1 | D | 34 | ASN |
| 1 | D | 69 | ASN |
| 1 | D | 79 | GLN |
| 1 | D | 141 | ASN |
| 1 | D | 148 | ASN |
| 1 | D | 161 | HIS |
| 1 | D | 165 | HIS |
| 1 | E | 19 | ASN |
| 1 | E | 79 | GLN |
| 1 | E | 137 | HIS |
| 1 | E | 141 | ASN |
| 1 | E | 148 | ASN |
| 1 | F | 34 | ASN |
| 1 | F | 69 | ASN |
| 1 | F | 79 | GLN |
| 1 | F | 96 | GLN |
| 1 | F | 141 | ASN |
| 1 | F | 148 | ASN |
| 1 | F | 161 | HIS |
| 1 | F | 165 | HIS |
| 1 | G | 19 | ASN |
| 1 | G | 79 | GLN |
| 1 | G | 137 | HIS |
| 1 | G | 148 | ASN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | H | 34 | ASN |
| 1 | H | 69 | ASN |
| 1 | H | 79 | GLN |
| 1 | H | 141 | ASN |
| 1 | H | 148 | ASN |
| 1 | H | 161 | HIS |
| 1 | H | 165 | HIS |
| 1 | I | 19 | ASN |
| 1 | I | 79 | GLN |
| 1 | I | 137 | HIS |
| 1 | I | 141 | ASN |
| 1 | I | 148 | ASN |
| 1 | J | 34 | ASN |
| 1 | J | 69 | ASN |
| 1 | J | 79 | GLN |
| 1 | J | 141 | ASN |
| 1 | J | 148 | ASN |
| 1 | J | 161 | HIS |
| 1 | J | 165 | 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](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues

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 | A | 170/198 (85%) | 0.32 | 3 (1%) 68 51 | 35, 59, 103, 126 | 0 |
| 1 | B | 175/198 (88%) | 0.12 | 1 (0%) 89 78 | 28, 51, 94, 105 | 0 |
| 1 | C | 170/198 (85%) | 0.31 | 3 (1%) 68 51 | 35, 59, 103, 126 | 0 |
| 1 | D | 175/198 (88%) | 0.28 | 7 (4%) 38 25 | 28, 51, 94, 105 | 0 |
| 1 | E | 170/198 (85%) | 0.48 | 12 (7%) 16 9 | 35, 59, 103, 126 | 0 |
| 1 | F | 175/198 (88%) | 0.35 | 11 (6%) 20 11 | 28, 51, 94, 105 | 0 |
| 1 | G | 170/198 (85%) | 0.33 | 5 (2%) 51 35 | 35, 59, 103, 126 | 0 |
| 1 | H | 175/198 (88%) | 0.12 | 3 (1%) 70 53 | 28, 51, 94, 105 | 0 |
| 1 | I | 170/198 (85%) | 0.48 | 13 (7%) 13 7 | 35, 59, 103, 126 | 0 |
| 1 | J | 175/198 (88%) | 0.43 | 11 (6%) 20 11 | 28, 51, 94, 105 | 0 |
| All | All | 1725/1980 (87%) | 0.32 | 69 (4%) 38 25 | 28, 56, 95, 126 | 0 |

All (69) RSRZ outliers are listed below:

| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 1 | E | 170 | PRO | 6.8 |
| 1 | A | 170 | PRO | 6.0 |
| 1 | I | 170 | PRO | 5.7 |
| 1 | C | 170 | PRO | 5.6 |
| 1 | J | 168 | VAL | 4.8 |
| 1 | I | 169 | CYS | 4.3 |
| 1 | E | 168 | VAL | 4.1 |
| 1 | I | 165 | HIS | 4.1 |
| 1 | I | 166 | GLY | 4.0 |
| 1 | G | 169 | CYS | 4.0 |
| 1 | J | 171 | ALA | 3.8 |
| 1 | J | 172 | GLY | 3.8 |
| 1 | I | 91 | LYS | 3.7 |

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| Mol | Chain | Res | Type | RSRZ |
|------------|--------------|------------|-------------|-------------|
| 1 | D | 89 | VAL | 3.5 |
| 1 | F | 168 | VAL | 3.5 |
| 1 | F | 171 | ALA | 3.4 |
| 1 | G | 168 | VAL | 3.3 |
| 1 | C | 169 | CYS | 3.2 |
| 1 | F | 175 | LYS | 3.2 |
| 1 | F | 165 | HIS | 3.1 |
| 1 | H | 91 | LYS | 3.1 |
| 1 | A | 169 | CYS | 3.1 |
| 1 | E | 169 | CYS | 3.1 |
| 1 | F | 172 | GLY | 3.0 |
| 1 | G | 170 | PRO | 3.0 |
| 1 | D | 88 | PRO | 2.9 |
| 1 | H | 88 | PRO | 2.9 |
| 1 | E | 91 | LYS | 2.9 |
| 1 | J | 167 | GLU | 2.8 |
| 1 | G | 162 | PHE | 2.8 |
| 1 | E | 166 | GLY | 2.7 |
| 1 | I | 168 | VAL | 2.6 |
| 1 | D | 91 | LYS | 2.6 |
| 1 | E | 88 | PRO | 2.6 |
| 1 | E | 165 | HIS | 2.6 |
| 1 | D | 143 | LEU | 2.6 |
| 1 | E | 94 | ILE | 2.5 |
| 1 | I | 94 | ILE | 2.5 |
| 1 | F | 91 | LYS | 2.5 |
| 1 | E | 95 | GLY | 2.5 |
| 1 | I | 88 | PRO | 2.5 |
| 1 | J | 165 | HIS | 2.5 |
| 1 | D | 36 | VAL | 2.4 |
| 1 | F | 161 | HIS | 2.4 |
| 1 | J | 36 | VAL | 2.4 |
| 1 | J | 146 | GLY | 2.3 |
| 1 | B | 165 | HIS | 2.3 |
| 1 | E | 144 | PRO | 2.3 |
| 1 | J | 175 | LYS | 2.3 |
| 1 | C | 168 | VAL | 2.2 |
| 1 | J | 169 | CYS | 2.2 |
| 1 | F | 174 | ARG | 2.2 |
| 1 | A | 166 | GLY | 2.2 |
| 1 | J | 174 | ARG | 2.2 |
| 1 | D | 175 | LYS | 2.2 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 1 | E | 64 | HIS | 2.2 |
| 1 | F | 167 | GLU | 2.2 |
| 1 | I | 167 | GLU | 2.2 |
| 1 | F | 162 | PHE | 2.2 |
| 1 | G | 95 | GLY | 2.2 |
| 1 | D | 90 | GLU | 2.1 |
| 1 | I | 48 | VAL | 2.1 |
| 1 | H | 143 | LEU | 2.1 |
| 1 | I | 147 | ARG | 2.1 |
| 1 | E | 163 | GLU | 2.1 |
| 1 | I | 96 | GLN | 2.1 |
| 1 | F | 89 | VAL | 2.0 |
| 1 | I | 95 | GLY | 2.0 |
| 1 | J | 89 | VAL | 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](#)

There are no ligands in this entry.

6.5 Other polymers [i](#)

There are no such residues in this entry.