



Full wwPDB EM Validation Report ⓘ

Mar 3, 2024 – 08:56 AM EST

PDB ID : 6BZO
EMDB ID : EMD-7319
Title : Mtb RNAP Holo/RbpA/Fidaxomicin/upstream fork DNA
Authors : Darst, S.A.; Campbell, E.A.; Boyaci Selcuk, H.; Chen, J.
Deposited on : 2017-12-25
Resolution : 3.38 Å (reported)

This is a Full wwPDB EM 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/EMValidationReportHelp>

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:

EMDB validation analysis : 0.0.1.dev70
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36

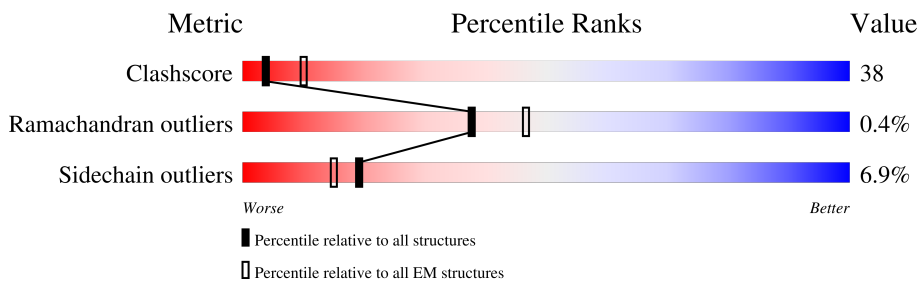
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.38 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.



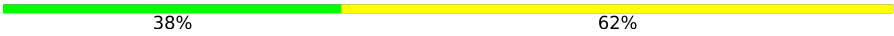
| Metric | Whole archive (#Entries) | EM structures (#Entries) |
|-----------------------|--------------------------|--------------------------|
| Clashscore | 158937 | 4297 |
| Ramachandran outliers | 154571 | 4023 |
| Sidechain outliers | 154315 | 3826 |

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 1 | A | 347 | 35% 28% 35% |
| 1 | B | 347 | 28% 38% 32% |
| 2 | C | 1181 | 43% 46% 6% |
| 3 | D | 1324 | 45% 46% 5% |
| 4 | E | 110 | 27% 45% 25% |
| 5 | F | 531 | 28% 29% 39% |
| 6 | J | 111 | 48% 38% 11% |
| 7 | O | 31 | 26% 74% |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|---|
| 8 | P | 26 |  38% 62% |

2 Entry composition i

There are 12 unique types of molecules in this entry. The entry contains 27336 atoms, of which 74 are hydrogens and 0 are deuteriums.

In the tables below, 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 DNA-directed RNA polymerase subunit alpha.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 1 | A | 226 | Total | C | N | O | S | 0 | 0 |
| | | | 1724 | 1085 | 297 | 339 | 3 | | |
| 1 | B | 237 | Total | C | N | O | S | 0 | 0 |
| | | | 1775 | 1120 | 304 | 348 | 3 | | |

- Molecule 2 is a protein called DNA-directed RNA polymerase subunit beta.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|------|------|----|---------|-------|
| | | | Total | C | N | O | S | | |
| 2 | C | 1111 | Total | C | N | O | S | 0 | 0 |
| | | | 8556 | 5361 | 1504 | 1652 | 39 | | |

There are 9 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|----------------|------------|
| C | 1179 | LEU | - | expression tag | UNP V9Z879 |
| C | 1180 | ALA | - | expression tag | UNP V9Z879 |
| C | 1181 | ARG | - | expression tag | UNP V9Z879 |
| C | 1182 | HIS | - | expression tag | UNP V9Z879 |
| C | 1183 | GLY | - | expression tag | UNP V9Z879 |
| C | 1184 | GLY | - | expression tag | UNP V9Z879 |
| C | 1185 | SER | - | expression tag | UNP V9Z879 |
| C | 1186 | GLY | - | expression tag | UNP V9Z879 |
| C | 1187 | ALA | - | expression tag | UNP V9Z879 |

- Molecule 3 is a protein called DNA-directed RNA polymerase subunit beta'.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|------|------|----|---------|-------|
| | | | Total | C | N | O | S | | |
| 3 | D | 1263 | Total | C | N | O | S | 0 | 0 |
| | | | 9857 | 6175 | 1791 | 1850 | 41 | | |

There are 8 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|----------------|----------------|
| D | 1317 | HIS | - | expression tag | UNP A0A045J9E2 |
| D | 1318 | HIS | - | expression tag | UNP A0A045J9E2 |
| D | 1319 | HIS | - | expression tag | UNP A0A045J9E2 |
| D | 1320 | HIS | - | expression tag | UNP A0A045J9E2 |
| D | 1321 | HIS | - | expression tag | UNP A0A045J9E2 |
| D | 1322 | HIS | - | expression tag | UNP A0A045J9E2 |
| D | 1323 | HIS | - | expression tag | UNP A0A045J9E2 |
| D | 1324 | HIS | - | expression tag | UNP A0A045J9E2 |

- Molecule 4 is a protein called DNA-directed RNA polymerase subunit omega.

| Mol | Chain | Residues | Atoms | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| | | | Total | C | N | O | | |
| 4 | E | 83 | 649 | 414 | 108 | 127 | 0 | 0 |

There is a discrepancy between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|----------------|----------------|
| E | 1 | GLY | - | expression tag | UNP A0A0T9N9K3 |

- Molecule 5 is a protein called RNA polymerase sigma factor SigA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 5 | F | 326 | 2588 | 1617 | 467 | 495 | 9 | 0 | 0 |

There are 3 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|----------------|----------------|
| F | -2 | GLY | - | expression tag | UNP A0A045HD00 |
| F | -1 | PRO | - | expression tag | UNP A0A045HD00 |
| F | 0 | HIS | - | expression tag | UNP A0A045HD00 |

- Molecule 6 is a protein called RNA polymerase-binding protein RbpA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| | | | Total | C | N | O | S | | |
| 6 | J | 107 | 872 | 539 | 162 | 168 | 3 | 0 | 0 |

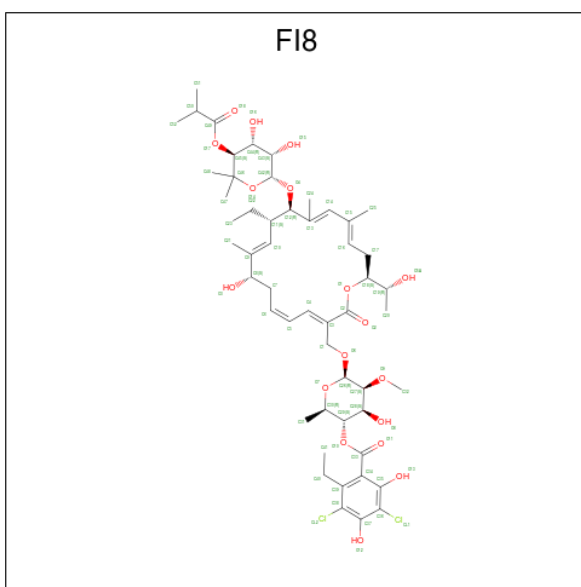
- Molecule 7 is a DNA chain called DNA (32-MER).

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| | | | Total | C | N | O | P | | |
| 7 | O | 31 | 634 | 305 | 114 | 185 | 30 | 0 | 0 |

- Molecule 8 is a DNA chain called DNA (26-MER).

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|-----|-------|----------|-------|-----|----|-----|----|---------|-------|
| | | | Total | C | N | O | P | | |
| 8 | P | 26 | 526 | 254 | 94 | 153 | 25 | 0 | 0 |

- Molecule 9 is Fidaxomicin (three-letter code: FI8) (formula: $C_{52}H_{74}Cl_2O_{18}$) (labeled as "Ligand of Interest" by depositor).



| Mol | Chain | Residues | Atoms | | | | | AltConf |
|-----|-------|----------|-------|----|----|----|----|---------|
| | | | Total | C | Cl | H | O | |
| 9 | C | 1 | 146 | 52 | 2 | 74 | 18 | 0 |

- Molecule 10 is ZINC ION (three-letter code: ZN) (formula: Zn).

| Mol | Chain | Residues | Atoms | | AltConf |
|-----|-------|----------|-------|----|---------|
| | | | Total | Zn | |
| 10 | D | 2 | 2 | 2 | 0 |

- Molecule 11 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

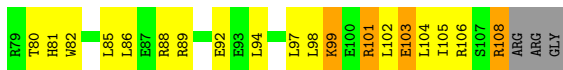
| Mol | Chain | Residues | Atoms | | AltConf |
|-----|-------|----------|-------|----|---------|
| | | | Total | Mg | |
| 11 | D | 1 | 1 | 1 | 0 |

- Molecule 12 is water.

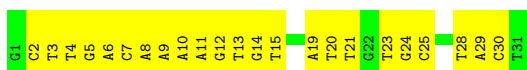
| Mol | Chain | Residues | Atoms | AltConf |
|-----|-------|----------|----------------|---------|
| 12 | C | 2 | Total O 2 2 | 0 |
| 12 | D | 4 | Total O 4 4 | 0 |



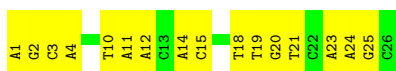
• Molecule 6: RNA polymerase-binding protein RbpA



• Molecule 7: DNA (32-MER)



• Molecule 8: DNA (26-MER)



4 Experimental information

| Property | Value | Source |
|--------------------------------------|---|-----------|
| EM reconstruction method | SINGLE PARTICLE | Depositor |
| Imposed symmetry | POINT, Not provided | |
| Number of particles used | 173509 | Depositor |
| Resolution determination method | FSC 0.143 CUT-OFF | Depositor |
| CTF correction method | PHASE FLIPPING AND AMPLITUDE CORRECTION | Depositor |
| Microscope | FEI TITAN KRIOS | Depositor |
| Voltage (kV) | 300 | Depositor |
| Electron dose ($e^-/\text{\AA}^2$) | 6.7 | Depositor |
| Minimum defocus (nm) | 800 | Depositor |
| Maximum defocus (nm) | 1800 | Depositor |
| Magnification | Not provided | |
| Image detector | GATAN K2 SUMMIT (4k x 4k) | Depositor |
| Maximum map value | 3.278 | Depositor |
| Minimum map value | -1.545 | Depositor |
| Average map value | 0.011 | Depositor |
| Map value standard deviation | 0.105 | Depositor |
| Recommended contour level | 0.347 | Depositor |
| Map size (\AA) | 330.0, 330.0, 330.0 | wwPDB |
| Map dimensions | 300, 300, 300 | wwPDB |
| Map angles ($^\circ$) | 90.0, 90.0, 90.0 | wwPDB |
| Pixel spacing (\AA) | 1.1, 1.1, 1.1 | Depositor |

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: MG, FI8, ZN

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 | 0.24 | 0/1750 | 0.44 | 0/2380 |
| 1 | B | 0.24 | 0/1802 | 0.43 | 0/2454 |
| 2 | C | 0.24 | 0/8714 | 0.42 | 0/11824 |
| 3 | D | 0.25 | 0/10021 | 0.41 | 0/13549 |
| 4 | E | 0.24 | 0/662 | 0.39 | 0/901 |
| 5 | F | 0.23 | 0/2622 | 0.37 | 0/3538 |
| 6 | J | 0.35 | 0/888 | 0.45 | 0/1199 |
| 7 | O | 0.49 | 0/710 | 0.95 | 0/1095 |
| 8 | P | 0.54 | 0/589 | 0.93 | 0/906 |
| All | All | 0.27 | 0/27758 | 0.46 | 0/37846 |

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

| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 2 | C | 0 | 3 |
| 3 | D | 0 | 2 |
| All | All | 0 | 5 |

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (5) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group |
|-----|-------|-----|------|---------|
| 2 | C | 61 | PHE | Peptide |
| 2 | C | 958 | ARG | Peptide |

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| Mol | Chain | Res | Type | Group |
|-----|-------|------|------|---------|
| 2 | C | 960 | PRO | Peptide |
| 3 | D | 1194 | VAL | Peptide |
| 3 | D | 600 | GLN | Peptide |

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 | 1724 | 0 | 1768 | 120 | 0 |
| 1 | B | 1775 | 0 | 1809 | 174 | 0 |
| 2 | C | 8556 | 0 | 8459 | 741 | 0 |
| 3 | D | 9857 | 0 | 9920 | 774 | 0 |
| 4 | E | 649 | 0 | 645 | 54 | 0 |
| 5 | F | 2588 | 0 | 2602 | 222 | 0 |
| 6 | J | 872 | 0 | 852 | 60 | 0 |
| 7 | O | 634 | 0 | 350 | 42 | 0 |
| 8 | P | 526 | 0 | 296 | 37 | 0 |
| 9 | C | 72 | 74 | 0 | 3 | 0 |
| 10 | D | 2 | 0 | 0 | 0 | 0 |
| 11 | D | 1 | 0 | 0 | 0 | 0 |
| 12 | C | 2 | 0 | 0 | 0 | 0 |
| 12 | D | 4 | 0 | 0 | 3 | 0 |
| All | All | 27262 | 74 | 26701 | 2045 | 0 |

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 38.

All (2045) 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) |
|------------------|------------------|--------------------------|-------------------|
| 2:C:948:ALA:HB2 | 2:C:953:PRO:HD3 | 1.27 | 1.16 |
| 2:C:658:ILE:HD11 | 2:C:688:PRO:HB3 | 1.33 | 1.08 |
| 2:C:633:ARG:NH1 | 2:C:637:ASP:OD2 | 1.87 | 1.07 |
| 2:C:225:ARG:HB2 | 2:C:231:ARG:HA | 1.34 | 1.06 |
| 2:C:960:PRO:HG2 | 2:C:963:LEU:HD12 | 1.35 | 1.04 |
| 2:C:959:LEU:HB2 | 2:C:960:PRO:HD3 | 1.39 | 1.04 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:C:571:VAL:HG22 | 2:C:572:PRO:HD2 | 1.40 | 1.01 |
| 3:D:1025:THR:HG21 | 3:D:1029:PRO:HB2 | 1.42 | 1.00 |
| 3:D:162:VAL:HG13 | 3:D:216:LEU:HD22 | 1.41 | 1.00 |
| 2:C:611:MET:HE1 | 2:C:892:LYS:HB3 | 1.42 | 0.98 |
| 2:C:163:LYS:NZ | 2:C:639:GLY:O | 1.97 | 0.98 |
| 2:C:719:LEU:HD22 | 2:C:1030:ILE:HD11 | 1.41 | 0.98 |
| 3:D:750:GLU:OE2 | 3:D:837:LYS:NZ | 1.96 | 0.97 |
| 1:B:183:VAL:HA | 1:B:188:ASP:H | 1.28 | 0.97 |
| 1:B:104:GLU:HG2 | 1:B:127:THR:HG22 | 1.46 | 0.97 |
| 2:C:221:THR:HB | 2:C:261:THR:HG22 | 1.46 | 0.96 |
| 3:D:676:LEU:HD23 | 3:D:716:LEU:HD23 | 1.47 | 0.96 |
| 2:C:152:VAL:HG21 | 2:C:418:ILE:HD12 | 1.46 | 0.96 |
| 2:C:233:PRO:HB3 | 5:F:203:VAL:HG11 | 1.43 | 0.96 |
| 3:D:823:LEU:HD23 | 3:D:835:PRO:HB3 | 1.48 | 0.95 |
| 2:C:61:PHE:O | 2:C:63:TRP:N | 1.98 | 0.95 |
| 2:C:222:VAL:O | 2:C:231:ARG:NH1 | 1.99 | 0.95 |
| 2:C:1135:VAL:HG12 | 3:D:12:ILE:HG12 | 1.49 | 0.94 |
| 2:C:220:ASP:HB3 | 2:C:221:THR:HG22 | 1.48 | 0.94 |
| 3:D:1089:PHE:CE2 | 3:D:1103:ASP:OD2 | 2.20 | 0.94 |
| 1:A:186:ARG:HD2 | 1:B:147:VAL:HG23 | 1.49 | 0.94 |
| 2:C:258:MET:HA | 2:C:261:THR:HG23 | 1.49 | 0.94 |
| 2:C:767:GLU:OE1 | 2:C:805:LYS:NZ | 1.99 | 0.94 |
| 3:D:89:ARG:NH1 | 12:D:1502:HOH:O | 1.99 | 0.94 |
| 2:C:825:PHE:HD2 | 5:F:527:LEU:HD12 | 1.33 | 0.93 |
| 2:C:1038:ASP:OD1 | 3:D:520:LYS:NZ | 2.01 | 0.93 |
| 2:C:659:THR:HG22 | 2:C:669:THR:HG22 | 1.51 | 0.93 |
| 1:B:106:THR:N | 1:B:109:ASP:OD2 | 2.01 | 0.92 |
| 2:C:736:ILE:HD11 | 2:C:916:ILE:HD12 | 1.51 | 0.92 |
| 3:D:902:ALA:HB2 | 3:D:912:ARG:HA | 1.50 | 0.92 |
| 2:C:741:LEU:HD22 | 2:C:746:VAL:HG11 | 1.51 | 0.91 |
| 1:A:34:LEU:HD11 | 1:B:218:LEU:HD21 | 1.50 | 0.91 |
| 2:C:215:ASP:HB2 | 2:C:223:GLY:HA3 | 1.53 | 0.91 |
| 2:C:648:GLY:O | 2:C:695:ARG:NH1 | 2.02 | 0.91 |
| 2:C:413:THR:HG22 | 2:C:416:THR:HG23 | 1.51 | 0.91 |
| 5:F:502:ARG:NH2 | 7:O:2:DC:OP2 | 2.04 | 0.90 |
| 2:C:994:PRO:HB3 | 2:C:999:ASP:H | 1.35 | 0.90 |
| 3:D:1087:ARG:NH1 | 3:D:1110:GLN:OE1 | 2.04 | 0.90 |
| 3:D:1067:VAL:HA | 3:D:1074:GLU:HG2 | 1.50 | 0.90 |
| 6:J:27:ARG:HB3 | 6:J:27:ARG:HH11 | 1.34 | 0.90 |
| 3:D:1122:LEU:HB2 | 3:D:1130:VAL:HG21 | 1.54 | 0.89 |
| 7:O:19:DA:H1' | 7:O:20:DT:H5' | 1.53 | 0.89 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:C:1127:GLU:OE2 | 3:D:412:ARG:NH1 | 2.05 | 0.89 |
| 1:A:40:ARG:HH12 | 2:C:903:ASP:HB3 | 1.39 | 0.88 |
| 2:C:400:VAL:HG13 | 2:C:417:LEU:HB3 | 1.56 | 0.88 |
| 2:C:230:ARG:NH1 | 2:C:230:ARG:HA | 1.88 | 0.88 |
| 1:B:94:THR:HG22 | 1:B:139:VAL:HG22 | 1.53 | 0.88 |
| 2:C:581:VAL:HG22 | 2:C:585:GLN:HE21 | 1.38 | 0.87 |
| 3:D:432:VAL:HG22 | 3:D:434:PRO:HD3 | 1.56 | 0.87 |
| 2:C:267:THR:HG21 | 2:C:273:ALA:HB2 | 1.56 | 0.87 |
| 3:D:1087:ARG:HG3 | 3:D:1088:VAL:H | 1.40 | 0.86 |
| 1:A:40:ARG:NH1 | 2:C:903:ASP:HB3 | 1.90 | 0.86 |
| 2:C:1102:VAL:HG23 | 2:C:1112:ILE:HG23 | 1.54 | 0.86 |
| 3:D:1128:ARG:HH22 | 3:D:1132:ILE:HD11 | 1.41 | 0.86 |
| 5:F:206:GLU:OE1 | 5:F:207:ASP:N | 2.08 | 0.86 |
| 3:D:1128:ARG:HH12 | 3:D:1132:ILE:HG12 | 1.39 | 0.86 |
| 2:C:764:LEU:HD22 | 2:C:810:GLY:HA2 | 1.56 | 0.86 |
| 3:D:1063:LYS:HZ1 | 3:D:1078:ASP:HA | 1.36 | 0.86 |
| 2:C:221:THR:CB | 2:C:261:THR:HG22 | 2.05 | 0.85 |
| 5:F:386:LEU:HD22 | 5:F:394:PRO:HG3 | 1.55 | 0.85 |
| 2:C:229:LYS:HD3 | 2:C:281:LEU:HA | 1.59 | 0.85 |
| 3:D:1097:ARG:HH12 | 3:D:1100:SER:CB | 1.89 | 0.85 |
| 8:P:11:DA:H2'' | 8:P:12:DA:H5' | 1.58 | 0.85 |
| 3:D:323:GLU:OE2 | 12:D:1501:HOH:O | 1.93 | 0.84 |
| 1:B:202:ILE:HD13 | 1:B:207:ALA:HB2 | 1.59 | 0.84 |
| 2:C:319:LYS:NZ | 2:C:368:ASP:OD1 | 2.09 | 0.84 |
| 2:C:877:ARG:HH11 | 2:C:1036:LEU:HD12 | 1.41 | 0.84 |
| 5:F:502:ARG:NH1 | 5:F:505:GLN:OE1 | 2.10 | 0.84 |
| 2:C:285:GLU:HG3 | 2:C:286:PRO:HD2 | 1.59 | 0.84 |
| 2:C:233:PRO:HG3 | 5:F:203:VAL:HG21 | 1.57 | 0.84 |
| 2:C:959:LEU:HD13 | 2:C:960:PRO:HD2 | 1.60 | 0.84 |
| 5:F:240:LEU:HD23 | 5:F:241:LEU:H | 1.43 | 0.83 |
| 3:D:737:LEU:HB2 | 3:D:793:TYR:HE1 | 1.43 | 0.83 |
| 2:C:43:LYS:HE3 | 2:C:959:LEU:HA | 1.61 | 0.83 |
| 2:C:231:ARG:HD2 | 5:F:205:ASP:HB3 | 1.60 | 0.83 |
| 5:F:306:LEU:HD11 | 5:F:348:THR:HG23 | 1.58 | 0.83 |
| 2:C:339:VAL:HA | 2:C:342:ILE:HD12 | 1.58 | 0.82 |
| 5:F:303:VAL:HG22 | 5:F:351:ILE:HD13 | 1.62 | 0.82 |
| 2:C:1111:ASN:ND2 | 4:E:66:ASP:OD1 | 2.12 | 0.82 |
| 3:D:173:ARG:NH1 | 3:D:173:ARG:HB2 | 1.94 | 0.81 |
| 3:D:970:THR:OG1 | 3:D:973:GLY:O | 1.97 | 0.81 |
| 3:D:337:THR:OG1 | 3:D:341:ASN:ND2 | 2.14 | 0.81 |
| 3:D:1063:LYS:NZ | 3:D:1078:ASP:HA | 1.95 | 0.81 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:C:490:GLU:OE2 | 2:C:607:MET:HG2 | 1.81 | 0.81 |
| 3:D:162:VAL:CG1 | 3:D:216:LEU:HD22 | 2.11 | 0.81 |
| 3:D:1099:LEU:O | 3:D:1099:LEU:HD23 | 1.79 | 0.81 |
| 3:D:1250:GLU:OE1 | 3:D:1250:GLU:N | 2.14 | 0.81 |
| 2:C:336:GLU:O | 2:C:339:VAL:HG22 | 1.79 | 0.80 |
| 3:D:579:LEU:HD22 | 3:D:808:THR:HB | 1.63 | 0.80 |
| 3:D:1052:ARG:HG2 | 3:D:1067:VAL:HB | 1.63 | 0.80 |
| 5:F:282:MET:O | 5:F:286:ARG:HG2 | 1.80 | 0.80 |
| 3:D:1128:ARG:NH1 | 3:D:1132:ILE:HG12 | 1.96 | 0.80 |
| 2:C:487:GLU:OE2 | 2:C:613:ARG:NH2 | 2.15 | 0.80 |
| 2:C:909:ASP:OD2 | 2:C:1001:LEU:HD11 | 1.81 | 0.80 |
| 2:C:254:PHE:H | 2:C:255:SER:HB2 | 1.44 | 0.80 |
| 3:D:908:GLY:O | 3:D:910:LEU:N | 2.14 | 0.80 |
| 2:C:213:GLU:OE1 | 2:C:213:GLU:N | 2.15 | 0.80 |
| 1:A:177:LYS:HE2 | 1:A:193:ILE:HD11 | 1.64 | 0.80 |
| 1:B:154:ALA:HB3 | 1:B:158:GLU:HG2 | 1.62 | 0.80 |
| 3:D:952:LEU:HB3 | 3:D:957:ILE:HD11 | 1.64 | 0.79 |
| 3:D:742:LYS:HE2 | 3:D:746:LEU:HD11 | 1.65 | 0.79 |
| 3:D:177:LEU:CD1 | 3:D:201:GLY:HA3 | 2.12 | 0.79 |
| 5:F:286:ARG:HB2 | 5:F:290:ARG:HH12 | 1.45 | 0.79 |
| 5:F:299:ASN:HB2 | 5:F:328:LEU:HD11 | 1.63 | 0.79 |
| 2:C:758:ASP:HB3 | 2:C:868:LEU:HD23 | 1.64 | 0.79 |
| 2:C:945:LYS:N | 2:C:991:CYS:SG | 2.53 | 0.79 |
| 2:C:347:ARG:NH2 | 2:C:352:GLN:OE1 | 2.16 | 0.79 |
| 1:B:182:ARG:NH2 | 3:D:488:GLU:OE2 | 2.15 | 0.79 |
| 3:D:1128:ARG:HH12 | 3:D:1132:ILE:CG1 | 1.95 | 0.79 |
| 2:C:258:MET:HA | 2:C:261:THR:CG2 | 2.12 | 0.79 |
| 2:C:767:GLU:HG2 | 2:C:807:THR:HG22 | 1.64 | 0.79 |
| 3:D:993:GLU:OE2 | 4:E:51:TYR:OH | 2.00 | 0.79 |
| 3:D:144:ARG:NH1 | 3:D:227:THR:O | 2.15 | 0.79 |
| 3:D:911:ILE:H | 3:D:911:ILE:HD13 | 1.48 | 0.79 |
| 2:C:831:GLU:OE1 | 2:C:831:GLU:N | 2.16 | 0.78 |
| 2:C:233:PRO:HG2 | 2:C:236:VAL:HG23 | 1.63 | 0.78 |
| 2:C:1045:SER:OG | 3:D:453:LYS:NZ | 2.16 | 0.78 |
| 3:D:1061:PHE:HB3 | 3:D:1081:SER:HA | 1.65 | 0.78 |
| 2:C:453:ARG:NH2 | 2:C:501:SER:O | 2.15 | 0.78 |
| 3:D:159:ARG:NH2 | 3:D:220:GLU:OE1 | 2.15 | 0.78 |
| 2:C:961:ASP:OD1 | 2:C:962:GLU:N | 2.16 | 0.78 |
| 2:C:817:GLU:OE1 | 2:C:817:GLU:N | 2.14 | 0.78 |
| 3:D:190:LYS:NZ | 3:D:192:ASP:HB3 | 1.99 | 0.78 |
| 3:D:909:THR:C | 3:D:910:LEU:HG | 2.03 | 0.78 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:C:435:GLN:HG3 | 2:C:460:PRO:HD3 | 1.66 | 0.78 |
| 2:C:543:GLN:HE22 | 3:D:847:LEU:HD13 | 1.47 | 0.78 |
| 2:C:222:VAL:HG21 | 2:C:234:VAL:H | 1.48 | 0.78 |
| 3:D:64:LYS:NZ | 3:D:76:GLU:OE2 | 2.14 | 0.78 |
| 6:J:106:ARG:O | 6:J:108:ARG:NH2 | 2.17 | 0.78 |
| 3:D:657:GLN:NE2 | 3:D:660:ASP:O | 2.16 | 0.77 |
| 2:C:809:LYS:HB2 | 2:C:809:LYS:HZ2 | 1.48 | 0.77 |
| 5:F:439:ILE:HD13 | 6:J:6:LEU:HD13 | 1.65 | 0.77 |
| 2:C:797:ARG:O | 2:C:839:VAL:HG11 | 1.85 | 0.77 |
| 2:C:598:GLU:OE1 | 2:C:598:GLU:N | 2.14 | 0.77 |
| 2:C:967:GLN:HG3 | 2:C:968:PRO:HD2 | 1.66 | 0.77 |
| 5:F:303:VAL:HG23 | 5:F:328:LEU:HD12 | 1.67 | 0.77 |
| 4:E:70:GLN:NE2 | 4:E:73:GLU:OE2 | 2.19 | 0.76 |
| 3:D:486:VAL:O | 3:D:490:VAL:HG13 | 1.86 | 0.76 |
| 6:J:27:ARG:HB3 | 6:J:27:ARG:NH1 | 1.99 | 0.76 |
| 2:C:254:PHE:CG | 2:C:255:SER:HB2 | 2.20 | 0.76 |
| 3:D:362:ALA:HB1 | 3:D:363:PRO:HD2 | 1.66 | 0.76 |
| 3:D:198:ARG:O | 3:D:202:GLU:HG2 | 1.86 | 0.76 |
| 4:E:56:TYR:OH | 4:E:104:LEU:HG | 1.85 | 0.76 |
| 3:D:641:ARG:HA | 3:D:657:GLN:HG2 | 1.67 | 0.76 |
| 5:F:498:VAL:HB | 5:F:502:ARG:HB3 | 1.67 | 0.75 |
| 7:O:12:DG:H2' | 7:O:13:DT:H71 | 1.68 | 0.75 |
| 3:D:928:ASP:OD1 | 3:D:940:ARG:N | 2.17 | 0.75 |
| 2:C:275:LEU:O | 2:C:279:ARG:HG3 | 1.87 | 0.75 |
| 3:D:1231:ARG:HA | 3:D:1234:THR:HG22 | 1.69 | 0.75 |
| 2:C:809:LYS:HB2 | 2:C:809:LYS:NZ | 2.00 | 0.75 |
| 3:D:736:VAL:HG22 | 3:D:799:ILE:CD1 | 2.17 | 0.75 |
| 2:C:252:PHE:HB3 | 2:C:258:MET:SD | 2.27 | 0.75 |
| 3:D:187:GLU:OE1 | 3:D:187:GLU:N | 2.20 | 0.75 |
| 3:D:365:ILE:H | 3:D:365:ILE:HD12 | 1.52 | 0.75 |
| 2:C:233:PRO:HG2 | 2:C:236:VAL:CG2 | 2.17 | 0.75 |
| 8:P:11:DA:H4' | 8:P:12:DA:OP1 | 1.85 | 0.74 |
| 1:A:56:ILE:HB | 1:A:59:VAL:HG22 | 1.69 | 0.74 |
| 2:C:231:ARG:CD | 5:F:205:ASP:HB3 | 2.17 | 0.74 |
| 2:C:540:VAL:HG13 | 2:C:561:VAL:CG2 | 2.17 | 0.74 |
| 3:D:1128:ARG:HH12 | 3:D:1132:ILE:CD1 | 1.99 | 0.74 |
| 3:D:500:ARG:HD2 | 3:D:534:ALA:HB2 | 1.69 | 0.74 |
| 6:J:4:ARG:HD3 | 6:J:5:VAL:H | 1.51 | 0.74 |
| 1:B:84:VAL:HB | 1:B:199:LYS:HD3 | 1.70 | 0.74 |
| 2:C:206:PRO:HG3 | 2:C:306:TYR:CE1 | 2.23 | 0.74 |
| 1:B:107:ALA:HB3 | 1:B:121:PRO:HA | 1.69 | 0.74 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 2:C:202:VAL:HG12 | 2:C:214:PHE:HB2 | 1.68 | 0.74 |
| 3:D:263:LYS:HB2 | 3:D:263:LYS:NZ | 2.03 | 0.74 |
| 3:D:31:PRO:HG3 | 3:D:349:ASN:OD1 | 1.88 | 0.73 |
| 2:C:803:VAL:O | 2:C:836:SER:OG | 2.05 | 0.73 |
| 2:C:861:LEU:HB2 | 2:C:862:PRO:HD2 | 1.68 | 0.73 |
| 2:C:948:ALA:HB2 | 2:C:953:PRO:CD | 2.15 | 0.73 |
| 3:D:895:ARG:NH1 | 3:D:967:THR:HB | 2.03 | 0.73 |
| 3:D:397:ARG:NH2 | 5:F:422:SER:OG | 2.21 | 0.73 |
| 5:F:216:ARG:HB2 | 5:F:216:ARG:HH11 | 1.53 | 0.73 |
| 2:C:259:ARG:O | 2:C:263:GLU:HG2 | 1.88 | 0.73 |
| 3:D:190:LYS:HZ2 | 3:D:192:ASP:HB3 | 1.53 | 0.73 |
| 3:D:614:SER:HB2 | 3:D:615:PRO:HD2 | 1.69 | 0.73 |
| 1:A:223:ARG:HD2 | 1:A:224:GLU:H | 1.53 | 0.73 |
| 3:D:939:GLU:OE1 | 3:D:939:GLU:N | 2.20 | 0.73 |
| 3:D:908:GLY:C | 3:D:910:LEU:H | 1.91 | 0.73 |
| 1:B:182:ARG:HA | 1:B:182:ARG:HE | 1.54 | 0.73 |
| 2:C:277:ILE:O | 2:C:281:LEU:HD13 | 1.88 | 0.73 |
| 3:D:670:ARG:NH1 | 3:D:685:ASN:OD1 | 2.20 | 0.73 |
| 3:D:913:ASP:OD1 | 3:D:914:PRO:HD2 | 1.89 | 0.73 |
| 3:D:92:MET:HG2 | 3:D:321:PRO:HD3 | 1.70 | 0.72 |
| 6:J:89:ARG:HG2 | 6:J:94:LEU:HD21 | 1.71 | 0.72 |
| 2:C:177:SER:HB2 | 2:C:378:LEU:HD11 | 1.71 | 0.72 |
| 2:C:577:ASP:N | 2:C:577:ASP:OD1 | 2.19 | 0.72 |
| 6:J:51:PRO:O | 6:J:64:LEU:HD11 | 1.88 | 0.72 |
| 2:C:52:GLY:O | 2:C:55:ASP:N | 2.21 | 0.72 |
| 2:C:540:VAL:HG13 | 2:C:561:VAL:HG21 | 1.71 | 0.72 |
| 1:B:128:LEU:HD23 | 1:B:132:GLY:O | 1.88 | 0.72 |
| 2:C:563:ARG:HB2 | 2:C:563:ARG:HH11 | 1.54 | 0.72 |
| 3:D:293:LEU:HD22 | 3:D:1176:LEU:HG | 1.70 | 0.72 |
| 3:D:606:HIS:HB2 | 3:D:607:PRO:HD2 | 1.71 | 0.72 |
| 2:C:340:ALA:O | 2:C:343:GLU:HG3 | 1.89 | 0.72 |
| 3:D:1193:VAL:HG23 | 3:D:1199:GLU:HG2 | 1.70 | 0.72 |
| 5:F:397:GLU:OE1 | 5:F:398:GLU:N | 2.22 | 0.72 |
| 2:C:230:ARG:HA | 2:C:230:ARG:HH11 | 1.51 | 0.72 |
| 2:C:231:ARG:O | 2:C:232:GLN:NE2 | 2.22 | 0.72 |
| 2:C:435:GLN:HE21 | 2:C:460:PRO:HG3 | 1.54 | 0.72 |
| 2:C:325:GLY:O | 2:C:326:GLU:HG2 | 1.89 | 0.72 |
| 3:D:1097:ARG:HH12 | 3:D:1100:SER:HB2 | 1.54 | 0.72 |
| 2:C:229:LYS:HZ2 | 2:C:281:LEU:HG | 1.53 | 0.72 |
| 2:C:727:GLU:HG2 | 3:D:725:THR:HG21 | 1.72 | 0.72 |
| 1:A:9:LEU:HD12 | 1:A:23:ILE:HD11 | 1.72 | 0.71 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:C:223:GLY:HA2 | 2:C:231:ARG:NH1 | 2.04 | 0.71 |
| 2:C:1039:ASP:HB2 | 2:C:1040:LYS:HE3 | 1.72 | 0.71 |
| 5:F:299:ASN:CB | 5:F:328:LEU:HD11 | 2.20 | 0.71 |
| 5:F:489:LEU:CD1 | 8:P:20:DG:H2' | 2.19 | 0.71 |
| 2:C:959:LEU:HB2 | 2:C:960:PRO:CD | 2.17 | 0.71 |
| 5:F:425:GLN:OE1 | 5:F:425:GLN:N | 2.24 | 0.71 |
| 1:A:186:ARG:HG3 | 1:B:150:VAL:HB | 1.72 | 0.71 |
| 1:B:24:GLU:HG2 | 1:B:191:LYS:HG3 | 1.71 | 0.71 |
| 2:C:264:LYS:O | 5:F:202:PHE:N | 2.24 | 0.71 |
| 2:C:563:ARG:NH1 | 2:C:569:GLU:OE1 | 2.23 | 0.71 |
| 5:F:390:LEU:HG | 5:F:392:ARG:HG3 | 1.72 | 0.71 |
| 3:D:54:PRO:HG3 | 3:D:81:GLU:O | 1.90 | 0.71 |
| 3:D:471:SER:HB3 | 5:F:525:ASP:OD2 | 1.89 | 0.71 |
| 5:F:446:VAL:HG12 | 5:F:448:VAL:HG12 | 1.73 | 0.71 |
| 2:C:787:ARG:HD3 | 2:C:787:ARG:O | 1.91 | 0.71 |
| 3:D:1190:ASN:HD21 | 3:D:1201:ALA:HB3 | 1.55 | 0.71 |
| 7:O:19:DA:H4' | 7:O:20:DT:OP1 | 1.89 | 0.71 |
| 1:B:28:PRO:HD3 | 1:B:189:PHE:HD1 | 1.55 | 0.71 |
| 1:B:183:VAL:HA | 1:B:188:ASP:N | 2.05 | 0.71 |
| 5:F:427:ILE:HD11 | 6:J:2:ALA:N | 2.06 | 0.71 |
| 2:C:959:LEU:HD23 | 2:C:984:GLU:OE1 | 1.90 | 0.70 |
| 3:D:1198:GLY:O | 3:D:1200:PRO:HD3 | 1.91 | 0.70 |
| 1:B:154:ALA:CB | 1:B:158:GLU:HG2 | 2.20 | 0.70 |
| 3:D:152:GLU:OE2 | 3:D:153:ALA:N | 2.23 | 0.70 |
| 3:D:386:ARG:NH2 | 3:D:1230:THR:HG21 | 2.07 | 0.70 |
| 3:D:699:ASP:OD1 | 3:D:703:ARG:HD3 | 1.90 | 0.70 |
| 3:D:67:ARG:HA | 3:D:67:ARG:NE | 2.05 | 0.70 |
| 5:F:507:GLU:O | 5:F:511:MET:HG2 | 1.90 | 0.70 |
| 2:C:63:TRP:O | 2:C:85:GLY:N | 2.22 | 0.70 |
| 3:D:125:LEU:HD11 | 3:D:261:ILE:HD11 | 1.74 | 0.70 |
| 5:F:278:ARG:NH2 | 5:F:282:MET:SD | 2.65 | 0.70 |
| 3:D:460:LEU:HD11 | 3:D:472:ALA:HB1 | 1.72 | 0.70 |
| 3:D:1096:GLU:HA | 3:D:1096:GLU:OE1 | 1.91 | 0.70 |
| 5:F:489:LEU:N | 8:P:20:DG:OP2 | 2.15 | 0.70 |
| 2:C:254:PHE:N | 2:C:255:SER:HB2 | 2.06 | 0.70 |
| 3:D:826:ASN:OD1 | 3:D:832:ILE:HD11 | 1.92 | 0.70 |
| 3:D:847:LEU:O | 3:D:851:ILE:HG12 | 1.91 | 0.70 |
| 5:F:357:ARG:NH1 | 7:O:23:DT:H72 | 2.07 | 0.70 |
| 3:D:269:ASP:O | 3:D:273:GLU:HG2 | 1.92 | 0.69 |
| 2:C:215:ASP:CB | 2:C:223:GLY:HA3 | 2.22 | 0.69 |
| 3:D:237:ASP:OD2 | 3:D:240:LEU:HB2 | 1.92 | 0.69 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:B:40:ARG:HH12 | 3:D:623:ASP:HB3 | 1.58 | 0.69 |
| 3:D:642:PRO:HG2 | 3:D:647:GLU:HB3 | 1.74 | 0.69 |
| 3:D:1162:LEU:HD21 | 3:D:1207:LEU:HD23 | 1.74 | 0.69 |
| 1:A:177:LYS:CE | 1:A:193:ILE:HD11 | 2.23 | 0.69 |
| 3:D:1010:LEU:HD23 | 3:D:1028:LEU:HA | 1.74 | 0.69 |
| 7:O:5:DG:H2' | 7:O:6:DA:C8 | 2.26 | 0.69 |
| 1:B:15:THR:HG23 | 1:B:18:ARG:HB2 | 1.74 | 0.69 |
| 2:C:621:SER:O | 2:C:709:ASP:HB2 | 1.93 | 0.69 |
| 3:D:407:LYS:HG2 | 3:D:408:GLY:H | 1.58 | 0.69 |
| 3:D:1084:GLN:HE21 | 3:D:1112:MET:HB2 | 1.57 | 0.69 |
| 5:F:252:ARG:NH2 | 5:F:287:ASP:OD1 | 2.22 | 0.69 |
| 1:B:60:LEU:HD22 | 1:B:60:LEU:H | 1.58 | 0.69 |
| 3:D:834:ARG:HA | 3:D:834:ARG:HE | 1.56 | 0.69 |
| 8:P:1:DA:H5'' | 8:P:1:DA:H8 | 1.56 | 0.69 |
| 2:C:39:VAL:HG11 | 2:C:963:LEU:HG | 1.73 | 0.69 |
| 2:C:225:ARG:HB2 | 2:C:231:ARG:CA | 2.19 | 0.69 |
| 8:P:11:DA:H2'' | 8:P:12:DA:C5' | 2.22 | 0.69 |
| 2:C:1044:ARG:HB2 | 2:C:1063:PHE:HB3 | 1.74 | 0.69 |
| 2:C:1067:ARG:HA | 3:D:421:ARG:HA | 1.75 | 0.69 |
| 2:C:229:LYS:CD | 2:C:281:LEU:HA | 2.23 | 0.68 |
| 3:D:295:ARG:O | 3:D:299:VAL:HG23 | 1.93 | 0.68 |
| 1:B:64:THR:O | 1:B:65:THR:OG1 | 2.07 | 0.68 |
| 3:D:909:THR:HG22 | 3:D:910:LEU:HG | 1.74 | 0.68 |
| 1:B:149:ALA:N | 1:B:165:ASP:OD1 | 2.27 | 0.68 |
| 2:C:959:LEU:HD13 | 2:C:960:PRO:CD | 2.22 | 0.68 |
| 1:A:6:ARG:NH1 | 1:A:6:ARG:HB3 | 2.08 | 0.68 |
| 2:C:220:ASP:HB3 | 2:C:221:THR:CG2 | 2.21 | 0.68 |
| 3:D:435:GLN:OE1 | 3:D:435:GLN:N | 2.25 | 0.68 |
| 2:C:233:PRO:HB3 | 5:F:203:VAL:CG1 | 2.23 | 0.68 |
| 2:C:719:LEU:HD22 | 2:C:1030:ILE:CD1 | 2.22 | 0.68 |
| 3:D:926:GLY:O | 3:D:940:ARG:NH2 | 2.27 | 0.68 |
| 2:C:771:ARG:HG2 | 2:C:781:LEU:HD11 | 1.75 | 0.68 |
| 3:D:705:PRO:HB2 | 4:E:41:ASP:OD2 | 1.93 | 0.68 |
| 2:C:563:ARG:HB2 | 2:C:563:ARG:NH1 | 2.07 | 0.68 |
| 2:C:961:ASP:O | 2:C:962:GLU:HG3 | 1.94 | 0.68 |
| 3:D:1070:ASP:N | 3:D:1071:GLY:HA2 | 2.09 | 0.68 |
| 2:C:326:GLU:HB3 | 2:C:328:ILE:HG23 | 1.76 | 0.68 |
| 2:C:948:ALA:CB | 2:C:953:PRO:HD3 | 2.16 | 0.68 |
| 3:D:121:ALA:HB3 | 3:D:124:ASP:OD2 | 1.94 | 0.68 |
| 3:D:277:LEU:HD11 | 3:D:295:ARG:NH1 | 2.09 | 0.68 |
| 3:D:823:LEU:HD23 | 3:D:835:PRO:CB | 2.22 | 0.68 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:142:ARG:NH2 | 1:B:230:GLU:OE1 | 2.27 | 0.68 |
| 1:B:81:LYS:NZ | 3:D:617:GLU:OE2 | 2.23 | 0.68 |
| 2:C:338:VAL:O | 2:C:342:ILE:HG13 | 1.94 | 0.68 |
| 2:C:825:PHE:CE2 | 5:F:524:ARG:HA | 2.29 | 0.68 |
| 3:D:749:TYR:CD1 | 3:D:781:ALA:HB2 | 2.29 | 0.68 |
| 2:C:230:ARG:O | 2:C:231:ARG:HB2 | 1.94 | 0.67 |
| 2:C:542:ALA:HB2 | 2:C:576:VAL:CG1 | 2.24 | 0.67 |
| 2:C:741:LEU:CD2 | 2:C:746:VAL:HG11 | 2.24 | 0.67 |
| 3:D:320:ILE:HG13 | 3:D:321:PRO:HD2 | 1.76 | 0.67 |
| 3:D:1080:ILE:HG21 | 3:D:1112:MET:HG3 | 1.75 | 0.67 |
| 2:C:254:PHE:CD2 | 2:C:255:SER:HB2 | 2.29 | 0.67 |
| 3:D:1139:GLN:O | 3:D:1143:ARG:HG3 | 1.94 | 0.67 |
| 5:F:286:ARG:HB2 | 5:F:290:ARG:NH1 | 2.09 | 0.67 |
| 2:C:96:ILE:HB | 2:C:105:LEU:HB3 | 1.77 | 0.67 |
| 2:C:343:GLU:O | 2:C:346:VAL:HG12 | 1.94 | 0.67 |
| 1:B:104:GLU:HG2 | 1:B:127:THR:CG2 | 2.24 | 0.67 |
| 2:C:584:ARG:HH21 | 2:C:975:PRO:HB3 | 1.60 | 0.67 |
| 3:D:163:GLU:OE1 | 3:D:166:ARG:NH2 | 2.22 | 0.67 |
| 3:D:737:LEU:HB2 | 3:D:793:TYR:CE1 | 2.29 | 0.67 |
| 4:E:43:LEU:HD21 | 4:E:100:HIS:HB2 | 1.76 | 0.67 |
| 5:F:441:ASP:OD1 | 5:F:443:GLU:N | 2.24 | 0.67 |
| 2:C:737:LEU:HD11 | 2:C:895:ILE:HD13 | 1.76 | 0.67 |
| 2:C:745:ASP:OD1 | 2:C:878:LYS:HE2 | 1.95 | 0.67 |
| 5:F:246:GLU:OE1 | 5:F:247:VAL:N | 2.28 | 0.67 |
| 2:C:581:VAL:HG22 | 2:C:585:GLN:NE2 | 2.08 | 0.67 |
| 2:C:919:THR:HG23 | 3:D:731:VAL:HG23 | 1.76 | 0.67 |
| 3:D:1080:ILE:HG21 | 3:D:1112:MET:HE3 | 1.76 | 0.67 |
| 1:A:3:ILE:HD12 | 1:A:3:ILE:O | 1.94 | 0.67 |
| 2:C:785:ASP:OD2 | 2:C:787:ARG:HD2 | 1.95 | 0.67 |
| 2:C:967:GLN:CG | 2:C:968:PRO:HD2 | 2.24 | 0.67 |
| 3:D:849:TYR:O | 3:D:853:THR:HG23 | 1.94 | 0.67 |
| 8:P:24:DA:H2' | 8:P:25:DG:H8 | 1.60 | 0.67 |
| 1:A:56:ILE:HB | 1:A:59:VAL:CG2 | 2.24 | 0.67 |
| 1:B:175:THR:HG23 | 1:B:195:ASP:HB3 | 1.76 | 0.67 |
| 2:C:233:PRO:CG | 5:F:203:VAL:HG21 | 2.25 | 0.67 |
| 3:D:736:VAL:HG11 | 3:D:817:LEU:HD22 | 1.75 | 0.67 |
| 5:F:395:THR:OG1 | 5:F:398:GLU:HB2 | 1.94 | 0.67 |
| 3:D:228:LYS:O | 3:D:233:GLN:NE2 | 2.24 | 0.66 |
| 3:D:386:ARG:HH22 | 3:D:1230:THR:HG21 | 1.60 | 0.66 |
| 1:A:219:PHE:HE1 | 1:B:38:LEU:HD22 | 1.61 | 0.66 |
| 1:B:102:PRO:HB3 | 1:B:130:ASP:HA | 1.76 | 0.66 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 2:C:290:GLU:HA | 2:C:294:THR:HG23 | 1.76 | 0.66 |
| 3:D:212:ALA:O | 3:D:216:LEU:HG | 1.95 | 0.66 |
| 5:F:253:ILE:O | 5:F:257:LEU:HD13 | 1.96 | 0.66 |
| 5:F:281:MET:O | 5:F:284:ILE:HG22 | 1.94 | 0.66 |
| 1:A:176:TYR:HB3 | 1:A:194:LEU:HD23 | 1.78 | 0.66 |
| 2:C:950:LYS:HD3 | 2:C:951:GLY:H | 1.59 | 0.66 |
| 2:C:997:ASP:N | 2:C:997:ASP:OD1 | 2.26 | 0.66 |
| 3:D:1173:THR:HG21 | 3:D:1189:GLU:OE2 | 1.95 | 0.66 |
| 5:F:303:VAL:CG2 | 5:F:328:LEU:HD12 | 2.25 | 0.66 |
| 5:F:489:LEU:HD11 | 8:P:20:DG:H2' | 1.75 | 0.66 |
| 8:P:14:DA:H5' | 8:P:14:DA:C8 | 2.31 | 0.66 |
| 2:C:413:THR:O | 2:C:416:THR:OG1 | 2.13 | 0.66 |
| 3:D:364:GLU:HG3 | 3:D:368:ASN:OD1 | 1.95 | 0.66 |
| 5:F:488:THR:OG1 | 5:F:491:GLU:HB2 | 1.96 | 0.66 |
| 2:C:192:ASP:OD2 | 2:C:195:THR:HG23 | 1.94 | 0.66 |
| 3:D:1043:LYS:HD3 | 3:D:1044:ALA:N | 2.11 | 0.66 |
| 5:F:386:LEU:HD22 | 5:F:394:PRO:CG | 2.23 | 0.66 |
| 2:C:413:THR:HG22 | 2:C:416:THR:CG2 | 2.26 | 0.66 |
| 2:C:558:ARG:HH21 | 2:C:572:PRO:HD3 | 1.59 | 0.66 |
| 2:C:994:PRO:CB | 2:C:998:GLY:HA2 | 2.26 | 0.66 |
| 3:D:909:THR:O | 3:D:910:LEU:HG | 1.95 | 0.66 |
| 5:F:446:VAL:CG1 | 5:F:448:VAL:HG12 | 2.25 | 0.66 |
| 2:C:825:PHE:CD2 | 5:F:527:LEU:HD12 | 2.25 | 0.66 |
| 3:D:155:MET:O | 3:D:159:ARG:HG2 | 1.95 | 0.66 |
| 3:D:201:GLY:O | 3:D:205:MET:HG3 | 1.95 | 0.66 |
| 3:D:447:MET:O | 3:D:451:LEU:HD23 | 1.96 | 0.66 |
| 4:E:105:GLU:OE1 | 4:E:105:GLU:N | 2.25 | 0.66 |
| 2:C:153:PHE:CE2 | 2:C:155:GLY:HA2 | 2.31 | 0.66 |
| 2:C:602:ALA:HB3 | 3:D:856:ALA:CB | 2.26 | 0.66 |
| 5:F:228:VAL:O | 5:F:232:LEU:HG | 1.96 | 0.66 |
| 5:F:257:LEU:HD21 | 6:J:81:HIS:ND1 | 2.11 | 0.66 |
| 1:A:21:PHE:CD2 | 1:A:208:LEU:HD22 | 2.30 | 0.66 |
| 2:C:180:VAL:HG21 | 2:C:379:ARG:NH1 | 2.10 | 0.66 |
| 2:C:757:ILE:HB | 2:C:837:LEU:HD22 | 1.77 | 0.66 |
| 2:C:952:VAL:HG11 | 2:C:957:ALA:HA | 1.78 | 0.66 |
| 3:D:776:GLU:O | 3:D:780:GLU:HG2 | 1.95 | 0.66 |
| 3:D:826:ASN:HB2 | 3:D:830:GLU:O | 1.95 | 0.66 |
| 3:D:946:ASP:HB2 | 3:D:947:PRO:HD3 | 1.77 | 0.66 |
| 2:C:861:LEU:HD22 | 2:C:865:VAL:HG12 | 1.78 | 0.65 |
| 2:C:186:TYR:CE2 | 2:C:205:ILE:HD11 | 2.31 | 0.65 |
| 5:F:261:GLN:HG2 | 6:J:82:TRP:CZ2 | 2.32 | 0.65 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:221:LEU:HD13 | 1:B:7:PRO:HG2 | 1.78 | 0.65 |
| 1:B:38:LEU:O | 1:B:42:LEU:HD13 | 1.96 | 0.65 |
| 2:C:220:ASP:HB3 | 2:C:221:THR:HA | 1.77 | 0.65 |
| 2:C:960:PRO:HG2 | 2:C:963:LEU:CD1 | 2.21 | 0.65 |
| 3:D:749:TYR:HE1 | 3:D:780:GLU:HB2 | 1.61 | 0.65 |
| 5:F:317:PHE:CE2 | 5:F:321:ILE:HD11 | 2.31 | 0.65 |
| 2:C:771:ARG:HH11 | 2:C:786:GLU:HA | 1.61 | 0.65 |
| 2:C:918:ASN:OD1 | 2:C:919:THR:N | 2.29 | 0.65 |
| 3:D:173:ARG:HB2 | 3:D:173:ARG:HH11 | 1.59 | 0.65 |
| 3:D:344:TYR:O | 3:D:348:ILE:HG22 | 1.97 | 0.65 |
| 5:F:516:HIS:ND1 | 5:F:517:PRO:HD2 | 2.11 | 0.65 |
| 8:P:24:DA:H2' | 8:P:25:DG:C8 | 2.32 | 0.65 |
| 2:C:524:VAL:HG21 | 2:C:548:ILE:HD11 | 1.79 | 0.65 |
| 3:D:1150:HIS:CE1 | 3:D:1152:LYS:HE3 | 2.32 | 0.65 |
| 3:D:790:ARG:HB2 | 3:D:811:PHE:CZ | 2.31 | 0.65 |
| 3:D:917:GLU:HA | 3:D:921:TYR:CD2 | 2.31 | 0.65 |
| 3:D:1065:THR:HG23 | 3:D:1076:VAL:HG22 | 1.77 | 0.65 |
| 4:E:56:TYR:OH | 4:E:104:LEU:O | 2.14 | 0.65 |
| 7:O:8:DA:H2'' | 7:O:9:DA:C8 | 2.32 | 0.65 |
| 2:C:85:GLY:O | 2:C:386:GLN:NE2 | 2.28 | 0.65 |
| 2:C:152:VAL:HG21 | 2:C:418:ILE:CD1 | 2.25 | 0.65 |
| 2:C:357:VAL:CG2 | 2:C:358:PRO:HD2 | 2.27 | 0.65 |
| 2:C:610:ASN:OD1 | 2:C:613:ARG:NH1 | 2.23 | 0.65 |
| 3:D:595:ASP:OD1 | 3:D:596:THR:N | 2.25 | 0.65 |
| 3:D:885:ILE:HD11 | 3:D:887:ARG:NH1 | 2.11 | 0.65 |
| 2:C:790:VAL:HG13 | 2:C:802:LEU:O | 1.97 | 0.65 |
| 3:D:494:HIS:CE1 | 3:D:545:LEU:HD11 | 2.31 | 0.65 |
| 3:D:1267:TYR:O | 3:D:1270:ILE:HG13 | 1.96 | 0.65 |
| 6:J:34:THR:OG1 | 6:J:38:GLU:HB2 | 1.97 | 0.65 |
| 2:C:232:GLN:HG2 | 2:C:277:ILE:CD1 | 2.27 | 0.65 |
| 2:C:442:GLN:O | 2:C:678:SER:OG | 2.13 | 0.65 |
| 2:C:224:VAL:HG21 | 2:C:234:VAL:N | 2.12 | 0.64 |
| 3:D:84:ARG:HG3 | 3:D:84:ARG:HH11 | 1.62 | 0.64 |
| 3:D:314:LEU:HD21 | 3:D:382:PHE:HE2 | 1.62 | 0.64 |
| 3:D:923:ARG:HB3 | 3:D:962:VAL:CG1 | 2.28 | 0.64 |
| 5:F:306:LEU:CD1 | 5:F:348:THR:HG23 | 2.27 | 0.64 |
| 7:O:5:DG:H2'' | 7:O:6:DA:C5' | 2.27 | 0.64 |
| 1:B:28:PRO:HD3 | 1:B:189:PHE:CD1 | 2.31 | 0.64 |
| 3:D:662:TRP:CZ3 | 3:D:664:ALA:HB2 | 2.33 | 0.64 |
| 1:A:78:LEU:HD13 | 2:C:620:ARG:HD3 | 1.78 | 0.64 |
| 1:B:102:PRO:HD3 | 1:B:131:LYS:H | 1.63 | 0.64 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:C:285:GLU:CG | 2:C:286:PRO:HD2 | 2.28 | 0.64 |
| 2:C:786:GLU:OE1 | 2:C:786:GLU:N | 2.30 | 0.64 |
| 3:D:177:LEU:HD12 | 3:D:201:GLY:HA3 | 1.80 | 0.64 |
| 3:D:1050:THR:O | 3:D:1069:ASP:N | 2.23 | 0.64 |
| 7:O:19:DA:C8 | 7:O:20:DT:H72 | 2.32 | 0.64 |
| 1:A:40:ARG:HH12 | 2:C:903:ASP:CB | 2.09 | 0.64 |
| 1:A:152:ASN:OD1 | 1:A:157:ALA:HB3 | 1.98 | 0.64 |
| 1:B:2:LEU:HD23 | 1:B:3:ILE:N | 2.13 | 0.64 |
| 2:C:760:ARG:HG2 | 2:C:865:VAL:HG22 | 1.78 | 0.64 |
| 2:C:774:PRO:HG3 | 2:C:832:VAL:HG23 | 1.80 | 0.64 |
| 5:F:249:LEU:O | 5:F:253:ILE:HG13 | 1.97 | 0.64 |
| 8:P:24:DA:H2'' | 8:P:25:DG:C5' | 2.28 | 0.64 |
| 1:B:4:SER:O | 1:B:5:GLN:HG2 | 1.97 | 0.64 |
| 2:C:757:ILE:O | 2:C:868:LEU:HD22 | 1.96 | 0.64 |
| 4:E:73:GLU:OE1 | 4:E:74:GLY:N | 2.31 | 0.64 |
| 5:F:342:LYS:HG2 | 7:O:30:DC:OP2 | 1.97 | 0.64 |
| 2:C:622:GLU:O | 2:C:714:ALA:HB1 | 1.96 | 0.64 |
| 3:D:760:PHE:CD1 | 3:D:770:ARG:HG2 | 2.33 | 0.64 |
| 3:D:902:ALA:CB | 3:D:912:ARG:HA | 2.27 | 0.64 |
| 2:C:214:PHE:HE2 | 2:C:342:ILE:HG12 | 1.63 | 0.64 |
| 3:D:134:TYR:HE2 | 3:D:238:GLU:HG3 | 1.61 | 0.64 |
| 3:D:599:TYR:OH | 3:D:608:GLU:OE1 | 2.09 | 0.64 |
| 5:F:399:LEU:O | 5:F:403:MET:N | 2.27 | 0.64 |
| 6:J:26:PRO:O | 6:J:46:ASP:HB2 | 1.98 | 0.64 |
| 1:A:183:VAL:HG22 | 1:A:185:GLN:OE1 | 1.97 | 0.64 |
| 2:C:202:VAL:CG1 | 2:C:214:PHE:HB2 | 2.27 | 0.64 |
| 2:C:357:VAL:HG22 | 2:C:358:PRO:HD2 | 1.80 | 0.64 |
| 3:D:940:ARG:NH1 | 3:D:963:ARG:HH22 | 1.96 | 0.64 |
| 6:J:24:LEU:HD23 | 6:J:24:LEU:H | 1.63 | 0.64 |
| 3:D:638:THR:O | 3:D:639:GLN:NE2 | 2.31 | 0.63 |
| 3:D:1012:MET:C | 3:D:1027:GLY:N | 2.52 | 0.63 |
| 1:B:210:SER:O | 1:B:214:THR:HG23 | 1.98 | 0.63 |
| 2:C:399:VAL:O | 2:C:403:ARG:HG2 | 1.98 | 0.63 |
| 2:C:542:ALA:HB2 | 2:C:576:VAL:HG13 | 1.80 | 0.63 |
| 2:C:767:GLU:CG | 2:C:807:THR:HG22 | 2.28 | 0.63 |
| 3:D:153:ALA:O | 3:D:157:VAL:HG23 | 1.97 | 0.63 |
| 2:C:737:LEU:CD2 | 2:C:915:ILE:HG22 | 2.28 | 0.63 |
| 3:D:721:PHE:O | 3:D:725:THR:HG23 | 1.98 | 0.63 |
| 1:A:6:ARG:HB3 | 1:A:6:ARG:HH11 | 1.63 | 0.63 |
| 2:C:363:VAL:CG1 | 2:C:364:PRO:HD2 | 2.29 | 0.63 |
| 2:C:396:MET:CE | 2:C:418:ILE:HG23 | 2.29 | 0.63 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 2:C:413:THR:CG2 | 2:C:416:THR:HG23 | 2.28 | 0.63 |
| 3:D:166:ARG:HD3 | 3:D:216:LEU:HD11 | 1.81 | 0.63 |
| 1:A:110:ILE:O | 1:A:112:PRO:HD3 | 1.97 | 0.63 |
| 2:C:806:VAL:HG22 | 2:C:832:VAL:HB | 1.80 | 0.63 |
| 3:D:1192:ARG:HG2 | 3:D:1192:ARG:O | 1.98 | 0.63 |
| 3:D:1217:THR:HG22 | 3:D:1223:ALA:HB2 | 1.80 | 0.63 |
| 5:F:467:LEU:HD21 | 5:F:519:ARG:NH1 | 2.13 | 0.63 |
| 2:C:583:PRO:O | 2:C:584:ARG:HG2 | 1.99 | 0.63 |
| 3:D:1089:PHE:CZ | 3:D:1103:ASP:OD2 | 2.51 | 0.63 |
| 5:F:311:THR:HG21 | 5:F:317:PHE:HD1 | 1.64 | 0.63 |
| 5:F:399:LEU:HA | 5:F:402:GLU:HB3 | 1.79 | 0.63 |
| 2:C:950:LYS:HD3 | 2:C:951:GLY:N | 2.13 | 0.63 |
| 5:F:315:MET:CE | 5:F:362:GLN:HB2 | 2.29 | 0.63 |
| 4:E:82:LEU:N | 4:E:98:GLU:OE2 | 2.30 | 0.62 |
| 2:C:697:GLU:OE1 | 2:C:697:GLU:N | 2.32 | 0.62 |
| 3:D:58:TRP:HA | 3:D:82:VAL:HG23 | 1.82 | 0.62 |
| 3:D:219:LEU:O | 3:D:222:ILE:HG23 | 1.99 | 0.62 |
| 5:F:325:ASN:O | 5:F:329:ILE:HG13 | 1.99 | 0.62 |
| 2:C:488:THR:O | 2:C:610:ASN:ND2 | 2.28 | 0.62 |
| 3:D:52:PHE:O | 3:D:91:ARG:HD2 | 1.98 | 0.62 |
| 3:D:73:ILE:HG22 | 6:J:27:ARG:NH1 | 2.15 | 0.62 |
| 1:B:152:ASN:ND2 | 1:B:158:GLU:HG3 | 2.14 | 0.62 |
| 3:D:642:PRO:HB3 | 3:D:662:TRP:CD2 | 2.34 | 0.62 |
| 5:F:317:PHE:HE2 | 5:F:321:ILE:HD11 | 1.64 | 0.62 |
| 3:D:888:GLU:OE2 | 3:D:891:CYS:HA | 1.99 | 0.62 |
| 5:F:381:ARG:HD2 | 5:F:382:ILE:HD12 | 1.80 | 0.62 |
| 8:P:24:DA:H2'' | 8:P:25:DG:H5' | 1.81 | 0.62 |
| 1:B:41:THR:O | 1:B:45:SER:HB3 | 2.00 | 0.62 |
| 1:B:85:VAL:HG23 | 1:B:117:THR:O | 1.99 | 0.62 |
| 2:C:274:LEU:CD2 | 2:C:292:ALA:HB1 | 2.29 | 0.62 |
| 2:C:400:VAL:HG22 | 2:C:417:LEU:O | 2.00 | 0.62 |
| 2:C:101:GLY:O | 2:C:142:ASN:ND2 | 2.28 | 0.62 |
| 2:C:214:PHE:CE2 | 2:C:342:ILE:HG12 | 2.34 | 0.62 |
| 2:C:274:LEU:HD11 | 2:C:292:ALA:O | 2.00 | 0.62 |
| 2:C:486:ILE:HD11 | 3:D:849:TYR:HE2 | 1.64 | 0.62 |
| 2:C:789:ILE:HD12 | 2:C:789:ILE:O | 1.99 | 0.62 |
| 2:C:959:LEU:CB | 2:C:960:PRO:HD3 | 2.25 | 0.62 |
| 5:F:471:GLU:O | 5:F:475:VAL:HG23 | 2.00 | 0.62 |
| 2:C:623:ALA:HA | 2:C:714:ALA:HB2 | 1.81 | 0.62 |
| 2:C:1128:LEU:HD23 | 3:D:406:LEU:HD21 | 1.81 | 0.62 |
| 3:D:599:TYR:CZ | 3:D:601:PRO:HG3 | 2.35 | 0.62 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------------|--------------------------|--------------------------|-------------------|
| 3:D:882:GLN:HE22 | 3:D:1249:LYS:HE2 | 1.64 | 0.62 |
| 3:D:1231:ARG:HA | 3:D:1234:THR:CG2 | 2.29 | 0.62 |
| 2:C:507:ASN:HB2 | 2:C:511:PHE:O | 1.99 | 0.61 |
| 3:D:1033:GLU:OE2 | 3:D:1040:PRO:HB3 | 1.99 | 0.61 |
| 2:C:220:ASP:CB | 2:C:221:THR:HG22 | 2.27 | 0.61 |
| 3:D:453:LYS:NZ | 3:D:453:LYS:HB3 | 2.15 | 0.61 |
| 3:D:143:MET:HA | 3:D:146:ASN:OD1 | 2.00 | 0.61 |
| 3:D:741:ARG:HB2 | 3:D:744:GLU:OE2 | 1.98 | 0.61 |
| 3:D:913:ASP:O | 3:D:916:ILE:HG13 | 2.01 | 0.61 |
| 3:D:1064:ILE:HD11 | 3:D:1112:MET:HE2 | 1.83 | 0.61 |
| 3:D:1219:SER:HB2 | 3:D:1243:ASP:OD2 | 1.99 | 0.61 |
| 5:F:486:PRO:O | 5:F:487:ARG:HD3 | 1.99 | 0.61 |
| 2:C:220:ASP:CB | 2:C:221:THR:HA | 2.30 | 0.61 |
| 2:C:222:VAL:HG21 | 2:C:234:VAL:N | 2.14 | 0.61 |
| 2:C:278:TYR:CD1 | 2:C:291:SER:HB2 | 2.35 | 0.61 |
| 1:A:153:ARG:CZ | 2:C:797:ARG:HG2 | 2.30 | 0.61 |
| 2:C:922:VAL:HB | 2:C:923:PRO:HD3 | 1.82 | 0.61 |
| 3:D:873:LEU:O | 3:D:877:LEU:HD23 | 2.00 | 0.61 |
| 7:O:5:DG:H2 [?] | 7:O:6:DA:H5 [?] | 1.82 | 0.61 |
| 1:B:96:TYR:CD1 | 1:B:137:GLU:HG2 | 2.35 | 0.61 |
| 2:C:140:ILE:HG12 | 2:C:146:GLU:O | 2.00 | 0.61 |
| 3:D:709:VAL:O | 3:D:713:VAL:HG23 | 2.00 | 0.61 |
| 2:C:103:MET:HB2 | 2:C:139:PHE:CE1 | 2.36 | 0.61 |
| 2:C:646:GLU:HB3 | 2:C:662:HIS:CE1 | 2.36 | 0.61 |
| 2:C:855:ARG:HH11 | 2:C:861:LEU:HD12 | 1.66 | 0.61 |
| 2:C:1040:LYS:HD3 | 3:D:540:GLN:HE22 | 1.65 | 0.61 |
| 3:D:460:LEU:HD11 | 3:D:472:ALA:CB | 2.30 | 0.61 |
| 3:D:1067:VAL:HG22 | 3:D:1074:GLU:CD | 2.21 | 0.61 |
| 2:C:58:THR:O | 2:C:62:GLU:HB2 | 2.00 | 0.61 |
| 2:C:599:HIS:HB3 | 2:C:928:ILE:CD1 | 2.31 | 0.61 |
| 2:C:1044:ARG:HB2 | 2:C:1063:PHE:CB | 2.31 | 0.61 |
| 3:D:467:GLN:HA | 3:D:467:GLN:HE21 | 1.65 | 0.61 |
| 3:D:963:ARG:HD3 | 3:D:978:CYS:SG | 2.41 | 0.61 |
| 4:E:85:PRO:HB3 | 4:E:94:ILE:CD1 | 2.31 | 0.61 |
| 2:C:400:VAL:O | 2:C:404:MET:HB2 | 2.00 | 0.61 |
| 4:E:47:VAL:CG1 | 4:E:52:ALA:HB3 | 2.31 | 0.61 |
| 2:C:290:GLU:HG2 | 2:C:294:THR:OG1 | 2.01 | 0.60 |
| 3:D:767:HIS:O | 3:D:770:ARG:HG3 | 2.00 | 0.60 |
| 1:B:182:ARG:HA | 1:B:182:ARG:NE | 2.13 | 0.60 |
| 2:C:225:ARG:HD3 | 2:C:230:ARG:CA | 2.30 | 0.60 |
| 9:C:1201:FI8:O8 | 9:C:1201:FI8:O11 | 2.19 | 0.60 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 5:F:305:SER:O | 5:F:308:LYS:HG2 | 2.01 | 0.60 |
| 2:C:531:LEU:HD11 | 2:C:578:TYR:CE2 | 2.36 | 0.60 |
| 2:C:993:LEU:HD22 | 2:C:993:LEU:H | 1.64 | 0.60 |
| 3:D:155:MET:HE3 | 3:D:219:LEU:HD12 | 1.84 | 0.60 |
| 5:F:429:ASP:OD1 | 5:F:430:GLU:N | 2.27 | 0.60 |
| 1:A:18:ARG:NH1 | 1:A:195:ASP:OD2 | 2.33 | 0.60 |
| 1:A:105:VAL:HG23 | 1:A:128:LEU:HD13 | 1.81 | 0.60 |
| 2:C:205:ILE:HG22 | 2:C:211:TRP:CE2 | 2.36 | 0.60 |
| 3:D:111:PRO:HB2 | 3:D:116:TYR:CE2 | 2.36 | 0.60 |
| 3:D:929:ALA:O | 3:D:937:ILE:HG22 | 2.01 | 0.60 |
| 3:D:931:ASP:HB3 | 3:D:955:ALA:HB1 | 1.83 | 0.60 |
| 3:D:1139:GLN:HG3 | 3:D:1143:ARG:HE | 1.66 | 0.60 |
| 6:J:7:ARG:HD2 | 6:J:7:ARG:O | 2.01 | 0.60 |
| 7:O:3:DT:C6 | 7:O:4:DT:H72 | 2.36 | 0.60 |
| 1:A:10:SER:OG | 1:A:22:VAL:HG13 | 2.02 | 0.60 |
| 2:C:1044:ARG:CZ | 2:C:1056:PRO:HB3 | 2.30 | 0.60 |
| 1:A:40:ARG:CD | 1:B:33:THR:HG22 | 2.30 | 0.60 |
| 1:B:95:MET:HG2 | 1:B:113:PRO:CD | 2.32 | 0.60 |
| 1:B:202:ILE:HD12 | 1:B:202:ILE:O | 2.01 | 0.60 |
| 2:C:103:MET:SD | 2:C:404:MET:HG2 | 2.41 | 0.60 |
| 2:C:721:VAL:HG23 | 2:C:915:ILE:HG13 | 1.83 | 0.60 |
| 2:C:797:ARG:HG3 | 2:C:800:ASP:OD2 | 2.01 | 0.60 |
| 3:D:1122:LEU:CB | 3:D:1130:VAL:HG21 | 2.31 | 0.60 |
| 2:C:323:HIS:HB3 | 2:C:326:GLU:HG3 | 1.82 | 0.60 |
| 3:D:215:GLU:HG2 | 3:D:218:ARG:HH21 | 1.64 | 0.60 |
| 6:J:101:ARG:HA | 6:J:101:ARG:HH11 | 1.65 | 0.60 |
| 1:A:105:VAL:O | 1:A:125:ILE:HB | 2.02 | 0.60 |
| 2:C:905:PRO:O | 2:C:913:VAL:HG13 | 2.02 | 0.60 |
| 3:D:1087:ARG:CG | 3:D:1088:VAL:H | 2.11 | 0.60 |
| 2:C:200:HIS:O | 2:C:345:LEU:HD21 | 2.01 | 0.60 |
| 2:C:290:GLU:OE1 | 2:C:291:SER:N | 2.35 | 0.60 |
| 2:C:1110:GLU:HG2 | 4:E:69:ASN:HD21 | 1.67 | 0.59 |
| 3:D:219:LEU:HA | 3:D:222:ILE:CG2 | 2.32 | 0.59 |
| 3:D:1098:VAL:O | 3:D:1098:VAL:HG22 | 2.01 | 0.59 |
| 5:F:516:HIS:CG | 5:F:517:PRO:HD2 | 2.37 | 0.59 |
| 8:P:23:DA:H2' | 8:P:24:DA:C5' | 2.31 | 0.59 |
| 2:C:482:ARG:HH11 | 2:C:532:THR:C | 2.06 | 0.59 |
| 2:C:602:ALA:HB3 | 3:D:856:ALA:HB1 | 1.84 | 0.59 |
| 3:D:22:GLN:O | 3:D:22:GLN:HG2 | 2.02 | 0.59 |
| 1:A:186:ARG:HD2 | 1:B:147:VAL:CG2 | 2.27 | 0.59 |
| 7:O:19:DA:H2' | 7:O:20:DT:C7 | 2.32 | 0.59 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:C:278:TYR:CG | 2:C:291:SER:HB2 | 2.37 | 0.59 |
| 2:C:946:VAL:HB | 2:C:964:LEU:HB3 | 1.84 | 0.59 |
| 5:F:492:ILE:O | 5:F:495:VAL:HG12 | 2.02 | 0.59 |
| 6:J:40:PHE:CD2 | 6:J:56:CYS:HB3 | 2.36 | 0.59 |
| 6:J:102:LEU:O | 6:J:105:ILE:HG22 | 2.01 | 0.59 |
| 8:P:23:DA:H2'' | 8:P:24:DA:H5' | 1.85 | 0.59 |
| 1:A:144:ARG:NE | 1:B:232:ILE:HD11 | 2.17 | 0.59 |
| 2:C:241:LEU:HD21 | 2:C:335:GLU:CB | 2.33 | 0.59 |
| 3:D:925:LEU:HD21 | 3:D:944:LEU:HD11 | 1.84 | 0.59 |
| 3:D:711:GLN:OE1 | 4:E:30:ASP:HB2 | 2.02 | 0.59 |
| 3:D:1051:GLY:HA2 | 3:D:1069:ASP:HB2 | 1.85 | 0.59 |
| 1:A:218:LEU:O | 1:A:221:LEU:HD22 | 2.02 | 0.59 |
| 1:B:71:GLU:OE1 | 1:B:71:GLU:N | 2.28 | 0.59 |
| 2:C:220:ASP:HB3 | 2:C:221:THR:CA | 2.33 | 0.59 |
| 2:C:338:VAL:O | 2:C:341:THR:HG22 | 2.02 | 0.59 |
| 1:A:105:VAL:HG23 | 1:A:128:LEU:CD1 | 2.33 | 0.59 |
| 1:B:55:ARG:NH1 | 1:B:55:ARG:HB2 | 2.18 | 0.59 |
| 2:C:77:ARG:NH2 | 2:C:505:ARG:HH12 | 2.00 | 0.59 |
| 2:C:446:LEU:O | 2:C:446:LEU:HD23 | 2.02 | 0.59 |
| 3:D:125:LEU:O | 3:D:129:ILE:HG23 | 2.03 | 0.59 |
| 3:D:725:THR:OG1 | 3:D:726:ARG:HD2 | 2.03 | 0.59 |
| 2:C:231:ARG:HB2 | 5:F:205:ASP:HB3 | 1.84 | 0.59 |
| 2:C:1050:SER:HB3 | 2:C:1053:THR:O | 2.03 | 0.59 |
| 3:D:638:THR:HG22 | 3:D:661:ALA:HB2 | 1.85 | 0.59 |
| 3:D:1172:SER:HB3 | 3:D:1199:GLU:CB | 2.33 | 0.59 |
| 5:F:390:LEU:HG | 5:F:392:ARG:CG | 2.32 | 0.59 |
| 1:B:124:HIS:CE1 | 1:B:127:THR:HG23 | 2.38 | 0.59 |
| 2:C:267:THR:HG21 | 2:C:273:ALA:CB | 2.31 | 0.59 |
| 2:C:559:VAL:HG12 | 2:C:560:LEU:O | 2.03 | 0.59 |
| 2:C:737:LEU:CD1 | 2:C:895:ILE:HD13 | 2.33 | 0.59 |
| 2:C:1059:GLY:H | 2:C:1062:GLN:CB | 2.16 | 0.59 |
| 3:D:666:THR:HG22 | 3:D:685:ASN:ND2 | 2.18 | 0.59 |
| 3:D:1221:LEU:HD23 | 3:D:1221:LEU:H | 1.68 | 0.59 |
| 5:F:490:ASP:HB2 | 5:F:500:ARG:HD3 | 1.85 | 0.59 |
| 2:C:224:VAL:O | 2:C:226:ILE:HG22 | 2.02 | 0.58 |
| 2:C:1048:PRO:HG2 | 2:C:1057:LEU:O | 2.01 | 0.58 |
| 3:D:297:LYS:NZ | 3:D:1176:LEU:HD11 | 2.18 | 0.58 |
| 3:D:740:PRO:HD3 | 3:D:792:HIS:CD2 | 2.38 | 0.58 |
| 3:D:1053:VAL:HG12 | 3:D:1103:ASP:O | 2.04 | 0.58 |
| 3:D:1067:VAL:HG22 | 3:D:1074:GLU:OE2 | 2.03 | 0.58 |
| 3:D:1128:ARG:NH2 | 3:D:1132:ILE:HD11 | 2.14 | 0.58 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 3:D:1166:THR:HB | 3:D:1206:VAL:HG21 | 1.84 | 0.58 |
| 5:F:334:LYS:HE3 | 7:O:25:DC:P | 2.43 | 0.58 |
| 5:F:418:ARG:HB2 | 5:F:418:ARG:NH2 | 2.18 | 0.58 |
| 5:F:474:VAL:HG22 | 5:F:496:TYR:HE2 | 1.66 | 0.58 |
| 1:B:84:VAL:HG22 | 1:B:119:HIS:HB2 | 1.85 | 0.58 |
| 2:C:519:VAL:N | 2:C:577:ASP:O | 2.31 | 0.58 |
| 2:C:789:ILE:HG21 | 2:C:869:VAL:HG21 | 1.85 | 0.58 |
| 3:D:866:ARG:HD2 | 3:D:1010:LEU:O | 2.03 | 0.58 |
| 3:D:1150:HIS:ND1 | 3:D:1152:LYS:HG2 | 2.18 | 0.58 |
| 3:D:902:ALA:H | 3:D:913:ASP:HB2 | 1.68 | 0.58 |
| 3:D:1162:LEU:CD2 | 3:D:1207:LEU:HD23 | 2.33 | 0.58 |
| 1:B:136:VAL:HG12 | 1:B:138:LEU:HD12 | 1.85 | 0.58 |
| 2:C:267:THR:CG2 | 2:C:273:ALA:HB2 | 2.29 | 0.58 |
| 2:C:328:ILE:HD12 | 2:C:328:ILE:O | 2.03 | 0.58 |
| 2:C:539:HIS:HD1 | 2:C:578:TYR:HE2 | 1.49 | 0.58 |
| 9:C:1201:FI8:O14 | 3:D:412:ARG:NH2 | 2.36 | 0.58 |
| 3:D:245:VAL:O | 3:D:249:GLY:HA3 | 2.04 | 0.58 |
| 3:D:354:LEU:HB2 | 3:D:370:GLU:CG | 2.33 | 0.58 |
| 2:C:715:LEU:N | 2:C:1029:TYR:OH | 2.37 | 0.58 |
| 2:C:1044:ARG:NH1 | 2:C:1056:PRO:HB3 | 2.18 | 0.58 |
| 3:D:707:ILE:HD12 | 4:E:39:PRO:HB3 | 1.85 | 0.58 |
| 3:D:766:ASN:HD22 | 3:D:766:ASN:H | 1.51 | 0.58 |
| 3:D:899:VAL:HG12 | 3:D:900:GLU:H | 1.68 | 0.58 |
| 2:C:217:ASP:OD1 | 2:C:231:ARG:NH2 | 2.37 | 0.58 |
| 3:D:273:GLU:O | 3:D:277:LEU:HD13 | 2.04 | 0.58 |
| 3:D:1068:PRO:HG2 | 3:D:1072:GLY:N | 2.19 | 0.58 |
| 1:A:95:MET:HE3 | 1:A:112:PRO:HB3 | 1.85 | 0.58 |
| 2:C:646:GLU:HB3 | 2:C:662:HIS:ND1 | 2.18 | 0.58 |
| 3:D:930:VAL:HG12 | 3:D:936:VAL:HA | 1.86 | 0.58 |
| 1:B:62:GLU:OE2 | 1:B:65:THR:HB | 2.04 | 0.58 |
| 2:C:222:VAL:CB | 2:C:234:VAL:HG13 | 2.34 | 0.58 |
| 2:C:1002:VAL:CG1 | 2:C:1006:GLY:HA2 | 2.34 | 0.58 |
| 3:D:991:ILE:HG22 | 3:D:991:ILE:O | 2.02 | 0.58 |
| 2:C:1081:ALA:HB1 | 3:D:554:GLU:OE1 | 2.03 | 0.58 |
| 1:A:40:ARG:HG2 | 1:B:33:THR:HG22 | 1.85 | 0.57 |
| 3:D:31:PRO:HB3 | 3:D:348:ILE:CG2 | 2.34 | 0.57 |
| 3:D:226:PHE:CE1 | 3:D:248:TYR:HB3 | 2.38 | 0.57 |
| 3:D:369:ASN:O | 3:D:373:MET:HG3 | 2.04 | 0.57 |
| 5:F:296:LEU:O | 5:F:300:LEU:HG | 2.03 | 0.57 |
| 5:F:386:LEU:HD11 | 5:F:398:GLU:CD | 2.25 | 0.57 |
| 1:A:182:ARG:HH11 | 3:D:624:ARG:NH1 | 2.02 | 0.57 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:C:80:VAL:HG12 | 2:C:81:ASN:OD1 | 2.05 | 0.57 |
| 2:C:584:ARG:NH2 | 2:C:975:PRO:HB3 | 2.19 | 0.57 |
| 2:C:1087:GLU:OE2 | 3:D:547:LEU:HB2 | 2.03 | 0.57 |
| 2:C:623:ALA:HA | 2:C:714:ALA:CB | 2.34 | 0.57 |
| 3:D:736:VAL:HG22 | 3:D:799:ILE:HD11 | 1.87 | 0.57 |
| 3:D:1010:LEU:HD23 | 3:D:1028:LEU:CA | 2.35 | 0.57 |
| 2:C:152:VAL:HG11 | 2:C:418:ILE:HG21 | 1.87 | 0.57 |
| 2:C:524:VAL:N | 2:C:552:GLY:O | 2.27 | 0.57 |
| 5:F:379:LEU:HD11 | 5:F:410:VAL:HG23 | 1.87 | 0.57 |
| 5:F:514:LEU:O | 5:F:519:ARG:HB2 | 2.03 | 0.57 |
| 2:C:231:ARG:CB | 5:F:205:ASP:HB3 | 2.35 | 0.57 |
| 2:C:313:ARG:HG3 | 2:C:330:SER:O | 2.05 | 0.57 |
| 2:C:982:GLU:OE1 | 3:D:841:ARG:NH2 | 2.37 | 0.57 |
| 3:D:1084:GLN:HE21 | 3:D:1112:MET:CB | 2.17 | 0.57 |
| 7:O:6:DA:H1' | 7:O:7:DC:H5' | 1.87 | 0.57 |
| 1:B:3:ILE:HD11 | 1:B:27:GLU:HG2 | 1.87 | 0.57 |
| 3:D:447:MET:HE3 | 3:D:522:ILE:HD11 | 1.85 | 0.57 |
| 3:D:557:ILE:HD12 | 4:E:54:VAL:HG22 | 1.87 | 0.57 |
| 3:D:668:LEU:HD23 | 3:D:668:LEU:O | 2.05 | 0.57 |
| 5:F:511:MET:HB3 | 5:F:515:ARG:HH12 | 1.70 | 0.57 |
| 2:C:293:GLN:NE2 | 2:C:297:GLU:OE2 | 2.38 | 0.57 |
| 2:C:531:LEU:HD11 | 2:C:578:TYR:CD2 | 2.40 | 0.57 |
| 2:C:899:LEU:H | 2:C:899:LEU:HD22 | 1.68 | 0.57 |
| 3:D:125:LEU:HD11 | 3:D:261:ILE:CD1 | 2.35 | 0.57 |
| 3:D:981:ARG:HG2 | 3:D:982:SER:O | 2.05 | 0.57 |
| 3:D:1050:THR:HG22 | 3:D:1106:GLU:HA | 1.86 | 0.57 |
| 4:E:58:ALA:O | 4:E:62:ARG:HG3 | 2.05 | 0.57 |
| 2:C:215:ASP:O | 2:C:223:GLY:N | 2.37 | 0.57 |
| 3:D:136:ILE:HD11 | 3:D:235:ILE:CD1 | 2.35 | 0.57 |
| 3:D:738:VAL:HG13 | 3:D:739:PRO:HD2 | 1.86 | 0.57 |
| 3:D:1087:ARG:HG3 | 3:D:1088:VAL:N | 2.17 | 0.57 |
| 1:A:102:PRO:HG3 | 1:A:130:ASP:OD1 | 2.04 | 0.57 |
| 6:J:101:ARG:NH1 | 6:J:101:ARG:HB3 | 2.19 | 0.57 |
| 2:C:650:ILE:HG21 | 2:C:691:ASP:O | 2.04 | 0.56 |
| 2:C:727:GLU:CG | 3:D:725:THR:HG21 | 2.35 | 0.56 |
| 3:D:665:GLU:HG3 | 3:D:665:GLU:O | 2.05 | 0.56 |
| 3:D:910:LEU:HD12 | 3:D:910:LEU:O | 2.05 | 0.56 |
| 5:F:395:THR:HB | 5:F:397:GLU:OE2 | 2.04 | 0.56 |
| 1:B:153:ARG:HA | 1:B:153:ARG:NE | 2.20 | 0.56 |
| 2:C:882:GLY:HA3 | 2:C:1037:VAL:HG11 | 1.87 | 0.56 |
| 1:A:89:GLU:OE2 | 1:A:93:VAL:HG11 | 2.06 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:221:LEU:CD1 | 1:B:7:PRO:HG2 | 2.35 | 0.56 |
| 2:C:40:SER:HA | 2:C:973:SER:OG | 2.05 | 0.56 |
| 2:C:388:GLN:O | 2:C:391:VAL:HG12 | 2.04 | 0.56 |
| 2:C:742:VAL:HG22 | 2:C:879:ILE:HG22 | 1.87 | 0.56 |
| 3:D:162:VAL:HG13 | 3:D:216:LEU:CD2 | 2.27 | 0.56 |
| 3:D:1061:PHE:HB3 | 3:D:1081:SER:CA | 2.35 | 0.56 |
| 3:D:1068:PRO:HD3 | 3:D:1074:GLU:HA | 1.86 | 0.56 |
| 3:D:1195:ALA:O | 3:D:1197:GLY:N | 2.38 | 0.56 |
| 5:F:415:GLN:O | 5:F:418:ARG:NH2 | 2.38 | 0.56 |
| 5:F:498:VAL:HG23 | 5:F:503:ILE:HG12 | 1.87 | 0.56 |
| 7:O:19:DA:H2'' | 7:O:20:DT:O5' | 2.05 | 0.56 |
| 1:B:96:TYR:O | 1:B:110:ILE:HG13 | 2.04 | 0.56 |
| 3:D:101:VAL:HG13 | 3:D:375:GLN:OE1 | 2.05 | 0.56 |
| 3:D:146:ASN:OD1 | 3:D:147:GLU:N | 2.36 | 0.56 |
| 3:D:797:ASN:O | 3:D:800:ILE:HG22 | 2.06 | 0.56 |
| 3:D:909:THR:O | 3:D:910:LEU:CG | 2.53 | 0.56 |
| 5:F:328:LEU:O | 5:F:328:LEU:HD23 | 2.05 | 0.56 |
| 2:C:548:ILE:HD11 | 2:C:579:MET:HE1 | 1.88 | 0.56 |
| 5:F:213:ARG:N | 5:F:213:ARG:HD2 | 2.20 | 0.56 |
| 5:F:213:ARG:O | 5:F:216:ARG:HG3 | 2.06 | 0.56 |
| 2:C:848:ILE:CD1 | 2:C:874:ALA:HB2 | 2.35 | 0.56 |
| 2:C:885:LEU:HD23 | 2:C:1030:ILE:HD12 | 1.86 | 0.56 |
| 3:D:276:SER:O | 3:D:280:VAL:HG23 | 2.05 | 0.56 |
| 3:D:1235:ASP:OD1 | 3:D:1236:ALA:N | 2.38 | 0.56 |
| 1:A:34:LEU:HD11 | 1:B:218:LEU:CD2 | 2.28 | 0.56 |
| 3:D:35:ASN:OD1 | 3:D:38:THR:HG22 | 2.05 | 0.56 |
| 3:D:480:ARG:O | 3:D:483:VAL:HG13 | 2.06 | 0.56 |
| 3:D:599:TYR:CE2 | 3:D:601:PRO:HG3 | 2.40 | 0.56 |
| 3:D:736:VAL:HG11 | 3:D:817:LEU:CD2 | 2.35 | 0.56 |
| 3:D:866:ARG:NH1 | 3:D:1011:THR:HA | 2.21 | 0.56 |
| 3:D:963:ARG:CD | 3:D:978:CYS:HA | 2.36 | 0.56 |
| 3:D:1133:HIS:O | 3:D:1137:GLU:HG2 | 2.06 | 0.56 |
| 1:B:99:LYS:HD3 | 1:B:105:VAL:HG22 | 1.88 | 0.56 |
| 3:D:330:LEU:HD11 | 5:F:439:ILE:HD12 | 1.87 | 0.56 |
| 3:D:733:MET:O | 3:D:733:MET:HG2 | 2.06 | 0.56 |
| 5:F:414:GLN:HE21 | 5:F:414:GLN:HA | 1.69 | 0.56 |
| 2:C:173:ARG:NH2 | 2:C:437:SER:O | 2.37 | 0.56 |
| 2:C:203:LYS:HG2 | 2:C:205:ILE:HG23 | 1.87 | 0.56 |
| 2:C:727:GLU:H | 3:D:725:THR:HG22 | 1.71 | 0.56 |
| 3:D:222:ILE:HD13 | 3:D:223:TRP:N | 2.21 | 0.56 |
| 3:D:1080:ILE:HG21 | 3:D:1112:MET:CE | 2.36 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 5:F:334:LYS:HG2 | 5:F:334:LYS:O | 2.06 | 0.56 |
| 2:C:258:MET:CA | 2:C:261:THR:HG23 | 2.31 | 0.55 |
| 2:C:355:MET:HB2 | 2:C:365:VAL:CG2 | 2.36 | 0.55 |
| 2:C:899:LEU:HB2 | 2:C:904:MET:HE1 | 1.88 | 0.55 |
| 3:D:599:TYR:CD1 | 3:D:601:PRO:HD3 | 2.41 | 0.55 |
| 3:D:1173:THR:HA | 3:D:1174:GLU:OE1 | 2.07 | 0.55 |
| 4:E:37:ASN:OD1 | 4:E:38:PRO:HA | 2.06 | 0.55 |
| 8:P:1:DA:H5" | 8:P:1:DA:C8 | 2.40 | 0.55 |
| 3:D:1052:ARG:CG | 3:D:1067:VAL:HB | 2.36 | 0.55 |
| 5:F:305:SER:HA | 5:F:308:LYS:HD2 | 1.88 | 0.55 |
| 5:F:489:LEU:HG | 8:P:20:DG:P | 2.46 | 0.55 |
| 1:B:70:LYS:HE3 | 1:B:127:THR:OG1 | 2.06 | 0.55 |
| 2:C:224:VAL:HG21 | 2:C:234:VAL:HA | 1.88 | 0.55 |
| 2:C:622:GLU:HB3 | 2:C:717:LYS:HD3 | 1.87 | 0.55 |
| 2:C:773:ILE:HG23 | 2:C:774:PRO:HD2 | 1.87 | 0.55 |
| 1:A:221:LEU:HD12 | 1:B:7:PRO:O | 2.07 | 0.55 |
| 1:B:182:ARG:HB3 | 1:B:186:ARG:CB | 2.36 | 0.55 |
| 2:C:222:VAL:HG11 | 2:C:234:VAL:CG2 | 2.36 | 0.55 |
| 2:C:842:GLY:O | 2:C:843:GLU:HG3 | 2.06 | 0.55 |
| 3:D:218:ARG:O | 3:D:222:ILE:HG22 | 2.05 | 0.55 |
| 3:D:452:PHE:O | 3:D:456:VAL:HG12 | 2.05 | 0.55 |
| 3:D:760:PHE:CE1 | 3:D:767:HIS:HA | 2.41 | 0.55 |
| 3:D:913:ASP:HB3 | 3:D:916:ILE:CG1 | 2.36 | 0.55 |
| 2:C:322:LEU:C | 2:C:324:VAL:H | 2.10 | 0.55 |
| 2:C:569:GLU:HG2 | 2:C:570:TYR:H | 1.72 | 0.55 |
| 2:C:595:PRO:HG3 | 2:C:888:ARG:NH2 | 2.21 | 0.55 |
| 2:C:992:THR:HG23 | 2:C:1000:VAL:HG13 | 1.88 | 0.55 |
| 3:D:320:ILE:CG1 | 3:D:321:PRO:HD2 | 2.36 | 0.55 |
| 3:D:598:GLU:HG2 | 3:D:599:TYR:N | 2.22 | 0.55 |
| 3:D:684:VAL:HG11 | 3:D:688:MET:HE1 | 1.87 | 0.55 |
| 3:D:765:LEU:HD23 | 3:D:765:LEU:H | 1.72 | 0.55 |
| 3:D:1190:ASN:ND2 | 3:D:1201:ALA:HB3 | 2.21 | 0.55 |
| 3:D:1217:THR:CG2 | 3:D:1223:ALA:HB2 | 2.36 | 0.55 |
| 6:J:40:PHE:CZ | 6:J:58:ASN:HB2 | 2.42 | 0.55 |
| 2:C:322:LEU:O | 2:C:324:VAL:N | 2.38 | 0.55 |
| 2:C:522:GLY:O | 2:C:553:ARG:HA | 2.07 | 0.55 |
| 2:C:919:THR:HG23 | 3:D:731:VAL:CG2 | 2.36 | 0.55 |
| 2:C:982:GLU:HB2 | 3:D:841:ARG:HH22 | 1.72 | 0.55 |
| 3:D:173:ARG:HE | 3:D:205:MET:HG2 | 1.70 | 0.55 |
| 1:A:94:THR:O | 1:A:113:PRO:HG3 | 2.07 | 0.55 |
| 1:B:97:LEU:HB2 | 1:B:110:ILE:HD12 | 1.87 | 0.55 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:C:222:VAL:HG21 | 2:C:234:VAL:HG13 | 1.87 | 0.55 |
| 2:C:454:ARG:C | 2:C:455:LEU:HD23 | 2.27 | 0.55 |
| 3:D:876:ARG:NH1 | 3:D:1036:GLU:OE1 | 2.40 | 0.55 |
| 3:D:1099:LEU:HD23 | 3:D:1099:LEU:C | 2.27 | 0.55 |
| 6:J:103:GLU:OE1 | 6:J:104:LEU:N | 2.40 | 0.55 |
| 1:B:24:GLU:CG | 1:B:191:LYS:HG3 | 2.36 | 0.55 |
| 2:C:42:ALA:HB2 | 2:C:975:PRO:HG2 | 1.87 | 0.55 |
| 2:C:224:VAL:HG21 | 2:C:234:VAL:CA | 2.37 | 0.55 |
| 2:C:542:ALA:HB3 | 2:C:579:MET:HB2 | 1.89 | 0.55 |
| 2:C:820:LEU:CD2 | 5:F:481:LEU:HD11 | 2.37 | 0.55 |
| 3:D:944:LEU:HA | 3:D:948:GLU:HG3 | 1.88 | 0.55 |
| 3:D:1064:ILE:HD12 | 3:D:1080:ILE:HD12 | 1.89 | 0.55 |
| 3:D:1118:PRO:HA | 3:D:1121:VAL:CG1 | 2.37 | 0.55 |
| 5:F:266:LEU:O | 5:F:266:LEU:HD13 | 2.06 | 0.55 |
| 5:F:311:THR:HG21 | 5:F:317:PHE:CD1 | 2.41 | 0.55 |
| 5:F:490:ASP:HB2 | 5:F:500:ARG:CD | 2.36 | 0.55 |
| 2:C:224:VAL:O | 2:C:224:VAL:HG12 | 2.07 | 0.55 |
| 2:C:475:VAL:HG23 | 3:D:854:HIS:CE1 | 2.42 | 0.55 |
| 2:C:764:LEU:HD23 | 2:C:808:PRO:CB | 2.37 | 0.55 |
| 2:C:959:LEU:HD12 | 2:C:959:LEU:N | 2.22 | 0.55 |
| 3:D:31:PRO:HB3 | 3:D:348:ILE:HG23 | 1.88 | 0.55 |
| 3:D:49:GLU:OE2 | 3:D:55:THR:OG1 | 2.23 | 0.55 |
| 5:F:315:MET:HE2 | 5:F:362:GLN:HB2 | 1.89 | 0.55 |
| 2:C:281:LEU:HD23 | 2:C:295:LEU:HD21 | 1.88 | 0.55 |
| 2:C:500:LEU:CD2 | 2:C:504:ALA:HB3 | 2.36 | 0.55 |
| 2:C:1034:HIS:O | 2:C:1035:HIS:ND1 | 2.40 | 0.55 |
| 3:D:915:TYR:CZ | 3:D:1143:ARG:HD3 | 2.42 | 0.55 |
| 5:F:372:MET:O | 5:F:376:ILE:HG13 | 2.07 | 0.55 |
| 2:C:133:LEU:HD23 | 2:C:134:PHE:N | 2.22 | 0.54 |
| 2:C:686:GLN:HG3 | 2:C:704:ASP:O | 2.08 | 0.54 |
| 2:C:1068:PHE:HZ | 2:C:1076:MET:HG3 | 1.72 | 0.54 |
| 3:D:193:ALA:O | 3:D:197:VAL:HG23 | 2.07 | 0.54 |
| 3:D:459:ARG:HH12 | 3:D:463:LEU:HD23 | 1.71 | 0.54 |
| 3:D:706:MET:N | 4:E:41:ASP:OD2 | 2.37 | 0.54 |
| 1:B:38:LEU:HD12 | 1:B:42:LEU:CD1 | 2.37 | 0.54 |
| 2:C:103:MET:HG3 | 2:C:404:MET:HE1 | 1.87 | 0.54 |
| 2:C:413:THR:OG1 | 2:C:414:PRO:HD2 | 2.07 | 0.54 |
| 2:C:554:PHE:CD1 | 2:C:559:VAL:HG21 | 2.43 | 0.54 |
| 3:D:107:PHE:CE2 | 3:D:129:ILE:HD11 | 2.42 | 0.54 |
| 3:D:170:LEU:O | 3:D:173:ARG:HG3 | 2.07 | 0.54 |
| 3:D:778:TRP:CD1 | 3:D:835:PRO:HD3 | 2.42 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 3:D:895:ARG:HH11 | 3:D:967:THR:HB | 1.71 | 0.54 |
| 1:A:25:PRO:O | 1:A:26:LEU:HD23 | 2.08 | 0.54 |
| 1:B:89:GLU:OE1 | 1:B:89:GLU:N | 2.41 | 0.54 |
| 2:C:163:LYS:HG3 | 2:C:639:GLY:HA3 | 1.89 | 0.54 |
| 2:C:549:ASP:HB2 | 2:C:555:VAL:CG2 | 2.38 | 0.54 |
| 3:D:641:ARG:HA | 3:D:657:GLN:CG | 2.35 | 0.54 |
| 3:D:923:ARG:HB3 | 3:D:962:VAL:HG11 | 1.88 | 0.54 |
| 3:D:1025:THR:CG2 | 3:D:1029:PRO:HB2 | 2.26 | 0.54 |
| 8:P:14:DA:H2'' | 8:P:15:DC:O5' | 2.06 | 0.54 |
| 2:C:32:VAL:HG21 | 2:C:632:LEU:HD11 | 1.88 | 0.54 |
| 2:C:587:VAL:HG13 | 2:C:591:THR:HB | 1.88 | 0.54 |
| 2:C:632:LEU:O | 2:C:632:LEU:HD22 | 2.07 | 0.54 |
| 2:C:959:LEU:CB | 2:C:960:PRO:CD | 2.84 | 0.54 |
| 3:D:57:ASP:OD2 | 6:J:14:VAL:HA | 2.06 | 0.54 |
| 5:F:371:HIS:NE2 | 7:O:21:DT:OP2 | 2.39 | 0.54 |
| 6:J:85:LEU:HA | 6:J:88:ARG:NH1 | 2.21 | 0.54 |
| 1:B:107:ALA:HB3 | 1:B:121:PRO:CA | 2.38 | 0.54 |
| 2:C:134:PHE:HE1 | 2:C:153:PHE:HB2 | 1.72 | 0.54 |
| 2:C:543:GLN:OE1 | 2:C:543:GLN:HA | 2.08 | 0.54 |
| 2:C:754:GLU:OE2 | 2:C:870:ARG:HD2 | 2.07 | 0.54 |
| 2:C:799:GLY:H | 2:C:839:VAL:HG13 | 1.73 | 0.54 |
| 2:C:822:ARG:NH1 | 2:C:829:ALA:HB2 | 2.23 | 0.54 |
| 2:C:1093:SER:CB | 3:D:420:LYS:HD3 | 2.37 | 0.54 |
| 3:D:113:ARG:NH2 | 3:D:1235:ASP:HB3 | 2.22 | 0.54 |
| 3:D:297:LYS:HZ3 | 3:D:1176:LEU:HD11 | 1.71 | 0.54 |
| 3:D:948:GLU:O | 3:D:952:LEU:HG | 2.08 | 0.54 |
| 3:D:1064:ILE:HD11 | 3:D:1112:MET:CE | 2.37 | 0.54 |
| 6:J:28:GLN:NE2 | 6:J:46:ASP:O | 2.41 | 0.54 |
| 2:C:519:VAL:HG11 | 2:C:576:VAL:HG12 | 1.90 | 0.54 |
| 3:D:190:LYS:HG2 | 3:D:192:ASP:H | 1.72 | 0.54 |
| 2:C:561:VAL:HG22 | 2:C:562:ARG:H | 1.72 | 0.54 |
| 3:D:873:LEU:HD22 | 3:D:1028:LEU:HD11 | 1.89 | 0.54 |
| 3:D:925:LEU:HD22 | 3:D:960:VAL:HG12 | 1.89 | 0.54 |
| 4:E:76:LEU:HG | 4:E:77:GLU:H | 1.71 | 0.54 |
| 5:F:378:LYS:HG2 | 5:F:403:MET:HE3 | 1.88 | 0.54 |
| 1:A:71:GLU:HB3 | 1:A:75:GLU:HB3 | 1.89 | 0.54 |
| 2:C:485:PRO:O | 3:D:857:ARG:NH2 | 2.41 | 0.54 |
| 2:C:518:LYS:HA | 2:C:578:TYR:HD1 | 1.73 | 0.54 |
| 3:D:78:CYS:O | 3:D:80:VAL:HG23 | 2.07 | 0.54 |
| 3:D:199:ASP:O | 3:D:203:ARG:HG2 | 2.08 | 0.54 |
| 3:D:1244:LYS:HE2 | 3:D:1244:LYS:HA | 1.89 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 3:D:1264:ILE:CG2 | 3:D:1266:ARG:HG2 | 2.38 | 0.54 |
| 4:E:85:PRO:HB3 | 4:E:94:ILE:HD13 | 1.90 | 0.54 |
| 5:F:342:LYS:HG2 | 7:O:29:DA:H3' | 1.90 | 0.54 |
| 5:F:476:ARG:O | 5:F:480:GLY:N | 2.40 | 0.54 |
| 8:P:14:DA:H1' | 8:P:15:DC:H5' | 1.89 | 0.54 |
| 1:A:147:VAL:HG12 | 1:A:168:TYR:HE2 | 1.73 | 0.54 |
| 1:A:221:LEU:HD23 | 1:A:222:ALA:N | 2.22 | 0.54 |
| 2:C:177:SER:HB2 | 2:C:378:LEU:CD1 | 2.37 | 0.54 |
| 2:C:532:THR:CG2 | 2:C:535:GLU:HG2 | 2.38 | 0.54 |
| 2:C:571:VAL:HG13 | 2:C:572:PRO:O | 2.07 | 0.54 |
| 2:C:805:LYS:HB3 | 2:C:836:SER:HA | 1.90 | 0.54 |
| 3:D:174:ALA:O | 3:D:178:GLU:HG3 | 2.07 | 0.54 |
| 3:D:410:GLN:HA | 3:D:410:GLN:HE21 | 1.73 | 0.54 |
| 3:D:504:LEU:HB3 | 3:D:1005:GLU:HG2 | 1.89 | 0.54 |
| 4:E:32:PRO:HB2 | 4:E:36:THR:HG23 | 1.90 | 0.54 |
| 2:C:705:GLY:N | 2:C:708:THR:OG1 | 2.31 | 0.54 |
| 2:C:885:LEU:HD13 | 2:C:895:ILE:HD11 | 1.89 | 0.54 |
| 2:C:1044:ARG:HD2 | 2:C:1063:PHE:HB2 | 1.90 | 0.54 |
| 3:D:314:LEU:HD21 | 3:D:382:PHE:CE2 | 2.43 | 0.54 |
| 5:F:334:LYS:HD2 | 5:F:350:TRP:CZ2 | 2.42 | 0.54 |
| 8:P:18:DT:H2' | 8:P:19:DT:H72 | 1.88 | 0.54 |
| 1:A:185:GLN:OE1 | 1:A:185:GLN:N | 2.42 | 0.53 |
| 2:C:192:ASP:O | 2:C:196:ASP:HA | 2.07 | 0.53 |
| 2:C:225:ARG:HD3 | 2:C:230:ARG:N | 2.23 | 0.53 |
| 2:C:318:LYS:HZ3 | 2:C:318:LYS:HB2 | 1.72 | 0.53 |
| 3:D:1063:LYS:HD3 | 3:D:1064:ILE:N | 2.23 | 0.53 |
| 3:D:1105:VAL:HG13 | 3:D:1109:GLN:HB3 | 1.89 | 0.53 |
| 3:D:1219:SER:OG | 3:D:1222:SER:HB3 | 2.07 | 0.53 |
| 5:F:489:LEU:HD12 | 8:P:20:DG:H2' | 1.90 | 0.53 |
| 6:J:89:ARG:HG2 | 6:J:94:LEU:CD2 | 2.37 | 0.53 |
| 2:C:771:ARG:CG | 2:C:781:LEU:HD11 | 2.39 | 0.53 |
| 3:D:1097:ARG:HH12 | 3:D:1100:SER:N | 2.06 | 0.53 |
| 3:D:1097:ARG:NH1 | 3:D:1100:SER:CB | 2.66 | 0.53 |
| 5:F:303:VAL:HG22 | 5:F:351:ILE:CD1 | 2.36 | 0.53 |
| 6:J:68:ASP:OD2 | 6:J:70:PRO:HD3 | 2.09 | 0.53 |
| 1:B:55:ARG:HD3 | 1:B:137:GLU:OE1 | 2.08 | 0.53 |
| 2:C:271:ASP:HA | 2:C:274:LEU:HB3 | 1.89 | 0.53 |
| 2:C:789:ILE:HG22 | 2:C:803:VAL:HG22 | 1.91 | 0.53 |
| 2:C:1110:GLU:HG2 | 4:E:69:ASN:ND2 | 2.23 | 0.53 |
| 3:D:354:LEU:HB2 | 3:D:370:GLU:HG3 | 1.89 | 0.53 |
| 3:D:1068:PRO:HG3 | 3:D:1073:GLU:O | 2.09 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 3:D:1070:ASP:HB2 | 3:D:1071:GLY:CA | 2.39 | 0.53 |
| 2:C:254:PHE:HE1 | 2:C:347:ARG:HH11 | 1.56 | 0.53 |
| 2:C:1125:LEU:O | 2:C:1129:GLN:HG3 | 2.08 | 0.53 |
| 3:D:119:ASP:C | 3:D:120:LEU:HD12 | 2.29 | 0.53 |
| 3:D:241:TYR:O | 3:D:245:VAL:HG23 | 2.08 | 0.53 |
| 2:C:547:PRO:O | 2:C:555:VAL:HG23 | 2.08 | 0.53 |
| 2:C:1117:ILE:CD1 | 3:D:5:ASN:HA | 2.38 | 0.53 |
| 3:D:1208:MET:HG3 | 3:D:1213:ALA:HB2 | 1.89 | 0.53 |
| 5:F:498:VAL:CG2 | 5:F:503:ILE:HG12 | 2.38 | 0.53 |
| 1:B:218:LEU:O | 1:B:218:LEU:HD23 | 2.07 | 0.53 |
| 2:C:718:ASN:C | 2:C:719:LEU:HD12 | 2.29 | 0.53 |
| 3:D:383:ASP:OD2 | 3:D:386:ARG:HB2 | 2.08 | 0.53 |
| 3:D:957:ILE:HD12 | 3:D:957:ILE:O | 2.09 | 0.53 |
| 3:D:1086:LEU:HD23 | 3:D:1112:MET:HE1 | 1.91 | 0.53 |
| 3:D:1272:VAL:HG13 | 4:E:56:TYR:HE1 | 1.73 | 0.53 |
| 5:F:407:PRO:HA | 5:F:410:VAL:HG12 | 1.90 | 0.53 |
| 2:C:222:VAL:HG23 | 2:C:224:VAL:HG23 | 1.90 | 0.53 |
| 2:C:397:GLU:OE1 | 2:C:398:ARG:N | 2.41 | 0.53 |
| 2:C:756:GLU:OE1 | 2:C:870:ARG:HD3 | 2.08 | 0.53 |
| 3:D:12:ILE:HG22 | 3:D:1237:ALA:HA | 1.90 | 0.53 |
| 3:D:73:ILE:HG22 | 6:J:27:ARG:HH11 | 1.72 | 0.53 |
| 3:D:277:LEU:HD23 | 3:D:296:LEU:CA | 2.38 | 0.53 |
| 3:D:866:ARG:CD | 3:D:1010:LEU:O | 2.56 | 0.53 |
| 5:F:276:ALA:HA | 5:F:279:ARG:NH2 | 2.24 | 0.53 |
| 1:A:40:ARG:CG | 1:B:33:THR:HG22 | 2.38 | 0.53 |
| 2:C:486:ILE:HD11 | 3:D:849:TYR:CE2 | 2.43 | 0.53 |
| 2:C:1007:LYS:NZ | 3:D:735:ASP:OD2 | 2.38 | 0.53 |
| 3:D:128:ILE:HD13 | 3:D:135:VAL:HG21 | 1.90 | 0.53 |
| 4:E:101:ALA:HB3 | 4:E:103:LEU:HD13 | 1.89 | 0.53 |
| 1:B:182:ARG:HG3 | 1:B:185:GLN:HB3 | 1.90 | 0.53 |
| 2:C:216:VAL:HG11 | 2:C:349:HIS:HD2 | 1.74 | 0.53 |
| 2:C:252:PHE:HB3 | 2:C:258:MET:CE | 2.39 | 0.53 |
| 2:C:338:VAL:HG12 | 2:C:342:ILE:HD11 | 1.91 | 0.53 |
| 2:C:1117:ILE:HD13 | 3:D:5:ASN:HA | 1.90 | 0.53 |
| 3:D:263:LYS:HB2 | 3:D:263:LYS:HZ3 | 1.74 | 0.53 |
| 3:D:657:GLN:NE2 | 3:D:660:ASP:OD1 | 2.41 | 0.53 |
| 3:D:1190:ASN:O | 3:D:1193:VAL:HB | 2.08 | 0.53 |
| 5:F:498:VAL:HB | 5:F:502:ARG:CB | 2.35 | 0.53 |
| 2:C:518:LYS:HD3 | 2:C:527:GLU:OE1 | 2.09 | 0.53 |
| 2:C:1037:VAL:HG21 | 3:D:520:LYS:HB2 | 1.91 | 0.53 |
| 3:D:782:THR:O | 3:D:785:VAL:HG12 | 2.09 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 3:D:1086:LEU:CD2 | 3:D:1112:MET:HE1 | 2.39 | 0.53 |
| 3:D:1175:PHE:CE2 | 3:D:1189:GLU:HG2 | 2.43 | 0.53 |
| 7:O:14:DG:C8 | 7:O:15:DT:H72 | 2.43 | 0.53 |
| 2:C:420:ILE:HD13 | 2:C:421:ARG:N | 2.23 | 0.52 |
| 2:C:727:GLU:H | 3:D:725:THR:CG2 | 2.22 | 0.52 |
| 3:D:965:VAL:HG13 | 3:D:979:TYR:HA | 1.90 | 0.52 |
| 3:D:1097:ARG:NH1 | 3:D:1100:SER:OG | 2.42 | 0.52 |
| 6:J:99:LYS:HZ3 | 6:J:99:LYS:HB2 | 1.74 | 0.52 |
| 3:D:134:TYR:CE2 | 3:D:238:GLU:HG3 | 2.42 | 0.52 |
| 3:D:525:HIS:CG | 3:D:526:PRO:HD2 | 2.43 | 0.52 |
| 1:B:147:VAL:HG13 | 1:B:166:SER:HB2 | 1.91 | 0.52 |
| 2:C:275:LEU:CD1 | 2:C:279:ARG:HE | 2.22 | 0.52 |
| 2:C:1011:PHE:CD1 | 2:C:1018:PRO:HB3 | 2.44 | 0.52 |
| 3:D:797:ASN:HB3 | 3:D:800:ILE:HG22 | 1.90 | 0.52 |
| 6:J:40:PHE:CE2 | 6:J:58:ASN:HB2 | 2.44 | 0.52 |
| 1:A:138:LEU:HD12 | 1:A:138:LEU:N | 2.24 | 0.52 |
| 1:B:66:VAL:HB | 1:B:69:VAL:CG2 | 2.39 | 0.52 |
| 3:D:155:MET:CE | 3:D:219:LEU:HD12 | 2.40 | 0.52 |
| 3:D:433:GLY:O | 3:D:435:GLN:N | 2.43 | 0.52 |
| 2:C:764:LEU:HD23 | 2:C:808:PRO:HB2 | 1.90 | 0.52 |
| 3:D:136:ILE:HD11 | 3:D:235:ILE:HD12 | 1.92 | 0.52 |
| 3:D:268:PHE:HE2 | 3:D:270:ILE:HG12 | 1.75 | 0.52 |
| 3:D:387:ARG:CZ | 5:F:225:ALA:HA | 2.40 | 0.52 |
| 3:D:876:ARG:O | 3:D:880:VAL:HG12 | 2.09 | 0.52 |
| 3:D:913:ASP:HB3 | 3:D:916:ILE:HG13 | 1.91 | 0.52 |
| 3:D:1086:LEU:HD23 | 3:D:1112:MET:SD | 2.49 | 0.52 |
| 3:D:1176:LEU:H | 3:D:1176:LEU:HD12 | 1.74 | 0.52 |
| 2:C:203:LYS:HD2 | 2:C:211:TRP:CE3 | 2.45 | 0.52 |
| 2:C:225:ARG:O | 2:C:225:ARG:HG2 | 2.10 | 0.52 |
| 2:C:500:LEU:HD22 | 2:C:504:ALA:HB3 | 1.92 | 0.52 |
| 3:D:1064:ILE:HD12 | 3:D:1080:ILE:CD1 | 2.39 | 0.52 |
| 2:C:476:HIS:CG | 2:C:477:PRO:HD2 | 2.45 | 0.52 |
| 3:D:39:LEU:HD22 | 3:D:335:PHE:HZ | 1.75 | 0.52 |
| 3:D:736:VAL:HG22 | 3:D:799:ILE:HD12 | 1.91 | 0.52 |
| 3:D:750:GLU:HA | 3:D:750:GLU:OE1 | 2.09 | 0.52 |
| 1:A:60:LEU:H | 1:A:60:LEU:HD12 | 1.75 | 0.52 |
| 2:C:232:GLN:HG2 | 2:C:277:ILE:HD13 | 1.92 | 0.52 |
| 2:C:1104:GLU:HB2 | 5:F:451:VAL:HG22 | 1.92 | 0.52 |
| 3:D:924:THR:HA | 3:D:942:GLN:O | 2.10 | 0.52 |
| 4:E:95:ALA:O | 4:E:99:ILE:HG13 | 2.09 | 0.52 |
| 6:J:74:LYS:O | 6:J:74:LYS:HD3 | 2.09 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:C:519:VAL:HG23 | 2:C:523:VAL:C | 2.30 | 0.52 |
| 3:D:138:SER:HB3 | 3:D:253:THR:OG1 | 2.10 | 0.52 |
| 3:D:634:LYS:HE2 | 3:D:663:MET:CE | 2.40 | 0.52 |
| 3:D:826:ASN:CG | 3:D:827:PRO:HD2 | 2.30 | 0.52 |
| 3:D:908:GLY:C | 3:D:910:LEU:N | 2.59 | 0.52 |
| 3:D:913:ASP:H | 3:D:916:ILE:HD11 | 1.74 | 0.52 |
| 3:D:1044:ALA:HA | 3:D:1084:GLN:HE22 | 1.73 | 0.52 |
| 3:D:1174:GLU:OE1 | 3:D:1174:GLU:N | 2.42 | 0.52 |
| 1:A:193:ILE:HG13 | 1:A:193:ILE:O | 2.10 | 0.52 |
| 2:C:39:VAL:CG1 | 2:C:963:LEU:HG | 2.38 | 0.52 |
| 2:C:516:TYR:CD2 | 2:C:531:LEU:HD12 | 2.45 | 0.52 |
| 2:C:928:ILE:HD11 | 3:D:840:PHE:O | 2.09 | 0.52 |
| 3:D:224:SER:O | 3:D:227:THR:OG1 | 2.27 | 0.52 |
| 3:D:891:CYS:HB2 | 3:D:969:ALA:HB3 | 1.92 | 0.52 |
| 3:D:938:VAL:HG13 | 3:D:942:GLN:OE1 | 2.10 | 0.52 |
| 3:D:1088:VAL:HG13 | 3:D:1098:VAL:HA | 1.92 | 0.52 |
| 1:B:11:GLU:OE1 | 1:B:12:ASP:N | 2.42 | 0.51 |
| 1:B:192:LEU:HD12 | 1:B:193:ILE:H | 1.74 | 0.51 |
| 2:C:43:LYS:HE3 | 2:C:959:LEU:CA | 2.37 | 0.51 |
| 2:C:89:VAL:O | 2:C:92:GLU:HG2 | 2.09 | 0.51 |
| 2:C:254:PHE:HE1 | 2:C:347:ARG:HG2 | 1.74 | 0.51 |
| 2:C:282:ARG:HB2 | 2:C:283:PRO:HA | 1.91 | 0.51 |
| 2:C:689:ILE:O | 2:C:689:ILE:HG13 | 2.08 | 0.51 |
| 2:C:773:ILE:HG22 | 2:C:774:PRO:O | 2.09 | 0.51 |
| 2:C:855:ARG:HH11 | 2:C:861:LEU:CD1 | 2.22 | 0.51 |
| 3:D:500:ARG:CD | 3:D:534:ALA:HB2 | 2.39 | 0.51 |
| 3:D:1062:TYR:HB2 | 3:D:1080:ILE:HB | 1.93 | 0.51 |
| 12:D:1501:HOH:O | 6:J:10:ARG:NH1 | 2.43 | 0.51 |
| 6:J:4:ARG:HA | 6:J:4:ARG:NE | 2.24 | 0.51 |
| 1:A:60:LEU:HD12 | 1:A:60:LEU:N | 2.25 | 0.51 |
| 2:C:628:THR:OG1 | 2:C:629:GLY:N | 2.43 | 0.51 |
| 2:C:672:MET:SD | 2:C:688:PRO:HD3 | 2.50 | 0.51 |
| 2:C:955:TRP:NE1 | 2:C:987:GLY:HA3 | 2.24 | 0.51 |
| 2:C:167:ILE:O | 2:C:168:ILE:HD13 | 2.09 | 0.51 |
| 2:C:716:GLY:N | 2:C:1029:TYR:OH | 2.35 | 0.51 |
| 3:D:240:LEU:O | 3:D:240:LEU:HD23 | 2.10 | 0.51 |
| 3:D:600:GLN:HA | 3:D:600:GLN:NE2 | 2.25 | 0.51 |
| 5:F:273:LEU:HB3 | 5:F:274:PRO:HD2 | 1.92 | 0.51 |
| 1:B:68:GLY:O | 1:B:128:LEU:HA | 2.09 | 0.51 |
| 2:C:189:GLU:HB2 | 2:C:200:HIS:CD2 | 2.46 | 0.51 |
| 2:C:1086:GLN:OE1 | 3:D:1257:LEU:HD13 | 2.11 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 3:D:277:LEU:HD11 | 3:D:295:ARG:HH11 | 1.73 | 0.51 |
| 3:D:923:ARG:HB3 | 3:D:962:VAL:HG13 | 1.93 | 0.51 |
| 3:D:1012:MET:C | 3:D:1027:GLY:HA3 | 2.30 | 0.51 |
| 2:C:153:PHE:CZ | 2:C:155:GLY:HA2 | 2.46 | 0.51 |
| 3:D:897:ILE:HB | 3:D:1128:ARG:HH21 | 1.76 | 0.51 |
| 6:J:24:LEU:HD23 | 6:J:24:LEU:N | 2.26 | 0.51 |
| 1:A:42:LEU:O | 1:A:171:VAL:HG11 | 2.11 | 0.51 |
| 2:C:396:MET:HE2 | 2:C:418:ILE:HG23 | 1.93 | 0.51 |
| 2:C:549:ASP:HB2 | 2:C:555:VAL:HG22 | 1.91 | 0.51 |
| 3:D:1169:ASP:HB2 | 3:D:1202:ALA:HB3 | 1.91 | 0.51 |
| 2:C:33:PRO:HG2 | 2:C:700:GLN:HA | 1.92 | 0.51 |
| 2:C:641:VAL:O | 2:C:643:VAL:HG23 | 2.10 | 0.51 |
| 5:F:244:GLU:HA | 5:F:247:VAL:HG23 | 1.92 | 0.51 |
| 2:C:64:LEU:HA | 2:C:85:GLY:HA3 | 1.93 | 0.51 |
| 2:C:177:SER:CB | 2:C:378:LEU:HD11 | 2.40 | 0.51 |
| 2:C:1099:ARG:O | 2:C:1102:VAL:HG12 | 2.10 | 0.51 |
| 3:D:103:HIS:CE1 | 3:D:105:TRP:HB2 | 2.46 | 0.51 |
| 3:D:134:TYR:HA | 3:D:256:MET:HG2 | 1.93 | 0.51 |
| 3:D:736:VAL:CG1 | 3:D:817:LEU:HD22 | 2.41 | 0.51 |
| 5:F:266:LEU:O | 5:F:270:GLY:N | 2.44 | 0.51 |
| 5:F:415:GLN:HE22 | 5:F:418:ARG:HH12 | 1.59 | 0.51 |
| 2:C:809:LYS:N | 2:C:831:GLU:O | 2.29 | 0.51 |
| 2:C:948:ALA:CB | 2:C:952:VAL:HA | 2.41 | 0.51 |
| 2:C:1023:VAL:HA | 3:D:730:THR:HG21 | 1.92 | 0.51 |
| 3:D:468:ASN:HD21 | 3:D:470:LYS:HB3 | 1.76 | 0.51 |
| 3:D:1064:ILE:CD1 | 3:D:1112:MET:HE2 | 2.41 | 0.51 |
| 3:D:1173:THR:O | 3:D:1175:PHE:N | 2.44 | 0.51 |
| 5:F:467:LEU:HD11 | 5:F:514:LEU:HD21 | 1.92 | 0.51 |
| 1:B:154:ALA:HB1 | 1:B:157:ALA:HB3 | 1.93 | 0.51 |
| 2:C:200:HIS:CD2 | 2:C:348:LEU:HG | 2.46 | 0.51 |
| 2:C:409:VAL:O | 2:C:410:GLU:HB3 | 2.11 | 0.51 |
| 3:D:9:GLU:OE2 | 3:D:1244:LYS:NZ | 2.44 | 0.51 |
| 3:D:61:TYR:HB2 | 3:D:80:VAL:HG21 | 1.93 | 0.51 |
| 3:D:567:SER:OG | 3:D:574:LEU:HD13 | 2.11 | 0.51 |
| 3:D:749:TYR:CG | 3:D:781:ALA:HB2 | 2.46 | 0.51 |
| 5:F:387:LEU:HB2 | 5:F:394:PRO:HD3 | 1.93 | 0.51 |
| 1:B:134:LEU:HD21 | 1:B:136:VAL:HG23 | 1.93 | 0.50 |
| 2:C:380:THR:OG1 | 2:C:381:VAL:N | 2.44 | 0.50 |
| 2:C:644:ALA:HB2 | 2:C:702:ILE:HD11 | 1.93 | 0.50 |
| 3:D:1221:LEU:H | 3:D:1221:LEU:CD2 | 2.23 | 0.50 |
| 5:F:344:SER:OG | 7:O:30:DC:OP2 | 2.28 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 8:P:14:DA:H5' | 8:P:14:DA:H8 | 1.74 | 0.50 |
| 2:C:157:PHE:CE1 | 2:C:389:ILE:HD11 | 2.45 | 0.50 |
| 2:C:312:GLY:O | 2:C:316:VAL:HG23 | 2.10 | 0.50 |
| 2:C:593:MET:HA | 2:C:628:THR:CG2 | 2.41 | 0.50 |
| 2:C:907:LEU:HD23 | 2:C:1010:LEU:CD2 | 2.41 | 0.50 |
| 3:D:129:ILE:HG13 | 3:D:130:TYR:CD2 | 2.46 | 0.50 |
| 3:D:475:MET:HG3 | 3:D:480:ARG:CG | 2.41 | 0.50 |
| 3:D:607:PRO:O | 3:D:609:THR:HG23 | 2.11 | 0.50 |
| 4:E:33:LEU:O | 4:E:36:THR:HG22 | 2.10 | 0.50 |
| 5:F:208:GLU:O | 5:F:212:LEU:HG | 2.12 | 0.50 |
| 5:F:249:LEU:HD22 | 5:F:291:ALA:HB1 | 1.93 | 0.50 |
| 1:B:102:PRO:HB3 | 1:B:129:ASN:O | 2.11 | 0.50 |
| 2:C:281:LEU:HD23 | 2:C:295:LEU:CD2 | 2.41 | 0.50 |
| 2:C:737:LEU:HD22 | 2:C:915:ILE:HG22 | 1.93 | 0.50 |
| 2:C:801:ILE:N | 2:C:801:ILE:HD12 | 2.26 | 0.50 |
| 2:C:943:GLY:O | 2:C:993:LEU:HD23 | 2.10 | 0.50 |
| 2:C:1011:PHE:CE1 | 2:C:1018:PRO:HB3 | 2.46 | 0.50 |
| 3:D:35:ASN:CG | 3:D:38:THR:HG22 | 2.32 | 0.50 |
| 3:D:360:LEU:HD12 | 3:D:360:LEU:H | 1.75 | 0.50 |
| 3:D:407:LYS:HG2 | 3:D:408:GLY:N | 2.26 | 0.50 |
| 3:D:1128:ARG:HH12 | 3:D:1132:ILE:HD11 | 1.77 | 0.50 |
| 5:F:206:GLU:O | 5:F:208:GLU:N | 2.44 | 0.50 |
| 5:F:334:LYS:HD2 | 5:F:350:TRP:HZ2 | 1.76 | 0.50 |
| 5:F:341:TYR:CE1 | 7:O:28:DT:H5'' | 2.47 | 0.50 |
| 1:A:225:LEU:O | 1:A:225:LEU:HD22 | 2.11 | 0.50 |
| 1:B:201:SER:O | 1:B:202:ILE:HG23 | 2.10 | 0.50 |
| 2:C:370:ILE:HD12 | 2:C:370:ILE:N | 2.26 | 0.50 |
| 2:C:822:ARG:NE | 5:F:527:LEU:HD21 | 2.27 | 0.50 |
| 3:D:151:LEU:HD21 | 3:D:251:TYR:CE2 | 2.46 | 0.50 |
| 3:D:588:LEU:HD23 | 3:D:723:TRP:CE2 | 2.47 | 0.50 |
| 8:P:20:DG:H2'' | 8:P:21:DT:O5' | 2.12 | 0.50 |
| 1:A:219:PHE:CE1 | 1:B:38:LEU:HD22 | 2.43 | 0.50 |
| 1:B:3:ILE:CD1 | 1:B:27:GLU:HG2 | 2.42 | 0.50 |
| 2:C:363:VAL:HG12 | 2:C:364:PRO:HD2 | 1.94 | 0.50 |
| 2:C:1117:ILE:HD12 | 2:C:1117:ILE:N | 2.26 | 0.50 |
| 3:D:113:ARG:HG2 | 3:D:1238:ILE:CD1 | 2.42 | 0.50 |
| 3:D:611:VAL:HG12 | 3:D:634:LYS:HB2 | 1.93 | 0.50 |
| 3:D:634:LYS:HG2 | 3:D:665:GLU:HB3 | 1.93 | 0.50 |
| 3:D:639:GLN:O | 3:D:640:LEU:HD23 | 2.11 | 0.50 |
| 3:D:1226:PHE:O | 3:D:1227:GLN:HG3 | 2.11 | 0.50 |
| 5:F:209:SER:O | 5:F:213:ARG:HG2 | 2.11 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 2:C:147:ILE:O | 2:C:147:ILE:HG22 | 2.12 | 0.50 |
| 2:C:274:LEU:HG | 2:C:292:ALA:HB1 | 1.93 | 0.50 |
| 2:C:274:LEU:HD21 | 2:C:292:ALA:O | 2.11 | 0.50 |
| 2:C:363:VAL:HG13 | 2:C:364:PRO:HD2 | 1.93 | 0.50 |
| 2:C:450:THR:HG21 | 2:C:590:ALA:HB2 | 1.93 | 0.50 |
| 2:C:524:VAL:HG21 | 2:C:548:ILE:CD1 | 2.40 | 0.50 |
| 2:C:691:ASP:HB2 | 2:C:694:ASP:OD1 | 2.12 | 0.50 |
| 5:F:216:ARG:HB2 | 5:F:216:ARG:NH1 | 2.24 | 0.50 |
| 8:P:19:DT:H2'' | 8:P:20:DG:H8 | 1.77 | 0.50 |
| 1:A:186:ARG:HG3 | 1:B:150:VAL:CB | 2.41 | 0.50 |
| 2:C:192:ASP:OD1 | 2:C:194:SER:OG | 2.21 | 0.50 |
| 2:C:290:GLU:HA | 2:C:294:THR:CG2 | 2.41 | 0.50 |
| 3:D:468:ASN:HD22 | 3:D:470:LYS:H | 1.59 | 0.50 |
| 3:D:590:THR:HG23 | 3:D:630:ARG:HE | 1.77 | 0.50 |
| 1:B:15:THR:CG2 | 1:B:18:ARG:HB2 | 2.39 | 0.50 |
| 2:C:653:VAL:HG12 | 2:C:658:ILE:HG23 | 1.94 | 0.50 |
| 3:D:84:ARG:HG3 | 3:D:84:ARG:NH1 | 2.24 | 0.50 |
| 3:D:1086:LEU:HA | 3:D:1112:MET:SD | 2.51 | 0.50 |
| 3:D:1264:ILE:HG22 | 3:D:1266:ARG:HG2 | 1.93 | 0.50 |
| 4:E:60:ARG:NH1 | 4:E:64:ILE:HG13 | 2.26 | 0.50 |
| 5:F:244:GLU:HA | 5:F:247:VAL:CG2 | 2.42 | 0.50 |
| 7:O:19:DA:C1' | 7:O:20:DT:H5' | 2.32 | 0.50 |
| 2:C:70:TRP:CH2 | 2:C:82:PRO:HB2 | 2.47 | 0.50 |
| 2:C:736:ILE:HD11 | 2:C:916:ILE:CD1 | 2.33 | 0.50 |
| 3:D:1103:ASP:OD1 | 3:D:1104:HIS:N | 2.45 | 0.50 |
| 4:E:104:LEU:HD23 | 4:E:104:LEU:N | 2.27 | 0.50 |
| 1:A:42:LEU:HD23 | 1:A:211:ALA:HB2 | 1.93 | 0.49 |
| 1:B:2:LEU:CD2 | 1:B:4:SER:H | 2.24 | 0.49 |
| 2:C:180:VAL:HG21 | 2:C:379:ARG:HH11 | 1.77 | 0.49 |
| 2:C:771:ARG:NH1 | 2:C:786:GLU:HA | 2.27 | 0.49 |
| 2:C:781:LEU:O | 2:C:781:LEU:HD23 | 2.12 | 0.49 |
| 3:D:832:ILE:HG22 | 3:D:834:ARG:H | 1.77 | 0.49 |
| 3:D:891:CYS:SG | 3:D:893:THR:HG22 | 2.52 | 0.49 |
| 1:B:124:HIS:HE1 | 1:B:127:THR:HG23 | 1.76 | 0.49 |
| 2:C:33:PRO:HG2 | 2:C:700:GLN:CA | 2.42 | 0.49 |
| 2:C:96:ILE:N | 2:C:105:LEU:O | 2.45 | 0.49 |
| 2:C:212:LEU:N | 2:C:212:LEU:HD23 | 2.26 | 0.49 |
| 2:C:224:VAL:O | 2:C:226:ILE:N | 2.45 | 0.49 |
| 2:C:406:THR:O | 2:C:406:THR:OG1 | 2.30 | 0.49 |
| 2:C:756:GLU:OE2 | 2:C:868:LEU:HD11 | 2.12 | 0.49 |
| 3:D:164:ASP:N | 3:D:164:ASP:OD1 | 2.45 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 3:D:240:LEU:O | 3:D:244:LEU:HG | 2.12 | 0.49 |
| 5:F:242:ASN:OD1 | 5:F:245:GLU:HG3 | 2.12 | 0.49 |
| 5:F:427:ILE:HG23 | 5:F:427:ILE:O | 2.12 | 0.49 |
| 7:O:28:DT:H2'' | 7:O:29:DA:C8 | 2.47 | 0.49 |
| 8:P:24:DA:H2'' | 8:P:25:DG:O4' | 2.12 | 0.49 |
| 1:B:6:ARG:HG3 | 1:B:234:ILE:HG23 | 1.94 | 0.49 |
| 2:C:97:GLU:O | 2:C:401:ARG:NH2 | 2.42 | 0.49 |
| 2:C:751:HIS:CD2 | 2:C:877:ARG:HD2 | 2.47 | 0.49 |
| 2:C:1074:TRP:HH2 | 3:D:875:ARG:HG3 | 1.77 | 0.49 |
| 3:D:287:GLN:N | 3:D:287:GLN:OE1 | 2.46 | 0.49 |
| 3:D:588:LEU:O | 3:D:588:LEU:HD22 | 2.12 | 0.49 |
| 5:F:496:TYR:O | 5:F:498:VAL:HG13 | 2.12 | 0.49 |
| 5:F:501:GLU:O | 5:F:505:GLN:HG2 | 2.12 | 0.49 |
| 7:O:5:DG:H2' | 7:O:6:DA:H8 | 1.74 | 0.49 |
| 2:C:65:ILE:HD11 | 2:C:159:MET:SD | 2.52 | 0.49 |
| 2:C:216:VAL:HG23 | 2:C:345:LEU:HD11 | 1.94 | 0.49 |
| 2:C:222:VAL:CG2 | 2:C:234:VAL:HG13 | 2.43 | 0.49 |
| 2:C:806:VAL:CG2 | 2:C:832:VAL:HB | 2.43 | 0.49 |
| 5:F:386:LEU:HD11 | 5:F:398:GLU:OE1 | 2.12 | 0.49 |
| 2:C:199:LEU:HD23 | 2:C:199:LEU:N | 2.27 | 0.49 |
| 2:C:418:ILE:HG22 | 2:C:420:ILE:HG22 | 1.93 | 0.49 |
| 2:C:568:VAL:HG13 | 3:D:847:LEU:HD23 | 1.94 | 0.49 |
| 2:C:659:THR:HG22 | 2:C:669:THR:CG2 | 2.32 | 0.49 |
| 3:D:449:LEU:O | 3:D:449:LEU:HD13 | 2.12 | 0.49 |
| 5:F:221:LEU:O | 5:F:224:SER:OG | 2.22 | 0.49 |
| 1:B:7:PRO:HA | 1:B:24:GLU:O | 2.13 | 0.49 |
| 1:B:136:VAL:HG12 | 1:B:138:LEU:CD1 | 2.42 | 0.49 |
| 2:C:421:ARG:O | 2:C:424:VAL:HG12 | 2.11 | 0.49 |
| 3:D:333:GLY:O | 5:F:415:GLN:NE2 | 2.45 | 0.49 |
| 3:D:579:LEU:CD2 | 3:D:808:THR:HB | 2.40 | 0.49 |
| 3:D:745:ILE:HD13 | 3:D:784:GLU:HG2 | 1.95 | 0.49 |
| 3:D:824:VAL:HG11 | 3:D:852:ASN:HA | 1.93 | 0.49 |
| 3:D:876:ARG:HH22 | 3:D:1032:GLN:HG3 | 1.78 | 0.49 |
| 5:F:280:ASP:OD1 | 5:F:281:MET:N | 2.46 | 0.49 |
| 1:B:233:GLU:OE1 | 1:B:233:GLU:HA | 2.13 | 0.49 |
| 2:C:44:LEU:N | 2:C:44:LEU:HD12 | 2.28 | 0.49 |
| 2:C:222:VAL:HB | 2:C:234:VAL:HG13 | 1.94 | 0.49 |
| 2:C:223:GLY:O | 2:C:225:ARG:N | 2.43 | 0.49 |
| 2:C:275:LEU:HD13 | 2:C:279:ARG:HE | 1.77 | 0.49 |
| 2:C:741:LEU:HA | 2:C:746:VAL:HG12 | 1.94 | 0.49 |
| 2:C:948:ALA:HB1 | 2:C:952:VAL:HA | 1.94 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 3:D:277:LEU:HD23 | 3:D:296:LEU:HB2 | 1.95 | 0.49 |
| 3:D:527:LEU:CD1 | 3:D:713:VAL:HG12 | 2.42 | 0.49 |
| 3:D:642:PRO:HB3 | 3:D:662:TRP:CE3 | 2.48 | 0.49 |
| 3:D:1189:GLU:O | 3:D:1192:ARG:HB3 | 2.12 | 0.49 |
| 3:D:1193:VAL:O | 3:D:1193:VAL:HG22 | 2.13 | 0.49 |
| 3:D:1230:THR:O | 3:D:1234:THR:HG22 | 2.13 | 0.49 |
| 1:A:223:ARG:CD | 1:A:224:GLU:H | 2.23 | 0.49 |
| 1:B:183:VAL:O | 1:B:187:THR:HA | 2.12 | 0.49 |
| 2:C:93:LEU:CD1 | 2:C:96:ILE:HD11 | 2.43 | 0.49 |
| 3:D:173:ARG:HB2 | 3:D:173:ARG:CZ | 2.42 | 0.49 |
| 2:C:396:MET:HE3 | 2:C:418:ILE:HG23 | 1.94 | 0.49 |
| 2:C:771:ARG:NE | 2:C:781:LEU:HD21 | 2.27 | 0.49 |
| 3:D:25:TYR:HD2 | 3:D:91:ARG:HD3 | 1.78 | 0.49 |
| 3:D:55:THR:HG22 | 6:J:12:GLY:CA | 2.43 | 0.49 |
| 3:D:436:LEU:HD22 | 3:D:515:MET:CE | 2.43 | 0.49 |
| 5:F:328:LEU:HD23 | 5:F:328:LEU:C | 2.33 | 0.49 |
| 1:B:105:VAL:HG12 | 1:B:125:ILE:HG21 | 1.94 | 0.49 |
| 2:C:500:LEU:HD23 | 2:C:501:SER:H | 1.78 | 0.49 |
| 2:C:532:THR:OG1 | 2:C:533:ALA:N | 2.46 | 0.49 |
| 2:C:719:LEU:CD2 | 2:C:1030:ILE:HD11 | 2.28 | 0.49 |
| 3:D:67:ARG:NE | 6:J:17:GLU:OE2 | 2.45 | 0.49 |
| 3:D:717:LYS:HG3 | 3:D:718:ASP:N | 2.28 | 0.49 |
| 3:D:822:GLY:O | 3:D:835:PRO:HB2 | 2.13 | 0.49 |
| 3:D:885:ILE:HD11 | 3:D:887:ARG:HH12 | 1.76 | 0.49 |
| 6:J:45:ALA:HB3 | 6:J:48:ALA:HB2 | 1.95 | 0.49 |
| 1:A:161:ARG:NH1 | 1:A:161:ARG:HB2 | 2.26 | 0.48 |
| 2:C:1009:MET:HA | 2:C:1009:MET:HE3 | 1.95 | 0.48 |
| 3:D:899:VAL:HG12 | 3:D:900:GLU:N | 2.27 | 0.48 |
| 2:C:222:VAL:CG2 | 2:C:224:VAL:HG23 | 2.43 | 0.48 |
| 2:C:230:ARG:HH11 | 2:C:230:ARG:CA | 2.23 | 0.48 |
| 2:C:238:LEU:HD11 | 2:C:243:TRP:CD2 | 2.48 | 0.48 |
| 2:C:601:ASP:OD1 | 2:C:602:ALA:N | 2.45 | 0.48 |
| 2:C:992:THR:CG2 | 2:C:1000:VAL:HG13 | 2.44 | 0.48 |
| 3:D:237:ASP:OD2 | 3:D:240:LEU:N | 2.37 | 0.48 |
| 3:D:513:GLU:HG3 | 3:D:513:GLU:O | 2.13 | 0.48 |
| 3:D:642:PRO:HD3 | 3:D:657:GLN:HG2 | 1.94 | 0.48 |
| 3:D:1050:THR:HG23 | 3:D:1107:VAL:CG2 | 2.42 | 0.48 |
| 3:D:1225:SER:O | 3:D:1225:SER:OG | 2.31 | 0.48 |
| 1:A:59:VAL:CG1 | 1:A:66:VAL:HG22 | 2.44 | 0.48 |
| 1:A:97:LEU:HD21 | 1:A:105:VAL:HG11 | 1.94 | 0.48 |
| 1:B:146:TYR:CE2 | 3:D:621:ALA:HB2 | 2.48 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------------|-------------------|--------------------------|-------------------|
| 1:B:150:VAL:HG13 | 1:B:150:VAL:O | 2.14 | 0.48 |
| 2:C:238:LEU:CD2 | 2:C:248:ILE:HG12 | 2.43 | 0.48 |
| 2:C:396:MET:HB2 | 2:C:422:PRO:HG2 | 1.94 | 0.48 |
| 2:C:995:ASN:OD1 | 2:C:995:ASN:N | 2.46 | 0.48 |
| 3:D:1070:ASP:HB2 | 3:D:1071:GLY:O | 2.13 | 0.48 |
| 3:D:1243:ASP:OD1 | 3:D:1244:LYS:N | 2.45 | 0.48 |
| 5:F:505:GLN:HG3 | 5:F:506:ILE:N | 2.29 | 0.48 |
| 1:A:95:MET:CE | 1:A:112:PRO:HB3 | 2.44 | 0.48 |
| 1:B:170:PRO:HB2 | 1:B:202:ILE:HD11 | 1.96 | 0.48 |
| 2:C:215:ASP:CA | 2:C:223:GLY:HA3 | 2.43 | 0.48 |
| 2:C:723:ILE:O | 2:C:723:ILE:HG22 | 2.14 | 0.48 |
| 2:C:767:GLU:HB3 | 2:C:805:LYS:HZ2 | 1.78 | 0.48 |
| 5:F:286:ARG:CZ | 5:F:286:ARG:HA | 2.42 | 0.48 |
| 5:F:306:LEU:O | 5:F:306:LEU:HD23 | 2.13 | 0.48 |
| 6:J:78:PRO:O | 6:J:80:THR:HG23 | 2.13 | 0.48 |
| 1:A:2:LEU:HD12 | 1:A:2:LEU:O | 2.13 | 0.48 |
| 1:B:42:LEU:HD12 | 1:B:211:ALA:CB | 2.43 | 0.48 |
| 2:C:224:VAL:HG21 | 2:C:233:PRO:C | 2.33 | 0.48 |
| 2:C:1040:LYS:HD3 | 3:D:540:GLN:NE2 | 2.28 | 0.48 |
| 3:D:148:LEU:O | 3:D:152:GLU:HG3 | 2.14 | 0.48 |
| 3:D:463:LEU:O | 3:D:465:HIS:N | 2.43 | 0.48 |
| 2:C:465:ARG:HD2 | 2:C:493:ASN:OD1 | 2.13 | 0.48 |
| 2:C:556:GLU:HB2 | 2:C:557:PRO:HD2 | 1.96 | 0.48 |
| 3:D:992:GLY:HA2 | 3:D:1264:ILE:HD11 | 1.95 | 0.48 |
| 3:D:1106:GLU:HA | 3:D:1106:GLU:OE1 | 2.14 | 0.48 |
| 3:D:1249:LYS:O | 3:D:1253:ILE:HG13 | 2.13 | 0.48 |
| 7:O:8:DA:H2 [?] | 7:O:9:DA:H8 | 1.76 | 0.48 |
| 1:A:144:ARG:CZ | 1:B:232:ILE:HD11 | 2.43 | 0.48 |
| 1:B:19:SER:OG | 1:B:204:PRO:HG2 | 2.13 | 0.48 |
| 1:B:102:PRO:CB | 1:B:130:ASP:HA | 2.44 | 0.48 |
| 2:C:274:LEU:HD23 | 2:C:292:ALA:HB1 | 1.94 | 0.48 |
| 2:C:945:LYS:HB2 | 2:C:945:LYS:NZ | 2.29 | 0.48 |
| 3:D:25:TYR:HE2 | 3:D:91:ARG:HG2 | 1.79 | 0.48 |
| 3:D:263:LYS:HB2 | 3:D:263:LYS:HZ2 | 1.74 | 0.48 |
| 3:D:1012:MET:C | 3:D:1027:GLY:H | 2.16 | 0.48 |
| 3:D:1154:ILE:O | 3:D:1158:VAL:HG23 | 2.13 | 0.48 |
| 1:B:3:ILE:HD11 | 1:B:27:GLU:CG | 2.43 | 0.48 |
| 2:C:117:ALA:HB3 | 2:C:122:CYS:SG | 2.54 | 0.48 |
| 2:C:167:ILE:N | 2:C:167:ILE:HD12 | 2.29 | 0.48 |
| 2:C:222:VAL:HG11 | 2:C:234:VAL:HG22 | 1.96 | 0.48 |
| 2:C:254:PHE:H | 2:C:255:SER:CB | 2.21 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:C:587:VAL:HG12 | 2:C:588:SER:O | 2.14 | 0.48 |
| 2:C:1040:LYS:HA | 2:C:1040:LYS:HE2 | 1.95 | 0.48 |
| 2:C:1135:VAL:CG1 | 3:D:12:ILE:HG12 | 2.34 | 0.48 |
| 3:D:598:GLU:HG2 | 3:D:599:TYR:H | 1.77 | 0.48 |
| 3:D:608:GLU:O | 3:D:609:THR:OG1 | 2.19 | 0.48 |
| 3:D:641:ARG:HA | 3:D:657:GLN:CB | 2.43 | 0.48 |
| 3:D:1052:ARG:NH2 | 3:D:1102:GLY:HA2 | 2.28 | 0.48 |
| 3:D:1080:ILE:CG2 | 3:D:1112:MET:HG3 | 2.42 | 0.48 |
| 5:F:395:THR:HG1 | 5:F:398:GLU:HB2 | 1.78 | 0.48 |
| 5:F:483:ASP:N | 5:F:483:ASP:OD1 | 2.45 | 0.48 |
| 2:C:1087:GLU:HG3 | 2:C:1091:ILE:HD11 | 1.96 | 0.48 |
| 3:D:141:GLU:OE1 | 3:D:141:GLU:HA | 2.14 | 0.48 |
| 3:D:323:GLU:OE1 | 3:D:323:GLU:HA | 2.13 | 0.48 |
| 3:D:475:MET:HG3 | 3:D:480:ARG:HG3 | 1.95 | 0.48 |
| 3:D:545:LEU:HD12 | 3:D:546:PRO:HD2 | 1.96 | 0.48 |
| 3:D:834:ARG:CB | 3:D:835:PRO:HA | 2.44 | 0.48 |
| 5:F:474:VAL:HG22 | 5:F:496:TYR:CE2 | 2.48 | 0.48 |
| 7:O:7:DC:H2" | 7:O:8:DA:C8 | 2.48 | 0.48 |
| 2:C:1037:VAL:HG12 | 3:D:429:VAL:HG11 | 1.96 | 0.48 |
| 3:D:459:ARG:NH1 | 3:D:463:LEU:HD23 | 2.29 | 0.48 |
| 7:O:4:DT:H2" | 7:O:5:DG:H8 | 1.79 | 0.48 |
| 2:C:317:ASN:HA | 2:C:322:LEU:HB2 | 1.96 | 0.47 |
| 2:C:763:LYS:NZ | 3:D:332:GLY:H | 2.11 | 0.47 |
| 3:D:117:LEU:O | 3:D:117:LEU:HD13 | 2.13 | 0.47 |
| 3:D:578:ARG:O | 3:D:582:VAL:HG23 | 2.13 | 0.47 |
| 3:D:1047:ALA:HB2 | 3:D:1111:LEU:HD11 | 1.95 | 0.47 |
| 3:D:1251:ASN:ND2 | 3:D:1259:PRO:HD3 | 2.29 | 0.47 |
| 5:F:386:LEU:HD22 | 5:F:394:PRO:HB3 | 1.96 | 0.47 |
| 2:C:206:PRO:HG3 | 2:C:306:TYR:CZ | 2.49 | 0.47 |
| 2:C:584:ARG:HG3 | 2:C:584:ARG:O | 2.14 | 0.47 |
| 2:C:814:LEU:HD22 | 2:C:814:LEU:H | 1.79 | 0.47 |
| 3:D:240:LEU:HD23 | 3:D:244:LEU:HG | 1.95 | 0.47 |
| 3:D:627:LEU:HD22 | 3:D:628:SER:O | 2.14 | 0.47 |
| 3:D:965:VAL:CG1 | 3:D:979:TYR:HA | 2.44 | 0.47 |
| 4:E:85:PRO:HB3 | 4:E:94:ILE:HD11 | 1.94 | 0.47 |
| 1:A:27:GLU:OE1 | 1:A:27:GLU:HA | 2.13 | 0.47 |
| 1:B:96:TYR:CE1 | 1:B:137:GLU:HG2 | 2.48 | 0.47 |
| 2:C:223:GLY:C | 2:C:225:ARG:H | 2.18 | 0.47 |
| 2:C:308:LEU:H | 2:C:308:LEU:CD2 | 2.26 | 0.47 |
| 2:C:560:LEU:HD23 | 2:C:569:GLU:O | 2.15 | 0.47 |
| 3:D:357:LEU:HD23 | 3:D:357:LEU:O | 2.15 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 3:D:1118:PRO:O | 3:D:1121:VAL:HG13 | 2.13 | 0.47 |
| 5:F:244:GLU:O | 5:F:247:VAL:HB | 2.14 | 0.47 |
| 6:J:92:GLU:OE1 | 6:J:92:GLU:HA | 2.14 | 0.47 |
| 2:C:542:ALA:HB2 | 2:C:576:VAL:HG11 | 1.94 | 0.47 |
| 2:C:737:LEU:HD11 | 2:C:895:ILE:CD1 | 2.44 | 0.47 |
| 2:C:861:LEU:HB2 | 2:C:862:PRO:CD | 2.41 | 0.47 |
| 2:C:1040:LYS:HE2 | 2:C:1040:LYS:CA | 2.44 | 0.47 |
| 3:D:149:SER:O | 3:D:152:GLU:HG3 | 2.14 | 0.47 |
| 3:D:940:ARG:NH1 | 3:D:963:ARG:NH2 | 2.62 | 0.47 |
| 3:D:1051:GLY:CA | 3:D:1069:ASP:HB2 | 2.44 | 0.47 |
| 1:B:70:LYS:NZ | 1:B:70:LYS:CB | 2.78 | 0.47 |
| 2:C:30:ASN:O | 2:C:31:SER:OG | 2.28 | 0.47 |
| 2:C:741:LEU:HA | 2:C:746:VAL:CG1 | 2.44 | 0.47 |
| 3:D:431:VAL:HG13 | 3:D:521:ALA:HB1 | 1.97 | 0.47 |
| 3:D:1152:LYS:O | 3:D:1156:VAL:HG23 | 2.14 | 0.47 |
| 4:E:47:VAL:HG21 | 4:E:53:LEU:HB2 | 1.95 | 0.47 |
| 5:F:467:LEU:CD2 | 5:F:519:ARG:NH1 | 2.78 | 0.47 |
| 2:C:374:GLY:HA3 | 2:C:534:ASP:OD1 | 2.14 | 0.47 |
| 2:C:419:ASN:O | 2:C:422:PRO:HD2 | 2.15 | 0.47 |
| 2:C:776:ILE:HD11 | 2:C:780:VAL:HG21 | 1.95 | 0.47 |
| 2:C:928:ILE:HD12 | 2:C:929:GLY:N | 2.30 | 0.47 |
| 3:D:157:VAL:HA | 3:D:160:LYS:HG2 | 1.95 | 0.47 |
| 3:D:360:LEU:H | 3:D:360:LEU:CD1 | 2.28 | 0.47 |
| 3:D:387:ARG:NH1 | 5:F:225:ALA:HB1 | 2.30 | 0.47 |
| 3:D:704:TYR:HB3 | 3:D:705:PRO:HD2 | 1.96 | 0.47 |
| 5:F:482:THR:HG23 | 5:F:483:ASP:N | 2.30 | 0.47 |
| 1:A:9:LEU:HD23 | 1:A:9:LEU:O | 2.15 | 0.47 |
| 1:A:18:ARG:HH21 | 2:C:996:ARG:HH12 | 1.61 | 0.47 |
| 1:A:128:LEU:HD12 | 1:A:128:LEU:N | 2.29 | 0.47 |
| 2:C:105:LEU:HD12 | 2:C:138:GLU:O | 2.14 | 0.47 |
| 2:C:329:THR:O | 2:C:329:THR:HG23 | 2.14 | 0.47 |
| 2:C:395:ARG:O | 2:C:399:VAL:HG23 | 2.14 | 0.47 |
| 2:C:486:ILE:CD1 | 3:D:849:TYR:HE2 | 2.27 | 0.47 |
| 2:C:623:ALA:HB2 | 2:C:709:ASP:OD2 | 2.14 | 0.47 |
| 2:C:771:ARG:HE | 2:C:781:LEU:HD21 | 1.79 | 0.47 |
| 2:C:792:ILE:HD12 | 2:C:792:ILE:H | 1.79 | 0.47 |
| 2:C:905:PRO:HD2 | 2:C:916:ILE:HD11 | 1.96 | 0.47 |
| 2:C:942:SER:O | 2:C:968:PRO:HB3 | 2.15 | 0.47 |
| 2:C:1045:SER:HB3 | 3:D:450:GLU:O | 2.14 | 0.47 |
| 2:C:1088:LEU:HD23 | 2:C:1092:LYS:HD2 | 1.97 | 0.47 |
| 3:D:20:ILE:HD13 | 3:D:318:PRO:HD3 | 1.96 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 3:D:166:ARG:HG3 | 3:D:212:ALA:CB | 2.44 | 0.47 |
| 3:D:230:ALA:O | 3:D:233:GLN:HG3 | 2.14 | 0.47 |
| 3:D:557:ILE:CD1 | 4:E:54:VAL:HG22 | 2.44 | 0.47 |
| 3:D:757:GLU:OE1 | 3:D:770:ARG:HD3 | 2.15 | 0.47 |
| 4:E:47:VAL:HG12 | 4:E:48:SER:N | 2.30 | 0.47 |
| 5:F:378:LYS:O | 5:F:382:ILE:HD13 | 2.15 | 0.47 |
| 5:F:386:LEU:HD23 | 5:F:386:LEU:O | 2.15 | 0.47 |
| 5:F:387:LEU:HG | 5:F:392:ARG:O | 2.15 | 0.47 |
| 6:J:4:ARG:HA | 6:J:4:ARG:HE | 1.80 | 0.47 |
| 7:O:20:DT:H2'' | 7:O:21:DT:H71 | 1.96 | 0.47 |
| 1:A:106:THR:HB | 1:A:123:MET:O | 2.15 | 0.47 |
| 2:C:265:ASP:OD1 | 2:C:266:ASN:N | 2.48 | 0.47 |
| 2:C:736:ILE:HG12 | 2:C:916:ILE:HB | 1.96 | 0.47 |
| 3:D:340:LEU:HD21 | 3:D:402:LEU:HD23 | 1.95 | 0.47 |
| 3:D:360:LEU:HD12 | 3:D:360:LEU:N | 2.29 | 0.47 |
| 3:D:579:LEU:HD23 | 3:D:807:ALA:O | 2.14 | 0.47 |
| 3:D:823:LEU:CD2 | 3:D:835:PRO:HB3 | 2.33 | 0.47 |
| 3:D:1252:VAL:HG23 | 3:D:1258:ILE:HG22 | 1.97 | 0.47 |
| 1:A:66:VAL:O | 1:A:69:VAL:HG22 | 2.13 | 0.47 |
| 2:C:235:THR:HG21 | 2:C:265:ASP:HB3 | 1.96 | 0.47 |
| 3:D:207:GLN:OE1 | 3:D:208:ILE:HD12 | 2.15 | 0.47 |
| 3:D:1189:GLU:HG3 | 3:D:1190:ASN:N | 2.30 | 0.47 |
| 3:D:1243:ASP:OD1 | 3:D:1245:LEU:N | 2.25 | 0.47 |
| 5:F:281:MET:HG3 | 5:F:282:MET:N | 2.30 | 0.47 |
| 5:F:460:LEU:O | 5:F:464:LEU:HD13 | 2.15 | 0.47 |
| 2:C:205:ILE:HG22 | 2:C:211:TRP:CD2 | 2.50 | 0.47 |
| 2:C:279:ARG:O | 2:C:283:PRO:HA | 2.15 | 0.47 |
| 2:C:561:VAL:HG22 | 2:C:562:ARG:N | 2.30 | 0.47 |
| 2:C:1051:MET:SD | 3:D:328:VAL:HG21 | 2.54 | 0.47 |
| 3:D:19:ASP:O | 3:D:22:GLN:N | 2.33 | 0.47 |
| 3:D:1272:VAL:HG13 | 4:E:56:TYR:CE1 | 2.50 | 0.47 |
| 5:F:241:LEU:HA | 5:F:245:GLU:OE1 | 2.14 | 0.47 |
| 5:F:482:THR:HG23 | 5:F:483:ASP:H | 1.80 | 0.47 |
| 1:A:153:ARG:NE | 2:C:797:ARG:HG2 | 2.31 | 0.46 |
| 1:B:60:LEU:H | 1:B:60:LEU:CD2 | 2.28 | 0.46 |
| 1:B:68:GLY:O | 1:B:129:ASN:N | 2.38 | 0.46 |
| 2:C:141:ASN:OD1 | 2:C:142:ASN:N | 2.48 | 0.46 |
| 2:C:646:GLU:HB3 | 2:C:662:HIS:HD1 | 1.81 | 0.46 |
| 3:D:384:ASN:HB2 | 3:D:401:SER:HB3 | 1.97 | 0.46 |
| 3:D:765:LEU:HD23 | 3:D:765:LEU:N | 2.29 | 0.46 |
| 5:F:386:LEU:HD22 | 5:F:394:PRO:CB | 2.44 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 7:O:19:DA:H2' | 7:O:20:DT:H72 | 1.97 | 0.46 |
| 1:A:49:ALA:CB | 1:A:87:SER:H | 2.28 | 0.46 |
| 1:B:100:GLN:HA | 1:B:133:LYS:HA | 1.97 | 0.46 |
| 2:C:480:TYR:CD2 | 2:C:562:ARG:NH1 | 2.83 | 0.46 |
| 2:C:814:LEU:HD22 | 2:C:814:LEU:N | 2.30 | 0.46 |
| 3:D:173:ARG:NE | 3:D:205:MET:HG2 | 2.29 | 0.46 |
| 4:E:64:ILE:O | 4:E:67:TYR:HB3 | 2.16 | 0.46 |
| 5:F:372:MET:O | 5:F:375:VAL:HG22 | 2.16 | 0.46 |
| 6:J:99:LYS:O | 6:J:102:LEU:HB3 | 2.16 | 0.46 |
| 8:P:10:DT:H2'' | 8:P:11:DA:H8 | 1.79 | 0.46 |
| 1:A:84:VAL:HG13 | 1:A:84:VAL:O | 2.16 | 0.46 |
| 1:A:220:GLY:HA2 | 1:A:223:ARG:HB2 | 1.97 | 0.46 |
| 2:C:677:ARG:HG2 | 2:C:678:SER:O | 2.15 | 0.46 |
| 2:C:883:ASP:O | 2:C:895:ILE:HG13 | 2.16 | 0.46 |
| 2:C:1009:MET:HA | 2:C:1009:MET:CE | 2.45 | 0.46 |
| 2:C:1049:TYR:CD1 | 2:C:1099:ARG:NH1 | 2.83 | 0.46 |
| 3:D:73:ILE:CG2 | 6:J:27:ARG:NH1 | 2.78 | 0.46 |
| 3:D:1089:PHE:CD2 | 3:D:1099:LEU:HB2 | 2.49 | 0.46 |
| 3:D:1110:GLN:NE2 | 3:D:1112:MET:O | 2.48 | 0.46 |
| 5:F:333:GLU:HA | 6:J:81:HIS:NE2 | 2.31 | 0.46 |
| 8:P:11:DA:C2' | 8:P:12:DA:H5' | 2.38 | 0.46 |
| 1:A:24:GLU:OE1 | 1:A:191:LYS:HD2 | 2.15 | 0.46 |
| 2:C:351:GLY:O | 2:C:352:GLN:HG2 | 2.15 | 0.46 |
| 2:C:633:ARG:O | 2:C:633:ARG:HG3 | 2.15 | 0.46 |
| 3:D:39:LEU:HD22 | 3:D:335:PHE:CZ | 2.50 | 0.46 |
| 3:D:186:ALA:HB3 | 3:D:187:GLU:OE1 | 2.15 | 0.46 |
| 3:D:246:ASP:OD1 | 3:D:247:ARG:N | 2.49 | 0.46 |
| 3:D:262:GLN:HE21 | 3:D:310:MET:CE | 2.29 | 0.46 |
| 3:D:453:LYS:HG3 | 3:D:476:VAL:HG11 | 1.97 | 0.46 |
| 3:D:1176:LEU:HD12 | 3:D:1176:LEU:N | 2.29 | 0.46 |
| 2:C:185:VAL:HG12 | 2:C:204:VAL:HG22 | 1.96 | 0.46 |
| 2:C:854:SER:H | 2:C:859:ASP:HB2 | 1.79 | 0.46 |
| 3:D:587:TYR:HE1 | 3:D:630:ARG:NH1 | 2.14 | 0.46 |
| 3:D:1030:ARG:NH2 | 3:D:1034:LEU:HD21 | 2.31 | 0.46 |
| 3:D:1089:PHE:HE2 | 3:D:1103:ASP:OD2 | 1.91 | 0.46 |
| 5:F:489:LEU:HG | 8:P:20:DG:OP2 | 2.15 | 0.46 |
| 2:C:48:LEU:HB2 | 2:C:528:ILE:CD1 | 2.46 | 0.46 |
| 2:C:532:THR:HG23 | 2:C:535:GLU:HG2 | 1.98 | 0.46 |
| 2:C:792:ILE:HD12 | 2:C:792:ILE:N | 2.30 | 0.46 |
| 2:C:922:VAL:HG22 | 2:C:930:GLN:HE21 | 1.80 | 0.46 |
| 3:D:339:ASP:OD2 | 5:F:424:ASP:OD2 | 2.33 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------------|--------------------------|--------------------------|-------------------|
| 3:D:453:LYS:HB3 | 3:D:453:LYS:HZ2 | 1.80 | 0.46 |
| 3:D:572:ARG:HB2 | 3:D:573:PRO:HD2 | 1.98 | 0.46 |
| 3:D:708:VAL:HG22 | 4:E:29:TYR:HB3 | 1.97 | 0.46 |
| 5:F:407:PRO:O | 5:F:410:VAL:HG12 | 2.16 | 0.46 |
| 1:B:162:ILE:CG2 | 3:D:607:PRO:HG3 | 2.46 | 0.46 |
| 2:C:344:TYR:OH | 2:C:365:VAL:HA | 2.16 | 0.46 |
| 2:C:571:VAL:HG13 | 2:C:572:PRO:N | 2.30 | 0.46 |
| 3:D:139:VAL:HG12 | 3:D:231:PRO:HD3 | 1.98 | 0.46 |
| 3:D:963:ARG:HD2 | 3:D:978:CYS:HA | 1.96 | 0.46 |
| 5:F:292:LYS:O | 5:F:296:LEU:HG | 2.14 | 0.46 |
| 5:F:381:ARG:HA | 5:F:384:ARG:NH2 | 2.30 | 0.46 |
| 1:A:218:LEU:HD21 | 1:B:34:LEU:CD2 | 2.46 | 0.46 |
| 3:D:165:GLN:O | 3:D:169:GLU:HG2 | 2.15 | 0.46 |
| 5:F:257:LEU:HD21 | 6:J:81:HIS:CE1 | 2.50 | 0.46 |
| 7:O:5:DG:H2 [?] | 7:O:6:DA:O4 [?] | 2.14 | 0.46 |
| 1:B:3:ILE:HG23 | 1:B:5:GLN:O | 2.15 | 0.46 |
| 1:B:96:TYR:HD1 | 1:B:137:GLU:HG2 | 1.78 | 0.46 |
| 1:B:107:ALA:HB3 | 1:B:121:PRO:C | 2.36 | 0.46 |
| 1:B:151:GLN:HE22 | 1:B:155:SER:HA | 1.81 | 0.46 |
| 2:C:278:TYR:CE1 | 2:C:291:SER:HB2 | 2.51 | 0.46 |
| 2:C:400:VAL:O | 2:C:404:MET:N | 2.49 | 0.46 |
| 3:D:57:ASP:HB3 | 3:D:58:TRP:CE3 | 2.50 | 0.46 |
| 3:D:414:ARG:HB2 | 3:D:414:ARG:HH21 | 1.80 | 0.46 |
| 3:D:449:LEU:O | 3:D:449:LEU:HD22 | 2.16 | 0.46 |
| 3:D:1128:ARG:NH1 | 3:D:1132:ILE:CG1 | 2.67 | 0.46 |
| 1:A:35:GLY:HA2 | 1:A:192:LEU:HD21 | 1.98 | 0.46 |
| 2:C:421:ARG:N | 2:C:422:PRO:HD2 | 2.31 | 0.46 |
| 2:C:484:CYS:HB2 | 2:C:588:SER:HB3 | 1.97 | 0.46 |
| 2:C:737:LEU:HD23 | 2:C:915:ILE:HG22 | 1.97 | 0.46 |
| 2:C:877:ARG:NH1 | 2:C:1036:LEU:HD12 | 2.20 | 0.46 |
| 2:C:1135:VAL:HA | 3:D:11:ARG:O | 2.16 | 0.46 |
| 3:D:1055:LEU:H | 3:D:1101:ASP:CG | 2.20 | 0.46 |
| 4:E:84:GLU:H | 4:E:84:GLU:CD | 2.20 | 0.46 |
| 5:F:300:LEU:O | 5:F:304:VAL:HG23 | 2.16 | 0.46 |
| 6:J:32:TYR:OH | 6:J:51:PRO:HG2 | 2.15 | 0.46 |
| 6:J:76:LYS:H | 6:J:76:LYS:HD2 | 1.80 | 0.46 |
| 6:J:101:ARG:HH11 | 6:J:101:ARG:CA | 2.29 | 0.46 |
| 1:A:184:GLU:OE1 | 1:A:184:GLU:HA | 2.16 | 0.45 |
| 1:A:187:THR:O | 1:A:187:THR:HG23 | 2.16 | 0.45 |
| 1:B:80:LEU:CD2 | 1:B:125:ILE:HD13 | 2.46 | 0.45 |
| 1:B:196:VAL:O | 1:B:196:VAL:HG22 | 2.15 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 2:C:442:GLN:O | 2:C:442:GLN:HG3 | 2.16 | 0.45 |
| 2:C:444:ASN:HD22 | 2:C:715:LEU:HD22 | 1.81 | 0.45 |
| 2:C:643:VAL:HG13 | 2:C:699:GLY:O | 2.16 | 0.45 |
| 2:C:1068:PHE:CE1 | 2:C:1072:GLU:HB3 | 2.51 | 0.45 |
| 3:D:234:LEU:HD23 | 3:D:235:ILE:N | 2.31 | 0.45 |
| 3:D:243:GLU:O | 3:D:247:ARG:HB3 | 2.17 | 0.45 |
| 3:D:778:TRP:NE1 | 3:D:835:PRO:HD3 | 2.31 | 0.45 |
| 3:D:1012:MET:C | 3:D:1027:GLY:CA | 2.85 | 0.45 |
| 4:E:81:PRO:HB3 | 4:E:94:ILE:HG21 | 1.98 | 0.45 |
| 6:J:6:LEU:H | 6:J:6:LEU:HD12 | 1.81 | 0.45 |
| 1:A:147:VAL:HG12 | 1:A:168:TYR:CE2 | 2.50 | 0.45 |
| 1:B:14:LEU:HB2 | 1:B:18:ARG:O | 2.16 | 0.45 |
| 1:B:218:LEU:HD23 | 1:B:218:LEU:C | 2.37 | 0.45 |
| 2:C:298:ASN:HA | 2:C:302:LYS:HE3 | 1.99 | 0.45 |
| 2:C:581:VAL:H | 2:C:585:GLN:NE2 | 2.14 | 0.45 |
| 3:D:405:LEU:C | 3:D:406:LEU:HD12 | 2.36 | 0.45 |
| 1:B:2:LEU:HD22 | 1:B:4:SER:H | 1.80 | 0.45 |
| 2:C:482:ARG:NH1 | 2:C:533:ALA:HA | 2.32 | 0.45 |
| 2:C:606:LEU:HD23 | 2:C:606:LEU:C | 2.36 | 0.45 |
| 2:C:661:MET:HE2 | 2:C:667:ARG:HG2 | 1.99 | 0.45 |
| 2:C:959:LEU:HD12 | 2:C:959:LEU:H | 1.81 | 0.45 |
| 3:D:466:ALA:HB1 | 3:D:471:SER:OG | 2.16 | 0.45 |
| 5:F:274:PRO:HD2 | 5:F:277:GLN:HG2 | 1.98 | 0.45 |
| 2:C:694:ASP:OD1 | 2:C:694:ASP:N | 2.50 | 0.45 |
| 3:D:263:LYS:NZ | 3:D:263:LYS:CB | 2.78 | 0.45 |
| 3:D:557:ILE:HD13 | 4:E:53:LEU:HD23 | 1.98 | 0.45 |
| 3:D:1085:ARG:HG2 | 3:D:1113:GLU:OE1 | 2.17 | 0.45 |
| 5:F:350:TRP:HH2 | 7:O:25:DC:OP2 | 1.99 | 0.45 |
| 1:B:95:MET:HG2 | 1:B:113:PRO:HD3 | 1.99 | 0.45 |
| 1:B:107:ALA:HB3 | 1:B:121:PRO:O | 2.16 | 0.45 |
| 2:C:211:TRP:O | 2:C:227:ASP:N | 2.44 | 0.45 |
| 2:C:254:PHE:N | 2:C:255:SER:CB | 2.77 | 0.45 |
| 2:C:571:VAL:CG2 | 2:C:572:PRO:HD2 | 2.29 | 0.45 |
| 3:D:453:LYS:HB3 | 3:D:454:PRO:HD3 | 1.98 | 0.45 |
| 3:D:915:TYR:CE1 | 3:D:1143:ARG:HD3 | 2.51 | 0.45 |
| 1:A:127:THR:C | 1:A:128:LEU:HD12 | 2.37 | 0.45 |
| 1:A:144:ARG:HG2 | 1:B:1:MET:CE | 2.46 | 0.45 |
| 1:B:59:VAL:HG12 | 1:B:59:VAL:O | 2.17 | 0.45 |
| 1:B:70:LYS:NZ | 1:B:70:LYS:HB2 | 2.31 | 0.45 |
| 2:C:71:ARG:O | 2:C:75:ALA:HB2 | 2.16 | 0.45 |
| 2:C:622:GLU:OE2 | 2:C:718:ASN:ND2 | 2.50 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 2:C:668:ARG:HD3 | 2:C:669:THR:N | 2.32 | 0.45 |
| 2:C:1012:ASP:HB2 | 2:C:1019:PHE:CE1 | 2.52 | 0.45 |
| 3:D:387:ARG:NH2 | 5:F:225:ALA:HA | 2.32 | 0.45 |
| 3:D:1129:GLU:HA | 3:D:1129:GLU:OE1 | 2.16 | 0.45 |
| 1:B:65:THR:HG22 | 1:B:66:VAL:N | 2.32 | 0.45 |
| 1:B:84:VAL:CG2 | 1:B:119:HIS:HB2 | 2.45 | 0.45 |
| 2:C:757:ILE:HG22 | 2:C:869:VAL:HG13 | 1.98 | 0.45 |
| 2:C:805:LYS:HB3 | 2:C:835:THR:O | 2.17 | 0.45 |
| 3:D:151:LEU:HD21 | 3:D:251:TYR:HE2 | 1.82 | 0.45 |
| 3:D:365:ILE:HD12 | 3:D:365:ILE:N | 2.26 | 0.45 |
| 3:D:1101:ASP:OD1 | 3:D:1102:GLY:N | 2.50 | 0.45 |
| 5:F:429:ASP:O | 5:F:431:GLY:HA2 | 2.16 | 0.45 |
| 1:B:66:VAL:HG23 | 1:B:73:VAL:HG22 | 1.99 | 0.45 |
| 2:C:400:VAL:CG1 | 2:C:417:LEU:HB3 | 2.37 | 0.45 |
| 2:C:471:GLU:OE1 | 2:C:471:GLU:N | 2.50 | 0.45 |
| 3:D:177:LEU:HD23 | 3:D:178:GLU:N | 2.32 | 0.45 |
| 3:D:313:VAL:O | 3:D:313:VAL:HG23 | 2.16 | 0.45 |
| 3:D:900:GLU:N | 3:D:900:GLU:OE1 | 2.50 | 0.45 |
| 5:F:329:ILE:O | 5:F:333:GLU:HG3 | 2.17 | 0.45 |
| 6:J:36:ASN:ND2 | 6:J:60:MET:SD | 2.90 | 0.45 |
| 8:P:1:DA:H2'' | 8:P:2:DG:O4' | 2.17 | 0.45 |
| 2:C:188:ASP:OD1 | 2:C:188:ASP:N | 2.50 | 0.45 |
| 2:C:203:LYS:HB2 | 2:C:203:LYS:NZ | 2.32 | 0.45 |
| 3:D:641:ARG:HA | 3:D:657:GLN:HB2 | 1.98 | 0.45 |
| 3:D:864:ALA:O | 3:D:867:THR:HG22 | 2.17 | 0.45 |
| 5:F:232:LEU:O | 5:F:235:ILE:HG12 | 2.16 | 0.45 |
| 5:F:379:LEU:HD23 | 5:F:379:LEU:C | 2.37 | 0.45 |
| 5:F:511:MET:CB | 5:F:515:ARG:HH12 | 2.30 | 0.45 |
| 6:J:101:ARG:HH11 | 6:J:101:ARG:CB | 2.29 | 0.45 |
| 1:A:102:PRO:HD3 | 1:A:130:ASP:HA | 1.98 | 0.45 |
| 1:B:77:ILE:HG23 | 1:B:164:VAL:CG1 | 2.47 | 0.45 |
| 2:C:225:ARG:HD3 | 2:C:230:ARG:C | 2.37 | 0.45 |
| 2:C:848:ILE:HD12 | 2:C:874:ALA:HB2 | 1.98 | 0.45 |
| 3:D:574:LEU:HD12 | 3:D:574:LEU:HA | 1.81 | 0.45 |
| 3:D:865:LEU:HD13 | 3:D:865:LEU:C | 2.38 | 0.45 |
| 3:D:930:VAL:HA | 3:D:937:ILE:HG22 | 1.98 | 0.45 |
| 3:D:1051:GLY:O | 3:D:1104:HIS:HA | 2.17 | 0.45 |
| 3:D:1070:ASP:HB2 | 3:D:1071:GLY:C | 2.38 | 0.45 |
| 3:D:1148:SER:O | 3:D:1149:ILE:HD13 | 2.17 | 0.45 |
| 3:D:1175:PHE:CZ | 3:D:1189:GLU:HG2 | 2.52 | 0.45 |
| 5:F:279:ARG:NH2 | 5:F:279:ARG:HB3 | 2.32 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 5:F:516:HIS:HD2 | 5:F:518:SER:OG | 1.99 | 0.45 |
| 1:A:55:ARG:HH21 | 1:A:161:ARG:HH12 | 1.64 | 0.44 |
| 1:A:97:LEU:HD21 | 1:A:105:VAL:CG1 | 2.47 | 0.44 |
| 1:B:166:SER:HB3 | 1:B:168:TYR:CE1 | 2.52 | 0.44 |
| 2:C:1076:MET:HE1 | 3:D:559:MET:SD | 2.57 | 0.44 |
| 3:D:113:ARG:HG2 | 3:D:1238:ILE:HD11 | 1.99 | 0.44 |
| 3:D:487:LEU:HD12 | 3:D:491:ILE:HG13 | 1.99 | 0.44 |
| 3:D:576:MET:HG3 | 3:D:697:ILE:HD12 | 1.99 | 0.44 |
| 3:D:1062:TYR:CD2 | 3:D:1112:MET:HE3 | 2.52 | 0.44 |
| 1:A:215:LEU:HG | 1:B:219:PHE:CE1 | 2.52 | 0.44 |
| 2:C:952:VAL:CG1 | 2:C:957:ALA:HA | 2.44 | 0.44 |
| 3:D:111:PRO:HB2 | 3:D:116:TYR:HE2 | 1.79 | 0.44 |
| 1:A:11:GLU:CD | 1:A:205:ARG:HE | 2.20 | 0.44 |
| 1:A:56:ILE:HG12 | 1:A:136:VAL:HB | 1.98 | 0.44 |
| 2:C:231:ARG:CG | 2:C:232:GLN:N | 2.80 | 0.44 |
| 3:D:1226:PHE:CE2 | 3:D:1249:LYS:NZ | 2.85 | 0.44 |
| 5:F:438:PHE:HB3 | 6:J:4:ARG:O | 2.17 | 0.44 |
| 6:J:33:ARG:HD3 | 6:J:34:THR:O | 2.17 | 0.44 |
| 1:A:62:GLU:O | 1:A:62:GLU:HG2 | 2.17 | 0.44 |
| 2:C:323:HIS:O | 2:C:326:GLU:HB2 | 2.17 | 0.44 |
| 4:E:31:THR:HG23 | 4:E:31:THR:O | 2.18 | 0.44 |
| 1:A:40:ARG:NE | 1:B:33:THR:HG22 | 2.32 | 0.44 |
| 2:C:224:VAL:HG22 | 2:C:234:VAL:HG12 | 1.98 | 0.44 |
| 2:C:274:LEU:HG | 2:C:292:ALA:CB | 2.48 | 0.44 |
| 3:D:211:ARG:HA | 3:D:214:ARG:NH2 | 2.33 | 0.44 |
| 3:D:456:VAL:O | 3:D:460:LEU:HG | 2.18 | 0.44 |
| 3:D:1053:VAL:CG1 | 3:D:1103:ASP:H | 2.31 | 0.44 |
| 3:D:1063:LYS:HZ2 | 3:D:1076:VAL:CG1 | 2.30 | 0.44 |
| 7:O:23:DT:H2'' | 7:O:24:DG:H8 | 1.83 | 0.44 |
| 1:A:95:MET:HE1 | 1:A:110:ILE:HG21 | 1.98 | 0.44 |
| 3:D:58:TRP:CA | 3:D:82:VAL:HG23 | 2.46 | 0.44 |
| 3:D:223:TRP:O | 3:D:227:THR:HG23 | 2.17 | 0.44 |
| 3:D:341:ASN:O | 3:D:345:ARG:HG3 | 2.18 | 0.44 |
| 3:D:1069:ASP:OD2 | 3:D:1104:HIS:HE1 | 2.01 | 0.44 |
| 4:E:43:LEU:HB3 | 4:E:53:LEU:HD11 | 1.99 | 0.44 |
| 1:A:226:ASN:HB2 | 1:B:9:LEU:HD23 | 1.99 | 0.44 |
| 1:B:38:LEU:HD13 | 1:B:38:LEU:HA | 1.74 | 0.44 |
| 1:B:74:THR:OG1 | 3:D:608:GLU:OE2 | 2.33 | 0.44 |
| 1:B:112:PRO:HB2 | 1:B:116:VAL:HG23 | 2.00 | 0.44 |
| 2:C:219:ARG:HG3 | 2:C:220:ASP:O | 2.17 | 0.44 |
| 3:D:860:LEU:HD12 | 3:D:860:LEU:HA | 1.88 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 3:D:909:THR:O | 3:D:910:LEU:CB | 2.66 | 0.44 |
| 3:D:952:LEU:HB3 | 3:D:957:ILE:CD1 | 2.43 | 0.44 |
| 3:D:1064:ILE:CD1 | 3:D:1080:ILE:HD12 | 2.48 | 0.44 |
| 3:D:1221:LEU:HD23 | 3:D:1221:LEU:N | 2.33 | 0.44 |
| 1:A:1:MET:O | 1:A:2:LEU:HD12 | 2.18 | 0.44 |
| 1:B:161:ARG:O | 1:B:161:ARG:HG3 | 2.18 | 0.44 |
| 2:C:568:VAL:CG1 | 3:D:847:LEU:HD23 | 2.48 | 0.44 |
| 2:C:619:VAL:HG23 | 2:C:620:ARG:HG2 | 2.00 | 0.44 |
| 3:D:20:ILE:HG21 | 3:D:316:ALA:O | 2.18 | 0.44 |
| 3:D:148:LEU:O | 3:D:148:LEU:HD22 | 2.18 | 0.44 |
| 3:D:1063:LYS:HZ1 | 3:D:1078:ASP:CA | 2.19 | 0.44 |
| 5:F:246:GLU:OE1 | 5:F:247:VAL:HG23 | 2.17 | 0.44 |
| 8:P:18:DT:H2'' | 8:P:19:DT:C6 | 2.53 | 0.44 |
| 1:B:107:ALA:O | 1:B:110:ILE:HG22 | 2.17 | 0.44 |
| 2:C:476:HIS:H | 2:C:479:HIS:CD2 | 2.36 | 0.44 |
| 2:C:611:MET:HE2 | 2:C:1033:LEU:HD21 | 2.00 | 0.44 |
| 2:C:730:ASN:HA | 2:C:734:ALA:HB3 | 2.00 | 0.44 |
| 2:C:845:GLY:HA3 | 2:C:874:ALA:O | 2.17 | 0.44 |
| 3:D:442:GLY:HA3 | 3:D:523:GLN:HB2 | 1.99 | 0.44 |
| 3:D:460:LEU:C | 3:D:460:LEU:HD12 | 2.38 | 0.44 |
| 3:D:463:LEU:HD23 | 3:D:463:LEU:H | 1.82 | 0.44 |
| 1:B:55:ARG:HB2 | 1:B:55:ARG:CZ | 2.47 | 0.43 |
| 2:C:278:TYR:CD2 | 2:C:291:SER:HB2 | 2.52 | 0.43 |
| 4:E:76:LEU:HG | 4:E:77:GLU:N | 2.33 | 0.43 |
| 5:F:477:LEU:O | 5:F:487:ARG:HG2 | 2.18 | 0.43 |
| 1:A:9:LEU:HD12 | 1:A:23:ILE:CD1 | 2.44 | 0.43 |
| 1:B:78:LEU:C | 1:B:78:LEU:HD12 | 2.39 | 0.43 |
| 2:C:542:ALA:HB3 | 2:C:579:MET:CB | 2.47 | 0.43 |
| 2:C:612:GLN:HE21 | 2:C:888:ARG:HG3 | 1.81 | 0.43 |
| 2:C:817:GLU:HG2 | 5:F:457:GLN:HG2 | 2.00 | 0.43 |
| 3:D:236:VAL:O | 3:D:236:VAL:HG12 | 2.19 | 0.43 |
| 3:D:647:GLU:HG3 | 3:D:648:ALA:N | 2.33 | 0.43 |
| 3:D:1050:THR:HG23 | 3:D:1107:VAL:HG22 | 2.00 | 0.43 |
| 3:D:1097:ARG:NH1 | 3:D:1100:SER:HB2 | 2.26 | 0.43 |
| 5:F:394:PRO:HB2 | 5:F:399:LEU:HD11 | 2.00 | 0.43 |
| 2:C:202:VAL:HG22 | 2:C:203:LYS:N | 2.34 | 0.43 |
| 2:C:761:ASP:HA | 2:C:766:ALA:HA | 1.99 | 0.43 |
| 3:D:25:TYR:CD2 | 3:D:91:ARG:HD3 | 2.54 | 0.43 |
| 3:D:136:ILE:HD11 | 3:D:235:ILE:HD11 | 2.00 | 0.43 |
| 3:D:290:LEU:O | 3:D:294:LYS:HG3 | 2.18 | 0.43 |
| 3:D:495:PRO:HA | 3:D:512:PHE:O | 2.18 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 3:D:535:ASP:OD1 | 3:D:539:ASP:OD2 | 2.36 | 0.43 |
| 5:F:233:LYS:HE2 | 5:F:233:LYS:HB3 | 1.79 | 0.43 |
| 5:F:258:TYR:CE2 | 6:J:98:LEU:HD13 | 2.54 | 0.43 |
| 5:F:492:ILE:HD11 | 5:F:503:ILE:HG21 | 2.01 | 0.43 |
| 8:P:3:DC:H2'' | 8:P:4:DA:O5' | 2.18 | 0.43 |
| 2:C:524:VAL:HB | 2:C:552:GLY:HA2 | 1.99 | 0.43 |
| 2:C:641:VAL:CG1 | 2:C:701:VAL:HG13 | 2.48 | 0.43 |
| 2:C:760:ARG:HB3 | 2:C:864:GLY:O | 2.18 | 0.43 |
| 1:A:35:GLY:CA | 1:A:192:LEU:HD21 | 2.49 | 0.43 |
| 1:A:97:LEU:HB2 | 1:A:110:ILE:HG12 | 2.00 | 0.43 |
| 2:C:103:MET:HG3 | 2:C:404:MET:CE | 2.48 | 0.43 |
| 2:C:215:ASP:N | 2:C:223:GLY:HA3 | 2.33 | 0.43 |
| 2:C:519:VAL:HG23 | 2:C:524:VAL:N | 2.33 | 0.43 |
| 2:C:754:GLU:HB2 | 2:C:872:TYR:CE1 | 2.53 | 0.43 |
| 2:C:762:THR:HG23 | 2:C:765:GLY:H | 1.83 | 0.43 |
| 2:C:774:PRO:O | 2:C:776:ILE:HG22 | 2.19 | 0.43 |
| 3:D:102:THR:HG22 | 3:D:313:VAL:HG12 | 2.00 | 0.43 |
| 3:D:505:HIS:H | 3:D:505:HIS:CD2 | 2.36 | 0.43 |
| 3:D:1256:LYS:HG2 | 3:D:1257:LEU:N | 2.34 | 0.43 |
| 5:F:278:ARG:NH2 | 5:F:278:ARG:O | 2.52 | 0.43 |
| 5:F:491:GLU:O | 5:F:494:GLN:HB3 | 2.18 | 0.43 |
| 1:B:128:LEU:N | 1:B:128:LEU:HD12 | 2.33 | 0.43 |
| 2:C:781:LEU:HA | 2:C:784:LEU:HD13 | 2.01 | 0.43 |
| 2:C:994:PRO:HB3 | 2:C:999:ASP:N | 2.16 | 0.43 |
| 2:C:994:PRO:CG | 2:C:998:GLY:HA2 | 2.48 | 0.43 |
| 3:D:118:LEU:HB3 | 3:D:120:LEU:HD13 | 2.01 | 0.43 |
| 3:D:513:GLU:HB2 | 4:E:35:ILE:HG13 | 2.01 | 0.43 |
| 3:D:646:ILE:CG2 | 3:D:650:LEU:HD12 | 2.49 | 0.43 |
| 3:D:1097:ARG:NH1 | 3:D:1100:SER:N | 2.66 | 0.43 |
| 4:E:50:LYS:O | 4:E:54:VAL:HG23 | 2.19 | 0.43 |
| 5:F:273:LEU:HB3 | 5:F:274:PRO:CD | 2.48 | 0.43 |
| 5:F:430:GLU:HA | 5:F:431:GLY:HA3 | 1.63 | 0.43 |
| 7:O:7:DC:H2'' | 7:O:8:DA:H8 | 1.83 | 0.43 |
| 7:O:19:DA:H2'' | 7:O:20:DT:C5' | 2.48 | 0.43 |
| 1:B:74:THR:HG21 | 3:D:608:GLU:OE2 | 2.18 | 0.43 |
| 2:C:113:ASP:HB2 | 2:C:132:PRO:HD2 | 2.00 | 0.43 |
| 2:C:946:VAL:HG12 | 2:C:948:ALA:H | 1.83 | 0.43 |
| 2:C:967:GLN:CD | 2:C:968:PRO:HD2 | 2.39 | 0.43 |
| 3:D:125:LEU:CD1 | 3:D:261:ILE:HD11 | 2.44 | 0.43 |
| 3:D:336:ALA:HA | 5:F:421:ILE:O | 2.18 | 0.43 |
| 3:D:1055:LEU:HD23 | 3:D:1055:LEU:C | 2.39 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 3:D:1087:ARG:CG | 3:D:1088:VAL:N | 2.78 | 0.43 |
| 7:O:11:DA:H2" | 7:O:12:DG:H5" | 2.01 | 0.43 |
| 1:A:9:LEU:HD21 | 1:B:225:LEU:HD11 | 2.00 | 0.43 |
| 1:A:65:THR:HG22 | 1:A:72:ASP:CB | 2.48 | 0.43 |
| 1:A:219:PHE:CG | 1:B:215:LEU:HD22 | 2.54 | 0.43 |
| 1:B:78:LEU:HD12 | 3:D:636:ARG:HH21 | 1.83 | 0.43 |
| 2:C:77:ARG:HG3 | 2:C:77:ARG:O | 2.18 | 0.43 |
| 2:C:195:THR:HG21 | 2:C:218:LYS:HG3 | 1.99 | 0.43 |
| 2:C:593:MET:HA | 2:C:628:THR:HG21 | 2.01 | 0.43 |
| 2:C:597:LEU:HD23 | 2:C:976:VAL:CG1 | 2.48 | 0.43 |
| 3:D:60:CYS:SG | 3:D:63:GLY:N | 2.89 | 0.43 |
| 3:D:834:ARG:HA | 3:D:834:ARG:NE | 2.29 | 0.43 |
| 3:D:1251:ASN:CG | 3:D:1259:PRO:HD3 | 2.39 | 0.43 |
| 4:E:92:LEU:O | 4:E:92:LEU:HD13 | 2.19 | 0.43 |
| 5:F:442:SER:HB3 | 6:J:7:ARG:CG | 2.48 | 0.43 |
| 1:A:225:LEU:C | 1:A:225:LEU:HD13 | 2.38 | 0.43 |
| 1:B:182:ARG:HG3 | 1:B:186:ARG:H | 1.84 | 0.43 |
| 2:C:79:ASP:N | 2:C:79:ASP:OD1 | 2.51 | 0.43 |
| 2:C:112:PHE:CD1 | 2:C:159:MET:HE1 | 2.54 | 0.43 |
| 2:C:205:ILE:O | 2:C:205:ILE:HG13 | 2.18 | 0.43 |
| 2:C:624:PRO:HB3 | 2:C:1029:TYR:CE1 | 2.54 | 0.43 |
| 2:C:626:VAL:O | 2:C:888:ARG:NH2 | 2.50 | 0.43 |
| 2:C:830:ARG:HD2 | 2:C:832:VAL:HG22 | 2.01 | 0.43 |
| 2:C:897:LYS:HG3 | 2:C:899:LEU:HD13 | 2.00 | 0.43 |
| 2:C:982:GLU:HB2 | 3:D:841:ARG:NH2 | 2.33 | 0.43 |
| 2:C:1128:LEU:CD2 | 3:D:406:LEU:HD21 | 2.48 | 0.43 |
| 3:D:117:LEU:HD13 | 3:D:117:LEU:C | 2.39 | 0.43 |
| 3:D:274:ALA:O | 3:D:278:ARG:HD3 | 2.19 | 0.43 |
| 3:D:294:LYS:O | 3:D:297:LYS:HB3 | 2.18 | 0.43 |
| 3:D:482:GLN:OE1 | 3:D:482:GLN:N | 2.43 | 0.43 |
| 3:D:905:ALA:HB2 | 3:D:911:ILE:HD12 | 2.00 | 0.43 |
| 5:F:472:ALA:O | 5:F:476:ARG:HG3 | 2.19 | 0.43 |
| 1:A:47:PRO:HG3 | 1:B:230:GLU:O | 2.18 | 0.43 |
| 1:A:54:ILE:HD11 | 1:A:77:ILE:CD1 | 2.49 | 0.43 |
| 1:B:181:THR:HG21 | 1:B:191:LYS:HD3 | 2.00 | 0.43 |
| 2:C:38:ARG:HG2 | 2:C:973:SER:HB3 | 2.01 | 0.43 |
| 2:C:762:THR:N | 2:C:765:GLY:O | 2.48 | 0.43 |
| 2:C:820:LEU:HA | 5:F:479:PHE:CE1 | 2.53 | 0.43 |
| 2:C:1119:GLU:O | 2:C:1119:GLU:HG2 | 2.19 | 0.43 |
| 3:D:121:ALA:HB3 | 3:D:124:ASP:CG | 2.38 | 0.43 |
| 3:D:436:LEU:HD22 | 3:D:515:MET:HE1 | 2.01 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 3:D:596:THR:HG22 | 3:D:626:VAL:O | 2.19 | 0.43 |
| 3:D:901:LEU:HD12 | 3:D:960:VAL:CG2 | 2.49 | 0.43 |
| 3:D:975:CYS:SG | 3:D:978:CYS:HB2 | 2.58 | 0.43 |
| 4:E:101:ALA:CB | 4:E:103:LEU:HD13 | 2.49 | 0.43 |
| 5:F:418:ARG:HB2 | 5:F:418:ARG:CZ | 2.49 | 0.43 |
| 7:O:6:DA:H2'' | 7:O:7:DC:C5' | 2.49 | 0.43 |
| 1:A:46:ILE:HD12 | 1:A:210:SER:OG | 2.18 | 0.42 |
| 1:B:3:ILE:O | 1:B:4:SER:OG | 2.29 | 0.42 |
| 2:C:196:ASP:N | 2:C:196:ASP:OD1 | 2.50 | 0.42 |
| 2:C:343:GLU:HA | 2:C:346:VAL:HG12 | 2.00 | 0.42 |
| 2:C:809:LYS:NZ | 2:C:832:VAL:O | 2.52 | 0.42 |
| 2:C:881:ASP:OD1 | 2:C:881:ASP:N | 2.52 | 0.42 |
| 3:D:55:THR:HG22 | 6:J:12:GLY:HA2 | 2.01 | 0.42 |
| 3:D:459:ARG:HH21 | 4:E:88:GLN:NE2 | 2.17 | 0.42 |
| 3:D:753:ALA:HB1 | 3:D:774:LEU:CD2 | 2.48 | 0.42 |
| 3:D:866:ARG:HH11 | 3:D:1011:THR:HA | 1.81 | 0.42 |
| 3:D:1008:THR:HG22 | 3:D:1008:THR:O | 2.19 | 0.42 |
| 3:D:1053:VAL:HG12 | 3:D:1103:ASP:N | 2.34 | 0.42 |
| 3:D:1070:ASP:HB2 | 3:D:1071:GLY:HA2 | 2.00 | 0.42 |
| 5:F:456:LEU:HD13 | 5:F:526:TYR:CD2 | 2.54 | 0.42 |
| 6:J:108:ARG:HD3 | 6:J:108:ARG:N | 2.34 | 0.42 |
| 1:B:50:ALA:HB3 | 1:B:168:TYR:CD1 | 2.54 | 0.42 |
| 1:B:69:VAL:HG23 | 1:B:71:GLU:O | 2.20 | 0.42 |
| 2:C:93:LEU:HD12 | 2:C:96:ILE:HD11 | 2.01 | 0.42 |
| 2:C:221:THR:OG1 | 2:C:261:THR:HG22 | 2.18 | 0.42 |
| 2:C:476:HIS:HD2 | 2:C:478:SER:H | 1.67 | 0.42 |
| 2:C:820:LEU:HB2 | 5:F:479:PHE:CD1 | 2.53 | 0.42 |
| 3:D:37:ARG:HB3 | 3:D:37:ARG:NH1 | 2.34 | 0.42 |
| 3:D:433:GLY:O | 3:D:436:LEU:HG | 2.19 | 0.42 |
| 3:D:684:VAL:HG11 | 3:D:688:MET:CE | 2.49 | 0.42 |
| 3:D:771:ASN:OD1 | 3:D:833:PRO:HG3 | 2.19 | 0.42 |
| 3:D:1080:ILE:CG2 | 3:D:1112:MET:HE3 | 2.46 | 0.42 |
| 8:P:2:DG:H2'' | 8:P:3:DC:O5' | 2.19 | 0.42 |
| 1:B:100:GLN:CB | 1:B:133:LYS:HB2 | 2.49 | 0.42 |
| 2:C:230:ARG:O | 2:C:231:ARG:CB | 2.64 | 0.42 |
| 2:C:357:VAL:HG22 | 2:C:358:PRO:CD | 2.49 | 0.42 |
| 2:C:658:ILE:HD11 | 2:C:688:PRO:CB | 2.25 | 0.42 |
| 3:D:932:GLU:O | 3:D:933:ALA:C | 2.56 | 0.42 |
| 1:A:183:VAL:HG13 | 1:A:185:GLN:OE1 | 2.20 | 0.42 |
| 2:C:141:ASN:O | 2:C:145:GLY:HA2 | 2.19 | 0.42 |
| 2:C:353:THR:HG23 | 2:C:354:THR:N | 2.34 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 2:C:518:LYS:HG3 | 2:C:518:LYS:O | 2.19 | 0.42 |
| 2:C:548:ILE:HD11 | 2:C:579:MET:CE | 2.50 | 0.42 |
| 3:D:151:LEU:HD21 | 3:D:251:TYR:OH | 2.18 | 0.42 |
| 3:D:268:PHE:CZ | 3:D:273:GLU:HG3 | 2.54 | 0.42 |
| 3:D:444:PRO:HD2 | 3:D:447:MET:CE | 2.49 | 0.42 |
| 3:D:588:LEU:O | 3:D:588:LEU:HD13 | 2.19 | 0.42 |
| 3:D:952:LEU:CB | 3:D:957:ILE:HD11 | 2.43 | 0.42 |
| 3:D:989:VAL:HG22 | 3:D:990:ASP:N | 2.34 | 0.42 |
| 3:D:1040:PRO:HB2 | 3:D:1115:SER:HB2 | 2.01 | 0.42 |
| 3:D:1048:ASP:OD2 | 3:D:1075:VAL:HG11 | 2.20 | 0.42 |
| 3:D:1166:THR:HB | 3:D:1206:VAL:CG2 | 2.48 | 0.42 |
| 1:A:57:ASP:N | 1:A:57:ASP:OD1 | 2.52 | 0.42 |
| 1:A:217:GLU:O | 1:B:234:ILE:HD12 | 2.19 | 0.42 |
| 2:C:173:ARG:NH1 | 2:C:439:PHE:CZ | 2.87 | 0.42 |
| 2:C:436:LEU:HD13 | 2:C:460:PRO:HD2 | 2.02 | 0.42 |
| 3:D:834:ARG:HB2 | 3:D:835:PRO:HA | 2.02 | 0.42 |
| 3:D:913:ASP:N | 3:D:916:ILE:HD11 | 2.35 | 0.42 |
| 3:D:1117:ASP:OD1 | 3:D:1120:GLU:HB2 | 2.19 | 0.42 |
| 1:B:6:ARG:CZ | 1:B:237:SER:HA | 2.49 | 0.42 |
| 2:C:353:THR:O | 2:C:365:VAL:N | 2.24 | 0.42 |
| 2:C:967:GLN:O | 2:C:970:ALA:HB2 | 2.20 | 0.42 |
| 3:D:64:LYS:NZ | 3:D:65:TYR:OH | 2.52 | 0.42 |
| 3:D:91:ARG:O | 3:D:321:PRO:HG3 | 2.19 | 0.42 |
| 3:D:216:LEU:N | 3:D:216:LEU:HD23 | 2.35 | 0.42 |
| 3:D:657:GLN:HA | 3:D:660:ASP:OD1 | 2.19 | 0.42 |
| 3:D:1044:ALA:HA | 3:D:1084:GLN:NE2 | 2.35 | 0.42 |
| 5:F:395:THR:OG1 | 5:F:397:GLU:OE1 | 2.30 | 0.42 |
| 5:F:470:ARG:O | 5:F:474:VAL:HG23 | 2.19 | 0.42 |
| 6:J:31:ARG:O | 6:J:65:ILE:HB | 2.19 | 0.42 |
| 1:B:118:VAL:HG12 | 1:B:120:ASN:H | 1.84 | 0.42 |
| 1:B:177:LYS:O | 1:B:177:LYS:HD3 | 2.19 | 0.42 |
| 2:C:213:GLU:O | 2:C:223:GLY:O | 2.37 | 0.42 |
| 2:C:231:ARG:HB3 | 5:F:205:ASP:OD2 | 2.19 | 0.42 |
| 2:C:274:LEU:CG | 2:C:292:ALA:HB1 | 2.48 | 0.42 |
| 2:C:282:ARG:HB3 | 2:C:283:PRO:O | 2.19 | 0.42 |
| 2:C:308:LEU:H | 2:C:308:LEU:HD23 | 1.84 | 0.42 |
| 2:C:587:VAL:HG13 | 2:C:591:THR:CG2 | 2.49 | 0.42 |
| 2:C:797:ARG:HD3 | 2:C:798:ASP:N | 2.35 | 0.42 |
| 2:C:1076:MET:HA | 2:C:1076:MET:CE | 2.50 | 0.42 |
| 3:D:363:PRO:HD3 | 5:F:296:LEU:HD12 | 2.02 | 0.42 |
| 3:D:429:VAL:HG23 | 3:D:539:ASP:O | 2.20 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 3:D:1061:PHE:CB | 3:D:1081:SER:HA | 2.41 | 0.42 |
| 3:D:1221:LEU:CD2 | 3:D:1243:ASP:OD2 | 2.68 | 0.42 |
| 5:F:435:LEU:O | 5:F:435:LEU:HD23 | 2.19 | 0.42 |
| 6:J:98:LEU:O | 6:J:102:LEU:HB2 | 2.20 | 0.42 |
| 1:B:80:LEU:O | 1:B:83:LEU:HB3 | 2.20 | 0.42 |
| 1:B:102:PRO:HB3 | 1:B:130:ASP:CA | 2.48 | 0.42 |
| 2:C:161:THR:OG1 | 2:C:165:THR:O | 2.33 | 0.42 |
| 2:C:326:GLU:CB | 2:C:328:ILE:HG13 | 2.50 | 0.42 |
| 2:C:519:VAL:HG13 | 2:C:576:VAL:O | 2.20 | 0.42 |
| 2:C:822:ARG:NH1 | 2:C:829:ALA:CB | 2.83 | 0.42 |
| 2:C:891:ASN:ND2 | 2:C:930:GLN:OE1 | 2.52 | 0.42 |
| 2:C:926:MET:HE1 | 3:D:817:LEU:CA | 2.50 | 0.42 |
| 2:C:955:TRP:CD1 | 2:C:956:ALA:HB2 | 2.54 | 0.42 |
| 2:C:1135:VAL:HG23 | 2:C:1135:VAL:O | 2.20 | 0.42 |
| 5:F:299:ASN:HB3 | 5:F:328:LEU:HD11 | 2.00 | 0.42 |
| 1:A:54:ILE:HD11 | 1:A:77:ILE:HD11 | 2.02 | 0.42 |
| 1:A:61:HIS:H | 1:A:61:HIS:CD2 | 2.38 | 0.42 |
| 2:C:68:PRO:O | 2:C:71:ARG:HB3 | 2.20 | 0.42 |
| 2:C:134:PHE:CE1 | 2:C:153:PHE:HD1 | 2.37 | 0.42 |
| 2:C:180:VAL:HG11 | 2:C:379:ARG:NH1 | 2.34 | 0.42 |
| 2:C:540:VAL:O | 2:C:540:VAL:HG12 | 2.20 | 0.42 |
| 2:C:720:LEU:HD23 | 2:C:913:VAL:HA | 2.02 | 0.42 |
| 2:C:1044:ARG:NH2 | 2:C:1048:PRO:O | 2.52 | 0.42 |
| 3:D:144:ARG:O | 3:D:144:ARG:HD2 | 2.20 | 0.42 |
| 3:D:844:LEU:HD12 | 3:D:844:LEU:N | 2.35 | 0.42 |
| 3:D:1194:VAL:O | 3:D:1195:ALA:C | 2.58 | 0.42 |
| 5:F:345:THR:HA | 7:O:30:DC:H41 | 1.85 | 0.42 |
| 1:A:95:MET:HG2 | 1:A:113:PRO:HD2 | 2.01 | 0.42 |
| 1:A:186:ARG:HA | 1:A:186:ARG:HD3 | 1.82 | 0.42 |
| 2:C:225:ARG:CB | 2:C:231:ARG:HA | 2.25 | 0.42 |
| 2:C:275:LEU:HD12 | 2:C:276:ASP:N | 2.35 | 0.42 |
| 2:C:731:TYR:OH | 3:D:578:ARG:HD3 | 2.19 | 0.42 |
| 2:C:1017:GLU:HB3 | 2:C:1018:PRO:HD2 | 2.02 | 0.42 |
| 2:C:1052:ILE:HB | 5:F:436:GLY:O | 2.20 | 0.42 |
| 3:D:140:ASP:O | 3:D:142:GLU:N | 2.52 | 0.42 |
| 3:D:320:ILE:HD11 | 3:D:324:LEU:CD1 | 2.50 | 0.42 |
| 3:D:824:VAL:HG21 | 3:D:836:VAL:HG21 | 2.02 | 0.42 |
| 8:P:10:DT:H2'' | 8:P:11:DA:C8 | 2.54 | 0.42 |
| 1:A:181:THR:HG21 | 1:A:189:PHE:CZ | 2.55 | 0.41 |
| 2:C:71:ARG:O | 2:C:75:ALA:CB | 2.67 | 0.41 |
| 2:C:264:LYS:HB3 | 5:F:202:PHE:N | 2.34 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 2:C:274:LEU:HD21 | 2:C:292:ALA:C | 2.40 | 0.41 |
| 2:C:558:ARG:NH2 | 2:C:572:PRO:HD3 | 2.32 | 0.41 |
| 2:C:861:LEU:CB | 2:C:862:PRO:HD2 | 2.44 | 0.41 |
| 2:C:1093:SER:HB2 | 3:D:420:LYS:HD3 | 2.02 | 0.41 |
| 3:D:64:LYS:HZ2 | 3:D:65:TYR:HE2 | 1.60 | 0.41 |
| 3:D:130:TYR:OH | 3:D:387:ARG:HG2 | 2.20 | 0.41 |
| 3:D:345:ARG:HA | 3:D:348:ILE:HG22 | 2.01 | 0.41 |
| 3:D:707:ILE:O | 3:D:707:ILE:HG12 | 2.20 | 0.41 |
| 3:D:749:TYR:CE1 | 3:D:780:GLU:HB2 | 2.49 | 0.41 |
| 8:P:1:DA:H2'' | 8:P:2:DG:C5' | 2.50 | 0.41 |
| 1:A:218:LEU:HD21 | 1:B:34:LEU:HD22 | 2.02 | 0.41 |
| 1:B:208:LEU:HD12 | 1:B:208:LEU:O | 2.20 | 0.41 |
| 2:C:254:PHE:CA | 2:C:255:SER:HB2 | 2.50 | 0.41 |
| 2:C:326:GLU:C | 2:C:328:ILE:H | 2.24 | 0.41 |
| 2:C:672:MET:CE | 2:C:703:ALA:HB2 | 2.50 | 0.41 |
| 2:C:946:VAL:HG23 | 2:C:964:LEU:O | 2.20 | 0.41 |
| 2:C:946:VAL:N | 2:C:964:LEU:O | 2.31 | 0.41 |
| 2:C:1103:TYR:CE2 | 2:C:1107:VAL:HG21 | 2.55 | 0.41 |
| 2:C:1124:LEU:O | 2:C:1128:LEU:HG | 2.20 | 0.41 |
| 3:D:25:TYR:CE2 | 3:D:91:ARG:HG2 | 2.56 | 0.41 |
| 3:D:56:ARG:HB2 | 3:D:59:GLU:HB2 | 2.02 | 0.41 |
| 3:D:118:LEU:CB | 3:D:120:LEU:HD13 | 2.49 | 0.41 |
| 3:D:207:GLN:NE2 | 3:D:211:ARG:NH1 | 2.67 | 0.41 |
| 3:D:499:ASN:ND2 | 3:D:503:THR:OG1 | 2.49 | 0.41 |
| 3:D:740:PRO:HG2 | 3:D:741:ARG:HG3 | 2.01 | 0.41 |
| 3:D:1053:VAL:HG12 | 3:D:1103:ASP:H | 1.85 | 0.41 |
| 3:D:1122:LEU:HD22 | 3:D:1207:LEU:HB2 | 2.02 | 0.41 |
| 4:E:56:TYR:CE2 | 4:E:106:HIS:HD2 | 2.37 | 0.41 |
| 5:F:278:ARG:HH22 | 5:F:282:MET:CG | 2.34 | 0.41 |
| 5:F:297:GLU:HA | 5:F:300:LEU:HG | 2.03 | 0.41 |
| 5:F:439:ILE:CD1 | 6:J:6:LEU:HD13 | 2.45 | 0.41 |
| 1:B:111:VAL:O | 1:B:111:VAL:HG13 | 2.20 | 0.41 |
| 1:B:179:ASP:HB2 | 1:B:191:LYS:HB3 | 2.02 | 0.41 |
| 2:C:38:ARG:NH1 | 2:C:971:ILE:CG2 | 2.84 | 0.41 |
| 1:A:223:ARG:O | 1:A:225:LEU:N | 2.53 | 0.41 |
| 1:B:2:LEU:HD23 | 1:B:3:ILE:H | 1.83 | 0.41 |
| 1:B:69:VAL:HA | 1:B:127:THR:O | 2.21 | 0.41 |
| 2:C:267:THR:HG21 | 2:C:273:ALA:CA | 2.50 | 0.41 |
| 2:C:455:LEU:HD23 | 2:C:455:LEU:N | 2.36 | 0.41 |
| 2:C:824:ILE:HG22 | 2:C:825:PHE:CD1 | 2.54 | 0.41 |
| 3:D:244:LEU:O | 3:D:249:GLY:N | 2.54 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 3:D:337:THR:OG1 | 3:D:338:SER:N | 2.53 | 0.41 |
| 3:D:527:LEU:HD13 | 3:D:713:VAL:CG1 | 2.50 | 0.41 |
| 5:F:415:GLN:NE2 | 5:F:418:ARG:HH12 | 2.18 | 0.41 |
| 5:F:456:LEU:HD13 | 5:F:526:TYR:HD2 | 1.85 | 0.41 |
| 5:F:487:ARG:HB2 | 5:F:492:ILE:HG23 | 2.02 | 0.41 |
| 5:F:495:VAL:HG22 | 5:F:495:VAL:O | 2.20 | 0.41 |
| 8:P:23:DA:H2' | 8:P:24:DA:H8 | 1.85 | 0.41 |
| 1:B:21:PHE:HE2 | 1:B:196:VAL:HG11 | 1.85 | 0.41 |
| 1:B:34:LEU:C | 1:B:34:LEU:HD12 | 2.41 | 0.41 |
| 2:C:317:ASN:HB3 | 2:C:324:VAL:HG12 | 2.01 | 0.41 |
| 2:C:658:ILE:HG22 | 2:C:659:THR:N | 2.35 | 0.41 |
| 3:D:335:PHE:O | 5:F:420:PRO:HA | 2.21 | 0.41 |
| 3:D:468:ASN:ND2 | 3:D:470:LYS:H | 2.19 | 0.41 |
| 3:D:627:LEU:HD23 | 3:D:628:SER:H | 1.84 | 0.41 |
| 3:D:923:ARG:CB | 3:D:962:VAL:HG11 | 2.51 | 0.41 |
| 6:J:76:LYS:HD2 | 6:J:76:LYS:O | 2.20 | 0.41 |
| 7:O:10:DA:H5' | 7:O:10:DA:C8 | 2.56 | 0.41 |
| 7:O:12:DG:H5'' | 7:O:12:DG:H8 | 1.85 | 0.41 |
| 1:B:143:GLY:HA3 | 1:B:168:TYR:CD2 | 2.55 | 0.41 |
| 2:C:345:LEU:O | 2:C:345:LEU:HD22 | 2.20 | 0.41 |
| 3:D:84:ARG:O | 3:D:87:VAL:HG22 | 2.20 | 0.41 |
| 3:D:370:GLU:HA | 3:D:370:GLU:OE1 | 2.20 | 0.41 |
| 3:D:392:THR:HA | 3:D:399:LEU:HD12 | 2.01 | 0.41 |
| 3:D:679:LEU:O | 3:D:679:LEU:HD23 | 2.21 | 0.41 |
| 3:D:939:GLU:OE1 | 3:D:942:GLN:NE2 | 2.54 | 0.41 |
| 3:D:1097:ARG:HD2 | 3:D:1098:VAL:N | 2.36 | 0.41 |
| 5:F:493:GLY:O | 5:F:497:GLY:N | 2.54 | 0.41 |
| 1:A:14:LEU:HD12 | 1:A:18:ARG:HD2 | 2.02 | 0.41 |
| 1:A:177:LYS:CG | 1:A:193:ILE:HD11 | 2.50 | 0.41 |
| 1:B:21:PHE:HZ | 1:B:204:PRO:O | 2.04 | 0.41 |
| 1:B:38:LEU:HD12 | 1:B:42:LEU:HD13 | 2.01 | 0.41 |
| 2:C:52:GLY:O | 2:C:54:LEU:N | 2.53 | 0.41 |
| 2:C:721:VAL:HG11 | 2:C:1028:MET:HB2 | 2.03 | 0.41 |
| 2:C:862:PRO:HG2 | 2:C:865:VAL:HG21 | 2.01 | 0.41 |
| 2:C:1020:PRO:HG2 | 2:C:1021:TYR:CD2 | 2.55 | 0.41 |
| 3:D:123:LYS:HE3 | 3:D:123:LYS:HB2 | 1.83 | 0.41 |
| 3:D:453:LYS:NZ | 3:D:453:LYS:CB | 2.83 | 0.41 |
| 3:D:512:PHE:CE1 | 3:D:561:SER:HB2 | 2.56 | 0.41 |
| 3:D:557:ILE:HD13 | 4:E:53:LEU:CD2 | 2.50 | 0.41 |
| 3:D:882:GLN:HB2 | 3:D:1248:LEU:HD11 | 2.02 | 0.41 |
| 3:D:915:TYR:CD2 | 3:D:1143:ARG:NH1 | 2.88 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 3:D:1207:LEU:HD13 | 3:D:1207:LEU:C | 2.41 | 0.41 |
| 4:E:102:ASP:C | 4:E:103:LEU:HD12 | 2.41 | 0.41 |
| 5:F:371:HIS:CE1 | 7:O:21:DT:OP2 | 2.74 | 0.41 |
| 7:O:4:DT:H2'' | 7:O:5:DG:C8 | 2.54 | 0.41 |
| 8:P:14:DA:C1' | 8:P:15:DC:H5' | 2.50 | 0.41 |
| 8:P:19:DT:H2'' | 8:P:20:DG:C8 | 2.54 | 0.41 |
| 1:A:216:VAL:HG13 | 1:B:216:VAL:HG22 | 2.03 | 0.41 |
| 2:C:627:GLY:O | 2:C:973:SER:HA | 2.20 | 0.41 |
| 2:C:961:ASP:C | 2:C:962:GLU:HG3 | 2.41 | 0.41 |
| 3:D:170:LEU:C | 3:D:170:LEU:HD13 | 2.41 | 0.41 |
| 3:D:638:THR:HG22 | 3:D:661:ALA:CB | 2.50 | 0.41 |
| 3:D:882:GLN:HG3 | 3:D:883:ASP:OD1 | 2.21 | 0.41 |
| 3:D:1172:SER:HB3 | 3:D:1199:GLU:HB3 | 2.00 | 0.41 |
| 6:J:104:LEU:HD23 | 6:J:104:LEU:C | 2.41 | 0.41 |
| 1:A:84:VAL:HG12 | 1:A:120:ASN:CG | 2.42 | 0.41 |
| 1:B:95:MET:SD | 1:B:113:PRO:HD2 | 2.61 | 0.41 |
| 1:B:138:LEU:HD12 | 1:B:138:LEU:N | 2.36 | 0.41 |
| 1:B:215:LEU:O | 1:B:215:LEU:HD23 | 2.20 | 0.41 |
| 2:C:222:VAL:HG11 | 2:C:234:VAL:CG1 | 2.50 | 0.41 |
| 2:C:254:PHE:CE1 | 2:C:347:ARG:NH1 | 2.85 | 0.41 |
| 2:C:282:ARG:CB | 2:C:283:PRO:CA | 2.98 | 0.41 |
| 2:C:410:GLU:HA | 2:C:410:GLU:OE1 | 2.21 | 0.41 |
| 2:C:519:VAL:HG12 | 2:C:577:ASP:C | 2.41 | 0.41 |
| 2:C:563:ARG:CG | 2:C:564:LYS:H | 2.34 | 0.41 |
| 2:C:645:GLU:HA | 2:C:645:GLU:OE1 | 2.20 | 0.41 |
| 2:C:741:LEU:CA | 2:C:746:VAL:HG12 | 2.51 | 0.41 |
| 2:C:1123:VAL:O | 2:C:1127:GLU:HG3 | 2.21 | 0.41 |
| 9:C:1201:FI8:C24 | 9:C:1201:FI8:C25 | 2.98 | 0.41 |
| 3:D:527:LEU:HD22 | 3:D:575:ALA:O | 2.21 | 0.41 |
| 3:D:527:LEU:HD11 | 3:D:713:VAL:HG12 | 2.02 | 0.41 |
| 3:D:778:TRP:CE2 | 3:D:835:PRO:HD3 | 2.55 | 0.41 |
| 3:D:922:ALA:HB1 | 3:D:981:ARG:HB3 | 2.03 | 0.41 |
| 3:D:981:ARG:HG2 | 3:D:982:SER:N | 2.34 | 0.41 |
| 3:D:1068:PRO:HG2 | 3:D:1072:GLY:H | 1.86 | 0.41 |
| 3:D:1089:PHE:HD2 | 3:D:1099:LEU:HB2 | 1.85 | 0.41 |
| 3:D:1217:THR:OG1 | 3:D:1218:ASP:N | 2.54 | 0.41 |
| 4:E:32:PRO:CB | 4:E:36:THR:HG23 | 2.50 | 0.41 |
| 5:F:509:LYS:HD2 | 5:F:509:LYS:HA | 1.90 | 0.41 |
| 1:B:3:ILE:HG22 | 1:B:233:GLU:O | 2.20 | 0.41 |
| 1:B:90:ASP:OD1 | 1:B:142:ARG:HD3 | 2.20 | 0.41 |
| 2:C:339:VAL:HA | 2:C:342:ILE:CD1 | 2.40 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 2:C:809:LYS:HZ2 | 2:C:809:LYS:CB | 2.27 | 0.41 |
| 2:C:840:PRO:HD2 | 2:C:843:GLU:OE1 | 2.21 | 0.41 |
| 3:D:345:ARG:HA | 3:D:348:ILE:CG2 | 2.51 | 0.41 |
| 2:C:435:GLN:CG | 2:C:460:PRO:HD3 | 2.44 | 0.40 |
| 2:C:607:MET:O | 2:C:611:MET:HG3 | 2.21 | 0.40 |
| 2:C:1040:LYS:HB3 | 3:D:540:GLN:NE2 | 2.35 | 0.40 |
| 3:D:293:LEU:HD23 | 3:D:293:LEU:O | 2.20 | 0.40 |
| 3:D:367:VAL:HG12 | 3:D:371:LYS:HE3 | 2.02 | 0.40 |
| 3:D:606:HIS:HB2 | 3:D:607:PRO:CD | 2.46 | 0.40 |
| 3:D:744:GLU:HG3 | 3:D:745:ILE:N | 2.35 | 0.40 |
| 3:D:910:LEU:O | 3:D:910:LEU:CD1 | 2.69 | 0.40 |
| 4:E:32:PRO:HG2 | 4:E:37:ASN:HB2 | 2.02 | 0.40 |
| 1:A:41:THR:OG1 | 1:A:215:LEU:HD21 | 2.22 | 0.40 |
| 1:A:133:LYS:HD3 | 1:A:133:LYS:C | 2.42 | 0.40 |
| 2:C:74:ALA:HB1 | 2:C:79:ASP:OD2 | 2.21 | 0.40 |
| 2:C:224:VAL:HB | 2:C:232:GLN:O | 2.20 | 0.40 |
| 2:C:231:ARG:HD2 | 5:F:205:ASP:CB | 2.39 | 0.40 |
| 2:C:254:PHE:CE1 | 2:C:347:ARG:HG2 | 2.54 | 0.40 |
| 2:C:333:LEU:HD22 | 2:C:338:VAL:HG23 | 2.02 | 0.40 |
| 2:C:339:VAL:CG2 | 2:C:340:ALA:N | 2.85 | 0.40 |
| 2:C:542:ALA:N | 2:C:578:TYR:O | 2.48 | 0.40 |
| 2:C:558:ARG:HH21 | 2:C:572:PRO:CD | 2.30 | 0.40 |
| 2:C:732:GLU:O | 2:C:733:ASP:HB2 | 2.21 | 0.40 |
| 2:C:754:GLU:HB2 | 2:C:872:TYR:CD1 | 2.56 | 0.40 |
| 3:D:55:THR:HG22 | 3:D:55:THR:O | 2.22 | 0.40 |
| 3:D:327:MET:HG3 | 3:D:337:THR:HB | 2.03 | 0.40 |
| 3:D:449:LEU:HD13 | 3:D:449:LEU:C | 2.41 | 0.40 |
| 3:D:467:GLN:HA | 3:D:467:GLN:NE2 | 2.34 | 0.40 |
| 3:D:673:PHE:O | 3:D:676:LEU:HB2 | 2.21 | 0.40 |
| 3:D:746:LEU:HD23 | 3:D:746:LEU:HA | 1.94 | 0.40 |
| 3:D:780:GLU:HA | 3:D:780:GLU:OE1 | 2.21 | 0.40 |
| 3:D:820:MET:HG2 | 3:D:822:GLY:N | 2.36 | 0.40 |
| 3:D:1122:LEU:CA | 3:D:1130:VAL:HG21 | 2.51 | 0.40 |
| 5:F:386:LEU:HD11 | 5:F:398:GLU:OE2 | 2.20 | 0.40 |
| 1:B:15:THR:O | 1:B:17:ASN:N | 2.54 | 0.40 |
| 1:B:95:MET:HG2 | 1:B:113:PRO:HD2 | 2.03 | 0.40 |
| 2:C:96:ILE:O | 2:C:104:SER:HA | 2.21 | 0.40 |
| 2:C:1074:TRP:CH2 | 3:D:875:ARG:HG3 | 2.55 | 0.40 |
| 3:D:170:LEU:HA | 3:D:173:ARG:HG2 | 2.04 | 0.40 |
| 3:D:287:GLN:CD | 3:D:287:GLN:H | 2.25 | 0.40 |
| 3:D:469:ILE:C | 3:D:469:ILE:HD13 | 2.41 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 3:D:890:ASP:HA | 3:D:977:THR:OG1 | 2.21 | 0.40 |
| 3:D:1063:LYS:HD3 | 3:D:1064:ILE:H | 1.87 | 0.40 |
| 3:D:1063:LYS:CE | 3:D:1078:ASP:HA | 2.52 | 0.40 |
| 5:F:274:PRO:HD2 | 5:F:277:GLN:HB2 | 2.03 | 0.40 |
| 5:F:310:TYR:HD2 | 5:F:355:ILE:HG21 | 1.86 | 0.40 |
| 5:F:415:GLN:HA | 5:F:418:ARG:NH2 | 2.36 | 0.40 |
| 7:O:19:DA:H2' | 7:O:20:DT:H73 | 2.04 | 0.40 |
| 2:C:252:PHE:O | 2:C:255:SER:O | 2.40 | 0.40 |
| 2:C:373:PHE:HD2 | 2:C:482:ARG:CD | 2.34 | 0.40 |
| 2:C:740:ARG:HH21 | 2:C:914:ASP:CG | 2.23 | 0.40 |
| 2:C:756:GLU:HB2 | 2:C:870:ARG:HG2 | 2.03 | 0.40 |
| 2:C:868:LEU:C | 2:C:868:LEU:HD13 | 2.42 | 0.40 |
| 3:D:211:ARG:HA | 3:D:214:ARG:HH21 | 1.84 | 0.40 |
| 3:D:558:LEU:HD13 | 4:E:54:VAL:HG21 | 2.03 | 0.40 |
| 3:D:653:HIS:CD2 | 3:D:654:SER:H | 2.39 | 0.40 |
| 3:D:660:ASP:OD1 | 3:D:660:ASP:N | 2.54 | 0.40 |
| 3:D:771:ASN:O | 3:D:775:VAL:HG23 | 2.22 | 0.40 |
| 3:D:834:ARG:CB | 3:D:835:PRO:CA | 3.00 | 0.40 |
| 3:D:1139:GLN:HG3 | 3:D:1143:ARG:NE | 2.34 | 0.40 |
| 4:E:32:PRO:HB2 | 4:E:37:ASN:HB2 | 2.02 | 0.40 |
| 5:F:488:THR:HB | 8:P:19:DT:H3' | 2.02 | 0.40 |
| 1:B:179:ASP:HB2 | 1:B:191:LYS:HE2 | 2.03 | 0.40 |
| 2:C:280:LYS:HD3 | 2:C:280:LYS:HA | 1.94 | 0.40 |
| 2:C:931:ILE:O | 2:C:934:THR:HB | 2.21 | 0.40 |
| 3:D:76:GLU:H | 3:D:76:GLU:CD | 2.23 | 0.40 |
| 3:D:406:LEU:HD12 | 3:D:406:LEU:N | 2.37 | 0.40 |
| 3:D:627:LEU:HD23 | 3:D:628:SER:N | 2.36 | 0.40 |
| 3:D:911:ILE:H | 3:D:911:ILE:CD1 | 2.26 | 0.40 |
| 3:D:981:ARG:O | 3:D:1152:LYS:NZ | 2.54 | 0.40 |
| 5:F:387:LEU:HD12 | 5:F:393:GLU:HA | 2.03 | 0.40 |

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

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 | 224/347 (65%) | 206 (92%) | 18 (8%) | 0 | 100 | 100 |
| 1 | B | 235/347 (68%) | 200 (85%) | 35 (15%) | 0 | 100 | 100 |
| 2 | C | 1109/1181 (94%) | 961 (87%) | 141 (13%) | 7 (1%) | 25 | 59 |
| 3 | D | 1257/1324 (95%) | 1148 (91%) | 105 (8%) | 4 (0%) | 41 | 73 |
| 4 | E | 81/110 (74%) | 75 (93%) | 6 (7%) | 0 | 100 | 100 |
| 5 | F | 324/531 (61%) | 306 (94%) | 18 (6%) | 0 | 100 | 100 |
| 6 | J | 105/111 (95%) | 89 (85%) | 15 (14%) | 1 (1%) | 15 | 48 |
| All | All | 3335/3951 (84%) | 2985 (90%) | 338 (10%) | 12 (0%) | 38 | 68 |

All (12) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|------|------|
| 2 | C | 62 | GLU |
| 2 | C | 323 | HIS |
| 3 | D | 909 | THR |
| 3 | D | 910 | LEU |
| 3 | D | 904 | ARG |
| 2 | C | 61 | PHE |
| 2 | C | 225 | ARG |
| 2 | C | 231 | ARG |
| 2 | C | 959 | LEU |
| 3 | D | 1196 | GLU |
| 2 | C | 224 | VAL |
| 6 | J | 70 | PRO |

5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

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 | 195/297 (66%) | 185 (95%) | 10 (5%) | 24 | 55 |
| 1 | B | 197/297 (66%) | 186 (94%) | 11 (6%) | 21 | 52 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|-----|-------|-----------------|------------|----------|-------------|----|
| 2 | C | 924/997 (93%) | 872 (94%) | 52 (6%) | 21 | 52 |
| 3 | D | 1041/1103 (94%) | 969 (93%) | 72 (7%) | 15 | 46 |
| 4 | E | 69/89 (78%) | 62 (90%) | 7 (10%) | 7 | 28 |
| 5 | F | 272/429 (63%) | 246 (90%) | 26 (10%) | 8 | 30 |
| 6 | J | 93/97 (96%) | 79 (85%) | 14 (15%) | 3 | 12 |
| All | All | 2791/3309 (84%) | 2599 (93%) | 192 (7%) | 19 | 46 |

All (192) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 18 | ARG |
| 1 | A | 22 | VAL |
| 1 | A | 34 | LEU |
| 1 | A | 51 | VAL |
| 1 | A | 61 | HIS |
| 1 | A | 88 | GLU |
| 1 | A | 138 | LEU |
| 1 | A | 144 | ARG |
| 1 | A | 146 | TYR |
| 1 | A | 221 | LEU |
| 1 | B | 11 | GLU |
| 1 | B | 27 | GLU |
| 1 | B | 38 | LEU |
| 1 | B | 61 | HIS |
| 1 | B | 84 | VAL |
| 1 | B | 117 | THR |
| 1 | B | 153 | ARG |
| 1 | B | 175 | THR |
| 1 | B | 177 | LYS |
| 1 | B | 182 | ARG |
| 1 | B | 196 | VAL |
| 2 | C | 59 | ASP |
| 2 | C | 90 | LEU |
| 2 | C | 93 | LEU |
| 2 | C | 192 | ASP |
| 2 | C | 195 | THR |
| 2 | C | 199 | LEU |
| 2 | C | 212 | LEU |
| 2 | C | 215 | ASP |
| 2 | C | 226 | ILE |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 2 | C | 230 | ARG |
| 2 | C | 232 | GLN |
| 2 | C | 258 | MET |
| 2 | C | 261 | THR |
| 2 | C | 266 | ASN |
| 2 | C | 308 | LEU |
| 2 | C | 313 | ARG |
| 2 | C | 318 | LYS |
| 2 | C | 333 | LEU |
| 2 | C | 343 | GLU |
| 2 | C | 345 | LEU |
| 2 | C | 373 | PHE |
| 2 | C | 397 | GLU |
| 2 | C | 406 | THR |
| 2 | C | 420 | ILE |
| 2 | C | 455 | LEU |
| 2 | C | 500 | LEU |
| 2 | C | 540 | VAL |
| 2 | C | 570 | TYR |
| 2 | C | 571 | VAL |
| 2 | C | 577 | ASP |
| 2 | C | 628 | THR |
| 2 | C | 667 | ARG |
| 2 | C | 668 | ARG |
| 2 | C | 709 | ASP |
| 2 | C | 787 | ARG |
| 2 | C | 797 | ARG |
| 2 | C | 809 | LYS |
| 2 | C | 835 | THR |
| 2 | C | 861 | LEU |
| 2 | C | 888 | ARG |
| 2 | C | 936 | LEU |
| 2 | C | 945 | LYS |
| 2 | C | 950 | LYS |
| 2 | C | 959 | LEU |
| 2 | C | 962 | GLU |
| 2 | C | 963 | LEU |
| 2 | C | 965 | GLU |
| 2 | C | 997 | ASP |
| 2 | C | 1009 | MET |
| 2 | C | 1031 | MET |
| 2 | C | 1057 | LEU |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 2 | C | 1076 | MET |
| 3 | D | 51 | ILE |
| 3 | D | 67 | ARG |
| 3 | D | 82 | VAL |
| 3 | D | 86 | LYS |
| 3 | D | 126 | GLU |
| 3 | D | 135 | VAL |
| 3 | D | 147 | GLU |
| 3 | D | 152 | GLU |
| 3 | D | 162 | VAL |
| 3 | D | 164 | ASP |
| 3 | D | 171 | GLU |
| 3 | D | 173 | ARG |
| 3 | D | 177 | LEU |
| 3 | D | 211 | ARG |
| 3 | D | 219 | LEU |
| 3 | D | 222 | ILE |
| 3 | D | 238 | GLU |
| 3 | D | 263 | LYS |
| 3 | D | 275 | GLU |
| 3 | D | 282 | ARG |
| 3 | D | 330 | LEU |
| 3 | D | 334 | ARG |
| 3 | D | 410 | GLN |
| 3 | D | 414 | ARG |
| 3 | D | 463 | LEU |
| 3 | D | 467 | GLN |
| 3 | D | 469 | ILE |
| 3 | D | 478 | ARG |
| 3 | D | 490 | VAL |
| 3 | D | 499 | ASN |
| 3 | D | 505 | HIS |
| 3 | D | 506 | ARG |
| 3 | D | 574 | LEU |
| 3 | D | 578 | ARG |
| 3 | D | 600 | GLN |
| 3 | D | 627 | LEU |
| 3 | D | 639 | GLN |
| 3 | D | 656 | TRP |
| 3 | D | 657 | GLN |
| 3 | D | 677 | LEU |
| 3 | D | 687 | GLN |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 3 | D | 706 | MET |
| 3 | D | 725 | THR |
| 3 | D | 733 | MET |
| 3 | D | 741 | ARG |
| 3 | D | 766 | ASN |
| 3 | D | 793 | TYR |
| 3 | D | 826 | ASN |
| 3 | D | 834 | ARG |
| 3 | D | 841 | ARG |
| 3 | D | 862 | ASP |
| 3 | D | 883 | ASP |
| 3 | D | 904 | ARG |
| 3 | D | 910 | LEU |
| 3 | D | 911 | ILE |
| 3 | D | 948 | GLU |
| 3 | D | 1012 | MET |
| 3 | D | 1057 | ASP |
| 3 | D | 1061 | PHE |
| 3 | D | 1062 | TYR |
| 3 | D | 1078 | ASP |
| 3 | D | 1089 | PHE |
| 3 | D | 1090 | LYS |
| 3 | D | 1096 | GLU |
| 3 | D | 1097 | ARG |
| 3 | D | 1098 | VAL |
| 3 | D | 1099 | LEU |
| 3 | D | 1120 | GLU |
| 3 | D | 1121 | VAL |
| 3 | D | 1189 | GLU |
| 3 | D | 1231 | ARG |
| 3 | D | 1273 | GLN |
| 4 | E | 30 | ASP |
| 4 | E | 56 | TYR |
| 4 | E | 65 | ASN |
| 4 | E | 71 | LEU |
| 4 | E | 73 | GLU |
| 4 | E | 78 | TYR |
| 4 | E | 79 | VAL |
| 5 | F | 205 | ASP |
| 5 | F | 206 | GLU |
| 5 | F | 207 | ASP |
| 5 | F | 214 | GLN |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 5 | F | 216 | ARG |
| 5 | F | 240 | LEU |
| 5 | F | 244 | GLU |
| 5 | F | 246 | GLU |
| 5 | F | 277 | GLN |
| 5 | F | 282 | MET |
| 5 | F | 286 | ARG |
| 5 | F | 330 | ARG |
| 5 | F | 353 | GLN |
| 5 | F | 397 | GLU |
| 5 | F | 398 | GLU |
| 5 | F | 414 | GLN |
| 5 | F | 418 | ARG |
| 5 | F | 423 | LEU |
| 5 | F | 430 | GLU |
| 5 | F | 435 | LEU |
| 5 | F | 460 | LEU |
| 5 | F | 461 | GLN |
| 5 | F | 491 | GLU |
| 5 | F | 492 | ILE |
| 5 | F | 500 | ARG |
| 5 | F | 527 | LEU |
| 6 | J | 4 | ARG |
| 6 | J | 6 | LEU |
| 6 | J | 7 | ARG |
| 6 | J | 20 | ARG |
| 6 | J | 27 | ARG |
| 6 | J | 33 | ARG |
| 6 | J | 74 | LYS |
| 6 | J | 76 | LYS |
| 6 | J | 86 | LEU |
| 6 | J | 97 | LEU |
| 6 | J | 99 | LYS |
| 6 | J | 101 | ARG |
| 6 | J | 103 | GLU |
| 6 | J | 108 | ARG |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (55) such sidechains are listed below:

| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | A | 61 | HIS |
| 1 | B | 5 | GLN |

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| Mol | Chain | Res | Type |
|------------|--------------|------------|-------------|
| 1 | B | 79 | ASN |
| 1 | B | 124 | HIS |
| 1 | B | 151 | GLN |
| 1 | B | 226 | ASN |
| 2 | C | 57 | GLN |
| 2 | C | 200 | HIS |
| 2 | C | 317 | ASN |
| 2 | C | 349 | HIS |
| 2 | C | 388 | GLN |
| 2 | C | 435 | GLN |
| 2 | C | 442 | GLN |
| 2 | C | 476 | HIS |
| 2 | C | 479 | HIS |
| 2 | C | 585 | GLN |
| 2 | C | 612 | GLN |
| 2 | C | 751 | HIS |
| 2 | C | 920 | HIS |
| 2 | C | 969 | ASN |
| 2 | C | 986 | GLN |
| 2 | C | 1066 | GLN |
| 3 | D | 175 | GLN |
| 3 | D | 262 | GLN |
| 3 | D | 341 | ASN |
| 3 | D | 369 | ASN |
| 3 | D | 410 | GLN |
| 3 | D | 439 | HIS |
| 3 | D | 467 | GLN |
| 3 | D | 468 | ASN |
| 3 | D | 499 | ASN |
| 3 | D | 540 | GLN |
| 3 | D | 600 | GLN |
| 3 | D | 639 | GLN |
| 3 | D | 693 | GLN |
| 3 | D | 766 | ASN |
| 3 | D | 854 | HIS |
| 3 | D | 1084 | GLN |
| 3 | D | 1104 | HIS |
| 3 | D | 1139 | GLN |
| 3 | D | 1227 | GLN |
| 3 | D | 1251 | ASN |
| 4 | E | 65 | ASN |
| 4 | E | 69 | ASN |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 4 | E | 106 | HIS |
| 5 | F | 214 | GLN |
| 5 | F | 299 | ASN |
| 5 | F | 322 | GLN |
| 5 | F | 325 | ASN |
| 5 | F | 353 | GLN |
| 5 | F | 388 | GLN |
| 5 | F | 414 | GLN |
| 5 | F | 457 | GLN |
| 5 | F | 516 | HIS |
| 6 | J | 36 | 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](#)

Of 4 ligands modelled in this entry, 3 are monoatomic - leaving 1 for Mogul analysis.

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

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|-----|------|-------|------|------|--------------|------|-------------|-------------|------|-------------|
| | | | | | Counts | RMSZ | $\# Z > 2$ | Counts | RMSZ | $\# Z > 2$ |
| 9 | FI8 | C | 1201 | - | 74,75,75 | 1.86 | 19 (25%) | 88,109,109 | 1.62 | 17 (19%) |

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 |
|-----|------|-------|------|------|---------|---------------|---------|
| 9 | FI8 | C | 1201 | - | - | 20/75/118/118 | 0/3/4/4 |

All (19) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 9 | C | 1201 | FI8 | C1-C3 | 5.17 | 1.57 | 1.50 |
| 9 | C | 1201 | FI8 | C14-C15 | 4.31 | 1.54 | 1.45 |
| 9 | C | 1201 | FI8 | O1-C18 | -4.14 | 1.39 | 1.46 |
| 9 | C | 1201 | FI8 | O1-C2 | 3.82 | 1.43 | 1.34 |
| 9 | C | 1201 | FI8 | O17-C49 | 3.76 | 1.43 | 1.34 |
| 9 | C | 1201 | FI8 | O10-C29 | -3.75 | 1.39 | 1.44 |
| 9 | C | 1201 | FI8 | C14-C13 | 3.13 | 1.38 | 1.33 |
| 9 | C | 1201 | FI8 | O10-C33 | 2.94 | 1.40 | 1.34 |
| 9 | C | 1201 | FI8 | C38-CL2 | 2.93 | 1.79 | 1.72 |
| 9 | C | 1201 | FI8 | C5-C4 | 2.76 | 1.52 | 1.43 |
| 9 | C | 1201 | FI8 | C10-C9 | 2.63 | 1.38 | 1.33 |
| 9 | C | 1201 | FI8 | C36-CL1 | 2.62 | 1.78 | 1.72 |
| 9 | C | 1201 | FI8 | C11-C10 | 2.58 | 1.54 | 1.50 |
| 9 | C | 1201 | FI8 | C2-C3 | 2.40 | 1.53 | 1.49 |
| 9 | C | 1201 | FI8 | C17-C16 | 2.30 | 1.54 | 1.50 |
| 9 | C | 1201 | FI8 | C11-C12 | -2.16 | 1.51 | 1.53 |
| 9 | C | 1201 | FI8 | O14-C46 | -2.16 | 1.43 | 1.45 |
| 9 | C | 1201 | FI8 | O13-C35 | 2.03 | 1.41 | 1.37 |
| 9 | C | 1201 | FI8 | C7-C6 | 2.03 | 1.56 | 1.50 |

All (17) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 9 | C | 1201 | FI8 | C18-C17-C16 | -5.23 | 104.00 | 113.02 |
| 9 | C | 1201 | FI8 | O14-C46-C45 | 4.60 | 115.06 | 107.67 |
| 9 | C | 1201 | FI8 | C31-C30-C29 | -4.25 | 106.94 | 113.41 |
| 9 | C | 1201 | FI8 | O1-C2-C3 | 3.73 | 117.40 | 112.14 |
| 9 | C | 1201 | FI8 | C7-C6-C5 | -3.66 | 120.69 | 125.41 |
| 9 | C | 1201 | FI8 | O17-C49-C50 | 3.21 | 117.32 | 111.19 |
| 9 | C | 1201 | FI8 | C38-C37-C36 | 3.12 | 120.93 | 117.81 |
| 9 | C | 1201 | FI8 | C29-O10-C33 | -3.01 | 112.40 | 117.21 |
| 9 | C | 1201 | FI8 | C35-C36-CL1 | 2.64 | 121.04 | 118.08 |
| 9 | C | 1201 | FI8 | C5-C4-C3 | -2.63 | 123.84 | 127.00 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 9 | C | 1201 | FI8 | O2-C2-C3 | -2.53 | 120.30 | 124.12 |
| 9 | C | 1201 | FI8 | C24-C13-C12 | 2.51 | 120.03 | 115.68 |
| 9 | C | 1201 | FI8 | C4-C5-C6 | -2.50 | 117.78 | 123.63 |
| 9 | C | 1201 | FI8 | C28-C29-C30 | 2.46 | 113.92 | 110.30 |
| 9 | C | 1201 | FI8 | C45-O17-C49 | -2.34 | 114.39 | 117.92 |
| 9 | C | 1201 | FI8 | C11-C12-C13 | -2.24 | 109.43 | 113.89 |
| 9 | C | 1201 | FI8 | C41-C40-C39 | -2.14 | 106.83 | 112.27 |

There are no chirality outliers.

All (20) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms |
|-----|-------|------|------|-----------------|
| 9 | C | 1201 | FI8 | C9-C10-C11-C12 |
| 9 | C | 1201 | FI8 | C9-C10-C11-C22 |
| 9 | C | 1201 | FI8 | C10-C11-C22-C23 |
| 9 | C | 1201 | FI8 | C17-C18-C19-O5A |
| 9 | C | 1201 | FI8 | O1-C18-C19-O5A |
| 9 | C | 1201 | FI8 | C50-C49-O17-C45 |
| 9 | C | 1201 | FI8 | O18-C49-O17-C45 |
| 9 | C | 1201 | FI8 | C34-C33-O10-C29 |
| 9 | C | 1201 | FI8 | O11-C33-O10-C29 |
| 9 | C | 1201 | FI8 | C17-C18-O1-C2 |
| 9 | C | 1201 | FI8 | C7-C8-C9-C21 |
| 9 | C | 1201 | FI8 | C19-C18-O1-C2 |
| 9 | C | 1201 | FI8 | C17-C18-C19-C20 |
| 9 | C | 1201 | FI8 | O1-C18-C19-C20 |
| 9 | C | 1201 | FI8 | C5-C6-C7-C8 |
| 9 | C | 1201 | FI8 | C12-C11-C22-C23 |
| 9 | C | 1201 | FI8 | C11-C12-O4-C42 |
| 9 | C | 1201 | FI8 | O3-C8-C9-C21 |
| 9 | C | 1201 | FI8 | O17-C49-C50-C51 |
| 9 | C | 1201 | FI8 | C3-C4-C5-C6 |

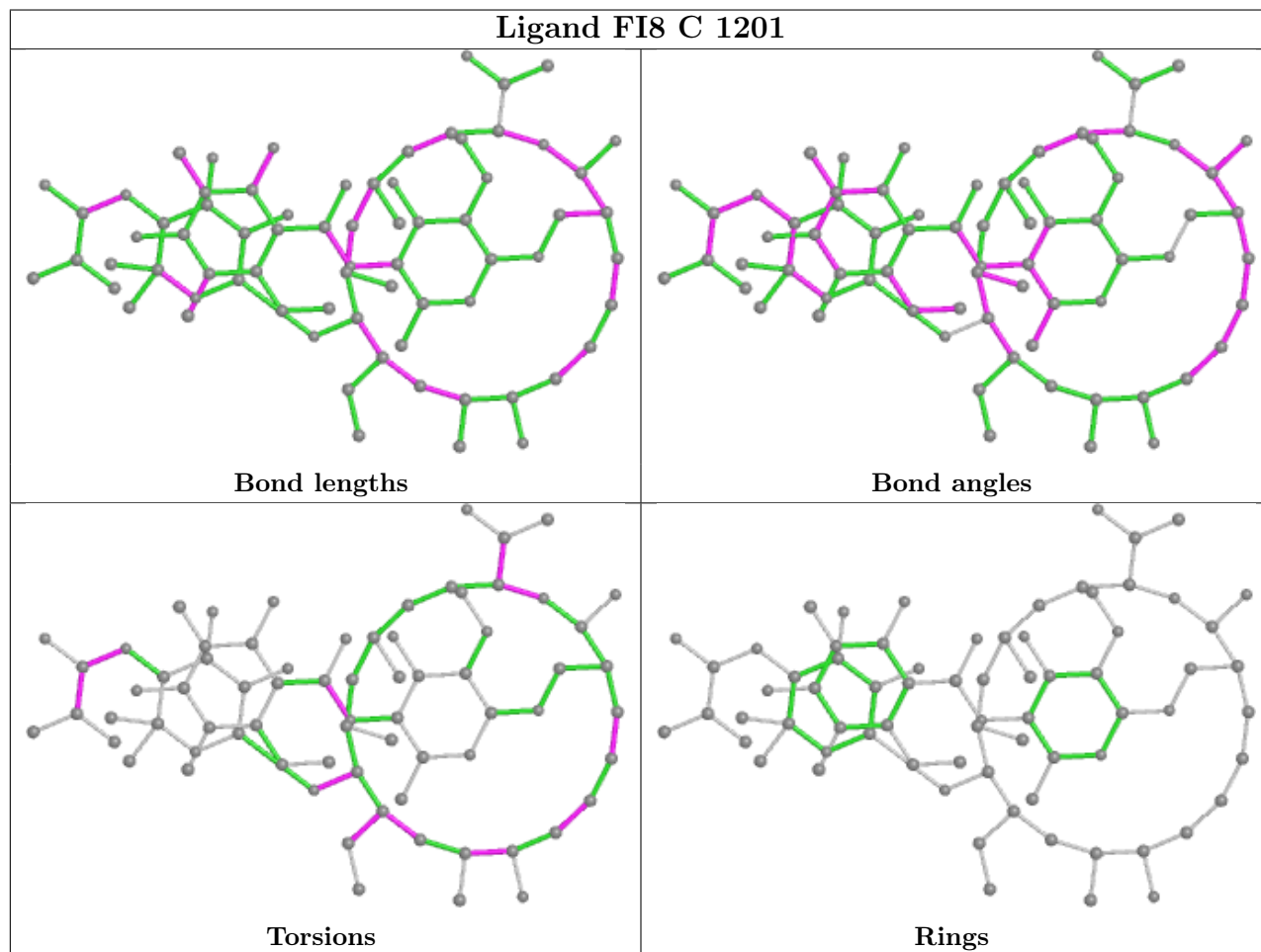
There are no ring outliers.

1 monomer is involved in 3 short contacts:

| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|------|------|---------|--------------|
| 9 | C | 1201 | FI8 | 3 | 0 |

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In

addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

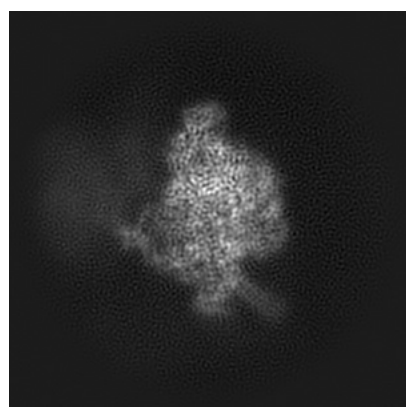
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-7319. These allow visual inspection of the internal detail of the map and identification of artifacts.

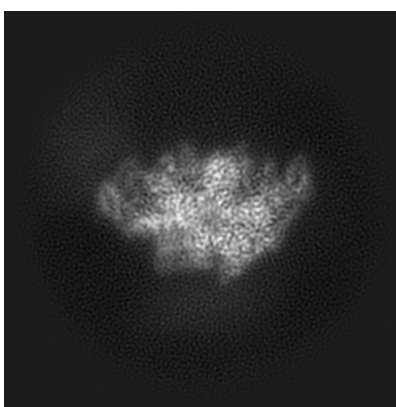
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

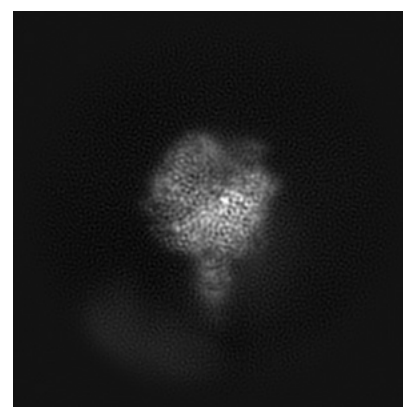
6.1.1 Primary map



X



Y

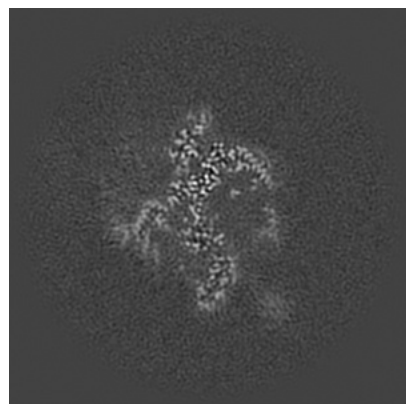


Z

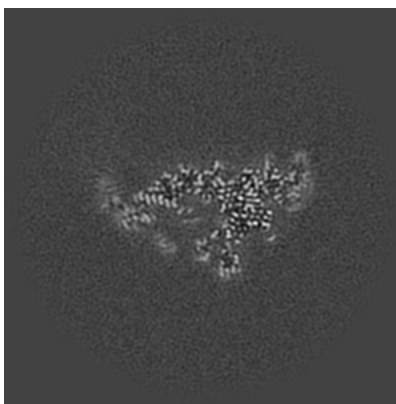
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

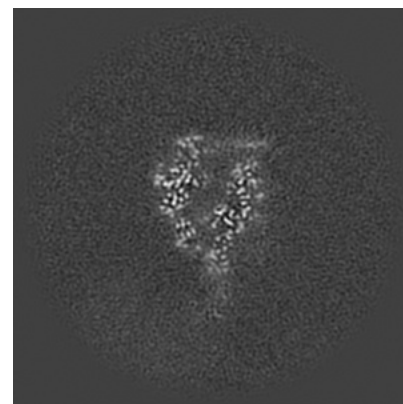
6.2.1 Primary map



X Index: 150



Y Index: 150

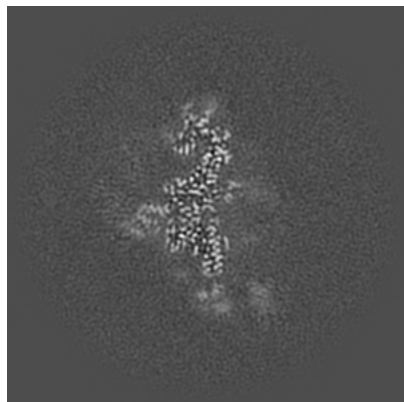


Z Index: 150

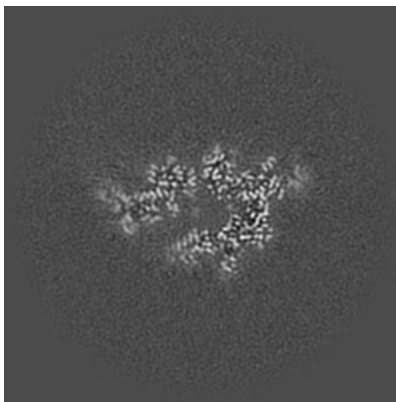
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

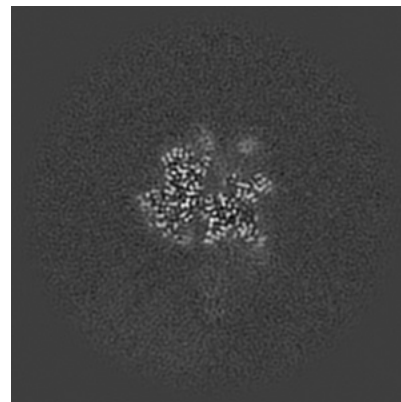
6.3.1 Primary map



X Index: 159



Y Index: 158

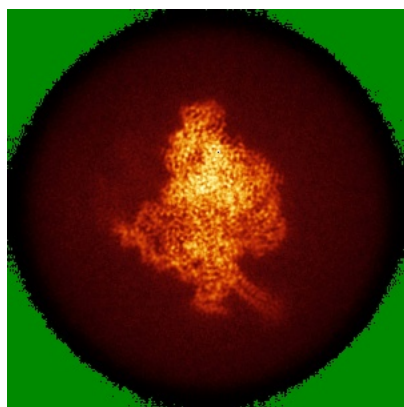


Z Index: 168

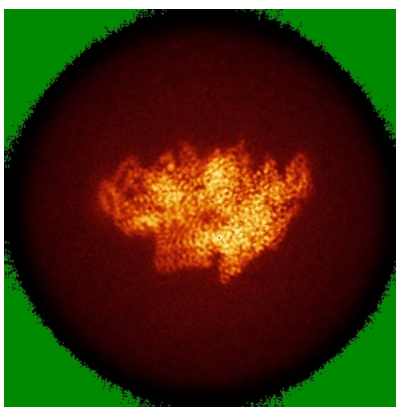
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

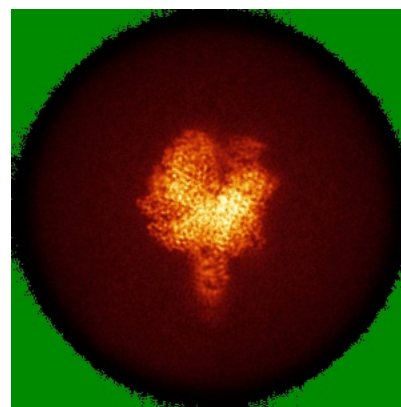
6.4.1 Primary map



X



Y

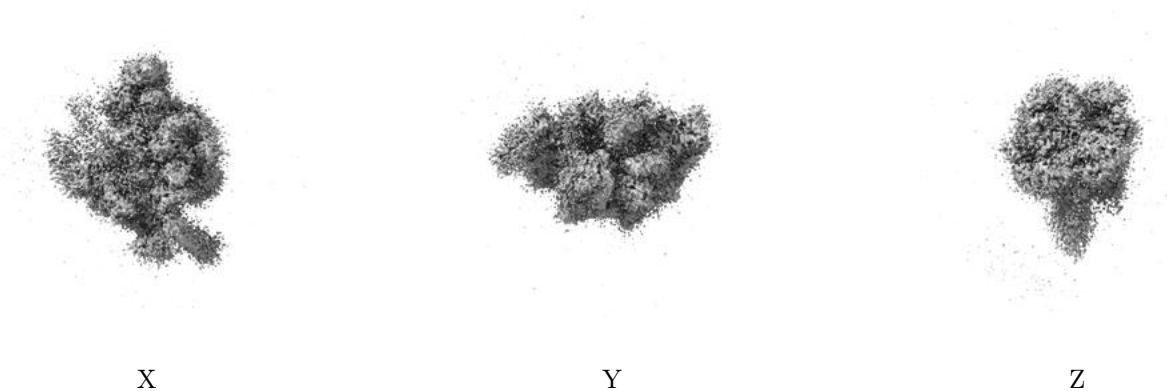


Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.347. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

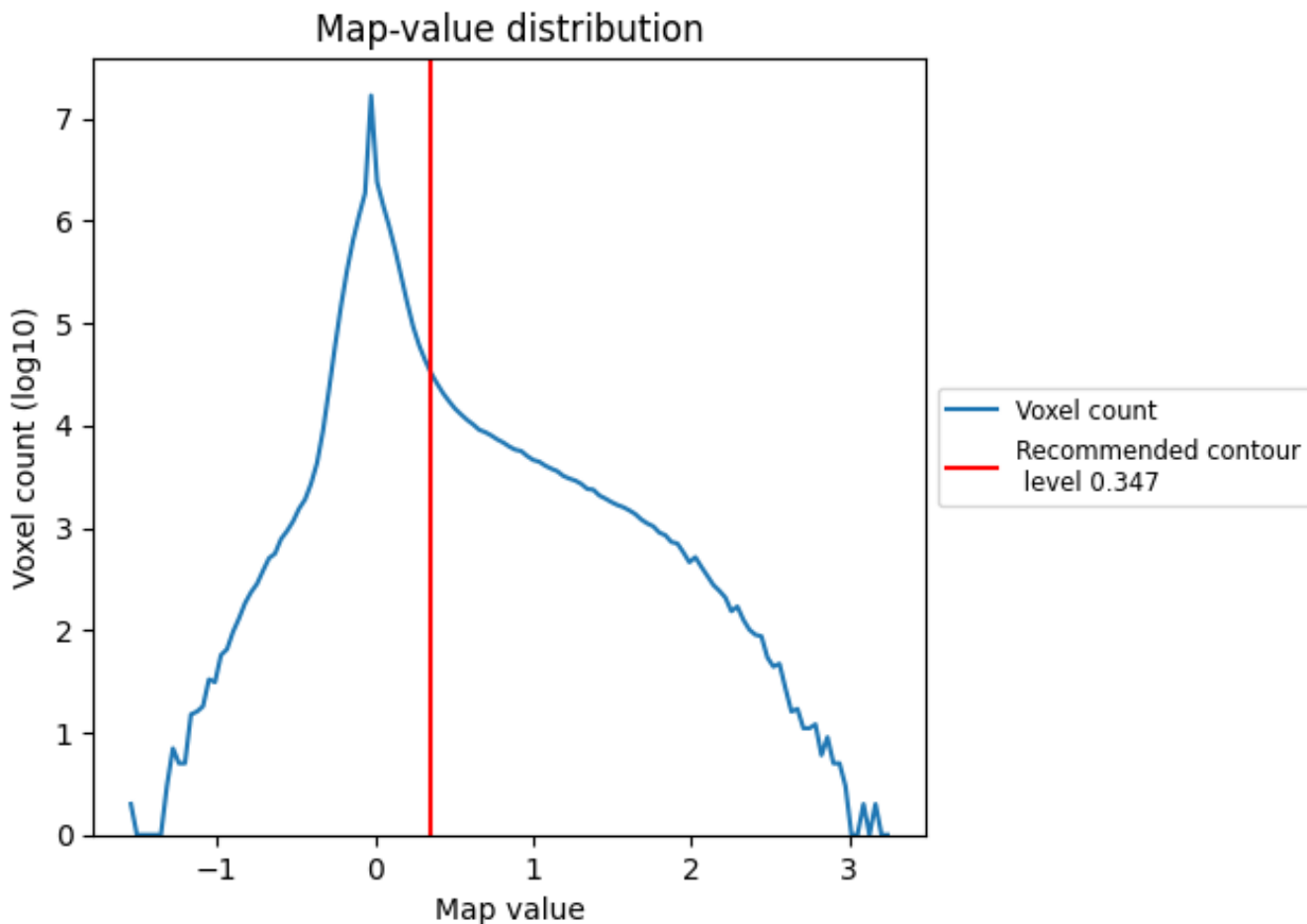
6.6 Mask visualisation [i](#)

This section was not generated. No masks/segmentation were deposited.

7 Map analysis [i](#)

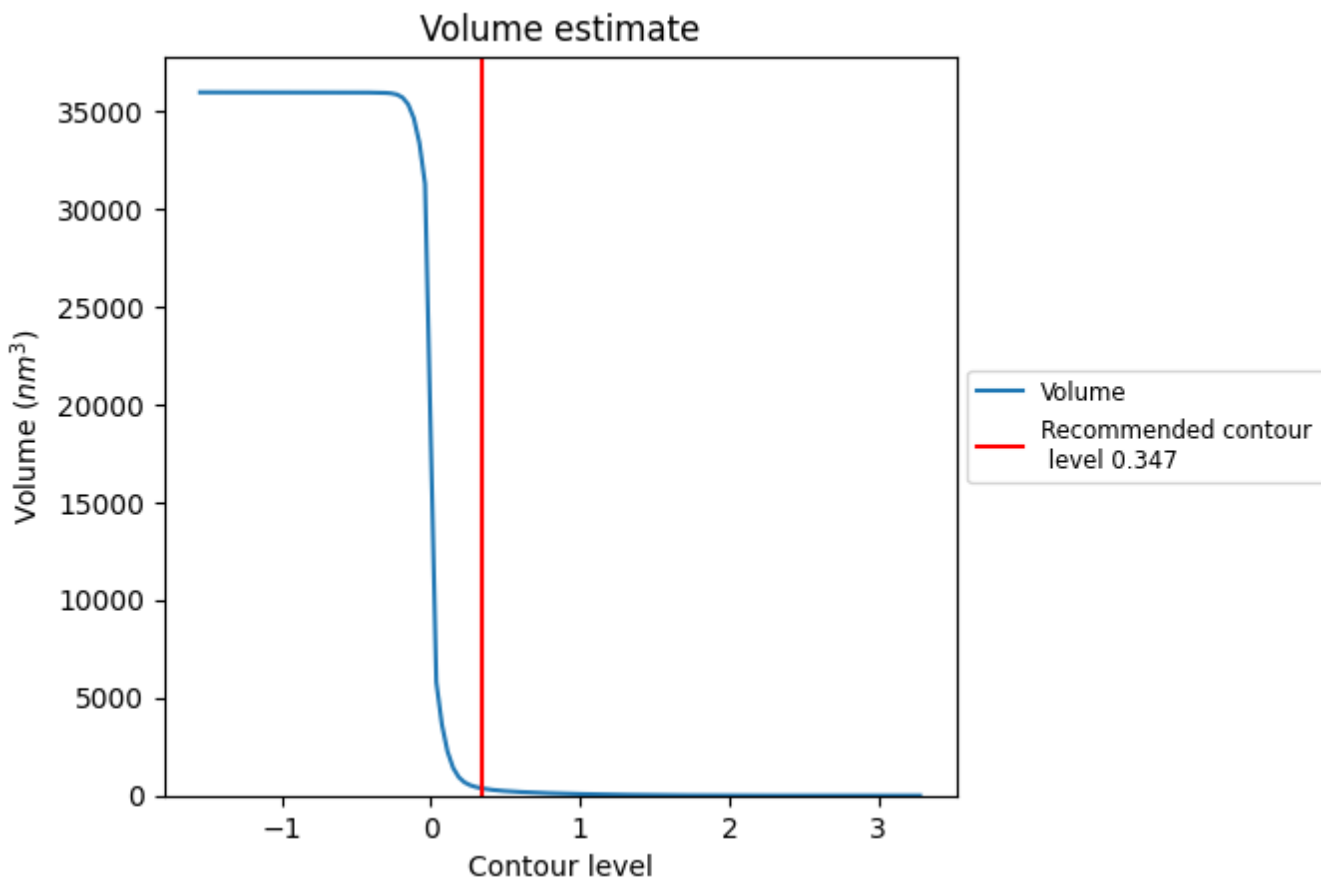
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

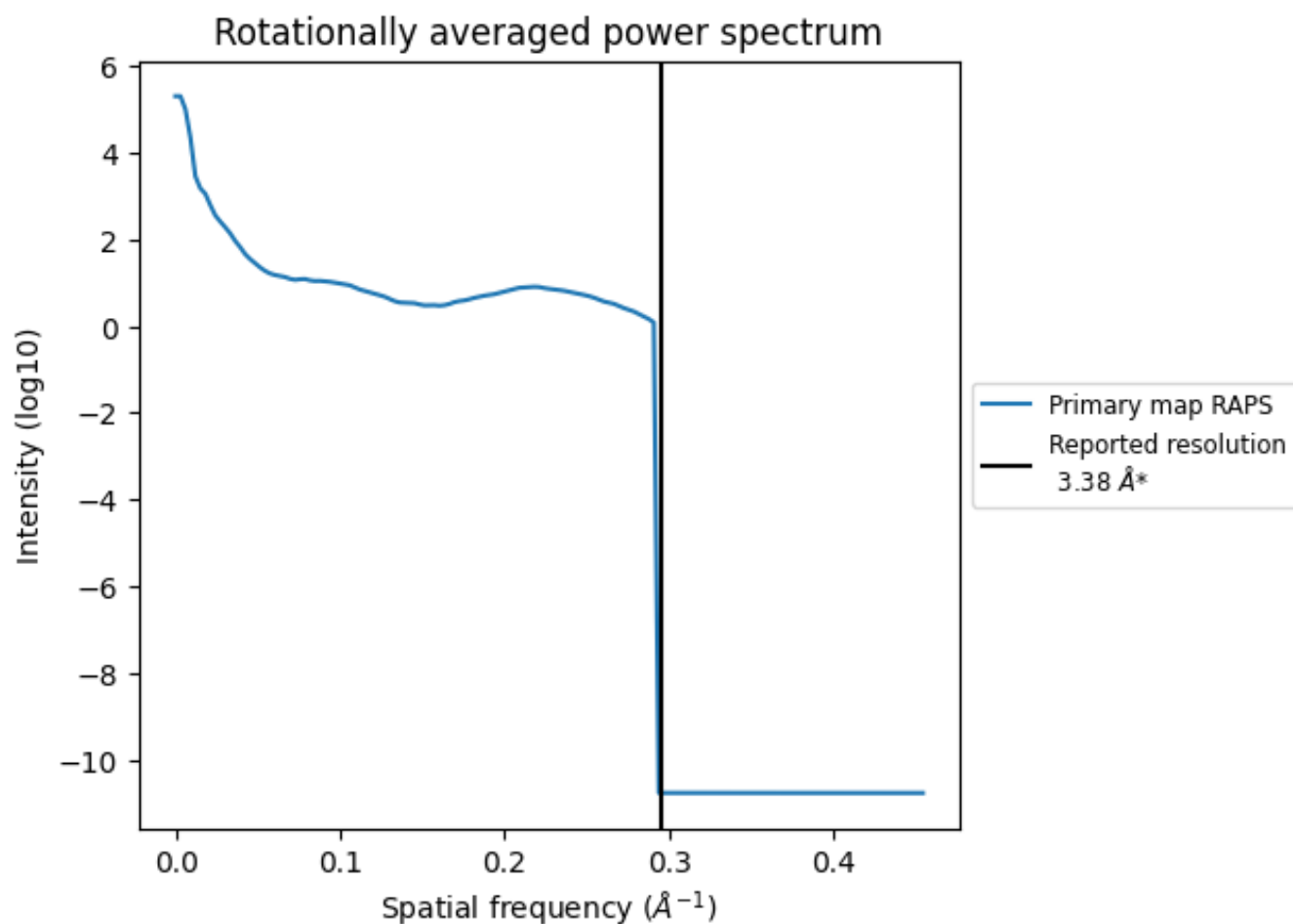
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 365 nm³; this corresponds to an approximate mass of 329 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum [\(i\)](#)



*Reported resolution corresponds to spatial frequency of 0.296 Å⁻¹

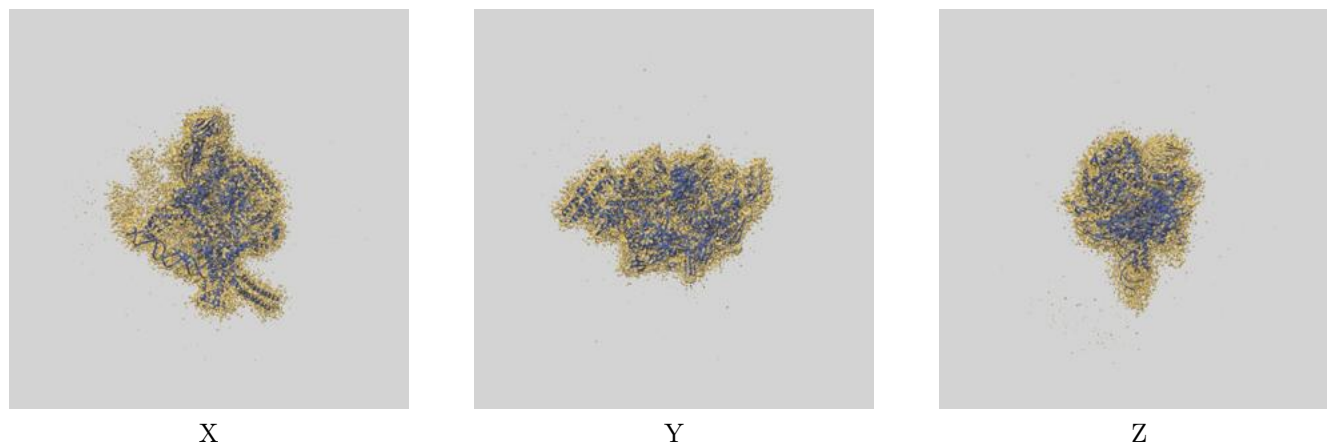
8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

9 Map-model fit [i](#)

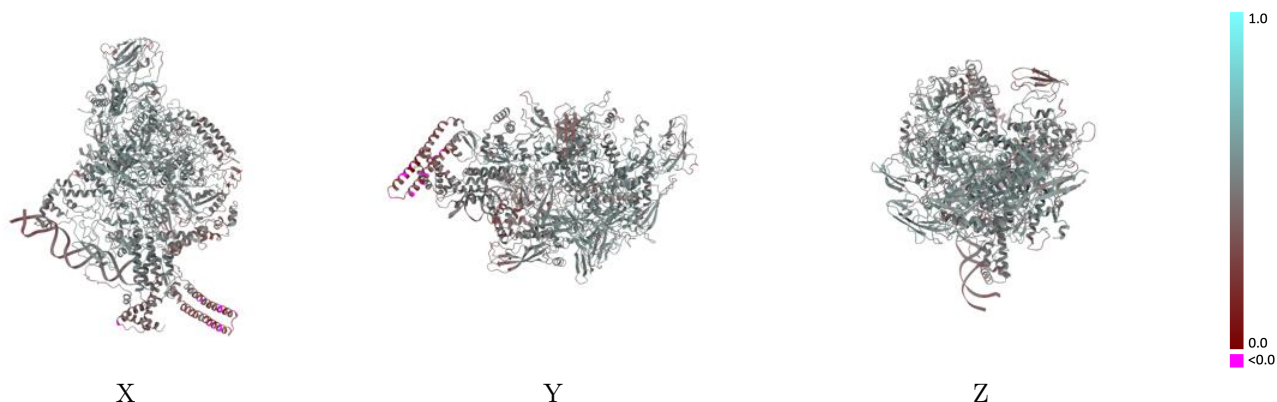
This section contains information regarding the fit between EMDB map EMD-7319 and PDB model 6BZO. Per-residue inclusion information can be found in section 3 on page 8.

9.1 Map-model overlay [i](#)



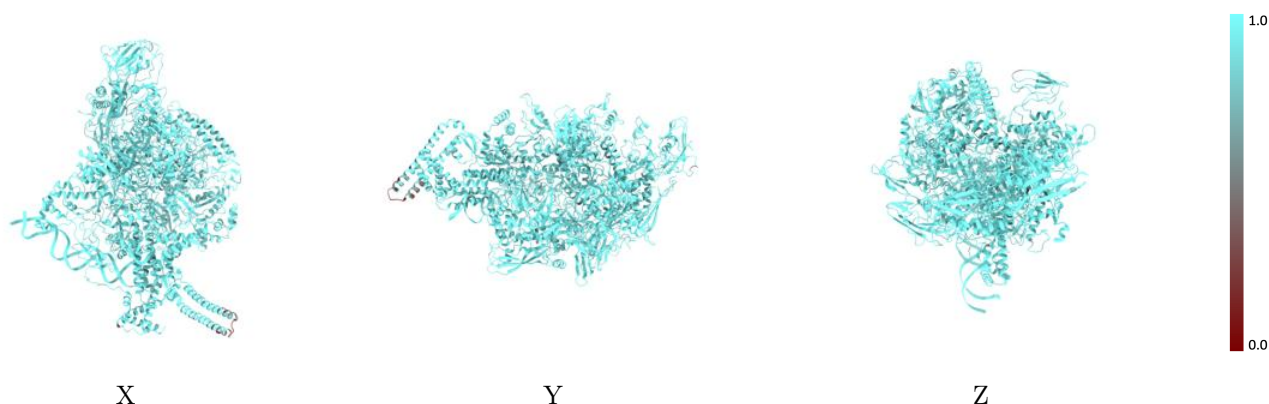
The images above show the 3D surface view of the map at the recommended contour level 0.347 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model [i](#)



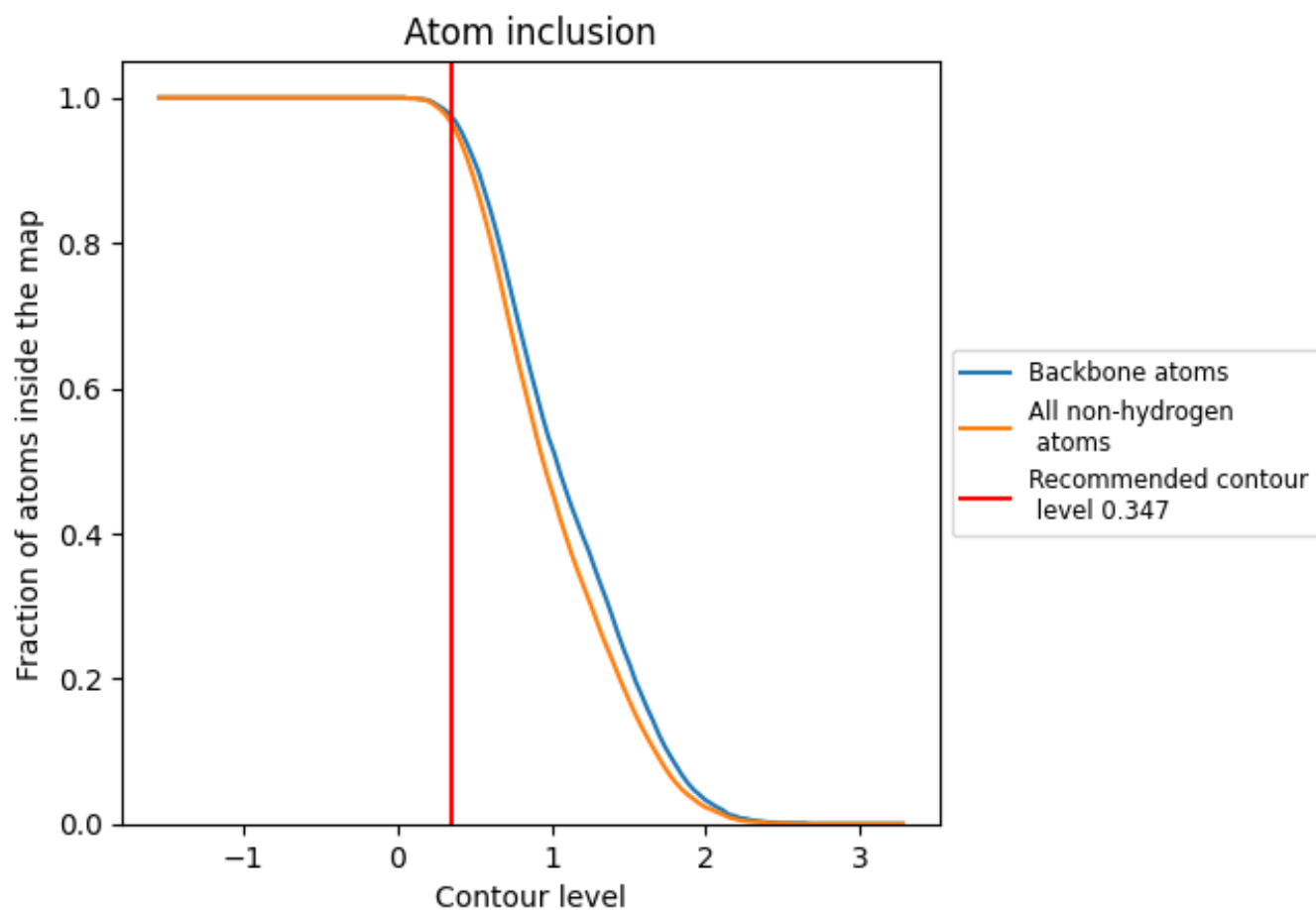
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.347).





















9.4 Atom inclusion [i](#)



At the recommended contour level, 98% of all backbone atoms, 97% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.347) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion | Q-score |
|-------|--|--|
| All |  0.9660 |  0.4890 |
| A |  0.9750 |  0.5130 |
| B |  0.9680 |  0.4960 |
| C |  0.9710 |  0.5050 |
| D |  0.9640 |  0.4910 |
| E |  0.9610 |  0.5010 |
| F |  0.9600 |  0.4520 |
| J |  0.9510 |  0.4750 |
| O |  0.9970 |  0.4080 |
| P |  0.9910 |  0.3890 |

