



Full wwPDB X-ray Structure Validation Report ⓘ

Jul 31, 2023 – 04:30 AM EDT

PDB ID : 1NFD
Title : AN ALPHA-BETA T CELL RECEPTOR (TCR) HETERODIMER IN COMPLEX WITH AN ANTI-TCR FAB FRAGMENT DERIVED FROM A MITOGENIC ANTIBODY
Authors : Wang, J.-H.; Lim, K.; Smolyar, A.; Teng, M.-K.; Sacchittini, J.; Reinherz, E.L.
Deposited on : 1997-08-04
Resolution : 2.80 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org
A user guide is available at
<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtrriage (Phenix) : **NOT EXECUTED**
EDS : **NOT EXECUTED**
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.34

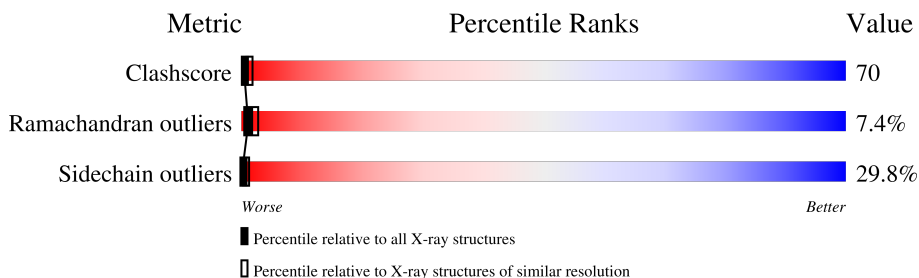
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.80 Å.

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



| Metric | Whole archive (#Entries) | Similar resolution (#Entries, resolution range(Å)) |
|-----------------------|-----------------------------|---|
| Clashscore | 141614 | 3569 (2.80-2.80) |
| Ramachandran outliers | 138981 | 3498 (2.80-2.80) |
| Sidechain outliers | 138945 | 3500 (2.80-2.80) |

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$

Note EDS was not executed.

| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 1 | A | 203 | 26% 51% 23% |
| 1 | C | 203 | 28% 48% 22% . |
| 2 | B | 239 | 28% 50% 20% . |
| 2 | D | 239 | 27% 52% 20% . |
| 3 | E | 212 | 25% 53% 22% . |
| 3 | G | 212 | 19% 51% 28% . |
| 4 | F | 222 | 16% 58% 24% . |
| 4 | H | 222 | 22% 56% 20% . |

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

| Mol | Type | Chain | Res | Chirality | Geometry | Clashes | Electron density |
|------------|-------------|--------------|------------|------------------|-----------------|----------------|-------------------------|
| 5 | NAG | B | 248 | X | - | - | - |
| 5 | NAG | C | 214 | X | - | - | - |
| 5 | NAG | C | 215 | X | - | - | - |
| 5 | NAG | C | 216 | X | - | - | - |

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 13884 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 N15 ALPHA-BETA T-CELL RECEPTOR.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| | | | Total | C | N | O | S | | | |
| 1 | A | 203 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1589 | 1002 | 259 | 320 | 8 | | | |
| 1 | C | 203 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1589 | 1002 | 259 | 320 | 8 | | | |

- Molecule 2 is a protein called N15 ALPHA-BETA T-CELL RECEPTOR.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| | | | Total | C | N | O | S | | | |
| 2 | B | 239 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1926 | 1218 | 338 | 362 | 8 | | | |
| 2 | D | 239 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1926 | 1218 | 338 | 362 | 8 | | | |

- Molecule 3 is a protein called H57 FAB.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| | | | Total | C | N | O | S | | | |
| 3 | E | 212 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1618 | 1012 | 269 | 330 | 7 | | | |
| 3 | G | 212 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1618 | 1012 | 269 | 330 | 7 | | | |

- Molecule 4 is a protein called H57 FAB.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| | | | Total | C | N | O | S | | | |
| 4 | F | 222 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1711 | 1081 | 289 | 333 | 8 | | | |
| 4 | H | 222 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 1711 | 1081 | 289 | 333 | 8 | | | |

- Molecule 5 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: C₈H₁₅NO₆).



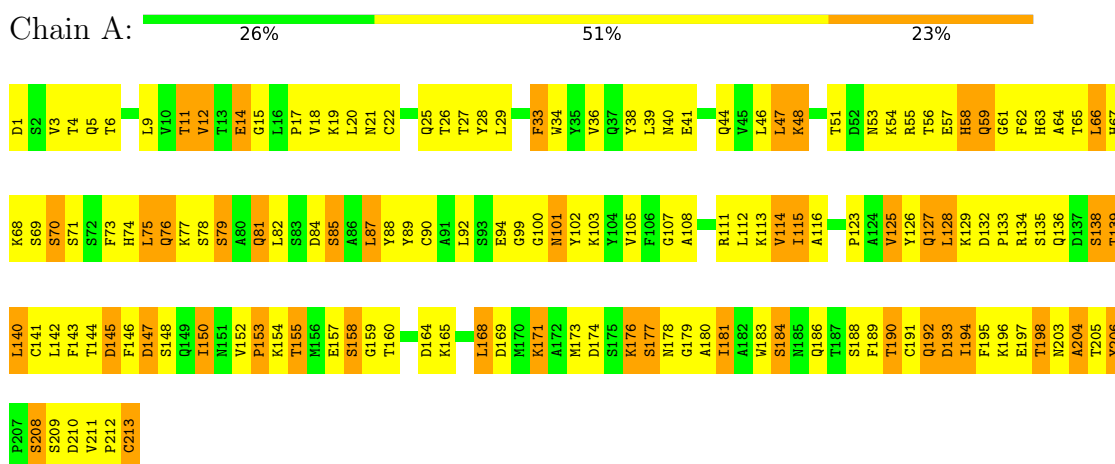
| Mol | Chain | Residues | Atoms | | | | ZeroOcc | AltConf |
|-----|-------|----------|-------------|---|---|---|---------|---------|
| | | | Total | C | N | O | | |
| 5 | A | 1 | Total 14 | 8 | 1 | 5 | 0 | 0 |
| 5 | A | 1 | Total 14 | 8 | 1 | 5 | 0 | 0 |
| 5 | A | 1 | Total 14 | 8 | 1 | 5 | 0 | 0 |
| 5 | B | 1 | Total 14 | 8 | 1 | 5 | 0 | 0 |
| 5 | B | 1 | Total 14 | 8 | 1 | 5 | 0 | 0 |
| 5 | B | 1 | Total 14 | 8 | 1 | 5 | 0 | 0 |
| 5 | B | 1 | Total 14 | 8 | 1 | 5 | 0 | 0 |
| 5 | C | 1 | Total 14 | 8 | 1 | 5 | 0 | 0 |
| 5 | C | 1 | Total 14 | 8 | 1 | 5 | 0 | 0 |
| 5 | C | 1 | Total 14 | 8 | 1 | 5 | 0 | 0 |
| 5 | D | 1 | Total 14 | 8 | 1 | 5 | 0 | 0 |
| 5 | D | 1 | Total 14 | 8 | 1 | 5 | 0 | 0 |
| 5 | D | 1 | Total 14 | 8 | 1 | 5 | 0 | 0 |
| 5 | D | 1 | Total 14 | 8 | 1 | 5 | 0 | 0 |

3 Residue-property plots

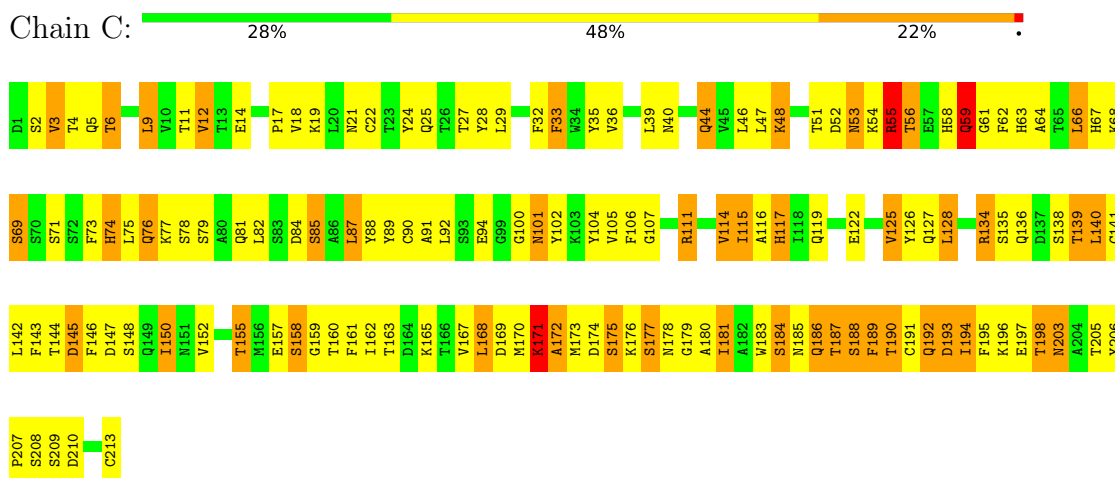
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-coded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

Note EDS was not executed.

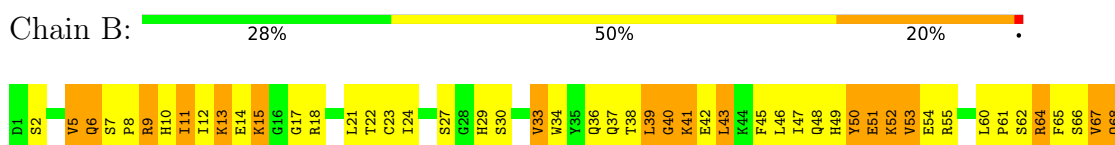
- Molecule 1: N15 ALPHA-BETA T-CELL RECEPTOR

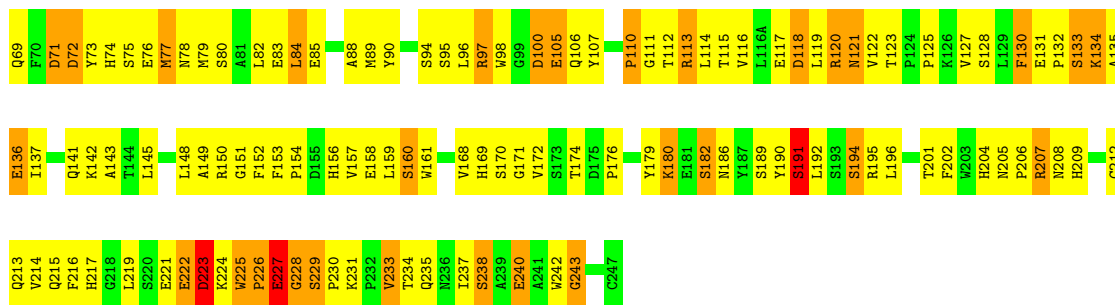


- Molecule 1: N15 ALPHA-BETA T-CELL RECEPTOR

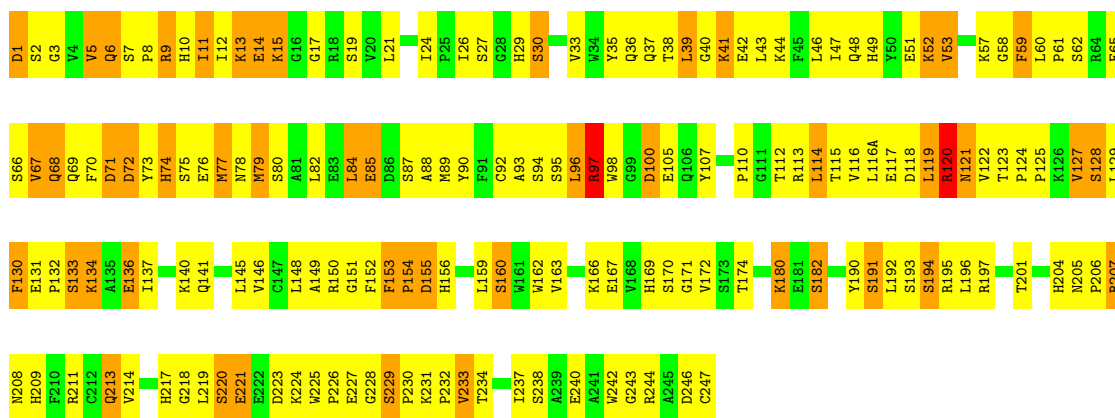


- Molecule 2: N15 ALPHA-BETA T-CELL RECEPTOR

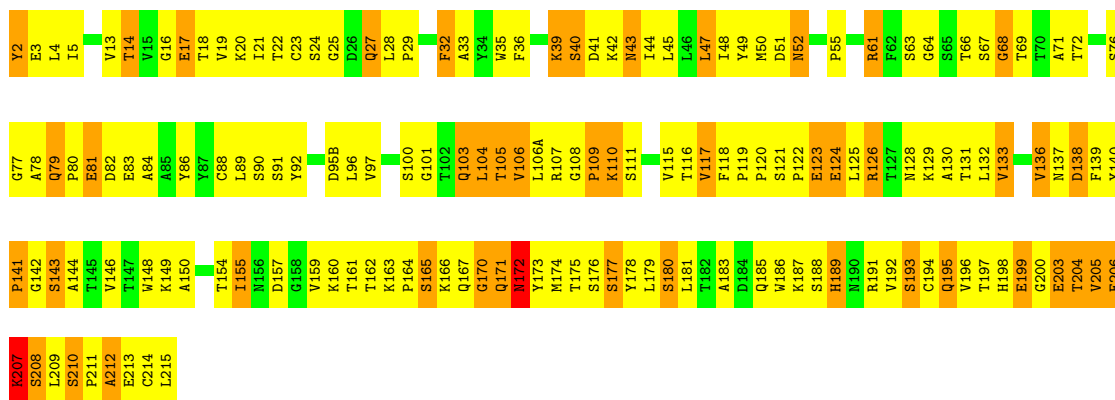




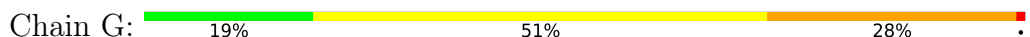
• Molecule 2: N15 ALPHA-BETA T-CELL RECEPTOR

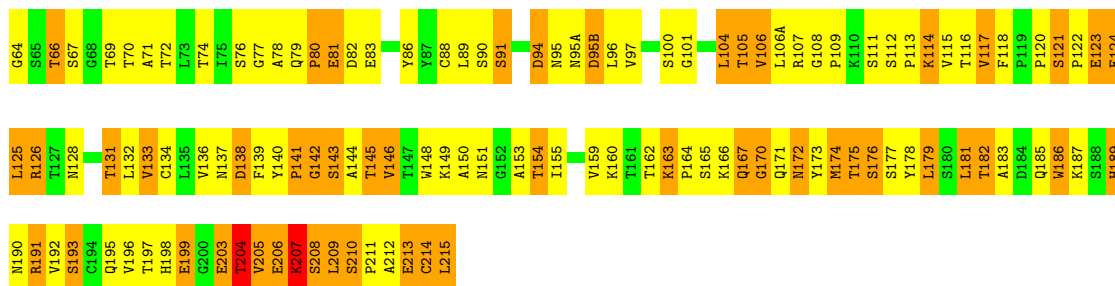


• Molecule 3: H57 FAB

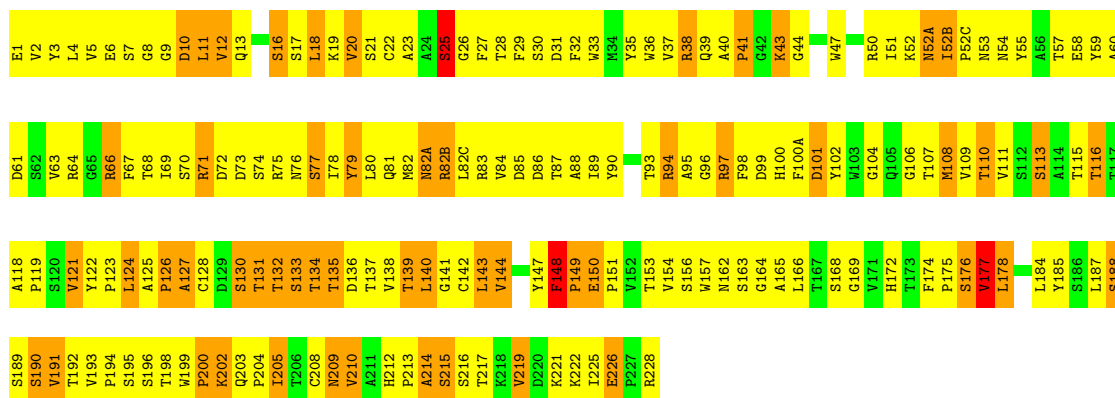
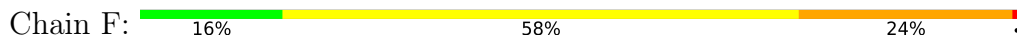


• Molecule 3: H57 FAB

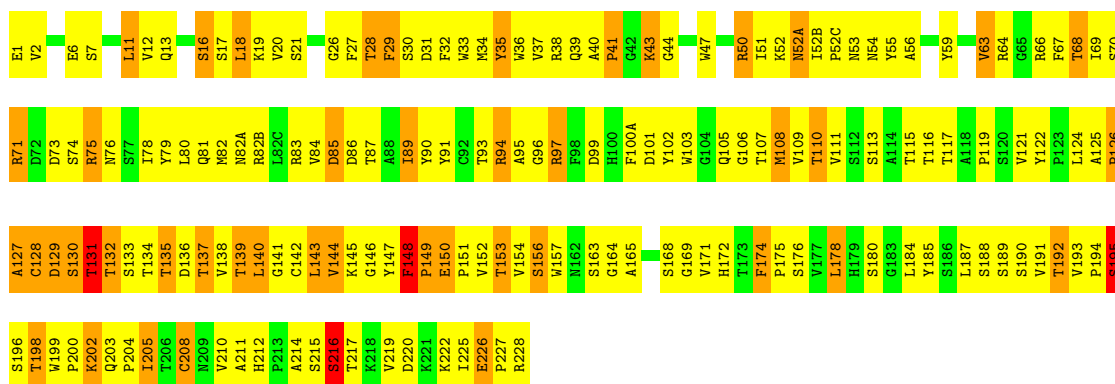




• Molecule 4: H57 FAB



• Molecule 4: H57 FAB



4 Data and refinement statistics

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

| Property | Value | Source |
|--|---|-----------|
| Space group | P 1 21 1 | Depositor |
| Cell constants a, b, c, α , β , γ | 74.74Å 122.30Å 115.84Å 90.00° 107.95° 90.00° | Depositor |
| Resolution (Å) | 15.00 – 2.80 | Depositor |
| % Data completeness (in resolution range) | 73.5 (15.00-2.80) | Depositor |
| R_{merge} | 0.08 | Depositor |
| R_{sym} | 0.08 | Depositor |
| Refinement program | X-PLOR | Depositor |
| R, R_{free} | 0.243 , 0.309 | Depositor |
| Estimated twinning fraction | No twinning to report. | Xtrriage |
| Total number of atoms | 13884 | wwPDB-VP |
| Average B, all atoms (Å ²) | 26.0 | wwPDB-VP |

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

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 | 0.37 | 0/1625 | 0.66 | 0/2208 |
| 1 | C | 0.37 | 0/1625 | 0.64 | 2/2208 (0.1%) |
| 2 | B | 0.74 | 1/1981 (0.1%) | 0.60 | 0/2683 |
| 2 | D | 0.77 | 1/1981 (0.1%) | 0.62 | 0/2683 |
| 3 | E | 0.32 | 0/1653 | 0.57 | 0/2249 |
| 3 | G | 0.29 | 0/1653 | 0.55 | 0/2249 |
| 4 | F | 0.30 | 0/1759 | 0.56 | 0/2404 |
| 4 | H | 0.31 | 0/1759 | 0.60 | 0/2404 |
| All | All | 0.49 | 2/14036 (0.0%) | 0.60 | 2/19088 (0.0%) |

All (2) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|-------|-------|-------------|----------|
| 2 | D | 191 | SER | CB-OG | 30.51 | 1.81 | 1.42 |
| 2 | B | 191 | SER | CB-OG | 28.96 | 1.79 | 1.42 |

All (2) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-----------|------|-------------|----------|
| 1 | C | 203 | ASN | N-CA-CB | 5.92 | 121.26 | 110.60 |
| 1 | C | 203 | ASN | CB-CG-ND2 | 5.45 | 129.78 | 116.70 |

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 | 1589 | 0 | 1526 | 241 | 1 |
| 1 | C | 1589 | 0 | 1525 | 164 | 0 |
| 2 | B | 1926 | 0 | 1835 | 249 | 2 |
| 2 | D | 1926 | 0 | 1836 | 257 | 1 |
| 3 | E | 1618 | 0 | 1576 | 269 | 0 |
| 3 | G | 1618 | 0 | 1576 | 258 | 0 |
| 4 | F | 1711 | 0 | 1647 | 294 | 0 |
| 4 | H | 1711 | 0 | 1647 | 283 | 2 |
| 5 | A | 42 | 0 | 39 | 4 | 0 |
| 5 | B | 56 | 0 | 52 | 7 | 0 |
| 5 | C | 42 | 0 | 37 | 6 | 0 |
| 5 | D | 56 | 0 | 52 | 3 | 0 |
| All | All | 13884 | 0 | 13348 | 1891 | 3 |

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 70.

All (1891) 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) |
|------------------|------------------|--------------------------|-------------------|
| 3:E:117:VAL:HG22 | 3:E:209:LEU:CD2 | 1.55 | 1.35 |
| 1:A:34:TRP:HD1 | 1:A:73:PHE:CE1 | 1.44 | 1.34 |
| 3:E:165:SER:HB2 | 3:E:173:TYR:CD1 | 1.66 | 1.30 |
| 1:A:34:TRP:CD1 | 1:A:73:PHE:HE1 | 1.49 | 1.29 |
| 1:A:34:TRP:CD1 | 1:A:73:PHE:CE1 | 2.21 | 1.29 |
| 2:B:191:SER:CB | 2:B:191:SER:OG | 1.79 | 1.28 |
| 2:D:191:SER:CB | 2:D:191:SER:OG | 1.81 | 1.26 |
| 2:B:113:ARG:HD2 | 2:B:156:HIS:CE1 | 1.73 | 1.23 |
| 3:E:209:LEU:O | 3:E:211:PRO:HD3 | 1.40 | 1.20 |
| 3:E:115:VAL:HG12 | 3:E:209:LEU:HD22 | 1.21 | 1.18 |
| 1:C:48:LYS:NZ | 2:D:100:ASP:OD1 | 1.78 | 1.17 |
| 3:G:41:ASP:HB3 | 3:G:43:ASN:HD21 | 1.04 | 1.16 |
| 1:A:55:ARG:CZ | 2:D:97:ARG:HH22 | 1.60 | 1.13 |
| 2:D:5:VAL:HG23 | 2:D:24:ILE:HB | 1.29 | 1.13 |
| 3:G:79:GLN:HG3 | 3:G:80:PRO:HD2 | 1.17 | 1.11 |
| 4:H:195:SER:O | 4:H:199:TRP:CZ3 | 2.04 | 1.11 |
| 3:E:115:VAL:HG21 | 3:E:207:LYS:HB3 | 1.27 | 1.11 |
| 2:B:217:HIS:HA | 2:B:234:THR:HG22 | 1.26 | 1.10 |
| 4:H:40:ALA:HB3 | 4:H:43:LYS:HB2 | 1.29 | 1.10 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 3:G:132:LEU:HD22 | 3:G:192:VAL:HG11 | 1.32 | 1.09 |
| 3:E:149:LYS:HG3 | 3:E:195:GLN:HE21 | 1.10 | 1.09 |
| 4:H:174:PHE:O | 4:H:187:LEU:HD11 | 1.51 | 1.09 |
| 3:G:83:GLU:HB2 | 3:G:106:VAL:HG23 | 1.31 | 1.09 |
| 3:E:79:GLN:HG3 | 3:E:80:PRO:HD2 | 1.34 | 1.08 |
| 3:G:146:VAL:CG1 | 3:G:196:VAL:HG22 | 1.83 | 1.08 |
| 2:B:96:LEU:O | 2:B:97:ARG:HG2 | 1.52 | 1.08 |
| 3:G:132:LEU:CD2 | 3:G:192:VAL:HG11 | 1.83 | 1.08 |
| 1:C:59:GLN:OE1 | 1:C:59:GLN:HA | 1.41 | 1.07 |
| 4:H:212:HIS:CE1 | 4:H:214:ALA:HB3 | 1.89 | 1.07 |
| 2:B:97:ARG:HH22 | 1:C:56:THR:HG23 | 1.18 | 1.07 |
| 2:B:36:GLN:HG3 | 2:B:90:TYR:CE1 | 1.90 | 1.07 |
| 2:B:227:GLU:OE2 | 4:F:50:ARG:NH1 | 1.87 | 1.06 |
| 1:A:58:HIS:C | 1:A:61:GLY:H | 1.47 | 1.06 |
| 1:A:75:LEU:HD12 | 1:A:76:GLN:N | 1.70 | 1.05 |
| 1:A:155:THR:HG21 | 1:A:160:THR:O | 1.56 | 1.05 |
| 2:D:217:HIS:HA | 2:D:234:THR:HG22 | 1.39 | 1.04 |
| 3:E:41:ASP:HB3 | 3:E:43:ASN:HD21 | 1.16 | 1.04 |
| 2:B:60:LEU:HD12 | 2:B:61:PRO:HD2 | 1.07 | 1.04 |
| 3:E:117:VAL:CG2 | 3:E:209:LEU:HD21 | 1.88 | 1.04 |
| 1:A:47:LEU:HB2 | 1:A:55:ARG:HD2 | 1.38 | 1.03 |
| 1:A:123:PRO:HB2 | 1:A:204:ALA:HB3 | 1.40 | 1.03 |
| 4:H:205:ILE:HG22 | 4:H:205:ILE:O | 1.59 | 1.02 |
| 3:E:41:ASP:HB3 | 3:E:43:ASN:ND2 | 1.74 | 1.02 |
| 1:A:55:ARG:CZ | 2:D:97:ARG:NH2 | 2.22 | 1.02 |
| 1:A:171:LYS:HB2 | 2:B:170:SER:OG | 1.59 | 1.02 |
| 2:D:153:PHE:HB3 | 2:D:154:PRO:CD | 1.88 | 1.02 |
| 3:E:89:LEU:HD12 | 3:E:90:SER:H | 1.22 | 1.02 |
| 4:F:40:ALA:HB3 | 4:F:43:LYS:HB2 | 1.38 | 1.02 |
| 1:A:125:VAL:HG22 | 1:A:205:THR:HG23 | 1.41 | 1.01 |
| 4:H:153:THR:HG23 | 4:H:211:ALA:HB3 | 1.39 | 1.01 |
| 2:D:174:THR:HA | 2:D:194:SER:HB2 | 1.42 | 1.01 |
| 2:D:223:ASP:CB | 2:D:231:LYS:HE3 | 1.90 | 1.01 |
| 4:H:67:PHE:CE1 | 4:H:82:MET:HB3 | 1.96 | 1.01 |
| 3:E:117:VAL:HG22 | 3:E:209:LEU:CG | 1.90 | 1.01 |
| 4:F:212:HIS:CD2 | 4:F:214:ALA:H | 1.79 | 1.00 |
| 3:E:115:VAL:CG1 | 3:E:209:LEU:HD22 | 1.91 | 1.00 |
| 3:E:193:SER:HA | 3:E:211:PRO:HD2 | 1.43 | 0.99 |
| 2:D:125:PRO:HD2 | 2:D:237:ILE:HD12 | 1.43 | 0.99 |
| 4:H:52(B):ILE:CG2 | 4:H:52(C):PRO:HD3 | 1.93 | 0.99 |
| 3:E:117:VAL:HG22 | 3:E:209:LEU:HD21 | 1.01 | 0.98 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 3:E:198:HIS:HB3 | 3:E:205:VAL:HG21 | 1.40 | 0.98 |
| 2:D:223:ASP:HB2 | 2:D:231:LYS:HE3 | 1.41 | 0.98 |
| 3:G:41:ASP:HB3 | 3:G:43:ASN:ND2 | 1.77 | 0.98 |
| 4:H:199:TRP:CD2 | 4:H:200:PRO:HD3 | 1.98 | 0.98 |
| 1:A:55:ARG:HE | 2:D:97:ARG:NH1 | 1.61 | 0.98 |
| 3:G:43:ASN:ND2 | 3:G:43:ASN:H | 1.58 | 0.98 |
| 3:G:198:HIS:HB3 | 3:G:205:VAL:HG21 | 1.43 | 0.97 |
| 1:A:171:LYS:HD2 | 2:B:170:SER:HB2 | 1.46 | 0.97 |
| 3:E:165:SER:HB2 | 3:E:173:TYR:HD1 | 1.20 | 0.97 |
| 4:F:212:HIS:HB3 | 4:F:217:THR:OG1 | 1.63 | 0.97 |
| 4:H:134:THR:O | 4:H:136:ASP:N | 1.95 | 0.97 |
| 2:B:50:TYR:HD1 | 2:B:51:GLU:N | 1.62 | 0.96 |
| 2:B:97:ARG:NH2 | 1:C:56:THR:HG23 | 1.81 | 0.96 |
| 4:F:144:VAL:HG23 | 4:F:187:LEU:O | 1.66 | 0.96 |
| 1:A:58:HIS:C | 1:A:61:GLY:N | 2.13 | 0.96 |
| 1:A:82:LEU:HD23 | 1:A:114:VAL:HG22 | 1.46 | 0.96 |
| 1:A:61:GLY:HA3 | 1:A:77:LYS:HE3 | 1.47 | 0.95 |
| 4:F:11:LEU:HG | 4:F:11:LEU:O | 1.62 | 0.95 |
| 2:B:60:LEU:HD12 | 2:B:61:PRO:CD | 1.95 | 0.95 |
| 1:A:48:LYS:HZ2 | 2:B:100:ASP:HB2 | 1.31 | 0.95 |
| 3:G:52:ASN:O | 3:G:52:ASN:OD1 | 1.85 | 0.94 |
| 4:F:134:THR:O | 4:F:136:ASP:N | 1.98 | 0.94 |
| 4:H:140:LEU:HD11 | 4:H:205:ILE:HG21 | 1.49 | 0.94 |
| 2:B:52:LYS:HD3 | 2:B:53:VAL:HG23 | 1.45 | 0.94 |
| 2:D:40:GLY:O | 2:D:41:LYS:HG3 | 1.66 | 0.94 |
| 2:D:52:LYS:HG2 | 2:D:53:VAL:H | 1.32 | 0.94 |
| 2:B:18:ARG:HH21 | 5:B:248:NAG:H61 | 1.31 | 0.94 |
| 4:H:199:TRP:CE2 | 4:H:200:PRO:HD3 | 2.03 | 0.93 |
| 3:E:25:GLY:HA3 | 3:E:28:LEU:HG | 1.49 | 0.93 |
| 3:E:192:VAL:O | 3:E:211:PRO:HD2 | 1.68 | 0.93 |
| 2:D:70:PHE:CZ | 2:D:74:HIS:HE1 | 1.86 | 0.93 |
| 2:B:209:HIS:HB2 | 2:B:242:TRP:CZ3 | 2.02 | 0.92 |
| 2:D:49:HIS:CE1 | 2:D:53:VAL:HG13 | 2.03 | 0.92 |
| 1:A:55:ARG:NH2 | 2:D:97:ARG:HH22 | 1.65 | 0.92 |
| 4:H:52(B):ILE:HG22 | 4:H:52(C):PRO:HD3 | 1.48 | 0.92 |
| 2:D:153:PHE:HB3 | 2:D:154:PRO:HD2 | 1.50 | 0.92 |
| 2:D:223:ASP:HB2 | 2:D:231:LYS:CE | 1.98 | 0.92 |
| 2:D:5:VAL:CG2 | 2:D:24:ILE:HB | 2.00 | 0.92 |
| 1:A:168:LEU:C | 1:A:168:LEU:HD12 | 1.89 | 0.92 |
| 3:G:43:ASN:H | 3:G:43:ASN:HD22 | 1.08 | 0.91 |
| 2:D:49:HIS:HE1 | 2:D:53:VAL:CG1 | 1.83 | 0.91 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|------------------|--------------------------|-------------------|
| 3:E:143:SER:HB3 | 3:E:163:LYS:HG2 | 1.52 | 0.91 |
| 4:F:87:THR:HG23 | 4:F:110:THR:HA | 1.51 | 0.91 |
| 3:E:144:ALA:HB1 | 3:E:196:VAL:HG12 | 1.51 | 0.91 |
| 3:E:61:ARG:NH1 | 3:E:82:ASP:OD2 | 2.04 | 0.90 |
| 3:E:132:LEU:HD22 | 3:E:192:VAL:HG11 | 1.50 | 0.90 |
| 3:E:138:ASP:HA | 3:E:172:ASN:HD22 | 1.36 | 0.90 |
| 4:F:36:TRP:NE1 | 4:F:78:ILE:HD12 | 1.86 | 0.90 |
| 1:A:58:HIS:O | 1:A:61:GLY:N | 2.03 | 0.90 |
| 4:H:87:THR:HG23 | 4:H:110:THR:HA | 1.52 | 0.90 |
| 4:F:219:VAL:CG1 | 4:F:221:LYS:HE2 | 2.01 | 0.90 |
| 4:H:34:MET:HE3 | 4:H:93:THR:O | 1.70 | 0.90 |
| 1:A:55:ARG:HD3 | 1:A:56:THR:N | 1.86 | 0.89 |
| 1:A:75:LEU:HD12 | 1:A:76:GLN:H | 1.31 | 0.89 |
| 1:A:55:ARG:NE | 2:D:97:ARG:CZ | 2.36 | 0.89 |
| 2:B:96:LEU:C | 2:B:97:ARG:HG2 | 1.92 | 0.89 |
| 3:G:79:GLN:CG | 3:G:80:PRO:HD2 | 2.03 | 0.89 |
| 2:B:18:ARG:NH2 | 5:B:248:NAG:H61 | 1.87 | 0.89 |
| 3:E:89:LEU:HD12 | 3:E:90:SER:N | 1.87 | 0.89 |
| 3:E:165:SER:HB2 | 3:E:173:TYR:CE1 | 2.08 | 0.89 |
| 4:F:52(B):ILE:HG23 | 4:F:55:TYR:CZ | 2.06 | 0.89 |
| 2:B:118:ASP:CG | 5:B:249:NAG:H82 | 1.94 | 0.88 |
| 1:A:102:TYR:HB3 | 2:B:98:TRP:NE1 | 1.87 | 0.88 |
| 3:G:145:THR:HG23 | 3:G:197:THR:OG1 | 1.73 | 0.88 |
| 2:B:132:PRO:HD3 | 2:B:145:LEU:CD2 | 2.04 | 0.88 |
| 3:E:148:TRP:CD2 | 3:E:179:LEU:HD13 | 2.08 | 0.88 |
| 3:E:149:LYS:HG3 | 3:E:195:GLN:NE2 | 1.88 | 0.88 |
| 4:H:117:THR:HG22 | 4:H:146:GLY:O | 1.74 | 0.88 |
| 3:E:149:LYS:HE2 | 3:E:154:THR:OG1 | 1.74 | 0.88 |
| 1:A:47:LEU:HB3 | 1:A:55:ARG:HH11 | 1.38 | 0.88 |
| 1:A:48:LYS:NZ | 2:B:100:ASP:HB2 | 1.88 | 0.88 |
| 1:A:174:ASP:OD1 | 1:A:176:LYS:HD2 | 1.74 | 0.87 |
| 3:E:115:VAL:HG21 | 3:E:207:LYS:CB | 2.03 | 0.87 |
| 1:A:34:TRP:CD1 | 1:A:73:PHE:CD1 | 2.61 | 0.87 |
| 1:C:59:GLN:OE1 | 1:C:59:GLN:CA | 2.19 | 0.87 |
| 3:G:193:SER:HA | 3:G:211:PRO:HD2 | 1.56 | 0.87 |
| 1:A:125:VAL:CG2 | 1:A:205:THR:HG23 | 2.04 | 0.87 |
| 2:B:134:LYS:H | 2:B:134:LYS:HE2 | 1.38 | 0.87 |
| 2:D:30:SER:HB3 | 2:D:51:GLU:OE1 | 1.73 | 0.87 |
| 3:G:146:VAL:HG13 | 3:G:196:VAL:HG22 | 1.55 | 0.87 |
| 3:E:207:LYS:O | 3:E:209:LEU:N | 2.07 | 0.87 |
| 2:D:60:LEU:HD11 | 2:D:65:PHE:HB2 | 1.55 | 0.86 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 3:E:162:THR:O | 3:E:175:THR:HG23 | 1.75 | 0.86 |
| 4:H:20:VAL:HG11 | 4:H:107:THR:HG21 | 1.54 | 0.86 |
| 1:A:102:TYR:HB3 | 2:B:98:TRP:HE1 | 1.37 | 0.86 |
| 1:C:205:THR:O | 1:C:207:PRO:HD3 | 1.76 | 0.86 |
| 3:G:143:SER:HB3 | 3:G:163:LYS:HG2 | 1.55 | 0.86 |
| 1:A:53:ASN:O | 1:A:65:THR:HG23 | 1.75 | 0.86 |
| 4:H:119:PRO:HB3 | 4:H:147:TYR:HB3 | 1.55 | 0.86 |
| 1:C:54:LYS:O | 1:C:56:THR:N | 2.07 | 0.86 |
| 3:G:83:GLU:HG3 | 3:G:105:THR:HA | 1.58 | 0.86 |
| 3:E:140:TYR:CD1 | 3:E:173:TYR:HE2 | 1.94 | 0.86 |
| 3:E:66:THR:HA | 3:E:71:ALA:HA | 1.58 | 0.85 |
| 3:E:136:VAL:HG22 | 3:E:139:PHE:CE1 | 2.11 | 0.85 |
| 3:E:163:LYS:HZ2 | 3:E:175:THR:HG21 | 1.40 | 0.85 |
| 3:G:51:ASP:O | 3:G:52:ASN:HB3 | 1.75 | 0.85 |
| 4:H:94:ARG:HH21 | 4:H:101:ASP:CG | 1.80 | 0.85 |
| 4:H:138:VAL:HG21 | 4:H:199:TRP:CH2 | 2.12 | 0.85 |
| 2:B:50:TYR:CD1 | 2:B:51:GLU:N | 2.44 | 0.85 |
| 2:D:49:HIS:CE1 | 2:D:53:VAL:CG1 | 2.57 | 0.85 |
| 3:E:161:THR:HG22 | 3:E:177:SER:OG | 1.77 | 0.85 |
| 3:G:192:VAL:HB | 3:G:212:ALA:HB2 | 1.57 | 0.84 |
| 1:A:55:ARG:HH12 | 1:A:57:GLU:CG | 1.89 | 0.84 |
| 2:B:223:ASP:HB2 | 2:B:231:LYS:CE | 2.07 | 0.84 |
| 4:F:108:MET:HB3 | 4:F:150:GLU:OE2 | 1.78 | 0.83 |
| 2:D:40:GLY:O | 2:D:41:LYS:CG | 2.26 | 0.83 |
| 4:H:131:THR:O | 4:H:132:THR:HG23 | 1.78 | 0.83 |
| 4:H:199:TRP:CD2 | 4:H:200:PRO:CD | 2.61 | 0.83 |
| 4:F:40:ALA:HB3 | 4:F:43:LYS:HD3 | 1.60 | 0.83 |
| 2:D:65:PHE:HA | 2:D:78:ASN:O | 1.79 | 0.83 |
| 4:H:117:THR:O | 4:H:146:GLY:O | 1.96 | 0.83 |
| 3:G:146:VAL:HG12 | 3:G:196:VAL:HG22 | 1.59 | 0.83 |
| 1:A:34:TRP:HE1 | 1:A:73:PHE:HD1 | 1.23 | 0.83 |
| 2:D:48:GLN:NE2 | 2:D:98:TRP:HH2 | 1.75 | 0.83 |
| 3:E:115:VAL:CG2 | 3:E:207:LYS:HB3 | 2.07 | 0.83 |
| 4:H:148:PHE:H | 4:H:149:PRO:CD | 1.92 | 0.83 |
| 3:E:43:ASN:ND2 | 3:E:43:ASN:H | 1.77 | 0.82 |
| 1:A:144:THR:HG22 | 1:A:145:ASP:OD1 | 1.78 | 0.82 |
| 1:C:82:LEU:HD23 | 1:C:114:VAL:HG22 | 1.60 | 0.82 |
| 3:E:140:TYR:HD1 | 3:E:141:PRO:HA | 1.44 | 0.82 |
| 1:A:34:TRP:NE1 | 1:A:73:PHE:HD1 | 1.78 | 0.82 |
| 4:F:212:HIS:NE2 | 4:F:214:ALA:HB2 | 1.95 | 0.82 |
| 1:A:33:PHE:HD2 | 1:A:48:LYS:HB2 | 1.44 | 0.82 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 3:E:140:TYR:CD1 | 3:E:141:PRO:HA | 2.15 | 0.82 |
| 3:G:61:ARG:NH1 | 3:G:79:GLN:HB2 | 1.93 | 0.82 |
| 2:D:40:GLY:C | 2:D:41:LYS:CG | 2.48 | 0.82 |
| 3:E:39:LYS:HG3 | 3:E:84:ALA:HB2 | 1.61 | 0.82 |
| 1:C:145:ASP:HB2 | 2:D:140:LYS:NZ | 1.94 | 0.81 |
| 1:A:55:ARG:NE | 2:D:97:ARG:NH2 | 2.27 | 0.81 |
| 2:B:228:GLY:HA3 | 4:F:96:GLY:O | 1.79 | 0.81 |
| 1:C:144:THR:HG22 | 1:C:145:ASP:H | 1.45 | 0.81 |
| 4:F:40:ALA:CB | 4:F:43:LYS:HD3 | 2.10 | 0.81 |
| 1:C:75:LEU:HD12 | 1:C:76:GLN:N | 1.95 | 0.81 |
| 4:F:121:VAL:CG2 | 4:F:219:VAL:HG11 | 2.09 | 0.81 |
| 2:B:113:ARG:CD | 2:B:156:HIS:CE1 | 2.61 | 0.81 |
| 2:D:48:GLN:NE2 | 2:D:98:TRP:CH2 | 2.48 | 0.81 |
| 4:F:208:CYS:O | 4:F:208:CYS:SG | 2.39 | 0.81 |
| 2:B:113:ARG:HD2 | 2:B:156:HIS:HE1 | 1.40 | 0.81 |
| 4:F:122:TYR:O | 4:F:124:LEU:HD23 | 1.81 | 0.81 |
| 2:D:72:ASP:O | 2:D:73:TYR:HB2 | 1.79 | 0.81 |
| 3:E:19:VAL:HG22 | 3:E:20:LYS:H | 1.45 | 0.81 |
| 3:G:16:GLY:O | 3:G:77:GLY:HA2 | 1.81 | 0.81 |
| 3:G:89:LEU:HD12 | 3:G:90:SER:H | 1.46 | 0.81 |
| 1:A:34:TRP:NE1 | 1:A:73:PHE:CD1 | 2.49 | 0.80 |
| 4:F:68:THR:O | 4:F:80:LEU:HD12 | 1.79 | 0.80 |
| 4:H:51:ILE:HD13 | 4:H:71:ARG:HB2 | 1.62 | 0.80 |
| 3:G:61:ARG:NH1 | 3:G:82:ASP:OD2 | 2.14 | 0.80 |
| 1:A:140:LEU:HD13 | 1:A:141:CYS:N | 1.96 | 0.80 |
| 4:F:139:THR:HG23 | 4:F:192:THR:OG1 | 1.79 | 0.80 |
| 2:B:67:VAL:HG12 | 2:B:77:MET:HA | 1.62 | 0.80 |
| 1:C:147:ASP:N | 1:C:150:ILE:HD11 | 1.96 | 0.80 |
| 4:H:141:GLY:HA3 | 4:H:189:SER:O | 1.80 | 0.80 |
| 2:B:96:LEU:O | 2:B:97:ARG:CG | 2.28 | 0.80 |
| 2:B:132:PRO:HD3 | 2:B:145:LEU:HD23 | 1.61 | 0.80 |
| 3:G:6:GLN:NE2 | 3:G:88:CYS:H | 1.80 | 0.80 |
| 3:G:113:PRO:HB2 | 3:G:207:LYS:HG2 | 1.62 | 0.80 |
| 3:E:117:VAL:CG2 | 3:E:209:LEU:CG | 2.60 | 0.80 |
| 1:A:57:GLU:O | 1:A:59:GLN:N | 2.14 | 0.80 |
| 3:E:117:VAL:HG21 | 3:E:211:PRO:HG3 | 1.63 | 0.80 |
| 3:E:140:TYR:HD1 | 3:E:173:TYR:HE2 | 1.28 | 0.80 |
| 2:B:84:LEU:HA | 2:B:116:VAL:HB | 1.63 | 0.80 |
| 4:H:35:TYR:CD2 | 4:H:50:ARG:HB2 | 2.16 | 0.80 |
| 1:A:171:LYS:CD | 2:B:170:SER:HB2 | 2.12 | 0.80 |
| 1:C:205:THR:C | 1:C:207:PRO:HD3 | 2.02 | 0.80 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 4:F:210:VAL:CG2 | 4:F:219:VAL:HB | 2.11 | 0.80 |
| 4:F:52(B):ILE:O | 4:F:54:ASN:N | 2.15 | 0.79 |
| 3:G:122:PRO:HA | 3:G:125:LEU:HD12 | 1.63 | 0.79 |
| 3:G:133:VAL:HG21 | 4:H:124:LEU:CD2 | 2.12 | 0.79 |
| 4:H:133:SER:OG | 4:H:135:THR:HG23 | 1.82 | 0.79 |
| 4:H:199:TRP:CG | 4:H:200:PRO:HD3 | 2.17 | 0.79 |
| 3:E:123:GLU:O | 3:E:126:ARG:HB2 | 1.81 | 0.79 |
| 2:B:50:TYR:OH | 2:B:97:ARG:HD2 | 1.83 | 0.79 |
| 2:B:11:ILE:HD11 | 2:B:112:THR:HG21 | 1.64 | 0.79 |
| 4:F:140:LEU:CD1 | 4:F:225:ILE:HD13 | 2.13 | 0.79 |
| 4:H:198:THR:O | 4:H:203:GLN:HB3 | 1.83 | 0.79 |
| 4:H:169:GLY:O | 4:H:191:VAL:HA | 1.82 | 0.78 |
| 1:A:22:CYS:H | 1:A:74:HIS:CD2 | 2.02 | 0.78 |
| 3:E:206:GLU:O | 3:E:208:SER:N | 2.14 | 0.78 |
| 4:F:147:TYR:CD1 | 4:F:185:TYR:O | 2.37 | 0.78 |
| 4:H:217:THR:O | 4:H:217:THR:HG22 | 1.84 | 0.78 |
| 2:D:14:GLU:HG3 | 2:D:119:LEU:HD13 | 1.64 | 0.78 |
| 2:D:230:PRO:HD3 | 4:H:33:TRP:HZ2 | 1.47 | 0.78 |
| 3:G:6:GLN:HE22 | 3:G:88:CYS:H | 1.29 | 0.78 |
| 3:G:182:THR:HG23 | 3:G:185:GLN:OE1 | 1.82 | 0.78 |
| 2:B:100:ASP:O | 2:B:105:GLU:OE2 | 2.01 | 0.78 |
| 4:F:2:VAL:HG13 | 4:F:27:PHE:CD1 | 2.19 | 0.78 |
| 3:G:142:GLY:HA3 | 3:G:199:GLU:CB | 2.14 | 0.78 |
| 2:D:70:PHE:CZ | 2:D:74:HIS:CE1 | 2.71 | 0.78 |
| 1:A:39:LEU:HD22 | 1:A:40:ASN:N | 1.99 | 0.78 |
| 1:A:55:ARG:HH12 | 1:A:57:GLU:HG2 | 1.47 | 0.78 |
| 3:G:183:ALA:HB1 | 3:G:187:LYS:NZ | 1.98 | 0.78 |
| 2:B:36:GLN:OE1 | 2:B:38:THR:HG23 | 1.84 | 0.77 |
| 2:B:38:THR:HG22 | 2:B:88:ALA:HB2 | 1.63 | 0.77 |
| 4:F:140:LEU:HD13 | 4:F:225:ILE:HG21 | 1.65 | 0.77 |
| 3:G:47:LEU:HA | 3:G:58:ILE:HD12 | 1.66 | 0.77 |
| 2:D:60:LEU:HD12 | 2:D:61:PRO:HD2 | 1.66 | 0.77 |
| 2:D:72:ASP:OD2 | 2:D:74:HIS:HB3 | 1.83 | 0.77 |
| 3:G:41:ASP:CB | 3:G:43:ASN:HD21 | 1.91 | 0.77 |
| 2:D:134:LYS:CE | 2:D:134:LYS:H | 1.98 | 0.77 |
| 4:H:32:PHE:CE1 | 4:H:96:GLY:HA3 | 2.19 | 0.77 |
| 3:E:203:GLU:HB2 | 3:E:205:VAL:CG2 | 2.15 | 0.77 |
| 4:F:99:ASP:HB3 | 4:F:101:ASP:OD2 | 1.84 | 0.77 |
| 2:D:230:PRO:HD3 | 4:H:33:TRP:CZ2 | 2.20 | 0.77 |
| 3:G:133:VAL:HG21 | 4:H:124:LEU:HD21 | 1.65 | 0.77 |
| 2:D:74:HIS:NE2 | 2:D:76:GLU:OE2 | 2.18 | 0.77 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 2:D:217:HIS:CA | 2:D:234:THR:HG22 | 2.15 | 0.76 |
| 3:G:58:ILE:HG23 | 3:G:59:PRO:HD2 | 1.66 | 0.76 |
| 4:H:13:GLN:O | 4:H:16:SER:HB2 | 1.85 | 0.76 |
| 3:G:128:ASN:C | 3:G:183:ALA:HB2 | 2.06 | 0.76 |
| 1:A:55:ARG:NH1 | 1:A:57:GLU:HG2 | 2.01 | 0.76 |
| 1:A:125:VAL:CG2 | 1:A:125:VAL:O | 2.33 | 0.76 |
| 3:E:28:LEU:N | 3:E:29:PRO:HD2 | 2.01 | 0.76 |
| 3:E:83:GLU:HG3 | 3:E:105:THR:HA | 1.65 | 0.76 |
| 1:A:144:THR:HG22 | 1:A:145:ASP:N | 2.00 | 0.76 |
| 4:F:199:TRP:O | 4:F:200:PRO:C | 2.21 | 0.76 |
| 4:H:210:VAL:HB | 4:H:219:VAL:CG1 | 2.15 | 0.76 |
| 2:B:230:PRO:HB3 | 4:F:53:ASN:HD21 | 1.48 | 0.76 |
| 3:E:108:GLY:N | 3:E:109:PRO:HD2 | 1.99 | 0.76 |
| 3:E:165:SER:CB | 3:E:173:TYR:CD1 | 2.60 | 0.76 |
| 3:G:142:GLY:HA3 | 3:G:199:GLU:HB3 | 1.68 | 0.76 |
| 1:C:6:THR:HA | 5:C:214:NAG:H83 | 1.67 | 0.76 |
| 3:G:203:GLU:HB2 | 3:G:205:VAL:HG23 | 1.66 | 0.76 |
| 3:E:203:GLU:C | 3:E:205:VAL:H | 1.88 | 0.76 |
| 2:B:209:HIS:NE2 | 2:B:240:GLU:OE1 | 2.16 | 0.76 |
| 3:G:83:GLU:HB2 | 3:G:106:VAL:CG2 | 2.14 | 0.75 |
| 4:H:205:ILE:O | 4:H:205:ILE:CG2 | 2.33 | 0.75 |
| 2:B:65:PHE:HA | 2:B:78:ASN:O | 1.87 | 0.75 |
| 4:F:199:TRP:CE3 | 4:F:200:PRO:HD3 | 2.21 | 0.75 |
| 4:F:68:THR:CG2 | 4:F:69:ILE:N | 2.49 | 0.75 |
| 3:E:104:LEU:HD23 | 3:E:104:LEU:O | 1.86 | 0.75 |
| 3:E:41:ASP:CB | 3:E:43:ASN:HD21 | 1.96 | 0.75 |
| 4:H:55:TYR:OH | 4:H:73:ASP:OD2 | 2.05 | 0.75 |
| 1:A:55:ARG:NE | 2:D:97:ARG:NH1 | 2.33 | 0.75 |
| 3:G:121:SER:O | 3:G:125:LEU:HG | 1.85 | 0.75 |
| 2:B:50:TYR:CZ | 2:B:97:ARG:HB3 | 2.21 | 0.74 |
| 3:E:197:THR:HA | 3:E:205:VAL:O | 1.86 | 0.74 |
| 2:D:125:PRO:HB3 | 2:D:152:PHE:CD2 | 2.21 | 0.74 |
| 4:F:176:SER:O | 4:F:177:VAL:HG13 | 1.87 | 0.74 |
| 4:F:116:THR:HG23 | 4:F:214:ALA:HB1 | 1.69 | 0.74 |
| 4:H:52(A):ASN:ND2 | 4:H:52(A):ASN:H | 1.85 | 0.74 |
| 1:C:58:HIS:O | 1:C:61:GLY:N | 2.20 | 0.74 |
| 4:F:68:THR:HG22 | 4:F:69:ILE:N | 2.02 | 0.74 |
| 4:F:174:PHE:O | 4:F:187:LEU:HD11 | 1.87 | 0.74 |
| 1:C:203:ASN:CG | 5:C:216:NAG:C7 | 2.54 | 0.74 |
| 3:E:193:SER:HA | 3:E:211:PRO:CD | 2.17 | 0.74 |
| 1:A:144:THR:HG22 | 1:A:145:ASP:H | 1.53 | 0.74 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|------------------|--------------------------|-------------------|
| 4:H:29:PHE:HB3 | 4:H:76:ASN:OD1 | 1.88 | 0.74 |
| 4:H:94:ARG:NH2 | 4:H:101:ASP:OD2 | 2.21 | 0.74 |
| 1:A:125:VAL:O | 1:A:125:VAL:HG23 | 1.88 | 0.74 |
| 4:F:52(B):ILE:HG23 | 4:F:55:TYR:OH | 1.87 | 0.74 |
| 4:F:210:VAL:HG23 | 4:F:219:VAL:HB | 1.68 | 0.74 |
| 3:E:198:HIS:H | 3:E:205:VAL:HB | 1.52 | 0.73 |
| 4:H:199:TRP:CG | 4:H:200:PRO:CD | 2.70 | 0.73 |
| 2:B:161:TRP:HE1 | 2:B:194:SER:HG | 1.34 | 0.73 |
| 1:A:5:GLN:NE2 | 1:A:107:GLY:HA3 | 2.03 | 0.73 |
| 3:E:117:VAL:CG2 | 3:E:209:LEU:HG | 2.18 | 0.73 |
| 2:B:223:ASP:HB2 | 2:B:231:LYS:HE3 | 1.68 | 0.73 |
| 2:B:223:ASP:HB2 | 2:B:231:LYS:NZ | 2.02 | 0.73 |
| 4:F:119:PRO:HD2 | 4:F:217:THR:HG21 | 1.69 | 0.73 |
| 4:F:126:PRO:O | 4:F:128:CYS:N | 2.20 | 0.73 |
| 3:G:181:LEU:HD23 | 3:G:185:GLN:HB3 | 1.70 | 0.73 |
| 1:C:144:THR:HG22 | 1:C:145:ASP:N | 2.02 | 0.73 |
| 4:F:36:TRP:HE1 | 4:F:78:ILE:HD12 | 1.52 | 0.73 |
| 3:G:79:GLN:HG3 | 3:G:80:PRO:CD | 2.09 | 0.73 |
| 4:H:117:THR:O | 4:H:147:TYR:HA | 1.89 | 0.73 |
| 4:F:133:SER:C | 4:F:135:THR:H | 1.91 | 0.73 |
| 1:A:203:ASN:O | 1:A:204:ALA:HB3 | 1.87 | 0.73 |
| 2:D:153:PHE:CB | 2:D:154:PRO:CD | 2.64 | 0.73 |
| 3:G:33:ALA:HB3 | 3:G:51:ASP:HB3 | 1.71 | 0.73 |
| 3:G:141:PRO:HD2 | 3:G:199:GLU:HG2 | 1.71 | 0.73 |
| 2:B:158:GLU:OE2 | 2:B:217:HIS:HE1 | 1.70 | 0.72 |
| 3:G:108:GLY:N | 3:G:109:PRO:HD2 | 2.04 | 0.72 |
| 1:A:3:VAL:HG12 | 1:A:105:VAL:HG12 | 1.70 | 0.72 |
| 2:D:49:HIS:HE1 | 2:D:53:VAL:HG12 | 1.53 | 0.72 |
| 4:H:148:PHE:O | 4:H:185:TYR:CE2 | 2.42 | 0.72 |
| 4:H:195:SER:C | 4:H:199:TRP:CZ3 | 2.62 | 0.72 |
| 3:G:192:VAL:O | 3:G:211:PRO:HD2 | 1.89 | 0.72 |
| 3:G:203:GLU:C | 3:G:205:VAL:H | 1.92 | 0.72 |
| 1:C:75:LEU:HD12 | 1:C:76:GLN:H | 1.54 | 0.72 |
| 1:A:54:LYS:HE3 | 1:A:63:HIS:HB2 | 1.70 | 0.72 |
| 3:G:193:SER:HB3 | 3:G:195:GLN:HE21 | 1.55 | 0.72 |
| 1:A:190:THR:CG2 | 1:A:192:GLN:H | 2.03 | 0.72 |
| 3:G:164:PRO:HG3 | 4:H:175:PRO:CD | 2.20 | 0.72 |
| 4:H:212:HIS:HB3 | 4:H:217:THR:OG1 | 1.89 | 0.72 |
| 1:A:54:LYS:HB2 | 1:A:65:THR:OG1 | 1.88 | 0.72 |
| 1:C:92:LEU:C | 1:C:92:LEU:HD12 | 2.10 | 0.72 |
| 1:A:92:LEU:HD12 | 1:A:92:LEU:C | 2.10 | 0.72 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 4:F:133:SER:OG | 4:F:135:THR:HG23 | 1.90 | 0.72 |
| 2:B:134:LYS:H | 2:B:134:LYS:CE | 2.03 | 0.72 |
| 3:E:165:SER:CB | 3:E:173:TYR:CE1 | 2.72 | 0.72 |
| 3:G:123:GLU:O | 3:G:126:ARG:HB2 | 1.90 | 0.72 |
| 1:A:47:LEU:CB | 1:A:55:ARG:HH11 | 2.03 | 0.71 |
| 2:B:154:PRO:HG2 | 2:B:156:HIS:HD2 | 1.54 | 0.71 |
| 2:D:229:SER:OG | 2:D:230:PRO:HD2 | 1.90 | 0.71 |
| 4:F:118:ALA:HB1 | 4:F:217:THR:HG21 | 1.72 | 0.71 |
| 1:C:139:THR:O | 1:C:183:TRP:HA | 1.90 | 0.71 |
| 3:G:117:VAL:HG21 | 3:G:211:PRO:HG3 | 1.71 | 0.71 |
| 1:A:55:ARG:HE | 2:D:97:ARG:CZ | 2.02 | 0.71 |
| 3:E:136:VAL:HG13 | 3:E:175:THR:HB | 1.72 | 0.71 |
| 3:G:182:THR:OG1 | 3:G:185:GLN:HB2 | 1.90 | 0.71 |
| 1:A:47:LEU:HB3 | 1:A:55:ARG:NH1 | 2.05 | 0.71 |
| 2:D:8:PRO:HG2 | 2:D:11:ILE:HG12 | 1.72 | 0.71 |
| 3:E:132:LEU:CD2 | 3:E:192:VAL:HG11 | 2.21 | 0.71 |
| 3:E:136:VAL:CG1 | 3:E:175:THR:HB | 2.21 | 0.71 |
| 3:G:113:PRO:HG2 | 3:G:205:VAL:HG11 | 1.73 | 0.71 |
| 4:F:57:THR:HG21 | 4:F:59:TYR:OH | 1.91 | 0.71 |
| 4:F:212:HIS:HD2 | 4:F:214:ALA:H | 1.39 | 0.71 |
| 3:E:140:TYR:CE1 | 3:E:141:PRO:HB3 | 2.25 | 0.71 |
| 3:G:89:LEU:HD12 | 3:G:90:SER:N | 2.06 | 0.71 |
| 1:C:33:PHE:HD2 | 1:C:48:LYS:HB2 | 1.55 | 0.71 |
| 3:G:28:LEU:N | 3:G:29:PRO:HD2 | 2.05 | 0.71 |
| 4:H:40:ALA:HB3 | 4:H:43:LYS:CB | 2.15 | 0.71 |
| 1:C:145:ASP:HB2 | 2:D:140:LYS:HZ1 | 1.53 | 0.70 |
| 4:F:39:GLN:HG3 | 4:F:44:GLY:O | 1.91 | 0.70 |
| 4:H:52(B):ILE:HG23 | 4:H:52(C):PRO:HD3 | 1.73 | 0.70 |
| 1:A:14:GLU:CD | 1:A:176:LYS:HE2 | 2.11 | 0.70 |
| 3:E:148:TRP:CG | 3:E:179:LEU:HD13 | 2.26 | 0.70 |
| 2:B:8:PRO:O | 2:B:112:THR:HG23 | 1.91 | 0.70 |
| 1:C:197:GLU:OE1 | 1:C:197:GLU:HA | 1.91 | 0.70 |
| 3:E:138:ASP:HA | 3:E:172:ASN:ND2 | 2.06 | 0.70 |
| 1:C:168:LEU:C | 1:C:168:LEU:HD12 | 2.11 | 0.70 |
| 3:E:159:VAL:HG23 | 3:E:178:TYR:O | 1.92 | 0.70 |
| 3:G:192:VAL:HB | 3:G:212:ALA:CB | 2.21 | 0.70 |
| 2:B:127:VAL:HG12 | 2:B:237:ILE:HG22 | 1.73 | 0.70 |
| 4:F:199:TRP:O | 4:F:202:LYS:N | 2.24 | 0.70 |
| 4:H:63:VAL:HB | 4:H:67:PHE:HB2 | 1.73 | 0.70 |
| 1:A:82:LEU:HD23 | 1:A:114:VAL:CG2 | 2.21 | 0.70 |
| 2:B:83:GLU:O | 2:B:116:VAL:HG21 | 1.92 | 0.70 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 2:B:159:LEU:HD23 | 2:B:160:SER:N | 2.07 | 0.70 |
| 4:H:199:TRP:CD1 | 4:H:200:PRO:HD3 | 2.27 | 0.70 |
| 4:F:17:SER:HA | 4:F:82(A):ASN:HA | 1.73 | 0.70 |
| 4:F:79:TYR:N | 4:F:79:TYR:CD1 | 2.59 | 0.70 |
| 4:H:210:VAL:HB | 4:H:219:VAL:HG13 | 1.74 | 0.70 |
| 3:E:47:LEU:O | 3:E:55:PRO:HD2 | 1.90 | 0.70 |
| 3:E:148:TRP:CZ3 | 3:E:179:LEU:HB2 | 2.27 | 0.70 |
| 4:F:209:ASN:N | 4:F:209:ASN:OD1 | 2.25 | 0.70 |
| 3:E:79:GLN:CG | 3:E:80:PRO:HD2 | 2.20 | 0.69 |
| 4:F:166:LEU:HD11 | 4:F:205:ILE:HD12 | 1.74 | 0.69 |
| 3:G:113:PRO:HD2 | 3:G:207:LYS:NZ | 2.07 | 0.69 |
| 2:D:52:LYS:HG2 | 2:D:53:VAL:N | 2.03 | 0.69 |
| 2:D:209:HIS:HB2 | 2:D:242:TRP:CZ3 | 2.28 | 0.69 |
| 3:G:136:VAL:CG1 | 3:G:175:THR:HB | 2.22 | 0.69 |
| 1:A:139:THR:O | 1:A:183:TRP:HA | 1.91 | 0.69 |
| 1:C:47:LEU:HD13 | 1:C:56:THR:CG2 | 2.22 | 0.69 |
| 2:D:154:PRO:O | 2:D:156:HIS:N | 2.23 | 0.69 |
| 2:B:100:ASP:O | 2:B:105:GLU:CG | 2.41 | 0.69 |
| 4:F:20:VAL:HG11 | 4:F:107:THR:HG21 | 1.74 | 0.69 |
| 4:H:144:VAL:HG23 | 4:H:187:LEU:O | 1.92 | 0.69 |
| 1:A:14:GLU:OE1 | 1:A:176:LYS:HE2 | 1.92 | 0.69 |
| 3:E:41:ASP:HB3 | 3:E:43:ASN:CG | 2.12 | 0.69 |
| 3:E:61:ARG:HB2 | 3:E:76:SER:O | 1.92 | 0.69 |
| 4:F:219:VAL:HG12 | 4:F:221:LYS:HE2 | 1.73 | 0.69 |
| 1:A:146:PHE:HB2 | 1:A:150:ILE:HD11 | 1.74 | 0.69 |
| 3:E:106(A):LEU:HA | 3:E:140:TYR:OH | 1.93 | 0.69 |
| 4:F:157:TRP:CZ3 | 4:F:208:CYS:HB3 | 2.27 | 0.69 |
| 1:C:52:ASP:HA | 1:C:66:LEU:HD23 | 1.75 | 0.69 |
| 1:A:39:LEU:HD13 | 1:A:40:ASN:HB2 | 1.74 | 0.69 |
| 2:B:118:ASP:OD2 | 5:B:249:NAG:H82 | 1.92 | 0.69 |
| 1:C:82:LEU:HD23 | 1:C:114:VAL:CG2 | 2.22 | 0.69 |
| 4:H:11:LEU:O | 4:H:11:LEU:HG | 1.91 | 0.69 |
| 1:A:168:LEU:HD12 | 1:A:169:ASP:N | 2.08 | 0.68 |
| 2:B:49:HIS:CE1 | 2:B:55:ARG:NH2 | 2.61 | 0.68 |
| 2:B:49:HIS:HE1 | 2:B:55:ARG:NH2 | 1.91 | 0.68 |
| 3:G:48:ILE:HD13 | 3:G:64:GLY:HA3 | 1.75 | 0.68 |
| 4:H:195:SER:O | 4:H:199:TRP:CH2 | 2.46 | 0.68 |
| 1:A:190:THR:HG22 | 1:A:192:GLN:H | 1.59 | 0.68 |
| 2:B:105:GLU:HB3 | 2:B:107:TYR:CZ | 2.29 | 0.68 |
| 1:C:168:LEU:HD12 | 1:C:169:ASP:N | 2.08 | 0.68 |
| 1:C:205:THR:O | 1:C:207:PRO:CD | 2.41 | 0.68 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|--------------------|--------------------------|-------------------|
| 2:D:125:PRO:HD2 | 2:D:237:ILE:CD1 | 2.22 | 0.68 |
| 2:D:204:HIS:O | 2:D:206:PRO:HD3 | 1.94 | 0.68 |
| 4:F:125:ALA:HB1 | 4:F:126:PRO:HD2 | 1.76 | 0.68 |
| 4:H:126:PRO:O | 4:H:127:ALA:HB3 | 1.92 | 0.68 |
| 3:G:43:ASN:ND2 | 3:G:43:ASN:N | 2.33 | 0.68 |
| 2:B:9:ARG:CZ | 2:B:110:PRO:HB3 | 2.24 | 0.68 |
| 2:B:221:GLU:C | 2:B:223:ASP:H | 1.96 | 0.68 |
| 2:B:221:GLU:O | 2:B:223:ASP:N | 2.23 | 0.68 |
| 4:H:51:ILE:HG23 | 4:H:51:ILE:O | 1.93 | 0.68 |
| 2:D:52:LYS:CG | 2:D:53:VAL:H | 2.05 | 0.68 |
| 3:E:163:LYS:NZ | 3:E:175:THR:CG2 | 2.57 | 0.68 |
| 3:E:203:GLU:HB2 | 3:E:205:VAL:HG23 | 1.74 | 0.68 |
| 4:H:137:THR:HB | 4:H:192:THR:HG22 | 1.76 | 0.68 |
| 2:B:50:TYR:OH | 2:B:97:ARG:CB | 2.41 | 0.68 |
| 2:B:50:TYR:CE2 | 2:B:97:ARG:CB | 2.77 | 0.68 |
| 3:E:136:VAL:HG22 | 3:E:139:PHE:HE1 | 1.57 | 0.68 |
| 3:E:48:ILE:HD13 | 3:E:64:GLY:HA3 | 1.76 | 0.68 |
| 3:E:148:TRP:CE3 | 3:E:179:LEU:HD22 | 2.29 | 0.68 |
| 4:F:126:PRO:C | 4:F:128:CYS:H | 1.97 | 0.68 |
| 3:G:144:ALA:HA | 3:G:197:THR:O | 1.94 | 0.68 |
| 1:C:3:VAL:HG12 | 1:C:105:VAL:HG12 | 1.76 | 0.67 |
| 1:C:56:THR:O | 1:C:56:THR:HG22 | 1.94 | 0.67 |
| 4:F:116:THR:CG2 | 4:F:214:ALA:HB1 | 2.24 | 0.67 |
| 3:E:139:PHE:CD2 | 3:E:173:TYR:HB2 | 2.30 | 0.67 |
| 3:G:214:CYS:HB2 | 3:G:215:LEU:HD23 | 1.74 | 0.67 |
| 3:G:14:THR:HG23 | 3:G:106(A):LEU:HB2 | 1.77 | 0.67 |
| 1:C:3:VAL:O | 1:C:3:VAL:HG22 | 1.94 | 0.67 |
| 3:E:133:VAL:HG13 | 3:E:178:TYR:CE1 | 2.30 | 0.67 |
| 1:A:128:LEU:HD12 | 1:A:140:LEU:HD12 | 1.76 | 0.67 |
| 2:B:97:ARG:HH22 | 1:C:56:THR:CG2 | 2.02 | 0.67 |
| 3:G:198:HIS:H | 3:G:205:VAL:HB | 1.58 | 0.67 |
| 4:H:138:VAL:HG21 | 4:H:199:TRP:CZ2 | 2.29 | 0.67 |
| 2:B:51:GLU:OE1 | 2:B:51:GLU:HA | 1.88 | 0.67 |
| 2:D:124:PRO:HD3 | 2:D:232:PRO:HB3 | 1.77 | 0.67 |
| 1:C:140:LEU:HD13 | 1:C:141:CYS:N | 2.09 | 0.67 |
| 3:E:51:ASP:O | 3:E:52:ASN:HB3 | 1.93 | 0.67 |
| 3:E:163:LYS:HZ2 | 3:E:175:THR:CG2 | 2.08 | 0.67 |
| 3:G:66:THR:HG23 | 3:G:66:THR:O | 1.94 | 0.67 |
| 3:G:89:LEU:HD12 | 3:G:97:VAL:O | 1.95 | 0.67 |
| 1:A:102:TYR:CB | 2:B:98:TRP:HE1 | 2.08 | 0.67 |
| 2:B:217:HIS:CA | 2:B:234:THR:HG22 | 2.16 | 0.67 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|---------------------|--------------------------|-------------------|
| 1:C:203:ASN:OD1 | 5:C:216:NAG:N2 | 2.27 | 0.67 |
| 1:C:140:LEU:HD13 | 1:C:141:CYS:H | 1.60 | 0.66 |
| 4:H:52(B):ILE:CG2 | 4:H:52(C):PRO:CD | 2.72 | 0.66 |
| 2:D:68:GLN:HE21 | 2:D:68:GLN:H | 1.43 | 0.66 |
| 2:D:159:LEU:HD23 | 2:D:160:SER:N | 2.11 | 0.66 |
| 2:D:223:ASP:HB2 | 2:D:231:LYS:CD | 2.26 | 0.66 |
| 3:E:192:VAL:O | 3:E:211:PRO:CD | 2.43 | 0.66 |
| 4:H:195:SER:HA | 4:H:199:TRP:CZ3 | 2.30 | 0.66 |
| 2:D:204:HIS:HA | 2:D:244:ARG:HB2 | 1.77 | 0.66 |
| 3:E:198:HIS:N | 3:E:205:VAL:HB | 2.10 | 0.66 |
| 4:F:141:GLY:HA2 | 4:F:157:TRP:CZ2 | 2.30 | 0.66 |
| 3:G:167:GLN:O | 3:G:170:GLY:C | 2.33 | 0.66 |
| 4:H:148:PHE:H | 4:H:149:PRO:HD2 | 1.58 | 0.66 |
| 2:B:17:GLY:O | 2:B:82:LEU:HG | 1.95 | 0.66 |
| 2:B:120:ARG:HD2 | 3:E:50:MET:SD | 2.36 | 0.66 |
| 1:A:55:ARG:NH2 | 1:A:57:GLU:HG2 | 2.10 | 0.66 |
| 2:D:70:PHE:CE1 | 2:D:74:HIS:CE1 | 2.83 | 0.66 |
| 3:E:140:TYR:CD1 | 3:E:141:PRO:CA | 2.78 | 0.66 |
| 3:E:207:LYS:HD2 | 3:E:207:LYS:N | 2.09 | 0.66 |
| 4:H:2:VAL:HB | 4:H:102:TYR:CE2 | 2.30 | 0.66 |
| 4:H:124:LEU:O | 4:H:140:LEU:HB2 | 1.96 | 0.66 |
| 4:H:153:THR:CG2 | 4:H:211:ALA:HB3 | 2.21 | 0.66 |
| 4:H:203:GLN:CD | 4:H:204:PRO:HD2 | 2.16 | 0.66 |
| 2:D:115:THR:CG2 | 2:D:116(A):LEU:HD21 | 2.25 | 0.66 |
| 3:E:136:VAL:HG13 | 3:E:175:THR:O | 1.95 | 0.66 |
| 2:D:49:HIS:CE1 | 2:D:53:VAL:HG12 | 2.30 | 0.66 |
| 3:E:183:ALA:O | 3:E:187:LYS:HG3 | 1.95 | 0.66 |
| 3:G:6:GLN:NE2 | 3:G:88:CYS:SG | 2.66 | 0.66 |
| 4:H:157:TRP:CZ3 | 4:H:208:CYS:HB3 | 2.30 | 0.66 |
| 4:H:195:SER:C | 4:H:199:TRP:HZ3 | 1.98 | 0.66 |
| 1:A:125:VAL:HA | 1:A:142:LEU:O | 1.95 | 0.66 |
| 2:B:174:THR:HG23 | 2:B:194:SER:HB2 | 1.78 | 0.66 |
| 1:C:171:LYS:HA | 2:D:170:SER:OG | 1.96 | 0.66 |
| 3:E:115:VAL:CG2 | 3:E:207:LYS:CB | 2.72 | 0.66 |
| 4:F:174:PHE:HB3 | 4:F:175:PRO:CD | 2.26 | 0.66 |
| 4:F:212:HIS:CE1 | 4:F:214:ALA:HB2 | 2.31 | 0.66 |
| 2:D:74:HIS:CE1 | 2:D:76:GLU:OE2 | 2.49 | 0.66 |
| 3:E:61:ARG:NH1 | 3:E:79:GLN:HB2 | 2.11 | 0.66 |
| 4:F:142:CYS:O | 4:F:188:SER:HA | 1.96 | 0.66 |
| 1:A:39:LEU:HD22 | 1:A:40:ASN:H | 1.60 | 0.65 |
| 2:B:227:GLU:OE1 | 2:B:227:GLU:HA | 1.95 | 0.65 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 3:E:66:THR:HG23 | 3:E:66:THR:O | 1.95 | 0.65 |
| 3:E:117:VAL:HG11 | 3:E:211:PRO:CG | 2.26 | 0.65 |
| 1:C:159:GLY:O | 1:C:184:SER:HA | 1.96 | 0.65 |
| 2:D:96:LEU:O | 2:D:97:ARG:O | 2.12 | 0.65 |
| 4:F:36:TRP:O | 4:F:37:VAL:CG2 | 2.45 | 0.65 |
| 4:F:199:TRP:HE3 | 4:F:200:PRO:HD3 | 1.60 | 0.65 |
| 2:B:5:VAL:HG23 | 2:B:24:ILE:HB | 1.76 | 0.65 |
| 4:F:203:GLN:OE1 | 4:F:204:PRO:HD2 | 1.96 | 0.65 |
| 4:H:105:GLN:OE1 | 4:H:105:GLN:HA | 1.97 | 0.65 |
| 2:B:65:PHE:CD1 | 2:B:79:MET:HA | 2.31 | 0.65 |
| 2:D:93:ALA:HA | 2:D:107:TYR:O | 1.95 | 0.65 |
| 4:F:17:SER:OG | 4:F:82(A):ASN:HB3 | 1.96 | 0.65 |
| 3:G:146:VAL:HG21 | 3:G:177:SER:HB2 | 1.78 | 0.65 |
| 1:A:108:ALA:HA | 2:B:42:GLU:OE2 | 1.97 | 0.65 |
| 1:A:123:PRO:HB2 | 1:A:204:ALA:CB | 2.23 | 0.65 |
| 1:A:160:THR:OG1 | 1:A:184:SER:HB2 | 1.95 | 0.65 |
| 3:G:183:ALA:HB1 | 3:G:187:LYS:HZ1 | 1.61 | 0.65 |
| 4:H:37:VAL:HG13 | 4:H:47:TRP:HA | 1.77 | 0.65 |
| 2:D:37:GLN:CG | 2:D:41:LYS:HA | 2.27 | 0.65 |
| 4:F:36:TRP:NE1 | 4:F:78:ILE:CD1 | 2.59 | 0.65 |
| 4:F:121:VAL:HG21 | 4:F:219:VAL:HG11 | 1.79 | 0.65 |
| 4:H:52(B):ILE:HG23 | 4:H:52(C):PRO:CD | 2.27 | 0.65 |
| 1:A:53:ASN:CG | 1:A:54:LYS:H | 1.98 | 0.65 |
| 2:B:100:ASP:O | 2:B:105:GLU:CD | 2.35 | 0.65 |
| 1:C:17:PRO:HA | 1:C:78:SER:O | 1.97 | 0.65 |
| 3:E:163:LYS:HZ3 | 3:E:175:THR:HG23 | 1.61 | 0.65 |
| 3:G:113:PRO:HG3 | 3:G:198:HIS:HB2 | 1.77 | 0.65 |
| 3:G:149:LYS:HG2 | 3:G:154:THR:HA | 1.79 | 0.65 |
| 4:H:212:HIS:HB3 | 4:H:217:THR:CB | 2.27 | 0.65 |
| 1:A:55:ARG:HH2 | 1:A:57:GLU:HG2 | 1.60 | 0.65 |
| 2:D:127:VAL:HG23 | 2:D:237:ILE:HG22 | 1.78 | 0.65 |
| 2:D:160:SER:HB2 | 2:D:162:TRP:HE1 | 1.62 | 0.65 |
| 2:B:233:VAL:O | 2:B:235:GLN:HG2 | 1.98 | 0.65 |
| 4:H:141:GLY:HA2 | 4:H:157:TRP:CZ2 | 2.32 | 0.64 |
| 4:H:217:THR:HG22 | 4:H:219:VAL:HG12 | 1.78 | 0.64 |
| 2:D:70:PHE:CG | 2:D:74:HIS:ND1 | 2.63 | 0.64 |
| 4:H:19:LYS:HA | 4:H:80:LEU:O | 1.97 | 0.64 |
| 1:A:14:GLU:HG2 | 1:A:116:ALA:HA | 1.80 | 0.64 |
| 1:C:155:THR:HG21 | 1:C:160:THR:O | 1.98 | 0.64 |
| 2:D:74:HIS:NE2 | 2:D:76:GLU:CG | 2.61 | 0.64 |
| 3:E:144:ALA:CB | 3:E:196:VAL:HG12 | 2.24 | 0.64 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 4:F:124:LEU:HD21 | 4:F:142:CYS:C | 2.17 | 0.64 |
| 4:H:199:TRP:HB2 | 4:H:205:ILE:HG13 | 1.80 | 0.64 |
| 1:A:87:LEU:HD12 | 2:B:41:LYS:HD3 | 1.80 | 0.64 |
| 2:D:78:ASN:ND2 | 5:D:248:NAG:O7 | 2.30 | 0.64 |
| 1:A:33:PHE:CD2 | 1:A:48:LYS:HB2 | 2.31 | 0.64 |
| 1:C:47:LEU:HB2 | 1:C:56:THR:CG2 | 2.27 | 0.64 |
| 2:D:128:SER:HB3 | 2:D:130:PHE:CE1 | 2.32 | 0.64 |
| 3:E:139:PHE:CE2 | 3:E:173:TYR:HB3 | 2.33 | 0.64 |
| 3:G:47:LEU:HA | 3:G:58:ILE:CD1 | 2.27 | 0.64 |
| 1:A:14:GLU:OE2 | 1:A:176:LYS:HE2 | 1.98 | 0.64 |
| 2:B:132:PRO:HD3 | 2:B:145:LEU:HD21 | 1.76 | 0.64 |
| 2:D:37:GLN:NE2 | 2:D:41:LYS:HB3 | 2.13 | 0.64 |
| 4:F:52(A):ASN:HA | 4:F:71:ARG:NH2 | 2.13 | 0.64 |
| 4:H:35:TYR:N | 4:H:35:TYR:CD1 | 2.63 | 0.64 |
| 4:H:149:PRO:O | 4:H:150:GLU:O | 2.15 | 0.64 |
| 1:A:77:LYS:NZ | 1:A:84:ASP:OD2 | 2.31 | 0.64 |
| 1:A:146:PHE:HB2 | 1:A:150:ILE:CD1 | 2.27 | 0.64 |
| 1:C:159:GLY:HA3 | 1:C:185:ASN:OD1 | 1.98 | 0.64 |
| 2:D:60:LEU:HD11 | 2:D:65:PHE:CB | 2.27 | 0.64 |
| 4:F:148:PHE:H | 4:F:149:PRO:HD2 | 1.62 | 0.64 |
| 3:E:167:GLN:HB3 | 3:E:172:ASN:OD1 | 1.98 | 0.64 |
| 4:F:29:PHE:HB3 | 4:F:76:ASN:OD1 | 1.98 | 0.64 |
| 4:F:36:TRP:O | 4:F:37:VAL:HG22 | 1.97 | 0.64 |
| 2:B:68:GLN:HE21 | 2:B:68:GLN:H | 1.46 | 0.63 |
| 1:C:122:GLU:HB3 | 2:D:140:LYS:CE | 2.28 | 0.63 |
| 3:E:143:SER:HB3 | 3:E:163:LYS:CG | 2.27 | 0.63 |
| 3:G:41:ASP:O | 3:G:42:LYS:HB2 | 1.98 | 0.63 |
| 3:G:146:VAL:HG12 | 3:G:196:VAL:CG2 | 2.25 | 0.63 |
| 4:H:139:THR:HA | 4:H:191:VAL:O | 1.98 | 0.63 |
| 4:H:99:ASP:HB3 | 4:H:101:ASP:OD2 | 1.98 | 0.63 |
| 1:C:186:GLN:C | 1:C:188:SER:H | 2.02 | 0.63 |
| 4:F:131:THR:O | 4:F:132:THR:HG23 | 1.97 | 0.63 |
| 3:G:192:VAL:H | 3:G:212:ALA:HB3 | 1.62 | 0.63 |
| 4:H:18:LEU:HD13 | 4:H:109:VAL:HG22 | 1.81 | 0.63 |
| 2:B:100:ASP:O | 2:B:105:GLU:HG2 | 1.98 | 0.63 |
| 2:B:38:THR:O | 2:B:39:LEU:C | 2.37 | 0.63 |
| 2:B:150:ARG:HG2 | 2:B:191:SER:OG | 1.99 | 0.63 |
| 1:C:33:PHE:CD2 | 1:C:48:LYS:HB2 | 2.33 | 0.63 |
| 4:F:6:GLU:HB2 | 4:F:106:GLY:O | 1.98 | 0.63 |
| 3:E:107:ARG:CB | 3:E:109:PRO:HD2 | 2.29 | 0.63 |
| 3:G:47:LEU:O | 3:G:55:PRO:HD2 | 1.99 | 0.63 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|------------------|--------------------------|-------------------|
| 3:G:125:LEU:O | 3:G:128:ASN:N | 2.31 | 0.63 |
| 2:B:133:SER:O | 2:B:137:ILE:HD13 | 1.99 | 0.63 |
| 2:D:60:LEU:CD1 | 2:D:65:PHE:HB2 | 2.28 | 0.63 |
| 4:H:171:VAL:O | 4:H:172:HIS:ND1 | 2.31 | 0.63 |
| 1:A:193:ASP:OD1 | 1:A:193:ASP:N | 2.28 | 0.62 |
| 4:F:140:LEU:HD11 | 4:F:225:ILE:HD13 | 1.80 | 0.62 |
| 1:C:117:HIS:O | 1:C:117:HIS:CG | 2.52 | 0.62 |
| 1:A:171:LYS:HD2 | 2:B:170:SER:CB | 2.25 | 0.62 |
| 1:C:62:PHE:HB3 | 1:C:75:LEU:HD11 | 1.79 | 0.62 |
| 1:A:152:VAL:HG12 | 1:A:153:PRO:HD2 | 1.80 | 0.62 |
| 3:E:163:LYS:NZ | 3:E:175:THR:HG21 | 2.15 | 0.62 |
| 4:H:195:SER:CA | 4:H:199:TRP:HZ3 | 2.12 | 0.62 |
| 1:A:126:TYR:CE2 | 2:B:136:GLU:HG3 | 2.34 | 0.62 |
| 2:B:118:ASP:O | 2:B:121:ASN:HB2 | 1.99 | 0.62 |
| 2:D:70:PHE:CE2 | 2:D:74:HIS:CE1 | 2.87 | 0.62 |
| 2:B:50:TYR:CZ | 2:B:97:ARG:CB | 2.82 | 0.62 |
| 3:E:119:PRO:HG2 | 4:F:127:ALA:HB3 | 1.81 | 0.62 |
| 3:E:203:GLU:HB2 | 3:E:205:VAL:HG22 | 1.81 | 0.62 |
| 3:G:86:TYR:HE2 | 3:G:104:LEU:HD22 | 1.64 | 0.62 |
| 2:B:72:ASP:O | 2:B:73:TYR:HB2 | 1.99 | 0.62 |
| 4:F:11:LEU:O | 4:F:11:LEU:CG | 2.44 | 0.62 |
| 2:D:26:ILE:HB | 2:D:29:HIS:ND1 | 2.15 | 0.62 |
| 5:D:249:NAG:O7 | 5:D:249:NAG:H3 | 1.99 | 0.62 |
| 3:G:206:GLU:C | 3:G:208:SER:H | 2.03 | 0.62 |
| 3:E:79:GLN:HG3 | 3:E:80:PRO:CD | 2.23 | 0.62 |
| 4:F:140:LEU:O | 4:F:190:SER:HA | 1.99 | 0.62 |
| 4:F:193:VAL:HB | 4:F:198:THR:HG21 | 1.82 | 0.62 |
| 3:G:162:THR:HB | 3:G:164:PRO:HD3 | 1.82 | 0.62 |
| 2:B:52:LYS:HD3 | 2:B:53:VAL:CG2 | 2.25 | 0.61 |
| 2:D:52:LYS:C | 2:D:69:GLN:HE21 | 2.04 | 0.61 |
| 3:E:118:PHE:CE1 | 4:F:124:LEU:O | 2.52 | 0.61 |
| 1:A:129:LYS:CE | 1:A:210:ASP:OD2 | 2.48 | 0.61 |
| 2:D:2:SER:HA | 2:D:26:ILE:HG23 | 1.81 | 0.61 |
| 3:E:91:SER:HA | 3:E:95(B):ASP:O | 2.00 | 0.61 |
| 3:G:192:VAL:HG23 | 3:G:212:ALA:CB | 2.30 | 0.61 |
| 2:D:12:ILE:C | 2:D:13:LYS:HG2 | 2.20 | 0.61 |
| 2:D:52:LYS:O | 2:D:69:GLN:NE2 | 2.33 | 0.61 |
| 4:F:150:GLU:HB3 | 4:F:151:PRO:HD2 | 1.81 | 0.61 |
| 4:H:52(A):ASN:HD22 | 4:H:52(A):ASN:N | 1.96 | 0.61 |
| 4:H:178:LEU:HD23 | 4:H:185:TYR:CE1 | 2.36 | 0.61 |
| 2:D:40:GLY:O | 2:D:41:LYS:CB | 2.48 | 0.61 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 4:H:52(A):ASN:HA | 4:H:71:ARG:NH2 | 2.15 | 0.61 |
| 4:F:124:LEU:HG | 4:F:141:GLY:O | 2.00 | 0.61 |
| 2:D:11:ILE:HD11 | 2:D:112:THR:HG21 | 1.82 | 0.61 |
| 2:D:84:LEU:CD2 | 2:D:117:GLU:HG2 | 2.31 | 0.61 |
| 4:F:29:PHE:CZ | 4:F:71:ARG:HD2 | 2.35 | 0.61 |
| 4:F:68:THR:CG2 | 4:F:69:ILE:H | 2.12 | 0.61 |
| 3:E:162:THR:HB | 3:E:164:PRO:HD3 | 1.83 | 0.61 |
| 2:D:153:PHE:HB3 | 2:D:154:PRO:HD3 | 1.80 | 0.61 |
| 3:G:132:LEU:O | 3:G:148:TRP:HH2 | 1.84 | 0.61 |
| 4:F:47:TRP:CE3 | 4:F:60:ALA:HB2 | 2.35 | 0.61 |
| 4:F:141:GLY:HA2 | 4:F:157:TRP:CH2 | 2.36 | 0.61 |
| 1:C:168:LEU:HD21 | 2:D:197:ARG:HB2 | 1.83 | 0.60 |
| 4:F:119:PRO:HB3 | 4:F:147:TYR:HB3 | 1.82 | 0.60 |
| 3:G:132:LEU:O | 3:G:148:TRP:CH2 | 2.53 | 0.60 |
| 3:G:193:SER:HB3 | 3:G:195:GLN:NE2 | 2.14 | 0.60 |
| 1:C:193:ASP:OD1 | 1:C:193:ASP:N | 2.32 | 0.60 |
| 4:H:33:TRP:CH2 | 4:H:52:LYS:HE2 | 2.36 | 0.60 |
| 1:A:57:GLU:C | 1:A:59:GLN:H | 2.05 | 0.60 |
| 1:C:116:ALA:HB2 | 1:C:167:VAL:HG11 | 1.82 | 0.60 |
| 1:C:170:MET:HA | 2:D:171:GLY:HA2 | 1.84 | 0.60 |
| 3:E:19:VAL:HG22 | 3:E:20:LYS:N | 2.15 | 0.60 |
| 3:E:140:TYR:HD1 | 3:E:173:TYR:CE2 | 2.14 | 0.60 |
| 4:F:83:ARG:C | 4:F:111:VAL:HG11 | 2.22 | 0.60 |
| 3:G:96:LEU:HD12 | 4:H:47:TRP:NE1 | 2.17 | 0.60 |
| 2:B:131:GLU:HA | 2:B:145:LEU:HD23 | 1.84 | 0.60 |
| 1:C:52:ASP:O | 1:C:53:ASN:HB2 | 2.01 | 0.60 |
| 3:G:80:PRO:C | 3:G:82:ASP:H | 2.02 | 0.60 |
| 1:A:140:LEU:HD13 | 1:A:141:CYS:H | 1.67 | 0.60 |
| 2:B:95:SER:HB3 | 2:B:106:GLN:HG2 | 1.84 | 0.60 |
| 1:C:89:TYR:OH | 2:D:37:GLN:NE2 | 2.35 | 0.60 |
| 3:E:118:PHE:CZ | 4:F:140:LEU:HA | 2.36 | 0.60 |
| 4:F:3:TYR:N | 4:F:25:SER:O | 2.35 | 0.60 |
| 4:H:153:THR:HG23 | 4:H:211:ALA:CB | 2.22 | 0.60 |
| 1:A:171:LYS:N | 2:B:170:SER:OG | 2.35 | 0.60 |
| 2:B:125:PRO:HD2 | 2:B:237:ILE:HD12 | 1.84 | 0.60 |
| 2:B:169:HIS:O | 2:B:172:VAL:HG22 | 2.02 | 0.60 |
| 3:E:167:GLN:O | 3:E:170:GLY:C | 2.40 | 0.60 |
| 4:F:57:THR:HG21 | 4:F:59:TYR:CZ | 2.35 | 0.60 |
| 1:C:19:LYS:HA | 1:C:75:LEU:O | 2.02 | 0.60 |
| 2:D:51:GLU:OE2 | 2:D:73:TYR:OH | 2.18 | 0.60 |
| 4:F:138:VAL:O | 4:F:192:THR:HA | 2.02 | 0.60 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 1:A:77:LYS:HE2 | 1:A:79:SER:O | 2.01 | 0.60 |
| 1:A:155:THR:HG23 | 1:A:160:THR:HG22 | 1.83 | 0.60 |
| 2:B:131:GLU:HA | 2:B:145:LEU:CD2 | 2.31 | 0.60 |
| 4:H:33:TRP:CZ2 | 4:H:53:ASN:ND2 | 2.69 | 0.60 |
| 1:A:15:GLY:O | 1:A:79:SER:HA | 2.02 | 0.60 |
| 1:C:68:LYS:O | 1:C:69:SER:C | 2.39 | 0.60 |
| 1:C:170:MET:HA | 2:D:171:GLY:CA | 2.32 | 0.60 |
| 4:H:52(A):ASN:ND2 | 4:H:52(A):ASN:N | 2.48 | 0.60 |
| 4:H:141:GLY:O | 4:H:225:ILE:HD11 | 2.02 | 0.60 |
| 4:H:174:PHE:HD1 | 4:H:174:PHE:H | 1.49 | 0.60 |
| 3:G:21:ILE:O | 3:G:72:THR:HG23 | 2.02 | 0.59 |
| 2:D:128:SER:HB3 | 2:D:130:PHE:HE1 | 1.67 | 0.59 |
| 3:E:166:LYS:CG | 3:E:167:GLN:H | 2.14 | 0.59 |
| 4:F:191:VAL:HG13 | 4:F:191:VAL:O | 2.02 | 0.59 |
| 4:H:174:PHE:N | 4:H:174:PHE:CD1 | 2.70 | 0.59 |
| 3:E:148:TRP:CE3 | 3:E:179:LEU:HD13 | 2.36 | 0.59 |
| 4:F:109:VAL:O | 4:F:109:VAL:HG12 | 2.02 | 0.59 |
| 3:G:80:PRO:O | 3:G:82:ASP:N | 2.35 | 0.59 |
| 1:C:47:LEU:HD13 | 1:C:56:THR:HG21 | 1.84 | 0.59 |
| 4:F:29:PHE:CE1 | 4:F:71:ARG:NH1 | 2.66 | 0.59 |
| 1:A:203:ASN:O | 1:A:204:ALA:CB | 2.50 | 0.59 |
| 2:B:226:PRO:HG3 | 3:E:50:MET:SD | 2.42 | 0.59 |
| 2:D:118:ASP:OD1 | 2:D:120:ARG:HD3 | 2.03 | 0.59 |
| 4:F:150:GLU:HB3 | 4:F:151:PRO:CD | 2.32 | 0.59 |
| 3:E:25:GLY:CA | 3:E:28:LEU:HG | 2.28 | 0.59 |
| 4:H:148:PHE:O | 4:H:185:TYR:CD2 | 2.55 | 0.59 |
| 1:A:155:THR:CG2 | 1:A:160:THR:O | 2.42 | 0.59 |
| 1:C:77:LYS:NZ | 1:C:84:ASP:OD2 | 2.35 | 0.59 |
| 3:G:122:PRO:HG3 | 4:H:228:ARG:CZ | 2.32 | 0.59 |
| 3:G:206:GLU:O | 3:G:208:SER:N | 2.36 | 0.59 |
| 1:A:55:ARG:CZ | 1:A:57:GLU:HG2 | 2.32 | 0.59 |
| 2:B:60:LEU:HD11 | 2:B:65:PHE:HB2 | 1.84 | 0.59 |
| 4:F:125:ALA:C | 4:F:127:ALA:H | 2.05 | 0.59 |
| 4:F:174:PHE:O | 4:F:187:LEU:CD1 | 2.50 | 0.59 |
| 4:H:107:THR:HG23 | 4:H:107:THR:O | 2.02 | 0.59 |
| 2:D:74:HIS:NE2 | 2:D:76:GLU:HG2 | 2.17 | 0.59 |
| 2:D:167:GLU:HG2 | 2:D:169:HIS:HE1 | 1.67 | 0.59 |
| 2:D:172:VAL:HG12 | 2:D:196:LEU:HD13 | 1.84 | 0.59 |
| 4:F:138:VAL:N | 4:F:193:VAL:O | 2.34 | 0.59 |
| 1:A:102:TYR:CB | 2:B:98:TRP:NE1 | 2.64 | 0.59 |
| 1:A:168:LEU:C | 1:A:168:LEU:CD1 | 2.64 | 0.59 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|--------------------|--------------------------|-------------------|
| 3:E:150:ALA:HA | 3:E:191:ARG:O | 2.03 | 0.59 |
| 4:F:93:THR:HG21 | 4:F:100(A):PHE:HD1 | 1.68 | 0.59 |
| 3:G:63:SER:OG | 3:G:74:THR:HB | 2.03 | 0.59 |
| 3:G:148:TRP:HZ2 | 3:G:177:SER:O | 1.86 | 0.59 |
| 1:A:68:LYS:O | 1:A:71:SER:N | 2.28 | 0.58 |
| 4:H:68:THR:O | 4:H:80:LEU:HD12 | 2.03 | 0.58 |
| 2:B:221:GLU:C | 2:B:223:ASP:N | 2.57 | 0.58 |
| 2:D:119:LEU:O | 2:D:121:ASN:N | 2.35 | 0.58 |
| 3:E:41:ASP:HB3 | 3:E:43:ASN:OD1 | 2.03 | 0.58 |
| 4:F:40:ALA:HB3 | 4:F:43:LYS:CD | 2.33 | 0.58 |
| 4:H:121:VAL:HG11 | 4:H:210:VAL:HG21 | 1.83 | 0.58 |
| 4:H:128:CYS:O | 4:H:130:SER:N | 2.35 | 0.58 |
| 2:B:29:HIS:HB3 | 2:B:95:SER:O | 2.04 | 0.58 |
| 4:F:40:ALA:HB3 | 4:F:43:LYS:CB | 2.23 | 0.58 |
| 3:G:43:ASN:HD22 | 3:G:43:ASN:N | 1.89 | 0.58 |
| 3:G:121:SER:OG | 3:G:123:GLU:HG2 | 2.03 | 0.58 |
| 4:H:210:VAL:HB | 4:H:219:VAL:HG11 | 1.85 | 0.58 |
| 1:C:128:LEU:HB3 | 2:D:131:GLU:O | 2.04 | 0.58 |
| 1:A:47:LEU:CB | 1:A:55:ARG:HD2 | 2.25 | 0.58 |
| 3:E:108:GLY:N | 3:E:109:PRO:CD | 2.65 | 0.58 |
| 4:F:115:THR:CG2 | 4:F:116:THR:N | 2.67 | 0.58 |
| 3:G:19:VAL:HG22 | 3:G:20:LYS:H | 1.68 | 0.58 |
| 2:B:71:ASP:C | 2:B:73:TYR:H | 2.06 | 0.58 |
| 2:B:105:GLU:CD | 2:D:96:LEU:HD23 | 2.24 | 0.58 |
| 2:B:223:ASP:CG | 2:B:223:ASP:O | 2.42 | 0.58 |
| 3:E:139:PHE:CE2 | 3:E:173:TYR:CB | 2.87 | 0.58 |
| 2:D:51:GLU:O | 2:D:52:LYS:HB3 | 2.03 | 0.58 |
| 2:D:206:PRO:HA | 2:D:243:GLY:HA3 | 1.85 | 0.58 |
| 3:E:128:ASN:O | 3:E:129:LYS:HD3 | 2.03 | 0.58 |
| 4:F:157:TRP:HZ3 | 4:F:225:ILE:CD1 | 2.17 | 0.58 |
| 3:E:28:LEU:HD12 | 3:E:69:THR:O | 2.04 | 0.58 |
| 3:G:192:VAL:HG23 | 3:G:212:ALA:HB1 | 1.85 | 0.58 |
| 3:G:192:VAL:N | 3:G:212:ALA:HB3 | 2.18 | 0.58 |
| 2:B:9:ARG:HD2 | 2:B:110:PRO:HB2 | 1.86 | 0.57 |
| 2:D:118:ASP:OD2 | 2:D:120:ARG:HB2 | 2.03 | 0.57 |
| 1:A:5:GLN:HE21 | 1:A:107:GLY:HA3 | 1.67 | 0.57 |
| 3:E:148:TRP:CH2 | 3:E:179:LEU:HB2 | 2.39 | 0.57 |
| 3:E:163:LYS:NZ | 3:E:175:THR:HG23 | 2.18 | 0.57 |
| 3:E:205:VAL:CG1 | 3:E:207:LYS:HD3 | 2.34 | 0.57 |
| 4:F:133:SER:O | 4:F:135:THR:N | 2.35 | 0.57 |
| 3:G:25:GLY:HA3 | 3:G:28:LEU:HG | 1.86 | 0.57 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 4:H:195:SER:HA | 4:H:199:TRP:HZ3 | 1.68 | 0.57 |
| 1:C:47:LEU:HD13 | 1:C:56:THR:HG22 | 1.86 | 0.57 |
| 2:D:154:PRO:C | 2:D:156:HIS:H | 2.06 | 0.57 |
| 3:G:198:HIS:N | 3:G:205:VAL:HB | 2.20 | 0.57 |
| 1:A:87:LEU:HD13 | 1:A:89:TYR:CE2 | 2.39 | 0.57 |
| 1:A:205:THR:C | 1:A:206:TYR:HD1 | 2.08 | 0.57 |
| 2:B:34:TRP:O | 2:B:46:LEU:HB2 | 2.04 | 0.57 |
| 2:B:50:TYR:CE2 | 2:B:97:ARG:HB3 | 2.38 | 0.57 |
| 2:B:214:VAL:O | 2:B:214:VAL:HG12 | 2.03 | 0.57 |
| 2:D:40:GLY:C | 2:D:41:LYS:HG2 | 2.23 | 0.57 |
| 3:E:164:PRO:HG3 | 4:F:175:PRO:CG | 2.35 | 0.57 |
| 4:F:124:LEU:HG | 4:F:141:GLY:C | 2.24 | 0.57 |
| 4:F:147:TYR:CE1 | 4:F:185:TYR:O | 2.58 | 0.57 |
| 4:H:17:SER:HA | 4:H:82:MET:O | 2.04 | 0.57 |
| 1:A:38:TYR:O | 1:A:41:GLU:HB2 | 2.05 | 0.57 |
| 2:B:202:PHE:CE1 | 2:B:208:ASN:ND2 | 2.72 | 0.57 |
| 2:D:180:LYS:HG2 | 2:D:190:TYR:CZ | 2.39 | 0.57 |
| 2:D:229:SER:HA | 4:H:33:TRP:CZ2 | 2.40 | 0.57 |
| 1:C:21:ASN:HB2 | 5:C:214:NAG:HN2 | 1.69 | 0.57 |
| 1:C:144:THR:HG22 | 1:C:145:ASP:OD1 | 2.05 | 0.57 |
| 2:D:13:LYS:HD2 | 2:D:19:SER:HB2 | 1.87 | 0.57 |
| 2:D:40:GLY:C | 2:D:41:LYS:HG3 | 2.21 | 0.57 |
| 2:D:225:TRP:CD2 | 2:D:226:PRO:HD2 | 2.39 | 0.57 |
| 3:G:123:GLU:HA | 3:G:126:ARG:HB2 | 1.87 | 0.57 |
| 3:G:192:VAL:CB | 3:G:212:ALA:CB | 2.82 | 0.57 |
| 4:H:19:LYS:HE3 | 4:H:81:GLN:HG2 | 1.85 | 0.57 |
| 4:H:141:GLY:CA | 4:H:189:SER:O | 2.53 | 0.57 |
| 2:D:8:PRO:O | 2:D:112:THR:OG1 | 2.19 | 0.57 |
| 3:E:52:ASN:C | 3:E:52:ASN:OD1 | 2.42 | 0.57 |
| 3:E:211:PRO:O | 3:E:212:ALA:O | 2.22 | 0.57 |
| 4:H:126:PRO:O | 4:H:127:ALA:CB | 2.53 | 0.57 |
| 1:A:159:GLY:O | 1:A:184:SER:HA | 2.05 | 0.57 |
| 1:C:186:GLN:O | 1:C:188:SER:N | 2.36 | 0.57 |
| 2:D:60:LEU:HD12 | 2:D:61:PRO:CD | 2.34 | 0.57 |
| 4:F:9:GLY:HA3 | 4:F:108:MET:O | 2.04 | 0.57 |
| 3:G:2:TYR:CD1 | 3:G:2:TYR:N | 2.72 | 0.57 |
| 2:B:114:LEU:HG | 2:B:115:THR:N | 2.20 | 0.57 |
| 1:C:125:VAL:CG2 | 1:C:125:VAL:O | 2.52 | 0.57 |
| 2:D:180:LYS:HG2 | 2:D:190:TYR:CE2 | 2.40 | 0.57 |
| 2:D:205:ASN:HB3 | 2:D:208:ASN:ND2 | 2.20 | 0.57 |
| 3:G:34:TYR:HB2 | 3:G:89:LEU:HB3 | 1.87 | 0.57 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 3:G:115:VAL:HB | 3:G:209:LEU:HD13 | 1.86 | 0.57 |
| 4:H:52(A):ASN:H | 4:H:52(A):ASN:HD22 | 1.50 | 0.57 |
| 4:H:59:TYR:O | 4:H:64:ARG:NH2 | 2.38 | 0.57 |
| 4:H:63:VAL:HG12 | 4:H:66:ARG:CZ | 2.35 | 0.57 |
| 1:A:47:LEU:CB | 1:A:55:ARG:NH1 | 2.66 | 0.57 |
| 2:D:134:LYS:H | 2:D:134:LYS:HE2 | 1.69 | 0.57 |
| 3:E:203:GLU:C | 3:E:205:VAL:N | 2.57 | 0.57 |
| 4:F:22:CYS:HB3 | 4:F:78:ILE:HG13 | 1.87 | 0.57 |
| 4:H:52(A):ASN:HA | 4:H:71:ARG:HH21 | 1.68 | 0.57 |
| 4:H:164:GLY:O | 4:H:165:ALA:C | 2.43 | 0.57 |
| 2:D:127:VAL:HG23 | 2:D:237:ILE:CG2 | 2.35 | 0.56 |
| 2:D:153:PHE:CD2 | 2:D:154:PRO:HD3 | 2.40 | 0.56 |
| 4:F:39:GLN:O | 4:F:88:ALA:HB1 | 2.04 | 0.56 |
| 4:H:84:VAL:HA | 4:H:111:VAL:O | 2.05 | 0.56 |
| 1:C:66:LEU:HG | 1:C:67:HIS:N | 2.20 | 0.56 |
| 1:C:144:THR:CG2 | 1:C:145:ASP:H | 2.16 | 0.56 |
| 2:D:1:ASP:O | 2:D:26:ILE:HA | 2.05 | 0.56 |
| 2:D:10:HIS:HD2 | 2:D:156:HIS:HD2 | 1.53 | 0.56 |
| 2:D:134:LYS:H | 2:D:134:LYS:CD | 2.17 | 0.56 |
| 3:E:17:GLU:O | 3:E:78:ALA:N | 2.37 | 0.56 |
| 4:F:52(A):ASN:ND2 | 4:F:52(A):ASN:H | 2.02 | 0.56 |
| 4:H:38:ARG:HB3 | 4:H:90:TYR:CE2 | 2.40 | 0.56 |
| 1:C:189:PHE:HB3 | 1:C:194:ILE:HD12 | 1.86 | 0.56 |
| 1:C:195:PHE:O | 1:C:198:THR:HG23 | 2.06 | 0.56 |
| 3:E:198:HIS:O | 3:E:203:GLU:O | 2.22 | 0.56 |
| 3:G:108:GLY:N | 3:G:109:PRO:CD | 2.68 | 0.56 |
| 3:G:186:TRP:HA | 3:G:189:HIS:HB2 | 1.87 | 0.56 |
| 3:G:191:ARG:HG3 | 3:G:213:GLU:OE2 | 2.05 | 0.56 |
| 4:H:140:LEU:O | 4:H:190:SER:HA | 2.06 | 0.56 |
| 1:A:12:VAL:O | 1:A:115:ILE:HG13 | 2.05 | 0.56 |
| 4:F:36:TRP:C | 4:F:37:VAL:HG23 | 2.26 | 0.56 |
| 4:F:141:GLY:HA3 | 4:F:189:SER:O | 2.06 | 0.56 |
| 4:F:205:ILE:O | 4:F:225:ILE:HD12 | 2.05 | 0.56 |
| 3:G:116:THR:O | 3:G:116:THR:HG22 | 2.03 | 0.56 |
| 3:G:214:CYS:HB2 | 3:G:215:LEU:CD2 | 2.35 | 0.56 |
| 4:H:138:VAL:CG2 | 4:H:199:TRP:CH2 | 2.88 | 0.56 |
| 1:A:144:THR:CG2 | 1:A:145:ASP:H | 2.18 | 0.56 |
| 4:H:199:TRP:NE1 | 4:H:200:PRO:HD3 | 2.19 | 0.56 |
| 2:D:68:GLN:H | 2:D:68:GLN:NE2 | 2.03 | 0.56 |
| 4:F:148:PHE:O | 4:F:149:PRO:O | 2.22 | 0.56 |
| 1:A:129:LYS:HE3 | 1:A:210:ASP:OD2 | 2.05 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 3:E:13:VAL:HB | 3:E:19:VAL:HB | 1.88 | 0.56 |
| 1:A:143:PHE:O | 1:A:146:PHE:HE2 | 1.89 | 0.56 |
| 2:D:84:LEU:HD21 | 2:D:117:GLU:HG2 | 1.86 | 0.56 |
| 1:A:48:LYS:NZ | 2:B:100:ASP:CB | 2.67 | 0.56 |
| 4:F:11:LEU:HA | 4:F:110:THR:O | 2.06 | 0.56 |
| 4:F:71:ARG:HD3 | 4:F:78:ILE:HG22 | 1.88 | 0.56 |
| 4:F:198:THR:HG22 | 4:F:199:TRP:N | 2.19 | 0.56 |
| 3:G:114:LYS:HD3 | 3:G:138:ASP:HB2 | 1.88 | 0.56 |
| 4:H:75:ARG:O | 4:H:76:ASN:HB2 | 2.06 | 0.56 |
| 4:F:133:SER:C | 4:F:135:THR:N | 2.59 | 0.56 |
| 4:H:147:TYR:O | 4:H:185:TYR:N | 2.38 | 0.56 |
| 4:H:152:VAL:HB | 4:H:211:ALA:O | 2.06 | 0.56 |
| 1:C:126:TYR:CE1 | 2:D:136:GLU:HG3 | 2.39 | 0.55 |
| 4:F:157:TRP:CZ3 | 4:F:225:ILE:HD11 | 2.41 | 0.55 |
| 4:F:210:VAL:N | 4:F:219:VAL:O | 2.39 | 0.55 |
| 1:A:89:TYR:OH | 2:B:37:GLN:NE2 | 2.38 | 0.55 |
| 1:A:127:GLN:OE1 | 1:A:208:SER:HB3 | 2.06 | 0.55 |
| 2:B:105:GLU:OE2 | 2:D:96:LEU:HD23 | 2.06 | 0.55 |
| 2:D:219:LEU:HD12 | 2:D:219:LEU:N | 2.20 | 0.55 |
| 3:G:17:GLU:O | 3:G:78:ALA:N | 2.39 | 0.55 |
| 4:H:18:LEU:CD1 | 4:H:109:VAL:HG22 | 2.35 | 0.55 |
| 1:A:82:LEU:CD2 | 1:A:114:VAL:HG22 | 2.30 | 0.55 |
| 1:A:203:ASN:ND2 | 5:A:216:NAG:O7 | 2.40 | 0.55 |
| 1:C:104:TYR:HE1 | 1:C:106:PHE:CZ | 2.23 | 0.55 |
| 3:G:164:PRO:HB3 | 4:H:175:PRO:CG | 2.36 | 0.55 |
| 1:A:46:LEU:CD1 | 1:A:59:GLN:OE1 | 2.55 | 0.55 |
| 1:A:46:LEU:O | 1:A:47:LEU:HB3 | 2.06 | 0.55 |
| 2:B:172:VAL:HG12 | 2:B:196:LEU:HD13 | 1.88 | 0.55 |
| 2:D:159:LEU:HD13 | 2:D:194:SER:HB3 | 1.88 | 0.55 |
| 4:F:57:THR:HG22 | 4:F:58:GLU:N | 2.21 | 0.55 |
| 4:F:82:MET:SD | 4:F:82(C):LEU:HD21 | 2.47 | 0.55 |
| 3:G:91:SER:HA | 3:G:95(B):ASP:O | 2.06 | 0.55 |
| 3:G:115:VAL:HG12 | 3:G:116:THR:N | 2.20 | 0.55 |
| 3:G:171:GLN:HG2 | 3:G:171:GLN:O | 2.05 | 0.55 |
| 4:H:174:PHE:HB3 | 4:H:175:PRO:CD | 2.36 | 0.55 |
| 1:A:140:LEU:HD21 | 1:A:181:ILE:HD12 | 1.89 | 0.55 |
| 1:A:171:LYS:CE | 2:B:170:SER:HB2 | 2.36 | 0.55 |
| 4:H:38:ARG:HD2 | 4:H:90:TYR:CE2 | 2.42 | 0.55 |
| 2:B:113:ARG:HD2 | 2:B:156:HIS:ND1 | 2.15 | 0.55 |
| 3:E:66:THR:CA | 3:E:71:ALA:HA | 2.35 | 0.55 |
| 4:F:52(A):ASN:HD22 | 4:F:52(A):ASN:N | 2.05 | 0.55 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 3:G:113:PRO:HD2 | 3:G:207:LYS:HZ3 | 1.71 | 0.55 |
| 1:C:36:VAL:HG13 | 1:C:36:VAL:O | 2.07 | 0.55 |
| 1:C:145:ASP:HB2 | 2:D:140:LYS:HZ3 | 1.68 | 0.55 |
| 1:C:162:ILE:HD12 | 1:C:162:ILE:N | 2.21 | 0.55 |
| 3:E:48:ILE:CG2 | 3:E:49:TYR:N | 2.70 | 0.55 |
| 4:F:10:ASP:CG | 4:F:11:LEU:N | 2.59 | 0.55 |
| 3:G:175:THR:CG2 | 3:G:176:SER:N | 2.70 | 0.55 |
| 2:B:6:GLN:OE1 | 2:B:111:GLY:HA2 | 2.06 | 0.55 |
| 2:B:50:TYR:CE2 | 2:B:97:ARG:HB2 | 2.41 | 0.55 |
| 2:B:127:VAL:HG11 | 2:B:238:SER:HA | 1.89 | 0.55 |
| 3:E:181:LEU:HD11 | 3:E:185:GLN:HB3 | 1.89 | 0.55 |
| 3:G:141:PRO:CG | 3:G:142:GLY:H | 2.20 | 0.55 |
| 4:H:34:MET:C | 4:H:35:TYR:CD1 | 2.81 | 0.55 |
| 4:F:16:SER:OG | 4:F:17:SER:N | 2.39 | 0.55 |
| 4:F:37:VAL:HG13 | 4:F:47:TRP:HA | 1.87 | 0.55 |
| 4:F:40:ALA:HB1 | 4:F:43:LYS:HD3 | 1.88 | 0.55 |
| 3:G:192:VAL:CG2 | 3:G:212:ALA:CB | 2.84 | 0.55 |
| 4:H:78:ILE:O | 4:H:78:ILE:HG13 | 2.04 | 0.55 |
| 1:A:144:THR:CG2 | 1:A:145:ASP:N | 2.69 | 0.54 |
| 1:A:171:LYS:HB2 | 2:B:170:SER:CB | 2.36 | 0.54 |
| 2:B:227:GLU:O | 4:F:95:ALA:HB1 | 2.07 | 0.54 |
| 4:F:147:TYR:HB2 | 4:F:212:HIS:CE1 | 2.42 | 0.54 |
| 3:G:144:ALA:HB2 | 3:G:198:HIS:HA | 1.90 | 0.54 |
| 4:H:29:PHE:CE2 | 4:H:71:ARG:HD2 | 2.41 | 0.54 |
| 1:A:190:THR:HG22 | 1:A:192:GLN:N | 2.21 | 0.54 |
| 4:F:157:TRP:CH2 | 4:F:208:CYS:HB3 | 2.42 | 0.54 |
| 4:F:157:TRP:HZ2 | 4:F:189:SER:O | 1.91 | 0.54 |
| 3:G:181:LEU:HD21 | 3:G:189:HIS:ND1 | 2.22 | 0.54 |
| 4:H:38:ARG:HB3 | 4:H:90:TYR:CD2 | 2.42 | 0.54 |
| 1:C:39:LEU:HD13 | 1:C:40:ASN:HB2 | 1.88 | 0.54 |
| 4:F:154:VAL:HG22 | 4:F:210:VAL:HG13 | 1.90 | 0.54 |
| 1:A:48:LYS:HZ1 | 2:B:100:ASP:CG | 2.11 | 0.54 |
| 1:A:102:TYR:HB3 | 2:B:98:TRP:CD1 | 2.43 | 0.54 |
| 4:F:72:ASP:OD1 | 4:F:74:SER:OG | 2.17 | 0.54 |
| 3:G:11:ALA:O | 3:G:104:LEU:HA | 2.07 | 0.54 |
| 4:H:32:PHE:CD1 | 4:H:96:GLY:CA | 2.90 | 0.54 |
| 1:A:123:PRO:HB2 | 1:A:203:ASN:O | 2.08 | 0.54 |
| 2:B:223:ASP:HB2 | 2:B:231:LYS:HZ2 | 1.71 | 0.54 |
| 1:C:55:ARG:HH21 | 1:C:63:HIS:CD2 | 2.24 | 0.54 |
| 3:E:35:TRP:CH2 | 3:E:88:CYS:HB3 | 2.42 | 0.54 |
| 4:F:68:THR:HG23 | 4:F:69:ILE:H | 1.71 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 4:F:148:PHE:H | 4:F:149:PRO:CD | 2.20 | 0.54 |
| 2:B:10:HIS:HD2 | 2:B:156:HIS:ND1 | 2.06 | 0.54 |
| 2:D:129:LEU:HD11 | 2:D:145:LEU:HD22 | 1.89 | 0.54 |
| 3:E:43:ASN:ND2 | 3:E:43:ASN:N | 2.52 | 0.54 |
| 3:E:117:VAL:HG11 | 3:E:211:PRO:HG2 | 1.89 | 0.54 |
| 3:E:170:GLY:O | 3:E:171:GLN:CB | 2.55 | 0.54 |
| 4:F:19:LYS:HE3 | 4:F:81:GLN:HE21 | 1.72 | 0.54 |
| 4:F:199:TRP:C | 4:F:202:LYS:N | 2.60 | 0.54 |
| 3:G:58:ILE:CG2 | 3:G:59:PRO:HD2 | 2.37 | 0.54 |
| 3:G:146:VAL:CG1 | 3:G:196:VAL:CG2 | 2.71 | 0.54 |
| 1:C:147:ASP:O | 1:C:150:ILE:HG12 | 2.07 | 0.54 |
| 3:E:149:LYS:HA | 3:E:154:THR:HA | 1.90 | 0.54 |
| 3:E:163:LYS:N | 3:E:164:PRO:CD | 2.71 | 0.54 |
| 4:F:68:THR:O | 4:F:69:ILE:HG13 | 2.08 | 0.54 |
| 3:G:132:LEU:HD22 | 3:G:192:VAL:CG1 | 2.21 | 0.54 |
| 3:G:182:THR:HG23 | 3:G:185:GLN:CD | 2.27 | 0.54 |
| 3:G:193:SER:CB | 3:G:195:GLN:NE2 | 2.70 | 0.54 |
| 2:B:105:GLU:HG3 | 2:B:107:TYR:OH | 2.07 | 0.54 |
| 1:C:91:ALA:HB1 | 1:C:105:VAL:O | 2.08 | 0.54 |
| 3:G:55:PRO:HG2 | 3:G:58:ILE:HG13 | 1.90 | 0.54 |
| 3:G:117:VAL:HG23 | 3:G:209:LEU:HD22 | 1.90 | 0.54 |
| 4:H:142:CYS:O | 4:H:188:SER:HA | 2.07 | 0.54 |
| 1:A:55:ARG:HD3 | 1:A:55:ARG:C | 2.28 | 0.54 |
| 2:D:229:SER:CB | 2:D:230:PRO:HD2 | 2.38 | 0.54 |
| 4:F:36:TRP:C | 4:F:37:VAL:CG2 | 2.76 | 0.54 |
| 3:G:163:LYS:N | 3:G:164:PRO:CD | 2.70 | 0.54 |
| 4:H:171:VAL:CG1 | 4:H:172:HIS:N | 2.71 | 0.54 |
| 4:H:212:HIS:N | 4:H:217:THR:HB | 2.23 | 0.54 |
| 4:F:83:ARG:O | 4:F:86:ASP:HB2 | 2.08 | 0.54 |
| 4:F:157:TRP:HZ3 | 4:F:225:ILE:HD11 | 1.73 | 0.54 |
| 4:H:52:LYS:HD2 | 4:H:56:ALA:HB3 | 1.90 | 0.54 |
| 4:H:137:THR:HG22 | 4:H:193:VAL:C | 2.29 | 0.54 |
| 4:H:195:SER:CA | 4:H:199:TRP:CZ3 | 2.91 | 0.54 |
| 1:A:48:LYS:O | 2:D:97:ARG:NE | 2.41 | 0.53 |
| 2:B:50:TYR:OH | 2:B:97:ARG:HB2 | 2.07 | 0.53 |
| 2:B:120:ARG:HA | 2:B:225:TRP:CH2 | 2.43 | 0.53 |
| 3:E:170:GLY:O | 3:E:171:GLN:HB3 | 2.07 | 0.53 |
| 4:H:84:VAL:C | 4:H:86:ASP:H | 2.12 | 0.53 |
| 4:H:121:VAL:HG12 | 4:H:144:VAL:HG13 | 1.89 | 0.53 |
| 1:A:92:LEU:HD12 | 1:A:92:LEU:O | 2.07 | 0.53 |
| 1:C:24:TYR:CD2 | 1:C:32:PHE:HE2 | 2.26 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 4:F:213:PRO:O | 4:F:214:ALA:O | 2.26 | 0.53 |
| 2:B:15:LYS:CD | 2:B:84:LEU:HD21 | 2.38 | 0.53 |
| 1:C:128:LEU:HD12 | 1:C:140:LEU:HD12 | 1.89 | 0.53 |
| 3:E:193:SER:OG | 3:E:210:SER:HA | 2.07 | 0.53 |
| 4:F:119:PRO:HB2 | 4:F:144:VAL:HG12 | 1.90 | 0.53 |
| 4:F:133:SER:CB | 4:F:135:THR:HG23 | 2.38 | 0.53 |
| 3:G:192:VAL:CB | 3:G:212:ALA:HB2 | 2.32 | 0.53 |
| 1:A:1:ASP:HB3 | 1:A:25:GLN:O | 2.08 | 0.53 |
| 1:A:143:PHE:HB2 | 1:A:195:PHE:CE2 | 2.44 | 0.53 |
| 2:D:167:GLU:HG2 | 2:D:169:HIS:CE1 | 2.43 | 0.53 |
| 2:D:219:LEU:O | 2:D:233:VAL:HG12 | 2.08 | 0.53 |
| 3:E:121:SER:OG | 3:E:123:GLU:HG2 | 2.07 | 0.53 |
| 3:E:148:TRP:HA | 3:E:193:SER:O | 2.07 | 0.53 |
| 4:H:17:SER:OG | 4:H:82(A):ASN:ND2 | 2.40 | 0.53 |
| 2:D:219:LEU:N | 2:D:219:LEU:CD1 | 2.72 | 0.53 |
| 3:E:117:VAL:HG23 | 3:E:209:LEU:HD11 | 1.90 | 0.53 |
| 4:F:108:MET:CB | 4:F:150:GLU:CD | 2.77 | 0.53 |
| 3:G:46:LEU:O | 3:G:58:ILE:HD11 | 2.07 | 0.53 |
| 3:G:164:PRO:HB3 | 4:H:175:PRO:HG3 | 1.91 | 0.53 |
| 4:H:2:VAL:HG11 | 4:H:102:TYR:CG | 2.43 | 0.53 |
| 4:H:29:PHE:CZ | 4:H:71:ARG:HD2 | 2.43 | 0.53 |
| 1:C:58:HIS:O | 1:C:59:GLN:C | 2.47 | 0.53 |
| 1:C:190:THR:HG22 | 1:C:193:ASP:OD1 | 2.09 | 0.53 |
| 3:E:117:VAL:N | 3:E:209:LEU:HD21 | 2.23 | 0.53 |
| 3:G:192:VAL:O | 3:G:211:PRO:CD | 2.55 | 0.53 |
| 3:E:96:LEU:HB2 | 4:F:47:TRP:CD2 | 2.43 | 0.53 |
| 4:F:3:TYR:HB2 | 4:F:25:SER:OG | 2.09 | 0.53 |
| 4:H:148:PHE:N | 4:H:149:PRO:CD | 2.62 | 0.53 |
| 4:F:51:ILE:HG23 | 4:F:51:ILE:O | 2.09 | 0.53 |
| 4:F:126:PRO:C | 4:F:128:CYS:N | 2.62 | 0.53 |
| 4:F:169:GLY:O | 4:F:191:VAL:HA | 2.08 | 0.53 |
| 1:A:101:ASN:C | 1:A:103:LYS:N | 2.60 | 0.53 |
| 2:B:36:GLN:OE1 | 2:B:38:THR:CG2 | 2.57 | 0.53 |
| 1:C:125:VAL:O | 1:C:125:VAL:HG23 | 2.09 | 0.53 |
| 3:E:140:TYR:CD1 | 3:E:141:PRO:HB3 | 2.43 | 0.53 |
| 3:G:121:SER:CB | 3:G:124:GLU:HB2 | 2.39 | 0.53 |
| 3:G:166:LYS:O | 3:G:167:GLN:C | 2.47 | 0.53 |
| 4:H:140:LEU:HD11 | 4:H:205:ILE:CG2 | 2.32 | 0.53 |
| 1:C:128:LEU:HD11 | 2:D:146:VAL:HG21 | 1.90 | 0.52 |
| 3:E:35:TRP:O | 3:E:47:LEU:N | 2.39 | 0.52 |
| 3:E:103:GLN:OE1 | 3:E:103:GLN:HA | 2.08 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 4:F:6:GLU:OE2 | 4:F:104:GLY:HA3 | 2.09 | 0.52 |
| 3:G:2:TYR:N | 3:G:2:TYR:HD1 | 2.06 | 0.52 |
| 3:G:52:ASN:O | 3:G:52:ASN:CG | 2.48 | 0.52 |
| 4:H:71:ARG:HD3 | 4:H:78:ILE:HG22 | 1.91 | 0.52 |
| 1:A:55:ARG:NH1 | 1:A:57:GLU:CG | 2.62 | 0.52 |
| 1:A:64:ALA:HB2 | 1:A:75:LEU:HA | 1.91 | 0.52 |
| 2:B:11:ILE:HD11 | 2:B:112:THR:CG2 | 2.36 | 0.52 |
| 3:E:89:LEU:HD12 | 3:E:97:VAL:O | 2.10 | 0.52 |
| 3:E:139:PHE:HZ | 3:E:175:THR:HG1 | 1.58 | 0.52 |
| 4:F:108:MET:HB3 | 4:F:150:GLU:CD | 2.30 | 0.52 |
| 3:G:61:ARG:HH12 | 3:G:79:GLN:HB2 | 1.70 | 0.52 |
| 4:H:29:PHE:CB | 4:H:76:ASN:OD1 | 2.56 | 0.52 |
| 4:H:133:SER:OG | 4:H:135:THR:CG2 | 2.56 | 0.52 |
| 4:H:144:VAL:HG13 | 4:H:210:VAL:HG11 | 1.92 | 0.52 |
| 4:H:154:VAL:O | 4:H:154:VAL:HG12 | 2.08 | 0.52 |
| 1:C:12:VAL:O | 1:C:115:ILE:N | 2.33 | 0.52 |
| 2:D:225:TRP:CE3 | 2:D:226:PRO:HD2 | 2.45 | 0.52 |
| 3:E:136:VAL:CG1 | 3:E:175:THR:O | 2.57 | 0.52 |
| 3:G:214:CYS:C | 3:G:215:LEU:HD23 | 2.29 | 0.52 |
| 1:A:12:VAL:O | 1:A:115:ILE:N | 2.39 | 0.52 |
| 2:D:36:GLN:HG3 | 2:D:90:TYR:CE1 | 2.44 | 0.52 |
| 3:E:16:GLY:O | 3:E:77:GLY:HA2 | 2.10 | 0.52 |
| 4:F:35:TYR:CE2 | 4:F:50:ARG:HD3 | 2.44 | 0.52 |
| 4:F:125:ALA:O | 4:F:127:ALA:N | 2.37 | 0.52 |
| 4:H:52:LYS:HD3 | 4:H:53:ASN:HB3 | 1.92 | 0.52 |
| 1:A:21:ASN:HD22 | 5:A:214:NAG:C7 | 2.23 | 0.52 |
| 4:H:29:PHE:CE2 | 4:H:71:ARG:NH1 | 2.70 | 0.52 |
| 4:H:215:SER:O | 4:H:216:SER:C | 2.46 | 0.52 |
| 1:A:171:LYS:CB | 2:B:170:SER:OG | 2.44 | 0.52 |
| 1:A:206:TYR:HD1 | 1:A:206:TYR:N | 2.08 | 0.52 |
| 2:D:38:THR:O | 2:D:39:LEU:C | 2.48 | 0.52 |
| 2:D:127:VAL:CG2 | 2:D:237:ILE:HG22 | 2.39 | 0.52 |
| 3:E:44:ILE:HD13 | 3:E:44:ILE:N | 2.24 | 0.52 |
| 4:F:8:GLY:CA | 4:F:20:VAL:HG13 | 2.40 | 0.52 |
| 4:F:10:ASP:OD1 | 4:F:12:VAL:HG22 | 2.09 | 0.52 |
| 4:F:212:HIS:CD2 | 4:F:214:ALA:HB2 | 2.44 | 0.52 |
| 4:H:199:TRP:CD2 | 4:H:200:PRO:HD2 | 2.43 | 0.52 |
| 2:B:71:ASP:C | 2:B:73:TYR:N | 2.63 | 0.52 |
| 2:B:137:ILE:O | 2:B:141:GLN:HA | 2.09 | 0.52 |
| 4:F:78:ILE:C | 4:F:79:TYR:CD1 | 2.83 | 0.52 |
| 3:G:37:GLN:HB2 | 3:G:47:LEU:HD11 | 1.92 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:77:LYS:NZ | 1:C:84:ASP:OD1 | 2.43 | 0.52 |
| 2:D:1:ASP:C | 2:D:3:GLY:H | 2.13 | 0.52 |
| 3:E:115:VAL:HG12 | 3:E:116:THR:N | 2.25 | 0.52 |
| 3:E:138:ASP:CA | 3:E:172:ASN:HD22 | 2.17 | 0.52 |
| 4:F:63:VAL:HB | 4:F:67:PHE:CD1 | 2.45 | 0.52 |
| 4:H:121:VAL:HG23 | 4:H:121:VAL:O | 2.10 | 0.52 |
| 1:A:6:THR:HG21 | 5:A:214:NAG:H81 | 1.91 | 0.52 |
| 1:A:171:LYS:HE3 | 2:B:170:SER:HB2 | 1.90 | 0.52 |
| 2:B:15:LYS:C | 2:B:17:GLY:H | 2.11 | 0.52 |
| 2:B:113:ARG:CD | 2:B:156:HIS:HE1 | 2.14 | 0.52 |
| 1:C:12:VAL:O | 1:C:114:VAL:HA | 2.09 | 0.52 |
| 2:D:52:LYS:CG | 2:D:53:VAL:N | 2.69 | 0.52 |
| 4:F:210:VAL:HB | 4:F:219:VAL:CG2 | 2.40 | 0.52 |
| 4:H:83:ARG:O | 4:H:86:ASP:HB2 | 2.10 | 0.52 |
| 2:D:6:GLN:HB2 | 2:D:110:PRO:HD2 | 1.91 | 0.52 |
| 3:E:2:TYR:N | 3:E:2:TYR:CD1 | 2.77 | 0.52 |
| 4:F:178:LEU:HD23 | 4:F:185:TYR:CE1 | 2.44 | 0.52 |
| 3:G:124:GLU:CD | 3:G:131:THR:HG1 | 2.12 | 0.52 |
| 3:G:159:VAL:O | 3:G:160:LYS:HG2 | 2.10 | 0.52 |
| 4:H:59:TYR:HE1 | 4:H:69:ILE:HG13 | 1.75 | 0.52 |
| 4:H:143:LEU:C | 4:H:143:LEU:HD12 | 2.30 | 0.52 |
| 4:H:148:PHE:O | 4:H:185:TYR:HE2 | 1.88 | 0.52 |
| 1:A:17:PRO:HA | 1:A:77:LYS:O | 2.10 | 0.51 |
| 1:A:55:ARG:HE | 2:D:97:ARG:HH12 | 1.50 | 0.51 |
| 1:A:92:LEU:C | 1:A:92:LEU:CD1 | 2.77 | 0.51 |
| 2:D:9:ARG:CZ | 2:D:110:PRO:HB3 | 2.40 | 0.51 |
| 3:E:117:VAL:HG11 | 3:E:211:PRO:HG3 | 1.92 | 0.51 |
| 3:E:141:PRO:HD2 | 3:E:199:GLU:HG2 | 1.92 | 0.51 |
| 4:F:97:ARG:HB3 | 4:F:98:PHE:CD1 | 2.44 | 0.51 |
| 4:F:124:LEU:HD21 | 4:F:142:CYS:CA | 2.40 | 0.51 |
| 3:G:207:LYS:O | 3:G:209:LEU:N | 2.43 | 0.51 |
| 3:G:214:CYS:O | 3:G:215:LEU:C | 2.48 | 0.51 |
| 1:A:77:LYS:HG2 | 1:A:79:SER:O | 2.10 | 0.51 |
| 3:E:107:ARG:HB2 | 3:E:109:PRO:HD2 | 1.92 | 0.51 |
| 4:F:140:LEU:O | 4:F:191:VAL:HG12 | 2.10 | 0.51 |
| 1:A:206:TYR:N | 1:A:206:TYR:CD1 | 2.75 | 0.51 |
| 2:B:45:PHE:HZ | 2:B:48:GLN:CB | 2.23 | 0.51 |
| 2:D:6:GLN:OE1 | 2:D:92:CYS:N | 2.44 | 0.51 |
| 2:D:229:SER:HA | 4:H:33:TRP:CH2 | 2.45 | 0.51 |
| 3:E:179:LEU:O | 3:E:180:SER:C | 2.48 | 0.51 |
| 4:F:77:SER:C | 4:F:78:ILE:HG23 | 2.30 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 4:H:215:SER:O | 4:H:217:THR:N | 2.42 | 0.51 |
| 1:A:68:LYS:O | 1:A:69:SER:C | 2.49 | 0.51 |
| 2:D:67:VAL:HG12 | 2:D:77:MET:HA | 1.92 | 0.51 |
| 3:G:146:VAL:CG2 | 3:G:177:SER:HB2 | 2.40 | 0.51 |
| 3:G:151:ASN:CG | 3:G:151:ASN:O | 2.48 | 0.51 |
| 4:H:156:SER:OG | 4:H:157:TRP:N | 2.42 | 0.51 |
| 1:C:125:VAL:HA | 1:C:142:LEU:O | 2.10 | 0.51 |
| 3:E:2:TYR:N | 3:E:2:TYR:HD1 | 2.09 | 0.51 |
| 3:E:107:ARG:HB2 | 3:E:140:TYR:HE2 | 1.75 | 0.51 |
| 4:F:38:ARG:HD2 | 4:F:90:TYR:CZ | 2.46 | 0.51 |
| 4:F:121:VAL:HG23 | 4:F:221:LYS:HE3 | 1.93 | 0.51 |
| 3:G:204:THR:O | 3:G:205:VAL:O | 2.29 | 0.51 |
| 1:A:19:LYS:HA | 1:A:75:LEU:O | 2.11 | 0.51 |
| 1:A:55:ARG:HH21 | 2:D:97:ARG:HH12 | 1.58 | 0.51 |
| 2:B:36:GLN:HG3 | 2:B:90:TYR:HE1 | 1.64 | 0.51 |
| 2:D:65:PHE:N | 2:D:65:PHE:CD1 | 2.77 | 0.51 |
| 1:A:164:ASP:N | 2:B:179:TYR:OH | 2.41 | 0.51 |
| 1:C:157:GLU:OE2 | 1:C:189:PHE:CE2 | 2.64 | 0.51 |
| 1:A:22:CYS:H | 1:A:74:HIS:HD2 | 1.56 | 0.51 |
| 2:B:22:THR:CG2 | 2:B:23:CYS:N | 2.74 | 0.51 |
| 4:F:38:ARG:HD2 | 4:F:90:TYR:CE2 | 2.46 | 0.51 |
| 3:G:203:GLU:HB2 | 3:G:205:VAL:CG2 | 2.37 | 0.51 |
| 4:H:199:TRP:CB | 4:H:205:ILE:HG13 | 2.40 | 0.51 |
| 3:E:43:ASN:H | 3:E:43:ASN:HD22 | 1.56 | 0.51 |
| 3:G:95:ASN:O | 3:G:95(A):ASN:C | 2.49 | 0.51 |
| 4:H:35:TYR:N | 4:H:35:TYR:HD1 | 2.09 | 0.51 |
| 4:H:212:HIS:HB3 | 4:H:217:THR:HB | 1.92 | 0.51 |
| 1:A:57:GLU:C | 1:A:59:GLN:N | 2.62 | 0.51 |
| 2:B:158:GLU:OE2 | 2:B:217:HIS:CE1 | 2.59 | 0.51 |
| 2:D:9:ARG:HD2 | 2:D:110:PRO:HB2 | 1.92 | 0.51 |
| 3:E:21:ILE:O | 3:E:72:THR:HG23 | 2.11 | 0.51 |
| 3:G:19:VAL:HG22 | 3:G:20:LYS:N | 2.26 | 0.51 |
| 4:H:32:PHE:CE1 | 4:H:96:GLY:CA | 2.92 | 0.51 |
| 1:A:144:THR:CG2 | 1:A:145:ASP:OD1 | 2.56 | 0.50 |
| 3:E:108:GLY:O | 3:E:110:LYS:N | 2.44 | 0.50 |
| 4:H:137:THR:HG22 | 4:H:193:VAL:O | 2.11 | 0.50 |
| 4:H:172:HIS:O | 4:H:174:PHE:CE1 | 2.64 | 0.50 |
| 1:A:152:VAL:CG1 | 1:A:153:PRO:HD2 | 2.40 | 0.50 |
| 2:B:45:PHE:HZ | 2:B:48:GLN:HB3 | 1.76 | 0.50 |
| 1:C:52:ASP:OD1 | 1:C:67:HIS:HA | 2.11 | 0.50 |
| 2:D:113:ARG:HD2 | 2:D:156:HIS:NE2 | 2.26 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 3:E:142:GLY:HA3 | 3:E:199:GLU:HB3 | 1.93 | 0.50 |
| 4:F:210:VAL:HB | 4:F:219:VAL:HG23 | 1.92 | 0.50 |
| 1:A:101:ASN:C | 1:A:103:LYS:H | 2.15 | 0.50 |
| 2:B:15:LYS:HD2 | 2:B:84:LEU:HD21 | 1.93 | 0.50 |
| 2:B:118:ASP:OD2 | 5:B:249:NAG:C8 | 2.60 | 0.50 |
| 3:E:28:LEU:N | 3:E:29:PRO:CD | 2.73 | 0.50 |
| 4:F:63:VAL:HG12 | 4:F:66:ARG:NH2 | 2.27 | 0.50 |
| 4:F:139:THR:CG2 | 4:F:192:THR:OG1 | 2.55 | 0.50 |
| 4:H:115:THR:CG2 | 4:H:116:THR:N | 2.75 | 0.50 |
| 4:H:138:VAL:O | 4:H:192:THR:HA | 2.12 | 0.50 |
| 1:A:17:PRO:HA | 1:A:78:SER:O | 2.11 | 0.50 |
| 1:A:165:LYS:HA | 1:A:179:GLY:O | 2.11 | 0.50 |
| 2:D:70:PHE:CD1 | 2:D:74:HIS:ND1 | 2.78 | 0.50 |
| 3:G:193:SER:HA | 3:G:211:PRO:CD | 2.36 | 0.50 |
| 4:H:101:ASP:OD1 | 4:H:102:TYR:HD1 | 1.94 | 0.50 |
| 4:H:121:VAL:O | 4:H:121:VAL:CG2 | 2.58 | 0.50 |
| 4:F:77:SER:O | 4:F:78:ILE:CG2 | 2.59 | 0.50 |
| 3:G:120:PRO:HB2 | 3:G:125:LEU:HD21 | 1.93 | 0.50 |
| 2:B:226:PRO:O | 2:B:228:GLY:N | 2.44 | 0.50 |
| 3:E:141:PRO:CG | 3:E:142:GLY:H | 2.25 | 0.50 |
| 4:H:52(A):ASN:CA | 4:H:71:ARG:HH21 | 2.25 | 0.50 |
| 1:A:22:CYS:O | 1:A:74:HIS:CD2 | 2.65 | 0.50 |
| 2:B:205:ASN:OD1 | 2:B:207:ARG:N | 2.44 | 0.50 |
| 2:D:52:LYS:H | 2:D:69:GLN:HE22 | 1.58 | 0.50 |
| 3:E:106(A):LEU:HA | 3:E:140:TYR:HH | 1.77 | 0.50 |
| 3:E:148:TRP:CE3 | 3:E:179:LEU:HB2 | 2.47 | 0.50 |
| 3:G:86:TYR:CE2 | 3:G:104:LEU:HD22 | 2.46 | 0.50 |
| 3:G:142:GLY:CA | 3:G:199:GLU:HB3 | 2.39 | 0.50 |
| 1:C:157:GLU:OE2 | 1:C:186:GLN:NE2 | 2.45 | 0.50 |
| 3:E:115:VAL:HG11 | 3:E:209:LEU:HB2 | 1.94 | 0.50 |
| 3:E:198:HIS:HB3 | 3:E:205:VAL:CG2 | 2.27 | 0.50 |
| 4:F:147:TYR:O | 4:F:185:TYR:N | 2.45 | 0.50 |
| 2:B:9:ARG:CZ | 2:B:110:PRO:CB | 2.90 | 0.50 |
| 2:B:225:TRP:HD1 | 2:B:229:SER:O | 1.95 | 0.50 |
| 4:F:8:GLY:HA3 | 4:F:20:VAL:HG13 | 1.94 | 0.50 |
| 4:F:84:VAL:O | 4:F:86:ASP:N | 2.45 | 0.50 |
| 3:G:167:GLN:HB3 | 3:G:172:ASN:HB3 | 1.93 | 0.50 |
| 4:H:38:ARG:HD2 | 4:H:90:TYR:CZ | 2.46 | 0.50 |
| 4:H:219:VAL:CG2 | 4:H:220:ASP:N | 2.74 | 0.50 |
| 2:D:47:ILE:CG2 | 2:D:60:LEU:HD22 | 2.42 | 0.49 |
| 2:D:229:SER:OG | 2:D:230:PRO:CD | 2.57 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 3:E:136:VAL:HB | 3:E:196:VAL:HG21 | 1.92 | 0.49 |
| 4:F:38:ARG:HB3 | 4:F:90:TYR:CE2 | 2.47 | 0.49 |
| 4:F:121:VAL:HA | 4:F:143:LEU:O | 2.11 | 0.49 |
| 4:H:2:VAL:CG1 | 4:H:102:TYR:CG | 2.95 | 0.49 |
| 2:B:159:LEU:HD13 | 2:B:194:SER:HB3 | 1.93 | 0.49 |
| 1:C:87:LEU:HD13 | 1:C:89:TYR:CE2 | 2.48 | 0.49 |
| 2:D:48:GLN:NE2 | 2:D:98:TRP:CZ2 | 2.80 | 0.49 |
| 3:E:136:VAL:HG22 | 3:E:136:VAL:O | 2.12 | 0.49 |
| 4:F:18:LEU:CD1 | 4:F:109:VAL:HG22 | 2.41 | 0.49 |
| 1:A:138:SER:HB2 | 2:B:130:PHE:HE2 | 1.76 | 0.49 |
| 1:C:92:LEU:C | 1:C:92:LEU:CD1 | 2.81 | 0.49 |
| 3:E:162:THR:O | 3:E:175:THR:CG2 | 2.53 | 0.49 |
| 3:G:61:ARG:HH12 | 3:G:79:GLN:CB | 2.25 | 0.49 |
| 1:A:168:LEU:HD13 | 2:B:171:GLY:HA2 | 1.93 | 0.49 |
| 2:B:219:LEU:CD1 | 2:B:219:LEU:N | 2.75 | 0.49 |
| 2:D:226:PRO:HG3 | 3:G:50:MET:CE | 2.42 | 0.49 |
| 3:E:80:PRO:C | 3:E:82:ASP:H | 2.16 | 0.49 |
| 4:F:66:ARG:HB3 | 4:F:82(B):ARG:HD3 | 1.94 | 0.49 |
| 4:F:84:VAL:C | 4:F:86:ASP:H | 2.15 | 0.49 |
| 4:H:150:GLU:HB3 | 4:H:151:PRO:HD2 | 1.95 | 0.49 |
| 1:A:147:ASP:O | 1:A:150:ILE:HG12 | 2.12 | 0.49 |
| 2:B:202:PHE:CD1 | 2:B:208:ASN:ND2 | 2.80 | 0.49 |
| 2:D:44:LYS:HG3 | 2:D:59:PHE:HD2 | 1.77 | 0.49 |
| 4:F:57:THR:HG22 | 4:F:58:GLU:H | 1.77 | 0.49 |
| 4:F:79:TYR:N | 4:F:79:TYR:HD1 | 2.08 | 0.49 |
| 4:F:149:PRO:O | 4:F:150:GLU:O | 2.31 | 0.49 |
| 2:B:125:PRO:HG2 | 2:B:237:ILE:HD12 | 1.94 | 0.49 |
| 4:F:228:ARG:HG2 | 4:F:228:ARG:O | 2.12 | 0.49 |
| 3:G:143:SER:HB3 | 3:G:163:LYS:CG | 2.36 | 0.49 |
| 3:G:203:GLU:C | 3:G:205:VAL:N | 2.62 | 0.49 |
| 4:H:35:TYR:OH | 4:H:95:ALA:HB3 | 2.12 | 0.49 |
| 4:H:128:CYS:O | 4:H:129:ASP:C | 2.50 | 0.49 |
| 4:H:141:GLY:HA2 | 4:H:157:TRP:CH2 | 2.48 | 0.49 |
| 2:D:119:LEU:O | 2:D:122:VAL:HG23 | 2.13 | 0.49 |
| 3:E:83:GLU:HB2 | 3:E:106:VAL:HG23 | 1.94 | 0.49 |
| 4:F:222:LYS:HE2 | 4:F:226:GLU:HG2 | 1.94 | 0.49 |
| 4:H:172:HIS:HB2 | 4:H:190:SER:HB3 | 1.94 | 0.49 |
| 1:A:203:ASN:ND2 | 5:A:216:NAG:C7 | 2.76 | 0.49 |
| 2:D:133:SER:O | 2:D:137:ILE:HD13 | 2.12 | 0.49 |
| 3:G:83:GLU:CB | 3:G:106:VAL:HG23 | 2.23 | 0.49 |
| 4:H:68:THR:HG23 | 4:H:69:ILE:N | 2.27 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 4:H:199:TRP:C | 4:H:202:LYS:N | 2.66 | 0.49 |
| 2:D:53:VAL:HG22 | 2:D:69:GLN:H | 1.77 | 0.49 |
| 3:E:107:ARG:C | 3:E:109:PRO:HD2 | 2.32 | 0.49 |
| 4:F:11:LEU:HB2 | 4:F:110:THR:HB | 1.94 | 0.49 |
| 3:G:181:LEU:CD2 | 3:G:185:GLN:HB3 | 2.41 | 0.49 |
| 1:A:19:LYS:C | 1:A:20:LEU:HD23 | 2.33 | 0.49 |
| 1:A:28:TYR:HB2 | 1:A:94:GLU:HG3 | 1.94 | 0.49 |
| 1:A:190:THR:HG22 | 1:A:192:GLN:HB3 | 1.94 | 0.49 |
| 1:C:106:PHE:HE2 | 2:D:35:TYR:HH | 1.61 | 0.49 |
| 2:D:131:GLU:HA | 2:D:145:LEU:HD23 | 1.94 | 0.49 |
| 3:E:25:GLY:O | 3:E:69:THR:HB | 2.13 | 0.49 |
| 3:E:48:ILE:CD1 | 3:E:64:GLY:HA3 | 2.42 | 0.49 |
| 3:E:148:TRP:CZ3 | 3:E:179:LEU:CB | 2.96 | 0.49 |
| 4:F:52(A):ASN:ND2 | 4:F:52(A):ASN:N | 2.58 | 0.49 |
| 4:F:84:VAL:HA | 4:F:111:VAL:O | 2.13 | 0.49 |
| 4:F:115:THR:HG23 | 4:F:116:THR:N | 2.28 | 0.49 |
| 2:B:224:LYS:O | 3:E:32:PHE:CE2 | 2.66 | 0.48 |
| 2:D:51:GLU:O | 2:D:52:LYS:CB | 2.60 | 0.48 |
| 2:D:96:LEU:O | 2:D:97:ARG:C | 2.51 | 0.48 |
| 3:E:203:GLU:O | 3:E:205:VAL:N | 2.46 | 0.48 |
| 3:G:106(A):LEU:HA | 3:G:140:TYR:OH | 2.13 | 0.48 |
| 3:G:136:VAL:HG13 | 3:G:175:THR:HB | 1.93 | 0.48 |
| 3:E:146:VAL:HG11 | 3:E:177:SER:CB | 2.43 | 0.48 |
| 3:E:166:LYS:O | 3:E:167:GLN:C | 2.50 | 0.48 |
| 4:H:2:VAL:HG12 | 4:H:102:TYR:CD2 | 2.48 | 0.48 |
| 1:C:146:PHE:HB2 | 1:C:150:ILE:CD1 | 2.44 | 0.48 |
| 4:F:174:PHE:HB3 | 4:F:175:PRO:HD2 | 1.93 | 0.48 |
| 3:G:140:TYR:CD1 | 3:G:141:PRO:HA | 2.48 | 0.48 |
| 1:A:11:THR:HG22 | 1:A:115:ILE:HG12 | 1.96 | 0.48 |
| 1:C:125:VAL:HG12 | 1:C:143:PHE:CD1 | 2.49 | 0.48 |
| 1:C:165:LYS:HA | 1:C:179:GLY:O | 2.13 | 0.48 |
| 4:F:35:TYR:HE1 | 4:F:95:ALA:HB3 | 1.76 | 0.48 |
| 3:G:193:SER:OG | 3:G:195:GLN:NE2 | 2.46 | 0.48 |
| 1:A:158:SER:C | 1:A:160:THR:H | 2.16 | 0.48 |
| 1:C:189:PHE:HB3 | 1:C:194:ILE:CD1 | 2.43 | 0.48 |
| 3:G:2:TYR:CE2 | 3:G:26:ASP:HB3 | 2.49 | 0.48 |
| 1:A:46:LEU:O | 1:A:57:GLU:HB2 | 2.13 | 0.48 |
| 1:A:177:SER:O | 2:B:195:ARG:NH2 | 2.41 | 0.48 |
| 1:A:194:ILE:HG22 | 1:A:195:PHE:N | 2.27 | 0.48 |
| 2:B:174:THR:HA | 2:B:194:SER:HB2 | 1.96 | 0.48 |
| 2:D:121:ASN:HA | 4:H:97:ARG:HH21 | 1.77 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 4:H:219:VAL:HG22 | 4:H:220:ASP:N | 2.28 | 0.48 |
| 1:A:58:HIS:O | 1:A:59:GLN:C | 2.51 | 0.48 |
| 1:A:129:LYS:HE2 | 1:A:210:ASP:OD2 | 2.13 | 0.48 |
| 1:C:39:LEU:HD22 | 1:C:40:ASN:N | 2.28 | 0.48 |
| 2:D:125:PRO:HB3 | 2:D:152:PHE:HB3 | 1.96 | 0.48 |
| 3:E:33:ALA:N | 3:E:51:ASP:OD1 | 2.47 | 0.48 |
| 3:E:104:LEU:HD23 | 3:E:104:LEU:C | 2.33 | 0.48 |
| 3:E:117:VAL:CG2 | 3:E:209:LEU:HD11 | 2.43 | 0.48 |
| 4:H:26:GLY:O | 4:H:27:PHE:HB3 | 2.13 | 0.48 |
| 4:H:52(A):ASN:CA | 4:H:71:ARG:NH2 | 2.77 | 0.48 |
| 4:H:82(A):ASN:O | 4:H:82(B):ARG:C | 2.52 | 0.48 |
| 1:A:53:ASN:CG | 1:A:54:LYS:N | 2.67 | 0.48 |
| 2:D:44:LYS:HG3 | 2:D:59:PHE:CD2 | 2.48 | 0.48 |
| 3:E:144:ALA:HB2 | 3:E:198:HIS:HA | 1.95 | 0.48 |
| 1:A:190:THR:HG23 | 1:A:191:CYS:N | 2.28 | 0.48 |
| 2:D:149:ALA:HB2 | 2:D:214:VAL:HG21 | 1.95 | 0.48 |
| 3:E:120:PRO:HB3 | 3:E:130:ALA:HA | 1.96 | 0.48 |
| 3:G:141:PRO:HG2 | 3:G:142:GLY:H | 1.79 | 0.48 |
| 4:H:108:MET:HB3 | 4:H:150:GLU:CD | 2.34 | 0.48 |
| 4:H:117:THR:CB | 4:H:184:LEU:HD21 | 2.44 | 0.48 |
| 2:B:97:ARG:NH2 | 1:C:56:THR:CG2 | 2.64 | 0.48 |
| 2:B:226:PRO:O | 2:B:227:GLU:C | 2.53 | 0.48 |
| 2:D:169:HIS:O | 2:D:172:VAL:HG22 | 2.14 | 0.48 |
| 3:E:86:TYR:O | 3:E:101:GLY:HA2 | 2.14 | 0.48 |
| 3:E:132:LEU:HB2 | 3:E:179:LEU:HB3 | 1.96 | 0.48 |
| 2:B:9:ARG:CD | 2:B:110:PRO:HB2 | 2.44 | 0.47 |
| 1:C:128:LEU:CD1 | 2:D:146:VAL:HG21 | 2.44 | 0.47 |
| 2:D:70:PHE:CE1 | 2:D:74:HIS:HE1 | 2.22 | 0.47 |
| 2:D:137:ILE:O | 2:D:141:GLN:HA | 2.14 | 0.47 |
| 3:E:89:LEU:CD1 | 3:E:90:SER:N | 2.69 | 0.47 |
| 4:F:184:LEU:HD23 | 4:F:184:LEU:HA | 1.73 | 0.47 |
| 3:G:138:ASP:HA | 3:G:172:ASN:ND2 | 2.29 | 0.47 |
| 4:H:40:ALA:CB | 4:H:43:LYS:HD3 | 2.44 | 0.47 |
| 2:B:79:MET:CE | 2:B:114:LEU:HD22 | 2.44 | 0.47 |
| 2:B:225:TRP:CD1 | 2:B:229:SER:O | 2.67 | 0.47 |
| 1:C:144:THR:CG2 | 1:C:145:ASP:N | 2.72 | 0.47 |
| 2:D:78:ASN:ND2 | 5:D:248:NAG:C7 | 2.77 | 0.47 |
| 3:E:166:LYS:HG2 | 3:E:167:GLN:H | 1.79 | 0.47 |
| 4:F:203:GLN:CD | 4:F:204:PRO:HD2 | 2.35 | 0.47 |
| 3:G:15:VAL:HG23 | 3:G:106(A):LEU:O | 2.13 | 0.47 |
| 3:G:48:ILE:HD13 | 3:G:64:GLY:CA | 2.44 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 4:H:51:ILE:O | 4:H:51:ILE:CG2 | 2.60 | 0.47 |
| 4:H:212:HIS:HD1 | 4:H:215:SER:H | 1.61 | 0.47 |
| 1:A:146:PHE:O | 1:A:147:ASP:C | 2.52 | 0.47 |
| 2:B:67:VAL:CG1 | 2:B:77:MET:HA | 2.40 | 0.47 |
| 2:B:226:PRO:HB2 | 4:F:100:HIS:CE1 | 2.48 | 0.47 |
| 5:B:251:NAG:O7 | 5:B:251:NAG:O3 | 2.28 | 0.47 |
| 2:D:74:HIS:CE1 | 2:D:76:GLU:CG | 2.97 | 0.47 |
| 2:D:119:LEU:C | 2:D:121:ASN:N | 2.68 | 0.47 |
| 3:E:77:GLY:O | 3:E:78:ALA:C | 2.52 | 0.47 |
| 3:E:136:VAL:CG2 | 3:E:139:PHE:CE1 | 2.90 | 0.47 |
| 4:F:35:TYR:CE1 | 4:F:95:ALA:HB3 | 2.49 | 0.47 |
| 4:F:40:ALA:O | 4:F:41:PRO:C | 2.51 | 0.47 |
| 4:F:162:ASN:HB3 | 4:F:165:ALA:HB3 | 1.97 | 0.47 |
| 3:G:37:GLN:NE2 | 3:G:45:LEU:HD23 | 2.29 | 0.47 |
| 3:G:48:ILE:CG2 | 3:G:49:TYR:N | 2.77 | 0.47 |
| 4:H:131:THR:O | 4:H:132:THR:CG2 | 2.58 | 0.47 |
| 1:A:3:VAL:HG12 | 1:A:105:VAL:CG1 | 2.44 | 0.47 |
| 2:B:122:VAL:HA | 2:B:153:PHE:O | 2.14 | 0.47 |
| 1:C:6:THR:CA | 5:C:214:NAG:H83 | 2.42 | 0.47 |
| 1:C:126:TYR:CE2 | 1:C:207:PRO:HG2 | 2.49 | 0.47 |
| 1:C:168:LEU:HD13 | 2:D:171:GLY:HA2 | 1.97 | 0.47 |
| 2:D:15:LYS:C | 2:D:17:GLY:H | 2.17 | 0.47 |
| 3:E:213:GLU:HG3 | 3:E:213:GLU:O | 2.14 | 0.47 |
| 4:F:63:VAL:HB | 4:F:67:PHE:CG | 2.50 | 0.47 |
| 4:F:215:SER:O | 4:F:216:SER:C | 2.53 | 0.47 |
| 3:G:215:LEU:HD23 | 3:G:215:LEU:N | 2.29 | 0.47 |
| 4:H:6:GLU:OE2 | 4:H:91:TYR:HA | 2.14 | 0.47 |
| 4:H:52(A):ASN:HB3 | 4:H:71:ARG:NH2 | 2.30 | 0.47 |
| 4:H:148:PHE:HA | 4:H:185:TYR:CD2 | 2.49 | 0.47 |
| 1:A:38:TYR:O | 1:A:39:LEU:C | 2.53 | 0.47 |
| 1:A:190:THR:HG23 | 1:A:192:GLN:H | 1.78 | 0.47 |
| 2:B:182:SER:HB3 | 2:B:189:SER:HB3 | 1.96 | 0.47 |
| 2:D:21:LEU:HG | 2:D:112:THR:HG21 | 1.97 | 0.47 |
| 2:D:130:PHE:N | 2:D:130:PHE:CD1 | 2.83 | 0.47 |
| 4:F:22:CYS:HB3 | 4:F:78:ILE:CG1 | 2.44 | 0.47 |
| 4:F:35:TYR:CD2 | 4:F:50:ARG:HB2 | 2.50 | 0.47 |
| 3:G:123:GLU:C | 3:G:126:ARG:HB2 | 2.35 | 0.47 |
| 4:H:40:ALA:HB3 | 4:H:43:LYS:HD3 | 1.96 | 0.47 |
| 4:H:52(A):ASN:HB3 | 4:H:71:ARG:HH22 | 1.80 | 0.47 |
| 2:B:125:PRO:CD | 2:B:237:ILE:HD12 | 2.44 | 0.47 |
| 1:C:160:THR:HG22 | 1:C:161:PHE:N | 2.30 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 3:E:39:LYS:O | 3:E:41:ASP:N | 2.47 | 0.47 |
| 3:E:146:VAL:HG13 | 3:E:194:CYS:SG | 2.55 | 0.47 |
| 4:F:2:VAL:HG13 | 4:F:27:PHE:CE1 | 2.50 | 0.47 |
| 4:F:22:CYS:O | 4:F:77:SER:HB2 | 2.14 | 0.47 |
| 3:G:175:THR:HG23 | 3:G:176:SER:N | 2.30 | 0.47 |
| 1:A:47:LEU:HA | 2:D:97:ARG:HH21 | 1.80 | 0.47 |
| 1:A:61:GLY:CA | 1:A:77:LYS:HE3 | 2.34 | 0.47 |
| 1:A:123:PRO:O | 1:A:204:ALA:HB1 | 2.14 | 0.47 |
| 2:B:49:HIS:HE1 | 2:B:55:ARG:HH21 | 1.60 | 0.47 |
| 2:B:130:PHE:CD1 | 2:B:130:PHE:N | 2.81 | 0.47 |
| 2:D:148:LEU:HG | 2:D:150:ARG:HG3 | 1.96 | 0.47 |
| 3:E:118:PHE:HZ | 4:F:140:LEU:HA | 1.80 | 0.47 |
| 4:F:148:PHE:HD1 | 4:F:149:PRO:HD3 | 1.80 | 0.47 |
| 3:G:28:LEU:N | 3:G:29:PRO:CD | 2.76 | 0.47 |
| 3:G:142:GLY:HA3 | 3:G:199:GLU:CG | 2.44 | 0.47 |
| 4:H:2:VAL:CG1 | 4:H:102:TYR:CD2 | 2.98 | 0.47 |
| 4:H:6:GLU:HB2 | 4:H:106:GLY:O | 2.15 | 0.47 |
| 4:H:19:LYS:HB2 | 4:H:81:GLN:NE2 | 2.30 | 0.47 |
| 4:H:28:THR:C | 4:H:30:SER:N | 2.66 | 0.47 |
| 4:H:68:THR:CG2 | 4:H:69:ILE:N | 2.71 | 0.47 |
| 4:H:199:TRP:O | 4:H:202:LYS:N | 2.47 | 0.47 |
| 1:A:3:VAL:HG22 | 1:A:3:VAL:O | 2.13 | 0.47 |
| 1:A:75:LEU:HD12 | 1:A:75:LEU:C | 2.31 | 0.47 |
| 1:C:44:GLN:HE21 | 1:C:44:GLN:HB2 | 1.56 | 0.47 |
| 1:C:205:THR:HG22 | 1:C:207:PRO:HD3 | 1.96 | 0.47 |
| 2:D:160:SER:N | 2:D:213:GLN:O | 2.42 | 0.47 |
| 4:F:140:LEU:HD12 | 4:F:225:ILE:HD13 | 1.93 | 0.47 |
| 3:G:50:MET:O | 3:G:52:ASN:N | 2.47 | 0.47 |
| 4:H:139:THR:HG23 | 4:H:192:THR:OG1 | 2.14 | 0.47 |
| 2:B:8:PRO:HG2 | 2:B:11:ILE:HG12 | 1.97 | 0.47 |
| 2:B:207:ARG:HD3 | 2:B:207:ARG:HA | 1.51 | 0.47 |
| 1:C:46:LEU:HD22 | 1:C:88:TYR:HE2 | 1.80 | 0.47 |
| 3:E:83:GLU:HA | 3:E:104:LEU:CD2 | 2.45 | 0.47 |
| 3:E:142:GLY:HA3 | 3:E:199:GLU:CB | 2.45 | 0.47 |
| 3:E:209:LEU:O | 3:E:211:PRO:CD | 2.35 | 0.47 |
| 4:F:87:THR:HA | 4:F:109:VAL:O | 2.14 | 0.47 |
| 3:G:80:PRO:C | 3:G:82:ASP:N | 2.68 | 0.47 |
| 2:B:39:LEU:O | 2:B:41:LYS:N | 2.47 | 0.47 |
| 2:D:29:HIS:HB3 | 2:D:95:SER:O | 2.15 | 0.47 |
| 1:A:53:ASN:C | 1:A:65:THR:HG23 | 2.35 | 0.46 |
| 2:B:219:LEU:N | 2:B:219:LEU:HD12 | 2.31 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|------------------|--------------------------|-------------------|
| 1:C:3:VAL:HA | 1:C:24:TYR:HA | 1.97 | 0.46 |
| 1:C:90:CYS:O | 1:C:107:GLY:N | 2.47 | 0.46 |
| 4:F:20:VAL:HG23 | 4:F:82:MET:HE2 | 1.97 | 0.46 |
| 4:F:148:PHE:CD1 | 4:F:149:PRO:N | 2.83 | 0.46 |
| 4:H:226:GLU:HG3 | 4:H:227:PRO:HD2 | 1.97 | 0.46 |
| 1:A:62:PHE:HB3 | 1:A:75:LEU:HD11 | 1.96 | 0.46 |
| 4:F:55:TYR:OH | 4:F:73:ASP:OD2 | 2.20 | 0.46 |
| 4:H:11:LEU:HA | 4:H:110:THR:O | 2.15 | 0.46 |
| 4:H:33:TRP:CZ3 | 4:H:52:LYS:HE2 | 2.50 | 0.46 |
| 4:H:52(B):ILE:N | 4:H:52(C):PRO:CD | 2.79 | 0.46 |
| 1:C:17:PRO:CA | 1:C:78:SER:O | 2.63 | 0.46 |
| 2:D:156:HIS:HB3 | 2:D:217:HIS:HB2 | 1.98 | 0.46 |
| 2:D:207:ARG:HD3 | 2:D:207:ARG:HA | 1.53 | 0.46 |
| 2:D:214:VAL:O | 2:D:214:VAL:HG12 | 2.16 | 0.46 |
| 2:D:219:LEU:O | 2:D:233:VAL:CG1 | 2.63 | 0.46 |
| 3:E:186:TRP:O | 3:E:189:HIS:HB2 | 2.15 | 0.46 |
| 4:F:52(B):ILE:HG23 | 4:F:55:TYR:CE2 | 2.49 | 0.46 |
| 2:B:12:ILE:C | 2:B:13:LYS:HG2 | 2.36 | 0.46 |
| 2:B:50:TYR:OH | 2:B:97:ARG:HB3 | 2.08 | 0.46 |
| 2:B:68:GLN:HE21 | 2:B:68:GLN:N | 2.10 | 0.46 |
| 2:B:84:LEU:H | 2:B:84:LEU:HG | 1.48 | 0.46 |
| 1:C:64:ALA:HB1 | 1:C:74:HIS:O | 2.15 | 0.46 |
| 1:C:171:LYS:HA | 2:D:170:SER:HG | 1.81 | 0.46 |
| 2:D:29:HIS:HA | 2:D:96:LEU:HD13 | 1.97 | 0.46 |
| 2:D:155:ASP:N | 2:D:155:ASP:OD1 | 2.49 | 0.46 |
| 3:E:154:THR:CG2 | 3:E:155:ILE:N | 2.78 | 0.46 |
| 4:F:52:LYS:O | 4:F:55:TYR:HA | 2.16 | 0.46 |
| 3:G:204:THR:O | 3:G:205:VAL:C | 2.53 | 0.46 |
| 3:G:209:LEU:O | 3:G:210:SER:C | 2.54 | 0.46 |
| 1:A:36:VAL:HG11 | 1:A:46:LEU:HD13 | 1.98 | 0.46 |
| 1:C:77:LYS:NZ | 1:C:84:ASP:CG | 2.69 | 0.46 |
| 1:C:170:MET:O | 1:C:171:LYS:C | 2.53 | 0.46 |
| 2:D:15:LYS:HD3 | 2:D:117:GLU:HA | 1.97 | 0.46 |
| 3:E:36:PHE:HA | 3:E:45:LEU:O | 2.15 | 0.46 |
| 4:F:172:HIS:O | 4:F:174:PHE:CE1 | 2.68 | 0.46 |
| 1:A:115:ILE:HG13 | 1:A:115:ILE:H | 1.50 | 0.46 |
| 2:D:218:GLY:H | 2:D:234:THR:CG2 | 2.28 | 0.46 |
| 4:F:69:ILE:HA | 4:F:79:TYR:O | 2.16 | 0.46 |
| 3:G:107:ARG:CB | 3:G:109:PRO:HD2 | 2.45 | 0.46 |
| 4:H:119:PRO:CB | 4:H:147:TYR:HB3 | 2.36 | 0.46 |
| 4:H:150:GLU:HB3 | 4:H:151:PRO:CD | 2.45 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 4:H:195:SER:HA | 4:H:199:TRP:CH2 | 2.50 | 0.46 |
| 2:B:12:ILE:HG12 | 2:B:154:PRO:HG3 | 1.98 | 0.46 |
| 2:B:64:ARG:H | 2:B:64:ARG:HG2 | 1.34 | 0.46 |
| 2:B:67:VAL:HB | 2:B:76:GLU:O | 2.15 | 0.46 |
| 2:B:156:HIS:CB | 2:B:217:HIS:HB2 | 2.46 | 0.46 |
| 1:C:28:TYR:HB2 | 1:C:94:GLU:HG3 | 1.97 | 0.46 |
| 1:C:101:ASN:O | 1:C:102:TYR:HB2 | 2.16 | 0.46 |
| 2:D:153:PHE:O | 2:D:154:PRO:C | 2.54 | 0.46 |
| 3:E:51:ASP:HB3 | 3:E:66:THR:HG21 | 1.98 | 0.46 |
| 3:E:148:TRP:O | 3:E:154:THR:HG23 | 2.15 | 0.46 |
| 4:F:212:HIS:CD2 | 4:F:214:ALA:CB | 2.99 | 0.46 |
| 3:G:198:HIS:HB3 | 3:G:205:VAL:CG2 | 2.31 | 0.46 |
| 1:A:144:THR:HA | 1:A:178:ASN:O | 2.16 | 0.46 |
| 2:B:79:MET:HB3 | 2:B:82:LEU:HD21 | 1.97 | 0.46 |
| 2:B:217:HIS:HA | 2:B:234:THR:CG2 | 2.19 | 0.46 |
| 1:C:5:GLN:HA | 1:C:21:ASN:O | 2.16 | 0.46 |
| 4:F:57:THR:CG2 | 4:F:59:TYR:CZ | 2.98 | 0.46 |
| 3:G:113:PRO:HD2 | 3:G:207:LYS:HZ1 | 1.79 | 0.46 |
| 1:A:61:GLY:O | 1:A:77:LYS:HG3 | 2.16 | 0.46 |
| 1:A:138:SER:HB2 | 2:B:130:PHE:CE2 | 2.51 | 0.46 |
| 1:A:153:PRO:C | 1:A:154:LYS:HG2 | 2.37 | 0.46 |
| 1:A:153:PRO:HD3 | 1:A:198:THR:HG23 | 1.96 | 0.46 |
| 2:B:182:SER:OG | 2:B:186:ASN:N | 2.48 | 0.46 |
| 1:C:144:THR:HG23 | 2:D:195:ARG:HH12 | 1.80 | 0.46 |
| 2:D:221:GLU:O | 2:D:223:ASP:N | 2.45 | 0.46 |
| 3:E:133:VAL:HG21 | 4:F:143:LEU:HD22 | 1.97 | 0.46 |
| 4:F:36:TRP:CD1 | 4:F:78:ILE:HD12 | 2.51 | 0.46 |
| 4:F:174:PHE:C | 4:F:187:LEU:HD11 | 2.37 | 0.46 |
| 1:A:87:LEU:CD1 | 2:B:41:LYS:HD3 | 2.45 | 0.46 |
| 2:B:6:GLN:HB2 | 2:B:110:PRO:HG2 | 1.98 | 0.46 |
| 2:B:125:PRO:HA | 2:B:152:PHE:HB3 | 1.97 | 0.46 |
| 2:B:172:VAL:HG12 | 2:B:196:LEU:CD1 | 2.46 | 0.46 |
| 1:C:87:LEU:HD13 | 1:C:89:TYR:CZ | 2.50 | 0.46 |
| 2:D:12:ILE:O | 2:D:13:LYS:HG2 | 2.16 | 0.46 |
| 3:E:2:TYR:N | 3:E:92:TYR:CE2 | 2.84 | 0.46 |
| 4:F:107:THR:O | 4:F:107:THR:HG23 | 2.15 | 0.46 |
| 3:G:13:VAL:HG11 | 3:G:78:ALA:CB | 2.46 | 0.46 |
| 1:C:181:ILE:O | 1:C:181:ILE:HG13 | 2.14 | 0.45 |
| 4:F:29:PHE:HZ | 4:F:77:SER:O | 2.00 | 0.45 |
| 4:F:212:HIS:CD2 | 4:F:214:ALA:N | 2.64 | 0.45 |
| 3:G:153:ALA:O | 3:G:154:THR:O | 2.34 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-----------------|--------------------------|-------------------|
| 2:B:38:THR:HG22 | 2:B:88:ALA:CB | 2.40 | 0.45 |
| 1:C:2:SER:O | 1:C:25:GLN:N | 2.48 | 0.45 |
| 1:C:32:PHE:N | 1:C:32:PHE:CD1 | 2.84 | 0.45 |
| 1:C:144:THR:HA | 1:C:178:ASN:O | 2.17 | 0.45 |
| 2:D:11:ILE:HD11 | 2:D:112:THR:CG2 | 2.44 | 0.45 |
| 3:G:123:GLU:CA | 3:G:126:ARG:HB2 | 2.46 | 0.45 |
| 3:G:167:GLN:O | 3:G:170:GLY:O | 2.33 | 0.45 |
| 4:H:63:VAL:HG11 | 4:H:67:PHE:CD2 | 2.51 | 0.45 |
| 2:D:59:PHE:CD1 | 2:D:59:PHE:N | 2.83 | 0.45 |
| 3:E:121:SER:O | 3:E:125:LEU:HG | 2.16 | 0.45 |
| 3:G:192:VAL:H | 3:G:212:ALA:CB | 2.29 | 0.45 |
| 4:H:28:THR:O | 4:H:30:SER:N | 2.49 | 0.45 |
| 1:A:66:LEU:HG | 1:A:67:HIS:N | 2.32 | 0.45 |
| 1:A:77:LYS:HZ2 | 1:A:84:ASP:CG | 2.19 | 0.45 |
| 2:B:105:GLU:HB3 | 2:B:107:TYR:CE2 | 2.51 | 0.45 |
| 1:C:155:THR:OG1 | 1:C:161:PHE:HA | 2.17 | 0.45 |
| 2:D:70:PHE:CD2 | 2:D:74:HIS:ND1 | 2.84 | 0.45 |
| 2:D:119:LEU:C | 2:D:121:ASN:H | 2.19 | 0.45 |
| 2:D:125:PRO:CA | 2:D:152:PHE:HB3 | 2.47 | 0.45 |
| 3:G:206:GLU:C | 3:G:208:SER:N | 2.67 | 0.45 |
| 1:A:128:LEU:HB3 | 2:B:131:GLU:O | 2.16 | 0.45 |
| 1:C:122:GLU:O | 2:D:140:LYS:NZ | 2.48 | 0.45 |
| 1:C:197:GLU:OE1 | 1:C:197:GLU:CA | 2.63 | 0.45 |
| 2:D:220:SER:HB3 | 2:D:221:GLU:H | 1.63 | 0.45 |
| 3:E:115:VAL:HG11 | 3:E:209:LEU:CB | 2.46 | 0.45 |
| 4:F:4:LEU:O | 4:F:104:GLY:HA2 | 2.15 | 0.45 |
| 3:G:154:THR:HG22 | 3:G:155:ILE:N | 2.31 | 0.45 |
| 4:H:2:VAL:HB | 4:H:102:TYR:CZ | 2.51 | 0.45 |
| 1:A:5:GLN:HE21 | 1:A:107:GLY:CA | 2.28 | 0.45 |
| 2:D:71:ASP:N | 2:D:71:ASP:OD1 | 2.49 | 0.45 |
| 2:D:223:ASP:HB3 | 2:D:231:LYS:HE3 | 1.93 | 0.45 |
| 3:E:144:ALA:CB | 3:E:196:VAL:CG1 | 2.94 | 0.45 |
| 4:F:19:LYS:HG3 | 4:F:81:GLN:HG2 | 1.98 | 0.45 |
| 4:F:147:TYR:HB2 | 4:F:212:HIS:HE1 | 1.80 | 0.45 |
| 3:G:28:LEU:HD12 | 3:G:69:THR:C | 2.37 | 0.45 |
| 4:H:81:GLN:OE1 | 4:H:81:GLN:HA | 2.17 | 0.45 |
| 1:A:36:VAL:HG23 | 1:A:88:TYR:CE2 | 2.51 | 0.45 |
| 2:B:47:ILE:CD1 | 2:B:55:ARG:NH1 | 2.80 | 0.45 |
| 2:B:225:TRP:HA | 2:B:225:TRP:CE3 | 2.52 | 0.45 |
| 1:C:145:ASP:CB | 2:D:140:LYS:NZ | 2.75 | 0.45 |
| 2:D:153:PHE:O | 2:D:155:ASP:N | 2.50 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|--------------------|--------------------------|-------------------|
| 4:F:68:THR:C | 4:F:69:ILE:HG13 | 2.37 | 0.45 |
| 3:G:164:PRO:HG3 | 4:H:175:PRO:CG | 2.46 | 0.45 |
| 4:H:199:TRP:O | 4:H:203:GLN:O | 2.34 | 0.45 |
| 2:B:5:VAL:CG2 | 2:B:24:ILE:HB | 2.43 | 0.45 |
| 1:C:92:LEU:HD12 | 1:C:92:LEU:O | 2.16 | 0.45 |
| 3:E:48:ILE:HG23 | 3:E:49:TYR:N | 2.31 | 0.45 |
| 3:E:162:THR:C | 3:E:164:PRO:HD2 | 2.37 | 0.45 |
| 3:G:150:ALA:O | 3:G:151:ASN:HB3 | 2.16 | 0.45 |
| 4:H:119:PRO:HG3 | 4:H:212:HIS:HB2 | 1.99 | 0.45 |
| 4:H:134:THR:C | 4:H:136:ASP:N | 2.68 | 0.45 |
| 1:A:22:CYS:N | 1:A:74:HIS:CD2 | 2.80 | 0.45 |
| 1:A:55:ARG:NH2 | 2:D:97:ARG:NH2 | 2.47 | 0.45 |
| 3:E:115:VAL:HG23 | 3:E:207:LYS:CG | 2.47 | 0.45 |
| 3:E:137:ASN:ND2 | 3:E:138:ASP:H | 2.15 | 0.45 |
| 3:G:29:PRO:HD3 | 3:G:69:THR:HA | 1.98 | 0.45 |
| 3:G:48:ILE:CD1 | 3:G:63:SER:C | 2.85 | 0.45 |
| 3:G:125:LEU:CD2 | 3:G:186:TRP:HE1 | 2.30 | 0.45 |
| 4:H:93:THR:OG1 | 4:H:94:ARG:N | 2.50 | 0.45 |
| 1:A:63:HIS:CE1 | 1:A:76:GLN:HG3 | 2.52 | 0.45 |
| 3:E:119:PRO:CG | 4:F:127:ALA:HB3 | 2.47 | 0.45 |
| 4:F:18:LEU:HD13 | 4:F:109:VAL:HG22 | 1.99 | 0.45 |
| 4:F:93:THR:HG21 | 4:F:100(A):PHE:CD1 | 2.52 | 0.45 |
| 4:H:55:TYR:O | 4:H:56:ALA:C | 2.56 | 0.45 |
| 2:B:14:GLU:OE2 | 2:B:118:ASP:HA | 2.17 | 0.44 |
| 1:C:161:PHE:C | 1:C:162:ILE:HD12 | 2.37 | 0.44 |
| 2:D:154:PRO:C | 2:D:156:HIS:N | 2.69 | 0.44 |
| 3:E:39:LYS:C | 3:E:41:ASP:N | 2.70 | 0.44 |
| 4:F:89:ILE:CD1 | 4:F:108:MET:SD | 3.05 | 0.44 |
| 4:H:121:VAL:CG1 | 4:H:210:VAL:HG21 | 2.46 | 0.44 |
| 4:H:199:TRP:O | 4:H:200:PRO:C | 2.55 | 0.44 |
| 1:A:85:SER:HA | 1:A:112:LEU:O | 2.17 | 0.44 |
| 2:D:84:LEU:H | 2:D:84:LEU:HG | 1.34 | 0.44 |
| 2:D:162:TRP:HB2 | 2:D:211:ARG:HB3 | 1.99 | 0.44 |
| 3:E:92:TYR:CE1 | 3:E:95(B):ASP:HB2 | 2.52 | 0.44 |
| 3:G:66:THR:HA | 3:G:71:ALA:HA | 1.98 | 0.44 |
| 3:G:132:LEU:HD12 | 3:G:132:LEU:N | 2.32 | 0.44 |
| 1:A:99:GLY:O | 1:A:101:ASN:N | 2.50 | 0.44 |
| 1:C:146:PHE:HB2 | 1:C:150:ILE:HD11 | 1.99 | 0.44 |
| 1:C:168:LEU:CD1 | 2:D:171:GLY:HA2 | 2.48 | 0.44 |
| 4:F:52(B):ILE:H | 4:F:52(B):ILE:HG13 | 1.41 | 0.44 |
| 3:G:31:ASN:HD21 | 3:G:95(A):ASN:ND2 | 2.16 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|--------------------|--------------------------|-------------------|
| 3:G:34:TYR:O | 3:G:89:LEU:N | 2.46 | 0.44 |
| 3:G:207:LYS:O | 3:G:208:SER:C | 2.55 | 0.44 |
| 4:H:83:ARG:NH2 | 4:H:85:ASP:OD2 | 2.50 | 0.44 |
| 4:H:107:THR:O | 4:H:107:THR:CG2 | 2.65 | 0.44 |
| 1:A:155:THR:CG2 | 1:A:160:THR:C | 2.86 | 0.44 |
| 2:B:209:HIS:HE2 | 2:B:240:GLU:CD | 2.12 | 0.44 |
| 1:C:3:VAL:HG12 | 1:C:105:VAL:CG1 | 2.45 | 0.44 |
| 3:E:149:LYS:HB2 | 3:E:193:SER:HB3 | 1.99 | 0.44 |
| 3:G:94:ASP:OD1 | 3:G:94:ASP:N | 2.51 | 0.44 |
| 1:A:51:THR:O | 1:A:66:LEU:HD23 | 2.17 | 0.44 |
| 1:A:55:ARG:HH12 | 1:A:57:GLU:CB | 2.28 | 0.44 |
| 3:E:13:VAL:O | 3:E:106:VAL:HA | 2.17 | 0.44 |
| 3:E:117:VAL:CG2 | 3:E:209:LEU:CD1 | 2.96 | 0.44 |
| 4:F:33:TRP:N | 4:F:95:ALA:O | 2.49 | 0.44 |
| 4:F:52(A):ASN:HA | 4:F:71:ARG:HH21 | 1.83 | 0.44 |
| 4:F:141:GLY:CA | 4:F:189:SER:O | 2.66 | 0.44 |
| 4:F:178:LEU:HD23 | 4:F:185:TYR:CD1 | 2.53 | 0.44 |
| 3:G:31:ASN:HD21 | 3:G:95(A):ASN:HD22 | 1.64 | 0.44 |
| 3:G:96:LEU:HB2 | 4:H:47:TRP:CD2 | 2.52 | 0.44 |
| 4:H:86:ASP:HB2 | 4:H:111:VAL:HG21 | 1.98 | 0.44 |
| 1:A:147:ASP:N | 1:A:150:ILE:HD11 | 2.33 | 0.44 |
| 1:A:179:GLY:HA3 | 2:B:195:ARG:CZ | 2.47 | 0.44 |
| 1:C:186:GLN:C | 1:C:188:SER:N | 2.69 | 0.44 |
| 3:E:136:VAL:HG11 | 3:E:175:THR:HB | 1.95 | 0.44 |
| 4:F:139:THR:HA | 4:F:191:VAL:O | 2.18 | 0.44 |
| 4:H:101:ASP:OD1 | 4:H:102:TYR:N | 2.46 | 0.44 |
| 3:E:39:LYS:O | 3:E:42:LYS:N | 2.46 | 0.44 |
| 3:E:115:VAL:CG1 | 3:E:209:LEU:CD2 | 2.80 | 0.44 |
| 3:E:141:PRO:HG2 | 3:E:142:GLY:H | 1.83 | 0.44 |
| 3:G:154:THR:CG2 | 3:G:155:ILE:N | 2.81 | 0.44 |
| 1:A:194:ILE:HG22 | 1:A:195:PHE:CD1 | 2.53 | 0.44 |
| 2:B:18:ARG:HH21 | 5:B:248:NAG:C6 | 2.14 | 0.44 |
| 2:B:120:ARG:NH1 | 4:F:100:HIS:NE2 | 2.66 | 0.44 |
| 2:B:228:GLY:CA | 4:F:96:GLY:O | 2.59 | 0.44 |
| 1:C:3:VAL:HG23 | 1:C:22:CYS:SG | 2.57 | 0.44 |
| 2:D:46:LEU:O | 2:D:58:GLY:HA3 | 2.18 | 0.44 |
| 2:D:159:LEU:HD23 | 2:D:159:LEU:C | 2.37 | 0.44 |
| 2:D:226:PRO:HG3 | 3:G:50:MET:HE1 | 2.00 | 0.44 |
| 3:E:121:SER:HB3 | 3:E:124:GLU:HB2 | 2.00 | 0.44 |
| 3:E:166:LYS:HG2 | 3:E:167:GLN:N | 2.33 | 0.44 |
| 4:F:67:PHE:N | 4:F:67:PHE:HD1 | 2.16 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|--------------------|--------------------------|-------------------|
| 1:A:190:THR:CG2 | 1:A:192:GLN:HB3 | 2.48 | 0.44 |
| 2:B:83:GLU:C | 2:B:116:VAL:HG21 | 2.37 | 0.44 |
| 2:B:168:VAL:HG22 | 2:B:169:HIS:N | 2.33 | 0.44 |
| 2:D:220:SER:O | 2:D:221:GLU:C | 2.57 | 0.44 |
| 2:D:242:TRP:HB3 | 2:D:243:GLY:H | 1.64 | 0.44 |
| 3:E:67:SER:O | 3:E:68:GLY:C | 2.56 | 0.44 |
| 3:G:35:TRP:CH2 | 3:G:88:CYS:HB3 | 2.53 | 0.44 |
| 4:H:70:SER:O | 4:H:78:ILE:HA | 2.17 | 0.44 |
| 4:H:70:SER:O | 4:H:79:TYR:N | 2.45 | 0.44 |
| 1:A:87:LEU:HD12 | 2:B:41:LYS:CD | 2.47 | 0.43 |
| 2:B:79:MET:HE1 | 2:B:114:LEU:HD22 | 1.98 | 0.43 |
| 2:B:209:HIS:CB | 2:B:242:TRP:CZ3 | 2.90 | 0.43 |
| 1:C:122:GLU:HB3 | 2:D:140:LYS:HE2 | 2.00 | 0.43 |
| 2:D:228:GLY:HA2 | 4:H:95:ALA:HB1 | 2.00 | 0.43 |
| 4:F:13:GLN:NE2 | 4:F:113:SER:HA | 2.33 | 0.43 |
| 3:G:22:THR:HG22 | 3:G:70:THR:CG2 | 2.48 | 0.43 |
| 3:G:37:GLN:N | 3:G:45:LEU:O | 2.45 | 0.43 |
| 3:G:133:VAL:HG21 | 4:H:124:LEU:HD22 | 1.94 | 0.43 |
| 4:H:144:VAL:CG1 | 4:H:210:VAL:HG11 | 2.48 | 0.43 |
| 1:A:53:ASN:OD1 | 1:A:54:LYS:N | 2.49 | 0.43 |
| 3:E:14:THR:O | 3:E:17:GLU:HB2 | 2.18 | 0.43 |
| 4:F:67:PHE:CD1 | 4:F:67:PHE:N | 2.86 | 0.43 |
| 4:F:93:THR:CG2 | 4:F:100(A):PHE:HD1 | 2.29 | 0.43 |
| 3:G:25:GLY:CA | 3:G:28:LEU:HG | 2.47 | 0.43 |
| 4:H:33:TRP:HZ2 | 4:H:53:ASN:HD21 | 1.66 | 0.43 |
| 4:H:84:VAL:O | 4:H:86:ASP:N | 2.51 | 0.43 |
| 2:B:22:THR:HG22 | 2:B:23:CYS:N | 2.32 | 0.43 |
| 2:B:127:VAL:HG11 | 2:B:238:SER:CA | 2.48 | 0.43 |
| 1:C:17:PRO:HB3 | 1:C:78:SER:HA | 2.00 | 0.43 |
| 1:C:104:TYR:CE1 | 1:C:106:PHE:CZ | 3.05 | 0.43 |
| 3:E:14:THR:HG23 | 3:E:106(A):LEU:HB2 | 1.99 | 0.43 |
| 4:F:33:TRP:O | 4:F:35:TYR:CE1 | 2.71 | 0.43 |
| 4:F:47:TRP:CZ3 | 4:F:60:ALA:HB2 | 2.53 | 0.43 |
| 3:G:183:ALA:O | 3:G:187:LYS:HD2 | 2.18 | 0.43 |
| 1:A:146:PHE:C | 1:A:150:ILE:HD11 | 2.39 | 0.43 |
| 4:F:51:ILE:HD13 | 4:F:71:ARG:HB2 | 2.00 | 0.43 |
| 4:H:139:THR:HG23 | 4:H:192:THR:HG23 | 2.00 | 0.43 |
| 1:A:189:PHE:N | 1:A:189:PHE:CD1 | 2.86 | 0.43 |
| 2:B:60:LEU:HA | 2:B:61:PRO:HD3 | 1.88 | 0.43 |
| 2:B:157:VAL:HA | 2:B:215:GLN:O | 2.18 | 0.43 |
| 1:C:177:SER:O | 2:D:195:ARG:NH2 | 2.51 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:C:203:ASN:OD1 | 5:C:216:NAG:C5 | 2.67 | 0.43 |
| 2:D:68:GLN:HE21 | 2:D:68:GLN:N | 2.13 | 0.43 |
| 2:D:174:THR:CA | 2:D:194:SER:HB2 | 2.30 | 0.43 |
| 3:E:164:PRO:HG3 | 4:F:175:PRO:HG2 | 1.99 | 0.43 |
| 4:F:2:VAL:HA | 4:F:25:SER:O | 2.19 | 0.43 |
| 1:A:5:GLN:HE22 | 1:A:90:CYS:H | 1.66 | 0.43 |
| 1:A:69:SER:OG | 1:A:70:SER:N | 2.51 | 0.43 |
| 2:B:135:ALA:O | 2:B:136:GLU:C | 2.57 | 0.43 |
| 2:B:149:ALA:HB2 | 2:B:214:VAL:HG21 | 1.99 | 0.43 |
| 2:D:227:GLU:O | 2:D:227:GLU:HG3 | 2.19 | 0.43 |
| 4:F:35:TYR:CD1 | 4:F:35:TYR:N | 2.86 | 0.43 |
| 3:G:182:THR:O | 3:G:185:GLN:N | 2.45 | 0.43 |
| 4:H:94:ARG:NE | 4:H:101:ASP:OD1 | 2.46 | 0.43 |
| 4:H:125:ALA:HA | 4:H:126:PRO:HD3 | 1.82 | 0.43 |
| 1:C:144:THR:CG2 | 1:C:177:SER:OG | 2.66 | 0.43 |
| 1:C:158:SER:C | 1:C:160:THR:H | 2.22 | 0.43 |
| 2:D:37:GLN:HG3 | 2:D:41:LYS:HA | 2.00 | 0.43 |
| 2:D:140:LYS:O | 2:D:141:GLN:HB2 | 2.17 | 0.43 |
| 3:E:35:TRP:C | 3:E:47:LEU:HD12 | 2.39 | 0.43 |
| 3:E:140:TYR:CD1 | 3:E:141:PRO:CB | 3.01 | 0.43 |
| 3:E:166:LYS:CG | 3:E:167:GLN:N | 2.79 | 0.43 |
| 4:F:82(A):ASN:C | 4:F:82(B):ARG:HG3 | 2.39 | 0.43 |
| 4:F:150:GLU:CB | 4:F:151:PRO:CD | 2.93 | 0.43 |
| 3:G:104:LEU:O | 3:G:104:LEU:HD23 | 2.17 | 0.43 |
| 4:H:1:GLU:O | 4:H:1:GLU:HG2 | 2.18 | 0.43 |
| 4:H:63:VAL:HB | 4:H:67:PHE:CB | 2.47 | 0.43 |
| 4:H:80:LEU:HG | 4:H:82:MET:HG2 | 1.99 | 0.43 |
| 4:H:141:GLY:HA2 | 4:H:157:TRP:HZ2 | 1.79 | 0.43 |
| 4:H:150:GLU:CB | 4:H:151:PRO:CD | 2.96 | 0.43 |
| 4:H:193:VAL:HB | 4:H:194:PRO:CD | 2.48 | 0.43 |
| 2:B:180:LYS:HG2 | 2:B:190:TYR:CE2 | 2.54 | 0.43 |
| 2:B:205:ASN:HA | 2:B:206:PRO:HD3 | 1.88 | 0.43 |
| 1:C:5:GLN:HE22 | 1:C:90:CYS:H | 1.66 | 0.43 |
| 4:F:205:ILE:HG22 | 4:F:225:ILE:CD1 | 2.48 | 0.43 |
| 3:G:39:LYS:C | 3:G:41:ASP:N | 2.72 | 0.43 |
| 3:G:66:THR:O | 3:G:66:THR:CG2 | 2.65 | 0.43 |
| 4:H:148:PHE:H | 4:H:149:PRO:HD3 | 1.76 | 0.43 |
| 2:B:119:LEU:HA | 2:B:119:LEU:HD12 | 1.78 | 0.43 |
| 1:C:160:THR:OG1 | 1:C:184:SER:HB2 | 2.18 | 0.43 |
| 2:D:70:PHE:CD1 | 2:D:70:PHE:N | 2.85 | 0.43 |
| 4:F:6:GLU:CD | 4:F:104:GLY:HA3 | 2.39 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 4:F:35:TYR:CE1 | 4:F:95:ALA:CB | 3.02 | 0.43 |
| 3:G:145:THR:O | 3:G:145:THR:OG1 | 2.34 | 0.43 |
| 1:A:54:LYS:CB | 1:A:65:THR:OG1 | 2.63 | 0.43 |
| 3:E:2:TYR:CG | 3:E:3:GLU:N | 2.87 | 0.43 |
| 4:F:32:PHE:HA | 4:F:95:ALA:O | 2.19 | 0.43 |
| 4:F:82:MET:HE3 | 4:F:109:VAL:HG21 | 2.01 | 0.43 |
| 4:F:205:ILE:HG22 | 4:F:225:ILE:HD12 | 2.01 | 0.43 |
| 4:H:33:TRP:HZ2 | 4:H:53:ASN:ND2 | 2.15 | 0.43 |
| 4:H:124:LEU:HD12 | 4:H:142:CYS:N | 2.34 | 0.43 |
| 1:A:46:LEU:O | 1:A:55:ARG:NH1 | 2.52 | 0.42 |
| 1:C:54:LYS:C | 1:C:56:THR:N | 2.72 | 0.42 |
| 3:E:117:VAL:HG21 | 3:E:209:LEU:HG | 1.96 | 0.42 |
| 4:F:54:ASN:CG | 4:F:54:ASN:O | 2.56 | 0.42 |
| 4:F:77:SER:C | 4:F:78:ILE:CG2 | 2.88 | 0.42 |
| 3:G:139:PHE:HE1 | 3:G:174:MET:HA | 1.83 | 0.42 |
| 3:G:148:TRP:CH2 | 3:G:179:LEU:HB3 | 2.53 | 0.42 |
| 3:G:148:TRP:CD2 | 3:G:179:LEU:HD13 | 2.54 | 0.42 |
| 4:H:117:THR:HB | 4:H:184:LEU:HD21 | 2.01 | 0.42 |
| 1:A:48:LYS:HZ1 | 2:B:100:ASP:CB | 2.33 | 0.42 |
| 1:A:87:LEU:CD1 | 2:B:41:LYS:CD | 2.97 | 0.42 |
| 3:E:200:GLY:C | 3:E:203:GLU:HG2 | 2.37 | 0.42 |
| 4:F:148:PHE:N | 4:F:149:PRO:CD | 2.82 | 0.42 |
| 3:G:14:THR:O | 3:G:15:VAL:C | 2.57 | 0.42 |
| 3:G:125:LEU:HD22 | 3:G:186:TRP:HE1 | 1.84 | 0.42 |
| 4:H:33:TRP:CD2 | 4:H:52:LYS:HG2 | 2.54 | 0.42 |
| 2:B:50:TYR:CZ | 2:B:97:ARG:HB2 | 2.54 | 0.42 |
| 3:E:183:ALA:O | 3:E:187:LYS:CG | 2.66 | 0.42 |
| 3:E:203:GLU:O | 3:E:205:VAL:HG23 | 2.20 | 0.42 |
| 4:F:38:ARG:HB3 | 4:F:90:TYR:CD2 | 2.55 | 0.42 |
| 4:H:39:GLN:HG3 | 4:H:44:GLY:O | 2.18 | 0.42 |
| 4:H:84:VAL:C | 4:H:86:ASP:N | 2.72 | 0.42 |
| 4:H:171:VAL:HG13 | 4:H:172:HIS:N | 2.34 | 0.42 |
| 1:C:171:LYS:O | 1:C:172:ALA:C | 2.57 | 0.42 |
| 3:E:115:VAL:CG2 | 3:E:207:LYS:CG | 2.97 | 0.42 |
| 3:E:119:PRO:HA | 3:E:120:PRO:HD3 | 1.90 | 0.42 |
| 3:E:140:TYR:CD1 | 3:E:173:TYR:CE2 | 2.87 | 0.42 |
| 4:F:67:PHE:CD2 | 4:F:82:MET:HB3 | 2.55 | 0.42 |
| 4:H:174:PHE:HB3 | 4:H:175:PRO:HD2 | 2.00 | 0.42 |
| 1:A:47:LEU:C | 1:A:47:LEU:HD12 | 2.38 | 0.42 |
| 1:A:55:ARG:NH1 | 1:A:57:GLU:CB | 2.82 | 0.42 |
| 1:C:35:TYR:HB2 | 1:C:89:TYR:HB2 | 2.01 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|------------------|--------------------------|-------------------|
| 1:C:47:LEU:CD1 | 1:C:56:THR:HG21 | 2.49 | 0.42 |
| 1:C:174:ASP:HB3 | 1:C:175:SER:H | 1.57 | 0.42 |
| 2:D:118:ASP:CG | 2:D:120:ARG:HD3 | 2.39 | 0.42 |
| 2:D:125:PRO:HB3 | 2:D:152:PHE:HD2 | 1.80 | 0.42 |
| 2:D:180:LYS:HD2 | 2:D:182:SER:O | 2.19 | 0.42 |
| 4:H:40:ALA:O | 4:H:41:PRO:C | 2.58 | 0.42 |
| 4:H:84:VAL:HA | 4:H:111:VAL:HB | 2.01 | 0.42 |
| 4:H:117:THR:HG21 | 4:H:184:LEU:HD11 | 2.01 | 0.42 |
| 2:B:71:ASP:N | 2:B:71:ASP:OD1 | 2.50 | 0.42 |
| 2:B:179:TYR:O | 2:B:190:TYR:HA | 2.19 | 0.42 |
| 1:C:9:LEU:HD13 | 1:C:111:ARG:HB3 | 2.01 | 0.42 |
| 1:C:119:GLN:OE1 | 1:C:119:GLN:HA | 2.19 | 0.42 |
| 2:D:231:LYS:HG2 | 2:D:233:VAL:HG22 | 2.02 | 0.42 |
| 3:G:120:PRO:HD3 | 3:G:132:LEU:HG | 2.00 | 0.42 |
| 3:G:121:SER:HG | 4:H:122:TYR:HD1 | 1.63 | 0.42 |
| 3:G:126:ARG:C | 3:G:128:ASN:H | 2.22 | 0.42 |
| 3:G:137:ASN:OD1 | 4:H:172:HIS:CD2 | 2.73 | 0.42 |
| 1:A:26:THR:HB | 1:A:94:GLU:OE1 | 2.20 | 0.42 |
| 1:A:164:ASP:HB2 | 2:B:179:TYR:OH | 2.20 | 0.42 |
| 2:B:29:HIS:CG | 2:B:95:SER:C | 2.93 | 0.42 |
| 2:B:71:ASP:O | 2:B:73:TYR:N | 2.52 | 0.42 |
| 2:B:154:PRO:HG2 | 2:B:156:HIS:CD2 | 2.44 | 0.42 |
| 2:D:79:MET:HE1 | 2:D:114:LEU:HD22 | 2.01 | 0.42 |
| 3:G:153:ALA:O | 3:G:154:THR:C | 2.58 | 0.42 |
| 1:A:63:HIS:ND1 | 1:A:63:HIS:C | 2.73 | 0.42 |
| 1:A:212:PRO:O | 1:A:213:CYS:C | 2.58 | 0.42 |
| 2:B:29:HIS:CD2 | 2:B:96:LEU:HB2 | 2.54 | 0.42 |
| 3:E:36:PHE:C | 3:E:47:LEU:CD1 | 2.88 | 0.42 |
| 3:E:122:PRO:HA | 3:E:125:LEU:HD12 | 2.02 | 0.42 |
| 3:E:138:ASP:CA | 3:E:172:ASN:ND2 | 2.79 | 0.42 |
| 3:E:139:PHE:CE2 | 3:E:173:TYR:HB2 | 2.52 | 0.42 |
| 4:F:2:VAL:HG13 | 4:F:27:PHE:HD1 | 1.77 | 0.42 |
| 4:F:84:VAL:C | 4:F:86:ASP:N | 2.72 | 0.42 |
| 4:F:116:THR:HG23 | 4:F:214:ALA:CB | 2.44 | 0.42 |
| 4:F:212:HIS:HD2 | 4:F:213:PRO:N | 2.18 | 0.42 |
| 4:H:52(B):ILE:HG23 | 4:H:52(C):PRO:N | 2.35 | 0.42 |
| 4:H:69:ILE:HG22 | 4:H:70:SER:N | 2.34 | 0.42 |
| 1:A:47:LEU:HA | 2:D:97:ARG:NH2 | 2.35 | 0.42 |
| 2:B:148:LEU:HG | 2:B:150:ARG:HG3 | 2.02 | 0.42 |
| 2:B:156:HIS:HB3 | 2:B:217:HIS:HB2 | 2.02 | 0.42 |
| 2:B:228:GLY:O | 4:F:96:GLY:HA2 | 2.20 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|---------------------|--------------------------|-------------------|
| 2:D:115:THR:HG22 | 2:D:116(A):LEU:HD21 | 2.02 | 0.42 |
| 2:D:233:VAL:O | 2:D:234:THR:C | 2.57 | 0.42 |
| 3:E:4:LEU:HA | 3:E:4:LEU:HD23 | 1.86 | 0.42 |
| 3:E:35:TRP:CZ3 | 3:E:88:CYS:HB3 | 2.54 | 0.42 |
| 4:F:89:ILE:HD11 | 4:F:108:MET:SD | 2.60 | 0.42 |
| 3:G:44:ILE:HG21 | 4:H:103:TRP:CE2 | 2.55 | 0.42 |
| 3:G:163:LYS:HD3 | 3:G:175:THR:OG1 | 2.20 | 0.42 |
| 1:A:36:VAL:HG23 | 1:A:88:TYR:CZ | 2.55 | 0.42 |
| 2:B:21:LEU:HD12 | 2:B:21:LEU:N | 2.34 | 0.42 |
| 2:B:141:GLN:O | 2:B:142:LYS:HG3 | 2.19 | 0.42 |
| 2:D:52:LYS:N | 2:D:69:GLN:HE22 | 2.17 | 0.42 |
| 2:D:85:GLU:H | 2:D:85:GLU:HG2 | 1.67 | 0.42 |
| 3:E:123:GLU:O | 3:E:126:ARG:CB | 2.61 | 0.42 |
| 3:E:206:GLU:C | 3:E:208:SER:N | 2.71 | 0.42 |
| 4:F:108:MET:HG2 | 4:F:150:GLU:CG | 2.50 | 0.42 |
| 4:H:18:LEU:O | 4:H:82:MET:HG3 | 2.18 | 0.42 |
| 4:H:51:ILE:HD13 | 4:H:71:ARG:CB | 2.41 | 0.42 |
| 4:H:89:ILE:HD13 | 4:H:108:MET:SD | 2.59 | 0.42 |
| 4:H:126:PRO:HB2 | 4:H:127:ALA:H | 1.66 | 0.42 |
| 4:H:157:TRP:CH2 | 4:H:208:CYS:HB3 | 2.55 | 0.42 |
| 4:H:178:LEU:HD23 | 4:H:185:TYR:CD1 | 2.55 | 0.42 |
| 1:A:77:LYS:HZ1 | 1:A:81:GLN:NE2 | 2.18 | 0.41 |
| 4:F:32:PHE:CD1 | 4:F:94:ARG:HG3 | 2.55 | 0.41 |
| 4:F:52(B):ILE:CB | 4:F:52(C):PRO:HD3 | 2.50 | 0.41 |
| 4:H:171:VAL:HG22 | 4:H:191:VAL:HG22 | 2.01 | 0.41 |
| 4:H:210:VAL:HG12 | 4:H:211:ALA:N | 2.35 | 0.41 |
| 1:A:58:HIS:O | 1:A:58:HIS:ND1 | 2.53 | 0.41 |
| 1:A:144:THR:CG2 | 1:A:177:SER:OG | 2.67 | 0.41 |
| 2:B:132:PRO:CG | 2:B:143:ALA:HB1 | 2.50 | 0.41 |
| 1:C:122:GLU:HB3 | 2:D:140:LYS:HE3 | 1.99 | 0.41 |
| 1:C:190:THR:CG2 | 1:C:192:GLN:H | 2.33 | 0.41 |
| 3:G:36:PHE:HZ | 4:H:100(A):PHE:CB | 2.33 | 0.41 |
| 1:A:132:ASP:HA | 1:A:133:PRO:HD2 | 1.95 | 0.41 |
| 2:B:204:HIS:O | 2:B:206:PRO:HD3 | 2.20 | 0.41 |
| 2:D:74:HIS:CE1 | 2:D:76:GLU:HG3 | 2.54 | 0.41 |
| 3:E:148:TRP:O | 3:E:154:THR:HA | 2.20 | 0.41 |
| 4:F:52(B):ILE:N | 4:F:52(C):PRO:HD2 | 2.36 | 0.41 |
| 4:F:61:ASP:OD1 | 4:F:64:ARG:NH1 | 2.46 | 0.41 |
| 3:G:9:SER:O | 3:G:11:ALA:HB2 | 2.19 | 0.41 |
| 3:G:112:SER:HB2 | 3:G:207:LYS:HZ1 | 1.84 | 0.41 |
| 3:G:176:SER:O | 3:G:178:TYR:HD1 | 2.04 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 4:H:32:PHE:CD1 | 4:H:94:ARG:HG3 | 2.54 | 0.41 |
| 4:H:116:THR:HG23 | 4:H:149:PRO:HG2 | 2.02 | 0.41 |
| 4:H:190:SER:O | 4:H:191:VAL:CG2 | 2.68 | 0.41 |
| 2:B:15:LYS:HD3 | 2:B:84:LEU:HD21 | 2.02 | 0.41 |
| 2:B:219:LEU:O | 2:B:233:VAL:HG12 | 2.21 | 0.41 |
| 1:C:143:PHE:HB2 | 1:C:195:PHE:CE2 | 2.55 | 0.41 |
| 2:D:97:ARG:H | 2:D:97:ARG:HG2 | 1.55 | 0.41 |
| 3:E:5:ILE:O | 3:E:23:CYS:HA | 2.20 | 0.41 |
| 3:E:120:PRO:HG2 | 3:E:130:ALA:HB1 | 2.01 | 0.41 |
| 4:F:107:THR:O | 4:F:107:THR:CG2 | 2.68 | 0.41 |
| 4:F:121:VAL:HG21 | 4:F:210:VAL:HG21 | 2.01 | 0.41 |
| 3:G:214:CYS:CB | 3:G:215:LEU:HD23 | 2.47 | 0.41 |
| 2:B:17:GLY:O | 2:B:82:LEU:CG | 2.66 | 0.41 |
| 1:C:134:ARG:HD3 | 1:C:134:ARG:HA | 1.88 | 0.41 |
| 1:C:179:GLY:HA3 | 2:D:195:ARG:CZ | 2.50 | 0.41 |
| 2:D:47:ILE:HG21 | 2:D:60:LEU:HD22 | 2.01 | 0.41 |
| 2:D:218:GLY:H | 2:D:234:THR:HG23 | 1.85 | 0.41 |
| 2:D:223:ASP:O | 2:D:223:ASP:CG | 2.58 | 0.41 |
| 4:F:4:LEU:HA | 4:F:23:ALA:O | 2.21 | 0.41 |
| 4:F:52(B):ILE:HB | 4:F:52(C):PRO:HD3 | 2.02 | 0.41 |
| 3:G:4:LEU:HD23 | 3:G:4:LEU:HA | 1.88 | 0.41 |
| 3:G:117:VAL:HG11 | 3:G:211:PRO:CG | 2.50 | 0.41 |
| 3:G:182:THR:HG23 | 3:G:185:GLN:HB2 | 2.02 | 0.41 |
| 4:H:36:TRP:C | 4:H:37:VAL:CG2 | 2.89 | 0.41 |
| 2:B:33:VAL:CG2 | 2:B:34:TRP:N | 2.83 | 0.41 |
| 2:B:43:LEU:HA | 2:B:43:LEU:HD13 | 1.38 | 0.41 |
| 2:B:115:THR:O | 2:B:115:THR:HG22 | 2.20 | 0.41 |
| 1:C:128:LEU:CD1 | 2:D:146:VAL:CG2 | 2.99 | 0.41 |
| 1:C:143:PHE:O | 1:C:179:GLY:HA2 | 2.21 | 0.41 |
| 3:E:129:LYS:HD3 | 3:E:129:LYS:HA | 1.69 | 0.41 |
| 4:F:11:LEU:HA | 4:F:110:THR:HB | 2.01 | 0.41 |
| 4:F:29:PHE:CE1 | 4:F:71:ARG:HD2 | 2.55 | 0.41 |
| 3:G:183:ALA:HB1 | 3:G:187:LYS:HZ3 | 1.81 | 0.41 |
| 1:A:36:VAL:CG2 | 1:A:88:TYR:CE2 | 3.04 | 0.41 |
| 2:B:79:MET:CB | 2:B:82:LEU:HD21 | 2.50 | 0.41 |
| 4:F:52(B):ILE:CB | 4:F:52(C):PRO:CD | 2.98 | 0.41 |
| 3:G:21:ILE:HG22 | 3:G:35:TRP:CH2 | 2.56 | 0.41 |
| 1:A:11:THR:HA | 1:A:113:LYS:O | 2.21 | 0.41 |
| 1:A:36:VAL:O | 1:A:36:VAL:HG13 | 2.20 | 0.41 |
| 1:A:211:VAL:HA | 1:A:212:PRO:HD3 | 1.83 | 0.41 |
| 1:C:155:THR:HG21 | 1:C:160:THR:C | 2.40 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:171:LYS:CA | 2:D:170:SER:OG | 2.67 | 0.41 |
| 2:D:70:PHE:N | 2:D:70:PHE:HD1 | 2.18 | 0.41 |
| 2:D:88:ALA:HB3 | 2:D:90:TYR:CE2 | 2.55 | 0.41 |
| 2:D:96:LEU:C | 2:D:97:ARG:O | 2.59 | 0.41 |
| 3:E:33:ALA:HA | 3:E:89:LEU:O | 2.21 | 0.41 |
| 3:E:160:LYS:O | 3:E:178:TYR:N | 2.54 | 0.41 |
| 3:G:37:GLN:CB | 3:G:47:LEU:HD11 | 2.50 | 0.41 |
| 3:G:140:TYR:HA | 3:G:141:PRO:HA | 1.86 | 0.41 |
| 4:H:35:TYR:OH | 4:H:95:ALA:CB | 2.69 | 0.41 |
| 1:A:190:THR:CG2 | 1:A:191:CYS:N | 2.82 | 0.41 |
| 2:B:125:PRO:HD3 | 2:B:216:PHE:CG | 2.56 | 0.41 |
| 2:B:212:CYS:O | 2:B:238:SER:HA | 2.21 | 0.41 |
| 1:C:190:THR:HG23 | 1:C:191:CYS:N | 2.34 | 0.41 |
| 2:D:82:LEU:HB3 | 2:D:116:VAL:HG21 | 2.03 | 0.41 |
| 3:E:27:GLN:C | 3:E:29:PRO:HD2 | 2.40 | 0.41 |
| 3:E:36:PHE:C | 3:E:47:LEU:HD11 | 2.41 | 0.41 |
| 3:E:107:ARG:HB3 | 3:E:109:PRO:HD2 | 2.03 | 0.41 |
| 3:E:120:PRO:CG | 3:E:130:ALA:HB1 | 2.51 | 0.41 |
| 3:E:148:TRP:C | 3:E:155:ILE:HD12 | 2.40 | 0.41 |
| 3:E:149:LYS:C | 3:E:155:ILE:HD11 | 2.42 | 0.41 |
| 3:E:214:CYS:O | 3:E:215:LEU:HB2 | 2.21 | 0.41 |
| 4:F:144:VAL:HG13 | 4:F:210:VAL:HG11 | 2.02 | 0.41 |
| 3:G:46:LEU:HD12 | 3:G:47:LEU:N | 2.36 | 0.41 |
| 4:H:157:TRP:CE2 | 4:H:191:VAL:CG2 | 3.03 | 0.41 |
| 4:F:140:LEU:CD1 | 4:F:225:ILE:HG21 | 2.43 | 0.41 |
| 4:F:194:PRO:HD2 | 4:F:198:THR:OG1 | 2.21 | 0.41 |
| 3:G:79:GLN:O | 3:G:82:ASP:HB2 | 2.21 | 0.41 |
| 4:H:108:MET:HB3 | 4:H:150:GLU:OE2 | 2.20 | 0.41 |
| 2:B:39:LEU:HB3 | 2:B:40:GLY:H | 1.59 | 0.40 |
| 2:B:242:TRP:HB3 | 2:B:243:GLY:H | 1.76 | 0.40 |
| 3:E:137:ASN:OD1 | 4:F:172:HIS:CE1 | 2.74 | 0.40 |
| 4:F:26:GLY:O | 4:F:27:PHE:HB3 | 2.21 | 0.40 |
| 4:F:166:LEU:HD11 | 4:F:205:ILE:CD1 | 2.47 | 0.40 |
| 3:G:124:GLU:OE1 | 3:G:131:THR:OG1 | 2.32 | 0.40 |
| 1:C:101:ASN:O | 1:C:102:TYR:CB | 2.69 | 0.40 |
| 2:D:67:VAL:HB | 2:D:76:GLU:O | 2.20 | 0.40 |
| 3:G:123:GLU:O | 3:G:126:ARG:CB | 2.64 | 0.40 |
| 1:A:62:PHE:HD1 | 1:A:75:LEU:HD11 | 1.87 | 0.40 |
| 1:A:102:TYR:CG | 2:B:98:TRP:NE1 | 2.89 | 0.40 |
| 1:A:189:PHE:N | 1:A:189:PHE:HD1 | 2.18 | 0.40 |
| 2:B:49:HIS:HA | 2:B:54:GLU:O | 2.20 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|------------------|--------------------------|-------------------|
| 2:B:223:ASP:CB | 2:B:231:LYS:HE3 | 2.44 | 0.40 |
| 1:C:47:LEU:HB2 | 1:C:56:THR:HG21 | 2.02 | 0.40 |
| 3:E:161:THR:HA | 3:E:177:SER:HA | 2.04 | 0.40 |
| 4:F:125:ALA:C | 4:F:127:ALA:N | 2.73 | 0.40 |
| 4:F:164:GLY:O | 4:F:165:ALA:C | 2.60 | 0.40 |
| 4:F:199:TRP:CZ2 | 4:F:225:ILE:HG22 | 2.56 | 0.40 |
| 3:G:118:PHE:CZ | 4:H:140:LEU:HA | 2.56 | 0.40 |
| 3:G:166:LYS:CG | 3:G:167:GLN:H | 2.34 | 0.40 |
| 4:H:11:LEU:HB2 | 4:H:110:THR:HB | 2.02 | 0.40 |
| 2:B:137:ILE:N | 2:B:137:ILE:HD12 | 2.37 | 0.40 |
| 2:B:159:LEU:HB3 | 2:B:174:THR:HG21 | 2.04 | 0.40 |
| 1:C:32:PHE:HB3 | 1:C:73:PHE:CD2 | 2.56 | 0.40 |
| 2:D:44:LYS:HE2 | 2:D:59:PHE:HB2 | 2.04 | 0.40 |
| 2:D:68:GLN:NE2 | 2:D:68:GLN:N | 2.67 | 0.40 |
| 2:D:160:SER:HB2 | 2:D:162:TRP:NE1 | 2.32 | 0.40 |
| 4:F:2:VAL:HB | 4:F:102:TYR:CE2 | 2.56 | 0.40 |
| 4:F:5:VAL:HB | 4:F:23:ALA:HB3 | 2.04 | 0.40 |
| 3:G:39:LYS:O | 3:G:40:SER:C | 2.60 | 0.40 |
| 3:G:181:LEU:HG | 3:G:185:GLN:OE1 | 2.22 | 0.40 |
| 2:D:52:LYS:C | 2:D:69:GLN:NE2 | 2.71 | 0.40 |
| 2:D:204:HIS:O | 2:D:206:PRO:CD | 2.68 | 0.40 |
| 4:F:157:TRP:CZ3 | 4:F:225:ILE:CD1 | 2.99 | 0.40 |
| 3:G:28:LEU:HD23 | 3:G:28:LEU:HA | 1.63 | 0.40 |
| 3:G:54:ARG:HB3 | 3:G:54:ARG:CZ | 2.52 | 0.40 |
| 3:G:139:PHE:CE1 | 3:G:173:TYR:C | 2.95 | 0.40 |
| 3:G:192:VAL:O | 3:G:211:PRO:HG2 | 2.22 | 0.40 |
| 3:G:203:GLU:O | 3:G:205:VAL:N | 2.54 | 0.40 |

All (3) 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:213:CYS:O | 2:D:57:LYS:NZ[2_546] | 2.01 | 0.19 |
| 2:B:53:VAL:O | 4:H:70:SER:OG[2_656] | 2.09 | 0.11 |
| 2:B:55:ARG:NH2 | 4:H:19:LYS:NZ[2_656] | 2.16 | 0.04 |

5.3 Torsion angles

5.3.1 Protein backbone

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

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

| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|-----|-------|-----------------|------------|-----------|----------|-------------|---|
| 1 | A | 201/203 (99%) | 156 (78%) | 33 (16%) | 12 (6%) | 1 | 4 |
| 1 | C | 201/203 (99%) | 162 (81%) | 23 (11%) | 16 (8%) | 1 | 2 |
| 2 | B | 237/239 (99%) | 198 (84%) | 25 (10%) | 14 (6%) | 1 | 4 |
| 2 | D | 237/239 (99%) | 195 (82%) | 30 (13%) | 12 (5%) | 2 | 6 |
| 3 | E | 210/212 (99%) | 159 (76%) | 35 (17%) | 16 (8%) | 1 | 2 |
| 3 | G | 210/212 (99%) | 158 (75%) | 33 (16%) | 19 (9%) | 1 | 1 |
| 4 | F | 220/222 (99%) | 160 (73%) | 39 (18%) | 21 (10%) | 0 | 1 |
| 4 | H | 220/222 (99%) | 170 (77%) | 32 (14%) | 18 (8%) | 1 | 2 |
| All | All | 1736/1752 (99%) | 1358 (78%) | 250 (14%) | 128 (7%) | 1 | 2 |

All (128) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 58 | HIS |
| 1 | A | 134 | ARG |
| 1 | A | 204 | ALA |
| 2 | B | 39 | LEU |
| 1 | C | 53 | ASN |
| 1 | C | 55 | ARG |
| 1 | C | 59 | GLN |
| 1 | C | 134 | ARG |
| 1 | C | 187 | THR |
| 2 | D | 39 | LEU |
| 2 | D | 97 | ARG |
| 2 | D | 105 | GLU |
| 2 | D | 153 | PHE |
| 2 | D | 155 | ASP |
| 3 | E | 52 | ASN |
| 3 | E | 141 | PRO |
| 3 | E | 170 | GLY |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 3 | E | 207 | LYS |
| 3 | E | 208 | SER |
| 3 | E | 212 | ALA |
| 4 | F | 127 | ALA |
| 4 | F | 135 | THR |
| 4 | F | 149 | PRO |
| 4 | F | 150 | GLU |
| 4 | F | 214 | ALA |
| 3 | G | 51 | ASP |
| 3 | G | 52 | ASN |
| 3 | G | 81 | GLU |
| 3 | G | 141 | PRO |
| 3 | G | 154 | THR |
| 3 | G | 205 | VAL |
| 3 | G | 207 | LYS |
| 3 | G | 208 | SER |
| 4 | H | 129 | ASP |
| 4 | H | 132 | THR |
| 4 | H | 135 | THR |
| 4 | H | 150 | GLU |
| 4 | H | 216 | SER |
| 1 | A | 59 | GLN |
| 1 | A | 100 | GLY |
| 1 | A | 188 | SER |
| 2 | B | 41 | LYS |
| 2 | B | 151 | GLY |
| 2 | B | 227 | GLU |
| 1 | C | 6 | THR |
| 1 | C | 85 | SER |
| 1 | C | 138 | SER |
| 1 | C | 172 | ALA |
| 2 | D | 52 | LYS |
| 2 | D | 120 | ARG |
| 2 | D | 151 | GLY |
| 3 | E | 32 | PHE |
| 3 | E | 172 | ASN |
| 4 | F | 16 | SER |
| 4 | F | 41 | PRO |
| 4 | F | 85 | ASP |
| 4 | F | 176 | SER |
| 4 | F | 191 | VAL |
| 3 | G | 142 | GLY |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 3 | G | 170 | GLY |
| 4 | H | 41 | PRO |
| 4 | H | 85 | ASP |
| 4 | H | 126 | PRO |
| 4 | H | 131 | THR |
| 4 | H | 148 | PHE |
| 4 | H | 195 | SER |
| 4 | H | 222 | LYS |
| 1 | A | 47 | LEU |
| 1 | A | 138 | SER |
| 1 | A | 147 | ASP |
| 1 | A | 180 | ALA |
| 1 | A | 197 | GLU |
| 2 | B | 40 | GLY |
| 2 | B | 105 | GLU |
| 2 | B | 222 | GLU |
| 2 | B | 223 | ASP |
| 2 | B | 228 | GLY |
| 2 | B | 243 | GLY |
| 1 | C | 145 | ASP |
| 1 | C | 171 | LYS |
| 2 | D | 41 | LYS |
| 3 | E | 171 | GLN |
| 3 | E | 204 | THR |
| 3 | E | 205 | VAL |
| 4 | F | 116 | THR |
| 4 | F | 130 | SER |
| 4 | F | 134 | THR |
| 4 | F | 148 | PHE |
| 4 | F | 195 | SER |
| 3 | G | 172 | ASN |
| 3 | G | 179 | LEU |
| 4 | H | 16 | SER |
| 4 | H | 149 | PRO |
| 2 | B | 226 | PRO |
| 1 | C | 180 | ALA |
| 3 | E | 40 | SER |
| 3 | E | 210 | SER |
| 3 | G | 66 | THR |
| 3 | G | 138 | ASP |
| 3 | G | 167 | GLN |
| 3 | G | 204 | THR |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2 | B | 97 | ARG |
| 1 | C | 69 | SER |
| 1 | C | 71 | SER |
| 2 | D | 132 | PRO |
| 2 | D | 221 | GLU |
| 3 | E | 109 | PRO |
| 4 | F | 25 | SER |
| 4 | F | 126 | PRO |
| 4 | F | 133 | SER |
| 4 | F | 177 | VAL |
| 3 | G | 101 | GLY |
| 4 | H | 29 | PHE |
| 4 | H | 127 | ALA |
| 4 | H | 176 | SER |
| 1 | C | 100 | GLY |
| 1 | C | 163 | THR |
| 3 | E | 81 | GLU |
| 1 | A | 153 | PRO |
| 2 | B | 53 | VAL |
| 4 | F | 200 | PRO |
| 3 | G | 210 | SER |
| 2 | B | 176 | PRO |
| 3 | G | 80 | PRO |
| 4 | H | 63 | VAL |
| 4 | F | 123 | PRO |
| 2 | D | 154 | PRO |
| 3 | E | 68 | 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 | 181/181 (100%) | 127 (70%) | 54 (30%) | 0 | 1 |
| 1 | C | 181/181 (100%) | 118 (65%) | 63 (35%) | 0 | 0 |
| 2 | B | 212/212 (100%) | 151 (71%) | 61 (29%) | 0 | 1 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|-----|-------|------------------|------------|-----------|-------------|---|
| 2 | D | 212/212 (100%) | 147 (69%) | 65 (31%) | 0 | 0 |
| 3 | E | 185/185 (100%) | 137 (74%) | 48 (26%) | 0 | 1 |
| 3 | G | 185/185 (100%) | 122 (66%) | 63 (34%) | 0 | 0 |
| 4 | F | 192/192 (100%) | 135 (70%) | 57 (30%) | 0 | 1 |
| 4 | H | 192/192 (100%) | 144 (75%) | 48 (25%) | 0 | 2 |
| All | All | 1540/1540 (100%) | 1081 (70%) | 459 (30%) | 0 | 1 |

All (459) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 4 | THR |
| 1 | A | 9 | LEU |
| 1 | A | 11 | THR |
| 1 | A | 12 | VAL |
| 1 | A | 14 | GLU |
| 1 | A | 18 | VAL |
| 1 | A | 27 | THR |
| 1 | A | 29 | LEU |
| 1 | A | 33 | PHE |
| 1 | A | 44 | GLN |
| 1 | A | 48 | LYS |
| 1 | A | 66 | LEU |
| 1 | A | 70 | SER |
| 1 | A | 75 | LEU |
| 1 | A | 76 | GLN |
| 1 | A | 79 | SER |
| 1 | A | 81 | GLN |
| 1 | A | 85 | SER |
| 1 | A | 87 | LEU |
| 1 | A | 101 | ASN |
| 1 | A | 111 | ARG |
| 1 | A | 114 | VAL |
| 1 | A | 115 | ILE |
| 1 | A | 125 | VAL |
| 1 | A | 127 | GLN |
| 1 | A | 128 | LEU |
| 1 | A | 135 | SER |
| 1 | A | 136 | GLN |
| 1 | A | 139 | THR |
| 1 | A | 140 | LEU |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | A | 145 | ASP |
| 1 | A | 148 | SER |
| 1 | A | 150 | ILE |
| 1 | A | 155 | THR |
| 1 | A | 157 | GLU |
| 1 | A | 158 | SER |
| 1 | A | 168 | LEU |
| 1 | A | 171 | LYS |
| 1 | A | 173 | MET |
| 1 | A | 176 | LYS |
| 1 | A | 177 | SER |
| 1 | A | 181 | ILE |
| 1 | A | 184 | SER |
| 1 | A | 186 | GLN |
| 1 | A | 190 | THR |
| 1 | A | 192 | GLN |
| 1 | A | 193 | ASP |
| 1 | A | 194 | ILE |
| 1 | A | 196 | LYS |
| 1 | A | 198 | THR |
| 1 | A | 206 | TYR |
| 1 | A | 208 | SER |
| 1 | A | 209 | SER |
| 1 | A | 213 | CYS |
| 2 | B | 2 | SER |
| 2 | B | 5 | VAL |
| 2 | B | 6 | GLN |
| 2 | B | 7 | SER |
| 2 | B | 9 | ARG |
| 2 | B | 11 | ILE |
| 2 | B | 13 | LYS |
| 2 | B | 15 | LYS |
| 2 | B | 27 | SER |
| 2 | B | 30 | SER |
| 2 | B | 33 | VAL |
| 2 | B | 43 | LEU |
| 2 | B | 50 | TYR |
| 2 | B | 51 | GLU |
| 2 | B | 52 | LYS |
| 2 | B | 62 | SER |
| 2 | B | 64 | ARG |
| 2 | B | 66 | SER |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 2 | B | 67 | VAL |
| 2 | B | 68 | GLN |
| 2 | B | 69 | GLN |
| 2 | B | 71 | ASP |
| 2 | B | 72 | ASP |
| 2 | B | 74 | HIS |
| 2 | B | 75 | SER |
| 2 | B | 77 | MET |
| 2 | B | 80 | SER |
| 2 | B | 84 | LEU |
| 2 | B | 85 | GLU |
| 2 | B | 89 | MET |
| 2 | B | 94 | SER |
| 2 | B | 100 | ASP |
| 2 | B | 110 | PRO |
| 2 | B | 113 | ARG |
| 2 | B | 117 | GLU |
| 2 | B | 118 | ASP |
| 2 | B | 120 | ARG |
| 2 | B | 121 | ASN |
| 2 | B | 123 | THR |
| 2 | B | 128 | SER |
| 2 | B | 130 | PHE |
| 2 | B | 133 | SER |
| 2 | B | 134 | LYS |
| 2 | B | 136 | GLU |
| 2 | B | 160 | SER |
| 2 | B | 180 | LYS |
| 2 | B | 182 | SER |
| 2 | B | 191 | SER |
| 2 | B | 192 | LEU |
| 2 | B | 194 | SER |
| 2 | B | 201 | THR |
| 2 | B | 207 | ARG |
| 2 | B | 213 | GLN |
| 2 | B | 222 | GLU |
| 2 | B | 223 | ASP |
| 2 | B | 225 | TRP |
| 2 | B | 227 | GLU |
| 2 | B | 229 | SER |
| 2 | B | 233 | VAL |
| 2 | B | 238 | SER |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 2 | B | 240 | GLU |
| 1 | C | 3 | VAL |
| 1 | C | 4 | THR |
| 1 | C | 9 | LEU |
| 1 | C | 11 | THR |
| 1 | C | 12 | VAL |
| 1 | C | 14 | GLU |
| 1 | C | 18 | VAL |
| 1 | C | 27 | THR |
| 1 | C | 29 | LEU |
| 1 | C | 33 | PHE |
| 1 | C | 44 | GLN |
| 1 | C | 48 | LYS |
| 1 | C | 51 | THR |
| 1 | C | 55 | ARG |
| 1 | C | 56 | THR |
| 1 | C | 59 | GLN |
| 1 | C | 66 | LEU |
| 1 | C | 74 | HIS |
| 1 | C | 76 | GLN |
| 1 | C | 79 | SER |
| 1 | C | 81 | GLN |
| 1 | C | 85 | SER |
| 1 | C | 87 | LEU |
| 1 | C | 101 | ASN |
| 1 | C | 111 | ARG |
| 1 | C | 114 | VAL |
| 1 | C | 115 | ILE |
| 1 | C | 117 | HIS |
| 1 | C | 125 | VAL |
| 1 | C | 127 | GLN |
| 1 | C | 128 | LEU |
| 1 | C | 135 | SER |
| 1 | C | 136 | GLN |
| 1 | C | 139 | THR |
| 1 | C | 140 | LEU |
| 1 | C | 148 | SER |
| 1 | C | 150 | ILE |
| 1 | C | 152 | VAL |
| 1 | C | 155 | THR |
| 1 | C | 158 | SER |
| 1 | C | 168 | LEU |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | C | 171 | LYS |
| 1 | C | 173 | MET |
| 1 | C | 175 | SER |
| 1 | C | 176 | LYS |
| 1 | C | 177 | SER |
| 1 | C | 181 | ILE |
| 1 | C | 184 | SER |
| 1 | C | 186 | GLN |
| 1 | C | 187 | THR |
| 1 | C | 188 | SER |
| 1 | C | 189 | PHE |
| 1 | C | 190 | THR |
| 1 | C | 192 | GLN |
| 1 | C | 193 | ASP |
| 1 | C | 194 | ILE |
| 1 | C | 196 | LYS |
| 1 | C | 198 | THR |
| 1 | C | 206 | TYR |
| 1 | C | 208 | SER |
| 1 | C | 209 | SER |
| 1 | C | 210 | ASP |
| 1 | C | 213 | CYS |
| 2 | D | 1 | ASP |
| 2 | D | 5 | VAL |
| 2 | D | 6 | GLN |
| 2 | D | 7 | SER |
| 2 | D | 9 | ARG |
| 2 | D | 11 | ILE |
| 2 | D | 13 | LYS |
| 2 | D | 14 | GLU |
| 2 | D | 15 | LYS |
| 2 | D | 27 | SER |
| 2 | D | 30 | SER |
| 2 | D | 33 | VAL |
| 2 | D | 42 | GLU |
| 2 | D | 43 | LEU |
| 2 | D | 53 | VAL |
| 2 | D | 59 | PHE |
| 2 | D | 62 | SER |
| 2 | D | 66 | SER |
| 2 | D | 67 | VAL |
| 2 | D | 68 | GLN |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 2 | D | 71 | ASP |
| 2 | D | 72 | ASP |
| 2 | D | 74 | HIS |
| 2 | D | 75 | SER |
| 2 | D | 77 | MET |
| 2 | D | 79 | MET |
| 2 | D | 80 | SER |
| 2 | D | 84 | LEU |
| 2 | D | 85 | GLU |
| 2 | D | 87 | SER |
| 2 | D | 89 | MET |
| 2 | D | 94 | SER |
| 2 | D | 96 | LEU |
| 2 | D | 97 | ARG |
| 2 | D | 100 | ASP |
| 2 | D | 114 | LEU |
| 2 | D | 119 | LEU |
| 2 | D | 120 | ARG |
| 2 | D | 121 | ASN |
| 2 | D | 123 | THR |
| 2 | D | 127 | VAL |
| 2 | D | 128 | SER |
| 2 | D | 130 | PHE |
| 2 | D | 133 | SER |
| 2 | D | 134 | LYS |
| 2 | D | 136 | GLU |
| 2 | D | 160 | SER |
| 2 | D | 163 | VAL |
| 2 | D | 166 | LYS |
| 2 | D | 180 | LYS |
| 2 | D | 182 | SER |
| 2 | D | 192 | LEU |
| 2 | D | 193 | SER |
| 2 | D | 194 | SER |
| 2 | D | 201 | THR |
| 2 | D | 207 | ARG |
| 2 | D | 213 | GLN |
| 2 | D | 220 | SER |
| 2 | D | 224 | LYS |
| 2 | D | 229 | SER |
| 2 | D | 233 | VAL |
| 2 | D | 238 | SER |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 2 | D | 240 | GLU |
| 2 | D | 246 | ASP |
| 2 | D | 247 | CYS |
| 3 | E | 2 | TYR |
| 3 | E | 14 | THR |
| 3 | E | 17 | GLU |
| 3 | E | 18 | THR |
| 3 | E | 22 | THR |
| 3 | E | 24 | SER |
| 3 | E | 27 | GLN |
| 3 | E | 39 | LYS |
| 3 | E | 40 | SER |
| 3 | E | 43 | ASN |
| 3 | E | 47 | LEU |
| 3 | E | 61 | ARG |
| 3 | E | 63 | SER |
| 3 | E | 79 | GLN |
| 3 | E | 81 | GLU |
| 3 | E | 100 | SER |
| 3 | E | 103 | GLN |
| 3 | E | 104 | LEU |
| 3 | E | 105 | THR |
| 3 | E | 106 | VAL |
| 3 | E | 110 | LYS |
| 3 | E | 111 | SER |
| 3 | E | 117 | VAL |
| 3 | E | 123 | GLU |
| 3 | E | 124 | GLU |
| 3 | E | 126 | ARG |
| 3 | E | 131 | THR |
| 3 | E | 133 | VAL |
| 3 | E | 136 | VAL |
| 3 | E | 138 | ASP |
| 3 | E | 143 | SER |
| 3 | E | 155 | ILE |
| 3 | E | 157 | ASP |
| 3 | E | 165 | SER |
| 3 | E | 172 | ASN |
| 3 | E | 174 | MET |
| 3 | E | 176 | SER |
| 3 | E | 177 | SER |
| 3 | E | 180 | SER |

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| Mol | Chain | Res | Type |
|-----|-------|-------|------|
| 3 | E | 188 | SER |
| 3 | E | 189 | HIS |
| 3 | E | 193 | SER |
| 3 | E | 195 | GLN |
| 3 | E | 199 | GLU |
| 3 | E | 203 | GLU |
| 3 | E | 204 | THR |
| 3 | E | 206 | GLU |
| 3 | E | 207 | LYS |
| 4 | F | 1 | GLU |
| 4 | F | 7 | SER |
| 4 | F | 10 | ASP |
| 4 | F | 11 | LEU |
| 4 | F | 12 | VAL |
| 4 | F | 18 | LEU |
| 4 | F | 20 | VAL |
| 4 | F | 21 | SER |
| 4 | F | 25 | SER |
| 4 | F | 28 | THR |
| 4 | F | 30 | SER |
| 4 | F | 31 | ASP |
| 4 | F | 38 | ARG |
| 4 | F | 43 | LYS |
| 4 | F | 52(A) | ASN |
| 4 | F | 52(B) | ILE |
| 4 | F | 66 | ARG |
| 4 | F | 70 | SER |
| 4 | F | 71 | ARG |
| 4 | F | 75 | ARG |
| 4 | F | 77 | SER |
| 4 | F | 79 | TYR |
| 4 | F | 82(A) | ASN |
| 4 | F | 82(B) | ARG |
| 4 | F | 94 | ARG |
| 4 | F | 97 | ARG |
| 4 | F | 101 | ASP |
| 4 | F | 108 | MET |
| 4 | F | 110 | THR |
| 4 | F | 113 | SER |
| 4 | F | 121 | VAL |
| 4 | F | 124 | LEU |
| 4 | F | 130 | SER |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 4 | F | 131 | THR |
| 4 | F | 132 | THR |
| 4 | F | 137 | THR |
| 4 | F | 139 | THR |
| 4 | F | 140 | LEU |
| 4 | F | 143 | LEU |
| 4 | F | 144 | VAL |
| 4 | F | 148 | PHE |
| 4 | F | 153 | THR |
| 4 | F | 156 | SER |
| 4 | F | 163 | SER |
| 4 | F | 168 | SER |
| 4 | F | 177 | VAL |
| 4 | F | 178 | LEU |
| 4 | F | 188 | SER |
| 4 | F | 190 | SER |
| 4 | F | 196 | SER |
| 4 | F | 202 | LYS |
| 4 | F | 205 | ILE |
| 4 | F | 209 | ASN |
| 4 | F | 210 | VAL |
| 4 | F | 215 | SER |
| 4 | F | 219 | VAL |
| 4 | F | 226 | GLU |
| 3 | G | 2 | TYR |
| 3 | G | 3 | GLU |
| 3 | G | 6 | GLN |
| 3 | G | 9 | SER |
| 3 | G | 14 | THR |
| 3 | G | 18 | THR |
| 3 | G | 22 | THR |
| 3 | G | 24 | SER |
| 3 | G | 27 | GLN |
| 3 | G | 30 | LYS |
| 3 | G | 39 | LYS |
| 3 | G | 43 | ASN |
| 3 | G | 47 | LEU |
| 3 | G | 52 | ASN |
| 3 | G | 56 | SER |
| 3 | G | 58 | ILE |
| 3 | G | 60 | GLU |
| 3 | G | 63 | SER |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 3 | G | 67 | SER |
| 3 | G | 76 | SER |
| 3 | G | 81 | GLU |
| 3 | G | 91 | SER |
| 3 | G | 94 | ASP |
| 3 | G | 95(B) | ASP |
| 3 | G | 100 | SER |
| 3 | G | 104 | LEU |
| 3 | G | 105 | THR |
| 3 | G | 106 | VAL |
| 3 | G | 111 | SER |
| 3 | G | 114 | LYS |
| 3 | G | 117 | VAL |
| 3 | G | 121 | SER |
| 3 | G | 123 | GLU |
| 3 | G | 124 | GLU |
| 3 | G | 125 | LEU |
| 3 | G | 126 | ARG |
| 3 | G | 131 | THR |
| 3 | G | 133 | VAL |
| 3 | G | 134 | CYS |
| 3 | G | 143 | SER |
| 3 | G | 145 | THR |
| 3 | G | 146 | VAL |
| 3 | G | 163 | LYS |
| 3 | G | 165 | SER |
| 3 | G | 174 | MET |
| 3 | G | 175 | THR |
| 3 | G | 176 | SER |
| 3 | G | 181 | LEU |
| 3 | G | 182 | THR |
| 3 | G | 186 | TRP |
| 3 | G | 189 | HIS |
| 3 | G | 190 | ASN |
| 3 | G | 191 | ARG |
| 3 | G | 193 | SER |
| 3 | G | 199 | GLU |
| 3 | G | 203 | GLU |
| 3 | G | 204 | THR |
| 3 | G | 206 | GLU |
| 3 | G | 207 | LYS |
| 3 | G | 209 | LEU |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 3 | G | 213 | GLU |
| 3 | G | 214 | CYS |
| 3 | G | 215 | LEU |
| 4 | H | 7 | SER |
| 4 | H | 11 | LEU |
| 4 | H | 12 | VAL |
| 4 | H | 18 | LEU |
| 4 | H | 21 | SER |
| 4 | H | 28 | THR |
| 4 | H | 31 | ASP |
| 4 | H | 35 | TYR |
| 4 | H | 43 | LYS |
| 4 | H | 50 | ARG |
| 4 | H | 52(A) | ASN |
| 4 | H | 54 | ASN |
| 4 | H | 68 | THR |
| 4 | H | 71 | ARG |
| 4 | H | 74 | SER |
| 4 | H | 75 | ARG |
| 4 | H | 89 | ILE |
| 4 | H | 94 | ARG |
| 4 | H | 97 | ARG |
| 4 | H | 108 | MET |
| 4 | H | 110 | THR |
| 4 | H | 113 | SER |
| 4 | H | 128 | CYS |
| 4 | H | 130 | SER |
| 4 | H | 131 | THR |
| 4 | H | 137 | THR |
| 4 | H | 139 | THR |
| 4 | H | 140 | LEU |
| 4 | H | 143 | LEU |
| 4 | H | 144 | VAL |
| 4 | H | 145 | LYS |
| 4 | H | 148 | PHE |
| 4 | H | 153 | THR |
| 4 | H | 156 | SER |
| 4 | H | 163 | SER |
| 4 | H | 168 | SER |
| 4 | H | 174 | PHE |
| 4 | H | 178 | LEU |
| 4 | H | 180 | SER |

Continued on next page...

Continued from previous page...

| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 4 | H | 192 | THR |
| 4 | H | 195 | SER |
| 4 | H | 196 | SER |
| 4 | H | 198 | THR |
| 4 | H | 202 | LYS |
| 4 | H | 205 | ILE |
| 4 | H | 208 | CYS |
| 4 | H | 216 | SER |
| 4 | H | 226 | GLU |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (46) such sidechains are listed below:

| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | A | 5 | GLN |
| 1 | A | 37 | GLN |
| 1 | A | 44 | GLN |
| 1 | A | 74 | HIS |
| 1 | A | 101 | ASN |
| 1 | A | 117 | HIS |
| 1 | A | 119 | GLN |
| 2 | B | 10 | HIS |
| 2 | B | 37 | GLN |
| 2 | B | 49 | HIS |
| 2 | B | 68 | GLN |
| 2 | B | 69 | GLN |
| 2 | B | 215 | GLN |
| 2 | B | 217 | HIS |
| 1 | C | 5 | GLN |
| 1 | C | 37 | GLN |
| 1 | C | 44 | GLN |
| 1 | C | 63 | HIS |
| 1 | C | 127 | GLN |
| 1 | C | 186 | GLN |
| 2 | D | 37 | GLN |
| 2 | D | 48 | GLN |
| 2 | D | 49 | HIS |
| 2 | D | 68 | GLN |
| 2 | D | 69 | GLN |
| 2 | D | 156 | HIS |
| 2 | D | 215 | GLN |
| 3 | E | 43 | ASN |
| 3 | E | 137 | ASN |

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| Mol | Chain | Res | Type |
|-----|-------|-------|------|
| 3 | E | 171 | GLN |
| 3 | E | 195 | GLN |
| 4 | F | 52(A) | ASN |
| 4 | F | 53 | ASN |
| 4 | F | 81 | GLN |
| 4 | F | 172 | HIS |
| 4 | F | 212 | HIS |
| 3 | G | 6 | GLN |
| 3 | G | 31 | ASN |
| 3 | G | 37 | GLN |
| 3 | G | 43 | ASN |
| 3 | G | 156 | ASN |
| 3 | G | 172 | ASN |
| 3 | G | 195 | GLN |
| 4 | H | 52(A) | ASN |
| 4 | H | 54 | ASN |
| 4 | H | 82(A) | ASN |

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](#)

14 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|-----|------|-------|-----|------|--------------|------|----------|-------------|------|----------|
| | | | | | Counts | RMSZ | # Z > 2 | Counts | RMSZ | # Z > 2 |
| 5 | NAG | B | 251 | 2 | 14,14,15 | 0.51 | 0 | 17,19,21 | 0.62 | 0 |
| 5 | NAG | C | 214 | 1 | 14,14,15 | 0.44 | 0 | 17,19,21 | 0.60 | 0 |
| 5 | NAG | B | 248 | 2 | 14,14,15 | 0.46 | 0 | 17,19,21 | 0.79 | 1 (5%) |
| 5 | NAG | A | 215 | 1 | 14,14,15 | 0.40 | 0 | 17,19,21 | 0.60 | 1 (5%) |
| 5 | NAG | D | 250 | 2 | 14,14,15 | 0.42 | 0 | 17,19,21 | 0.60 | 0 |
| 5 | NAG | D | 251 | 2 | 14,14,15 | 0.49 | 0 | 17,19,21 | 0.62 | 0 |
| 5 | NAG | C | 215 | 1 | 14,14,15 | 0.43 | 0 | 17,19,21 | 0.64 | 0 |
| 5 | NAG | D | 249 | 2 | 14,14,15 | 0.52 | 0 | 17,19,21 | 0.64 | 0 |
| 5 | NAG | C | 216 | 1 | 14,14,15 | 4.34 | 6 (42%) | 17,19,21 | 2.27 | 6 (35%) |
| 5 | NAG | D | 248 | 2 | 14,14,15 | 0.39 | 0 | 17,19,21 | 0.52 | 0 |
| 5 | NAG | A | 214 | 1 | 14,14,15 | 1.10 | 1 (7%) | 17,19,21 | 1.04 | 1 (5%) |
| 5 | NAG | A | 216 | 1 | 14,14,15 | 0.53 | 0 | 17,19,21 | 0.75 | 0 |
| 5 | NAG | B | 249 | 2 | 14,14,15 | 0.36 | 0 | 17,19,21 | 0.84 | 0 |
| 5 | NAG | B | 250 | 2 | 14,14,15 | 0.40 | 0 | 17,19,21 | 0.82 | 1 (5%) |

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

| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|-----|------|-------|-----|------|---------|-----------|---------|
| 5 | NAG | B | 251 | 2 | - | 4/6/23/26 | 0/1/1/1 |
| 5 | NAG | C | 214 | 1 | 1/1/5/7 | 2/6/23/26 | 0/1/1/1 |
| 5 | NAG | A | 215 | 1 | - | 2/6/23/26 | 0/1/1/1 |
| 5 | NAG | D | 250 | 2 | - | 2/6/23/26 | 0/1/1/1 |
| 5 | NAG | D | 251 | 2 | - | 2/6/23/26 | 0/1/1/1 |
| 5 | NAG | C | 215 | 1 | 1/1/5/7 | 4/6/23/26 | 0/1/1/1 |
| 5 | NAG | D | 249 | 2 | - | 3/6/23/26 | 0/1/1/1 |
| 5 | NAG | C | 216 | 1 | 1/1/5/7 | 3/6/23/26 | 0/1/1/1 |
| 5 | NAG | D | 248 | 2 | - | 3/6/23/26 | 0/1/1/1 |
| 5 | NAG | A | 214 | 1 | - | 0/6/23/26 | 0/1/1/1 |
| 5 | NAG | A | 216 | 1 | - | 2/6/23/26 | 0/1/1/1 |
| 5 | NAG | B | 248 | 2 | 1/1/5/7 | 0/6/23/26 | 0/1/1/1 |
| 5 | NAG | B | 249 | 2 | - | 2/6/23/26 | 0/1/1/1 |
| 5 | NAG | B | 250 | 2 | - | 2/6/23/26 | 0/1/1/1 |

All (7) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|-------|--------|-------------|----------|
| 5 | C | 216 | NAG | C1-C2 | -10.68 | 1.36 | 1.52 |
| 5 | C | 216 | NAG | O5-C1 | 8.28 | 1.56 | 1.43 |
| 5 | C | 216 | NAG | C4-C5 | -5.62 | 1.41 | 1.53 |
| 5 | C | 216 | NAG | C8-C7 | 4.47 | 1.59 | 1.50 |
| 5 | C | 216 | NAG | C3-C2 | -3.78 | 1.44 | 1.52 |
| 5 | A | 214 | NAG | O5-C1 | 3.01 | 1.48 | 1.43 |
| 5 | C | 216 | NAG | O7-C7 | -2.77 | 1.17 | 1.23 |

All (10) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|-----|------|----------|-------|-------------|----------|
| 5 | C | 216 | NAG | O5-C5-C4 | 4.83 | 122.58 | 110.83 |
| 5 | C | 216 | NAG | O5-C5-C6 | 3.95 | 113.39 | 107.20 |
| 5 | C | 216 | NAG | C4-C3-C2 | 3.92 | 116.77 | 111.02 |
| 5 | C | 216 | NAG | C1-C2-N2 | -3.13 | 105.14 | 110.49 |
| 5 | C | 216 | NAG | C6-C5-C4 | 3.11 | 120.28 | 113.00 |
| 5 | A | 214 | NAG | C2-N2-C7 | -3.01 | 118.62 | 122.90 |
| 5 | C | 216 | NAG | C1-O5-C5 | -2.63 | 108.63 | 112.19 |
| 5 | B | 250 | NAG | C2-N2-C7 | -2.47 | 119.39 | 122.90 |
| 5 | B | 248 | NAG | C2-N2-C7 | -2.24 | 119.71 | 122.90 |
| 5 | A | 215 | NAG | C2-N2-C7 | -2.05 | 119.98 | 122.90 |

All (4) chirality outliers are listed below:

| Mol | Chain | Res | Type | Atom |
|-----|-------|-----|------|------|
| 5 | B | 248 | NAG | C1 |
| 5 | C | 214 | NAG | C1 |
| 5 | C | 215 | NAG | C1 |
| 5 | C | 216 | NAG | C1 |

All (31) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms |
|-----|-------|-----|------|-------------|
| 5 | C | 215 | NAG | C1-C2-N2-C7 |
| 5 | C | 216 | NAG | O5-C5-C6-O6 |
| 5 | A | 215 | NAG | C4-C5-C6-O6 |
| 5 | C | 214 | NAG | C4-C5-C6-O6 |
| 5 | A | 215 | NAG | O5-C5-C6-O6 |
| 5 | C | 214 | NAG | O5-C5-C6-O6 |
| 5 | B | 250 | NAG | C4-C5-C6-O6 |
| 5 | D | 250 | NAG | C4-C5-C6-O6 |
| 5 | B | 250 | NAG | O5-C5-C6-O6 |
| 5 | D | 248 | NAG | O5-C5-C6-O6 |

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| Mol | Chain | Res | Type | Atoms |
|-----|-------|-----|------|-------------|
| 5 | D | 250 | NAG | O5-C5-C6-O6 |
| 5 | D | 248 | NAG | C4-C5-C6-O6 |
| 5 | C | 215 | NAG | O5-C5-C6-O6 |
| 5 | B | 251 | NAG | O5-C5-C6-O6 |
| 5 | B | 251 | NAG | C1-C2-N2-C7 |
| 5 | C | 215 | NAG | C4-C5-C6-O6 |
| 5 | D | 251 | NAG | C4-C5-C6-O6 |
| 5 | D | 251 | NAG | O5-C5-C6-O6 |
| 5 | A | 216 | NAG | C4-C5-C6-O6 |
| 5 | A | 216 | NAG | O5-C5-C6-O6 |
| 5 | B | 249 | NAG | C4-C5-C6-O6 |
| 5 | C | 216 | NAG | C1-C2-N2-C7 |
| 5 | D | 249 | NAG | C3-C2-N2-C7 |
| 5 | C | 216 | NAG | C4-C5-C6-O6 |
| 5 | B | 251 | NAG | C3-C2-N2-C7 |
| 5 | C | 215 | NAG | C3-C2-N2-C7 |
| 5 | B | 249 | NAG | O5-C5-C6-O6 |
| 5 | D | 249 | NAG | C4-C5-C6-O6 |
| 5 | B | 251 | NAG | C4-C5-C6-O6 |
| 5 | D | 249 | NAG | O5-C5-C6-O6 |
| 5 | D | 248 | NAG | C3-C2-N2-C7 |

There are no ring outliers.

9 monomers are involved in 20 short contacts:

| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|-----|------|---------|--------------|
| 5 | B | 251 | NAG | 1 | 0 |
| 5 | C | 214 | NAG | 3 | 0 |
| 5 | B | 248 | NAG | 3 | 0 |
| 5 | D | 249 | NAG | 1 | 0 |
| 5 | C | 216 | NAG | 3 | 0 |
| 5 | D | 248 | NAG | 2 | 0 |
| 5 | A | 214 | NAG | 2 | 0 |
| 5 | A | 216 | NAG | 2 | 0 |
| 5 | B | 249 | NAG | 3 | 0 |

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 [i](#)

6.1 Protein, DNA and RNA chains [i](#)

EDS was not executed - this section is therefore empty.

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

EDS was not executed - this section is therefore empty.

6.3 Carbohydrates [i](#)

EDS was not executed - this section is therefore empty.

6.4 Ligands [i](#)

EDS was not executed - this section is therefore empty.

6.5 Other polymers [i](#)

EDS was not executed - this section is therefore empty.