# Full wwPDB EM Validation Report ⓘ

Nov 9, 2024 – 08:22 AM EST

| | | |
|---|---|---|
| PDB ID | : | 5IYD |
| EMDB ID | : | EMD-8138 |
| Title | : | Human core-PIC in the initial transcribing state (no IIS) |
| Authors | : | He, Y.; Yan, C.; Fang, J.; Inouye, C.; Tjian, R.; Ivanov, I.; Nogales, E. |
| Deposited on | : | 2016-03-24 |
| Resolution | : | 3.90 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:

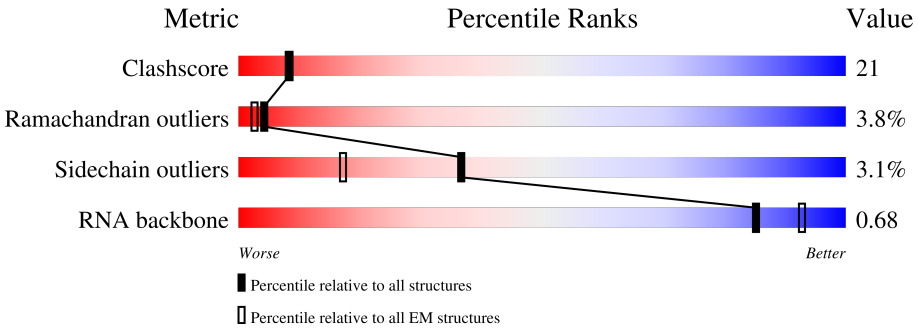
| | | |
|---|---|---|
| EMDB validation analysis | : | 0.0.1.dev113 |
| MolProbity | : | 4.02b-467 |
| Percentile statistics | : | 20231227.v01 (using entries in the PDB archive December 27th 2023) |
| MapQ | : | 1.9.13 |
| Ideal geometry (proteins) | : | Engh & Huber (2001) |
| Ideal geometry (DNA, RNA) | : | Parkinson et al. (1996) |
| Validation Pipeline (wwPDB-VP) | : | 2.39 |

# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:
*ELECTRON MICROSCOPY*

The reported resolution of this entry is 3.90 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 | 210492 | 15764 |
| Ramachandran outliers | 207382 | 16835 |
| Sidechain outliers | 206894 | 16415 |
| RNA backbone | 6643 | 2191 |

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 <=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 | 1970 | 49% 21% 26% |
| 2 | B | 1174 | 60% 35% |
| 3 | C | 275 | 67% 29% |
| 4 | D | 142 | 5% 76% 14% 9% |
| 5 | E | 210 | 75% 23% |
| 6 | F | 127 | 5% 56% 12% 32% |
| 7 | G | 172 | 9% 70% 28% |

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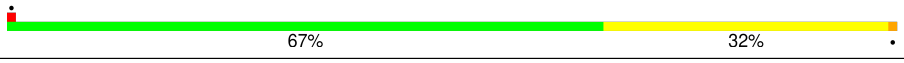
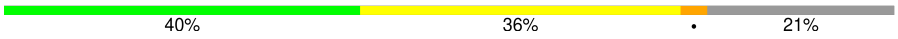
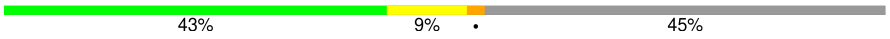
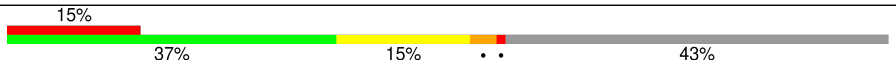
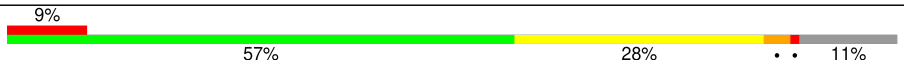
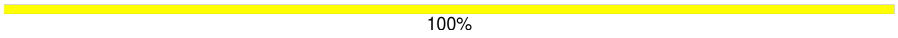
| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 8 | H | 150 |   |
| 9 | I | 125 |   |
| 10 | J | 67 |   |
| 11 | K | 117 |   |
| 12 | L | 58 |   |
| 13 | M | 316 |   |
| 14 | N | 376 |   |
| 15 | O | 109 |   |
| 16 | P | 339 |   |
| 17 | Q | 439 |   |
| 18 | R | 291 |   |
| 19 | S | 517 |   |
| 20 | T | 249 |   |
| 21 | X | 80 |   |
| 22 | Y | 80 |   |
| 23 | Z | 6 |   |

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

| Mol | Type | Chain | Res | Chirality | Geometry | Clashes | Electron density |
|---|---|---|---|---|---|---|---|
| 25 | ZN | B | 1201 | - | - | X | - |
| 25 | ZN | I | 202 | - | - | X | - |

## 2 Entry composition (i)

There are 25 unique types of molecules in this entry. The entry contains 46709 atoms, of which 0 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 II subunit RPB1.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 1 | A | 1454 | 11515 | 7234 | 2058 | 2150 | 73 | 0 | 0 |

- Molecule 2 is a protein called DNA-directed RNA polymerase II subunit RPB2.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 2 | B | 1165 | 9317 | 5878 | 1637 | 1738 | 64 | 0 | 0 |

- Molecule 3 is a protein called DNA-directed RNA polymerase II subunit RPB3.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 3 | C | 275 | 2213 | 1386 | 380 | 440 | 7 | 0 | 0 |

- Molecule 4 is a protein called DNA-directed RNA polymerase II subunit RPB4.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 4 | D | 129 | 1062 | 665 | 179 | 214 | 4 | 0 | 0 |

- Molecule 5 is a protein called DNA-directed RNA polymerase II subunit RPB5.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 5 | E | 210 | 1723 | 1088 | 301 | 325 | 9 | 0 | 0 |

- Molecule 6 is a protein called DNA-directed RNA polymerase II subunit RPB6.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| | | | Total | C | N | O | S | | |
| 6 | F | 86 | 689 | 437 | 120 | 127 | 5 | 0 | 0 |

- Molecule 7 is a protein called DNA-directed RNA polymerase II subunit RPB7.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 7 | G | 171 | Total | C | N | O | S | 0 | 0 |
| | | | 1351 | 875 | 219 | 249 | 8 | | |

- Molecule 8 is a protein called DNA-directed RNA polymerase II subunit RPB8.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 8 | H | 150 | Total | C | N | O | S | 0 | 0 |
| | | | 1205 | 764 | 196 | 239 | 6 | | |

- Molecule 9 is a protein called DNA-directed RNA polymerase II subunit RPB9.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 9 | I | 125 | Total | C | N | O | S | 0 | 0 |
| | | | 1013 | 626 | 177 | 198 | 12 | | |

- Molecule 10 is a protein called DNA-directed RNA polymerase II subunit RPB10.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 10 | J | 67 | Total | C | N | O | S | 0 | 0 |
| | | | 533 | 345 | 90 | 92 | 6 | | |

- Molecule 11 is a protein called DNA-directed RNA polymerase II subunit RPB11-a.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 11 | K | 117 | Total | C | N | O | S | 0 | 0 |
| | | | 937 | 604 | 154 | 177 | 2 | | |

- Molecule 12 is a protein called DNA-directed RNA polymerase II subunit RPB12.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 12 | L | 46 | Total | C | N | O | S | 0 | 0 |
| | | | 388 | 241 | 75 | 66 | 6 | | |

- Molecule 13 is a protein called Transcription initiation factor IIB.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 13 | M | 310 | Total | C | N | O | S | 0 | 0 |
| | | | 2391 | 1490 | 426 | 457 | 18 | | |

- Molecule 14 is a protein called Transcription initiation factor IIA subunit 1.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 14 | N | 113 | Total | C | N | O | S | 0 | 0 |
| | | | 930 | 585 | 152 | 189 | 4 | | |

- Molecule 15 is a protein called Transcription initiation factor IIA subunit 2.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 15 | O | 99 | Total | C | N | O | S | 0 | 0 |
| | | | 806 | 510 | 142 | 151 | 3 | | |

- Molecule 16 is a protein called TATA-box-binding protein.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 16 | P | 185 | Total | C | N | O | S | 0 | 0 |
| | | | 1462 | 946 | 257 | 252 | 7 | | |

- Molecule 17 is a protein called General transcription factor IIE subunit 1.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 17 | Q | 180 | Total | C | N | O | S | 0 | 0 |
| | | | 1484 | 938 | 262 | 273 | 11 | | |

- Molecule 18 is a protein called Transcription initiation factor IIE subunit beta.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 18 | R | 165 | Total | C | N | O | S | 0 | 0 |
| | | | 1357 | 865 | 235 | 253 | 4 | | |

- Molecule 19 is a protein called General transcription factor IIF subunit 1.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 19 | S | 138 | Total | C | N | O | S | 0 | 0 |
| | | | 1138 | 719 | 208 | 208 | 3 | | |

- Molecule 20 is a protein called General transcription factor IIF subunit 2.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 20 | T | 222 | Total | C | N | O | S | 0 | 0 |
| | | | 1788 | 1127 | 320 | 338 | 3 | | |

- Molecule 21 is a DNA chain called SCP-X.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 21 | X | 80 | Total | C | N | O | P | 0 | 0 |
| | | | 1645 | 785 | 292 | 489 | 79 | | |

- Molecule 22 is a DNA chain called SCP-Y.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 22 | Y | 80 | Total | C | N | O | P | 0 | 0 |
| | | | 1624 | 771 | 291 | 483 | 79 | | |

- Molecule 23 is a RNA chain called RNA.

| Mol | Chain | Residues | Atoms | | | | | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|
| 23 | Z | 6 | Total | C | N | O | P | 0 | 0 |
| | | | 125 | 57 | 23 | 40 | 5 | | |

- Molecule 24 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

| Mol | Chain | Residues | Atoms | | AltConf |
|---|---|---|---|---|---|
| 24 | A | 2 | Total | Mg | 0 |
| | | | 2 | 2 | |

- Molecule 25 is ZINC ION (three-letter code: ZN) (formula: Zn).

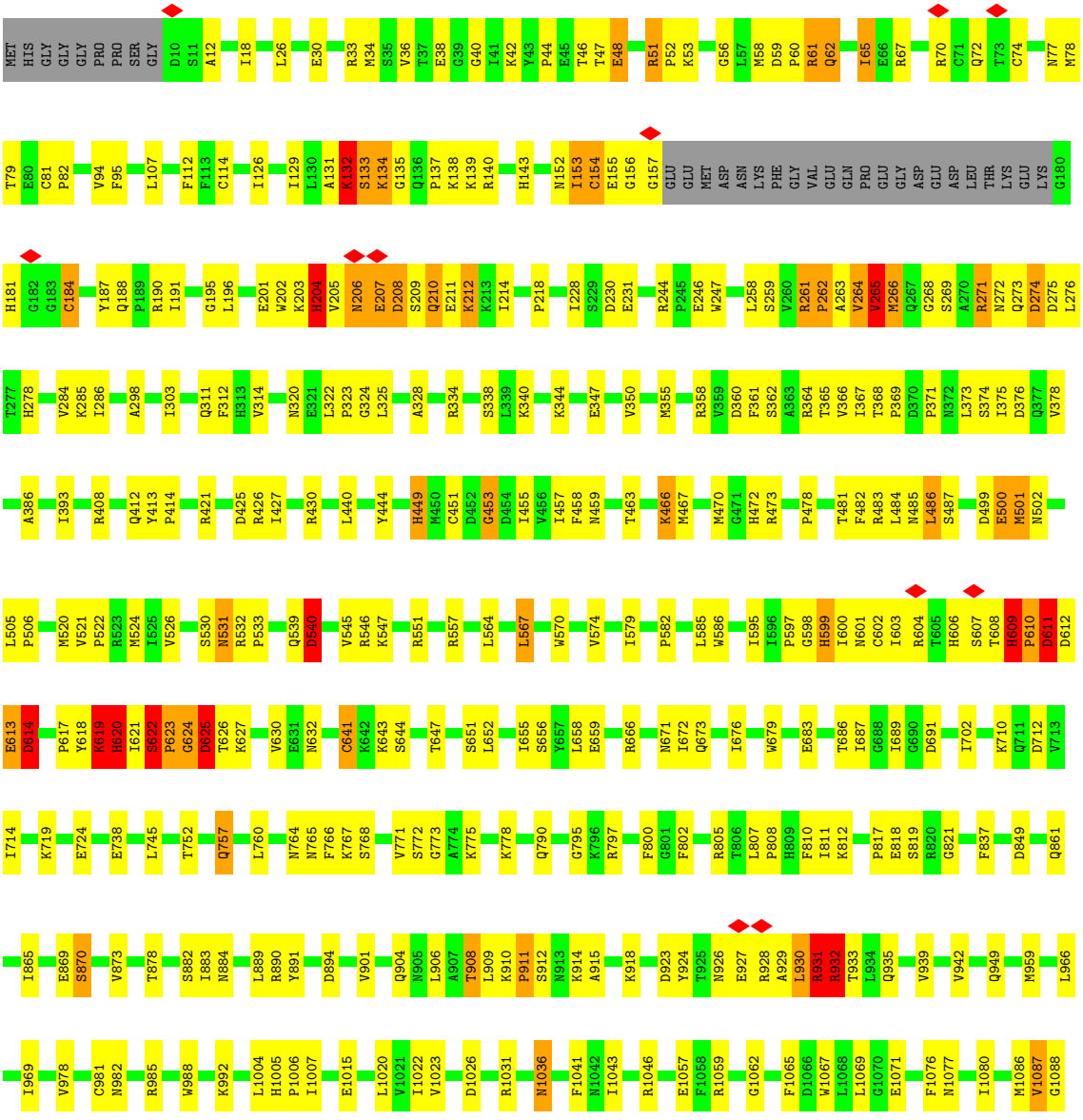
| Mol | Chain | Residues | Atoms | | AltConf |
|---|---|---|---|---|---|
| 25 | A | 3 | Total | Zn | 0 |
| | | | 3 | 3 | |
| 25 | B | 1 | Total | Zn | 0 |
| | | | 1 | 1 | |
| 25 | C | 1 | Total | Zn | 0 |
| | | | 1 | 1 | |
| 25 | I | 2 | Total | Zn | 0 |
| | | | 2 | 2 | |
| 25 | J | 1 | Total | Zn | 0 |
| | | | 1 | 1 | |
| 25 | L | 1 | Total | Zn | 0 |
| | | | 1 | 1 | |
| 25 | M | 1 | Total | Zn | 0 |
| | | | 1 | 1 | |
| 25 | Q | 1 | Total | Zn | 0 |
| | | | 1 | 1 | |

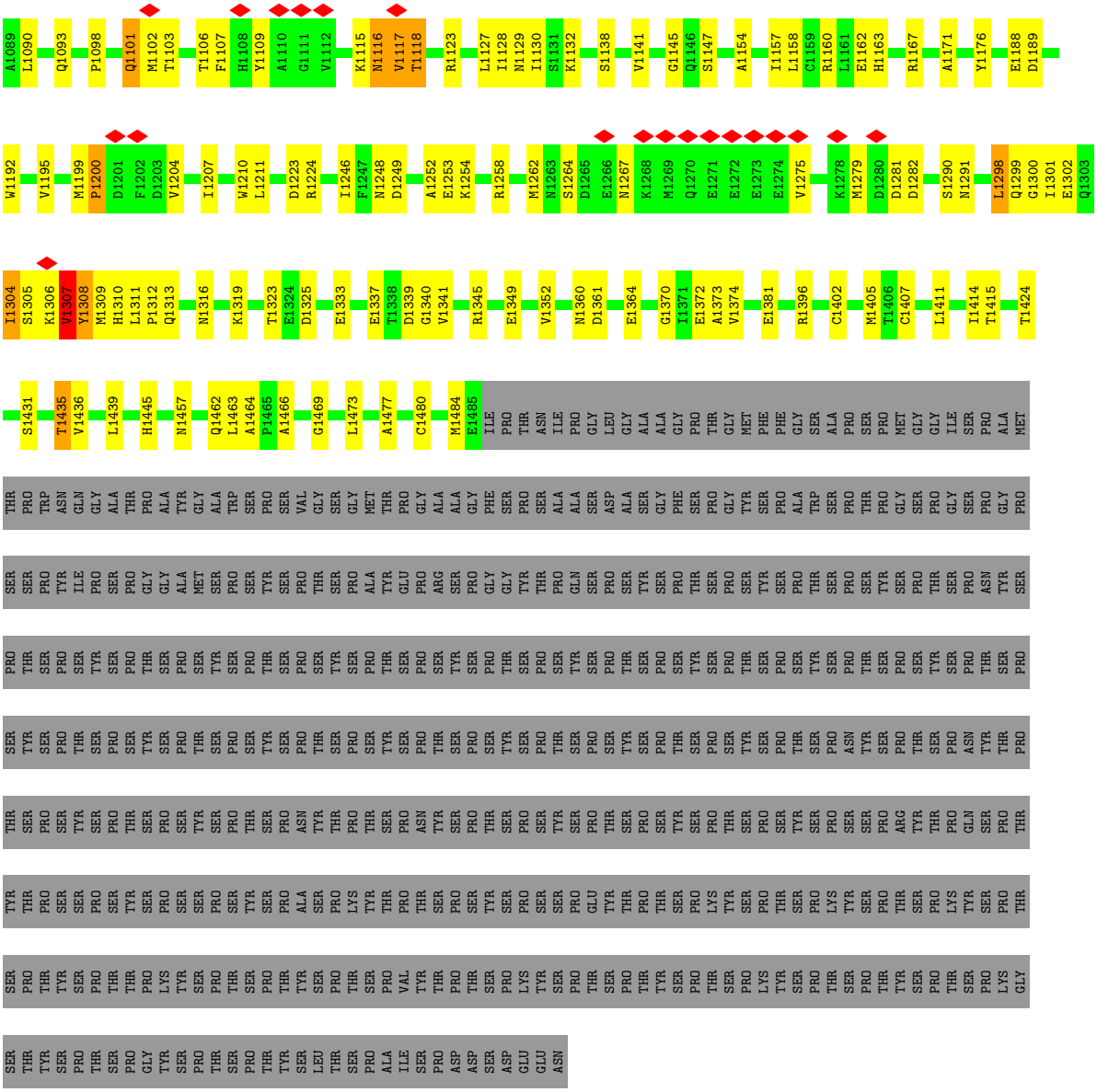
# 3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

• Molecule 1: DNA-directed RNA polymerase II subunit RPB1

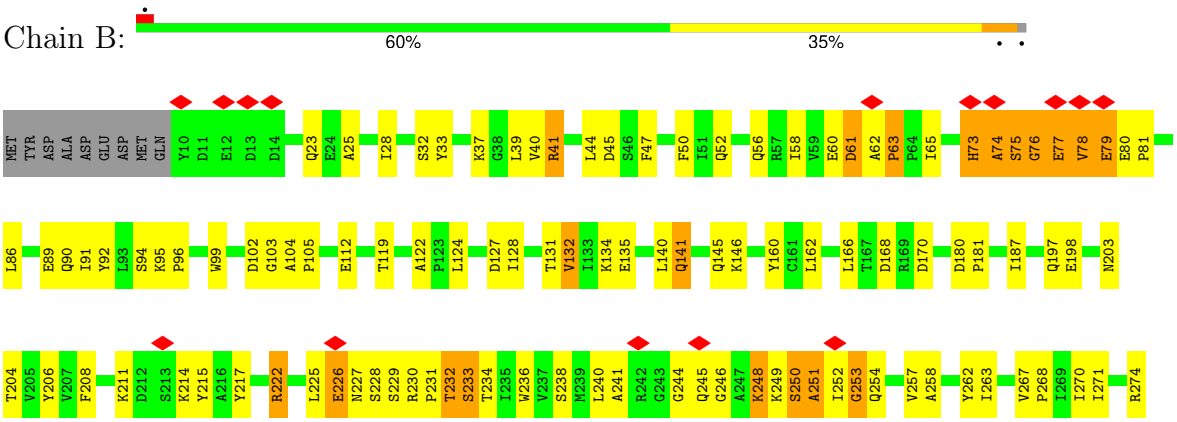
Chain A:

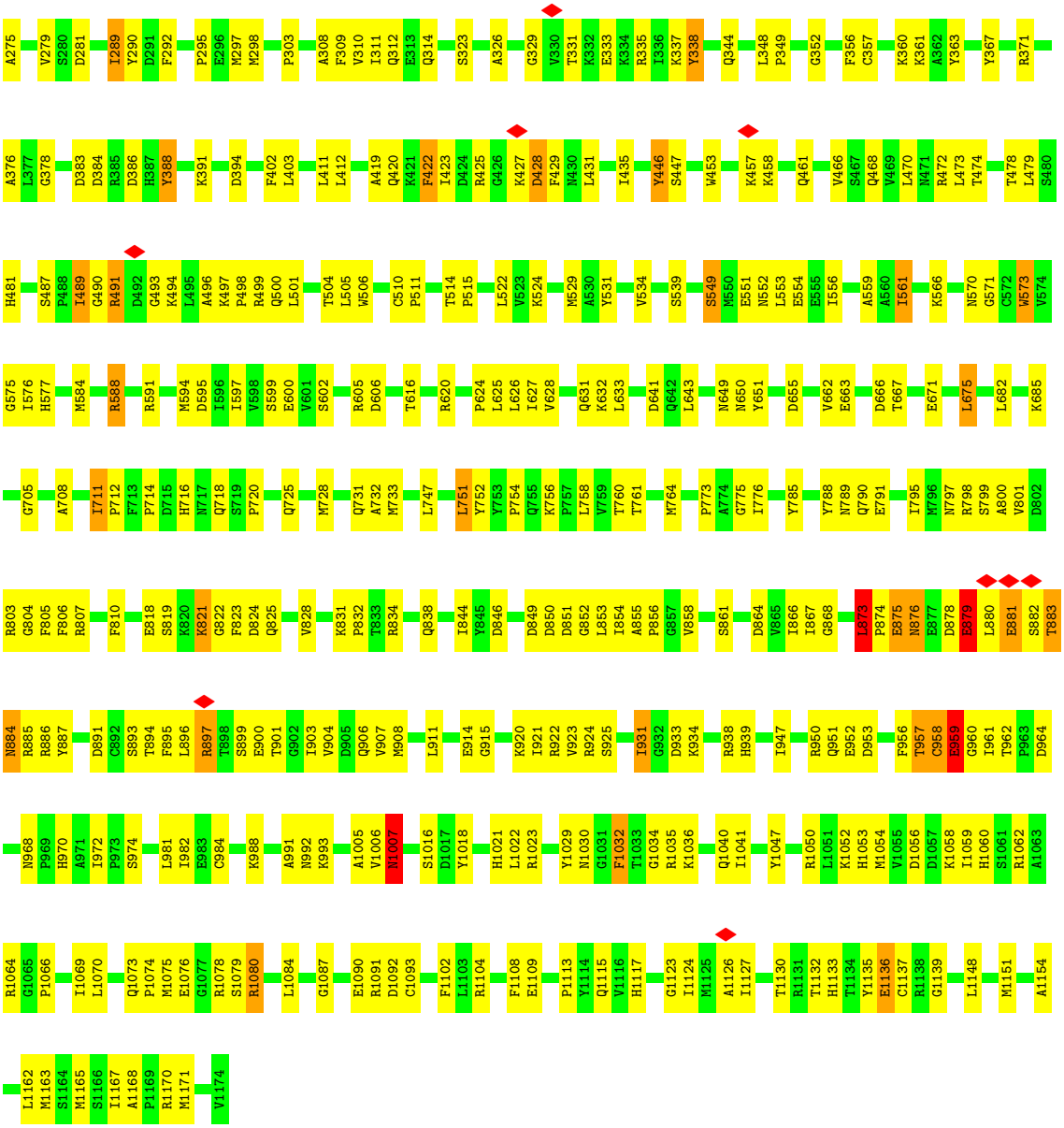





• Molecule 2: DNA-directed RNA polymerase II subunit RPB2

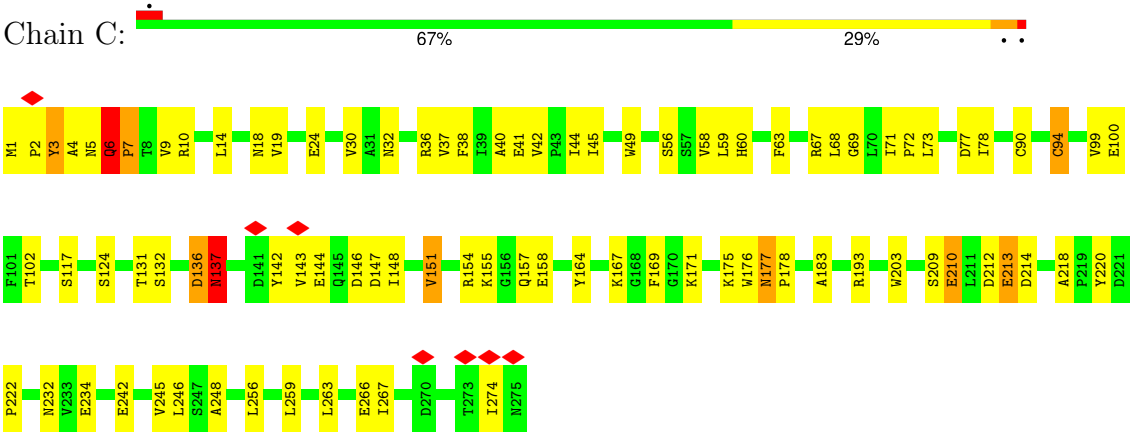
Chain B:





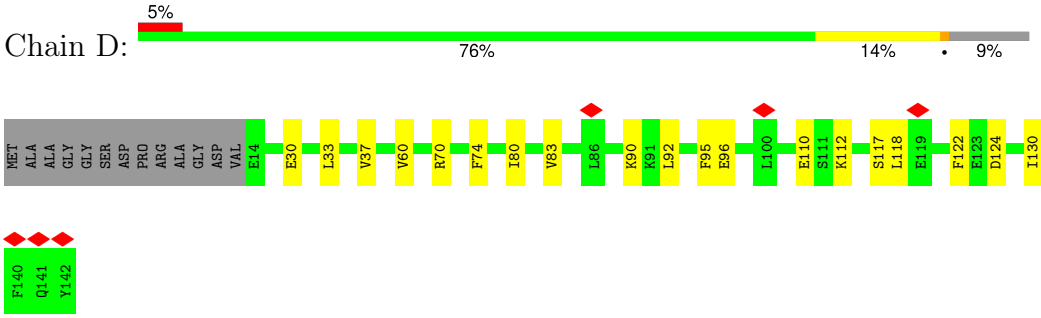
• Molecule 3: DNA-directed RNA polymerase II subunit RPB3

Chain C:



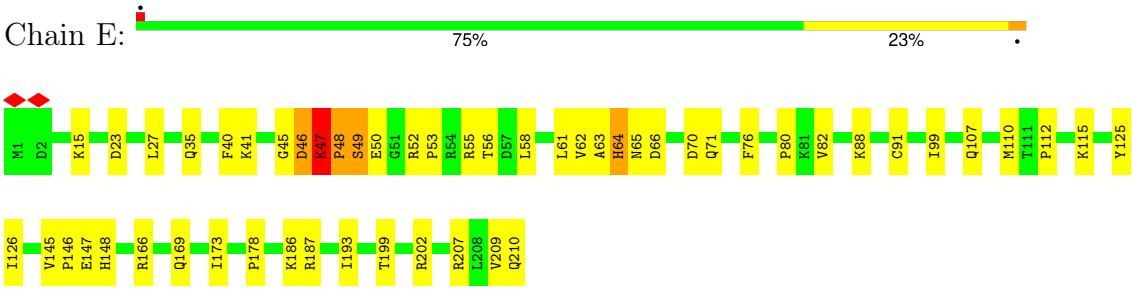
• Molecule 4: DNA-directed RNA polymerase II subunit RPB4

Chain D:



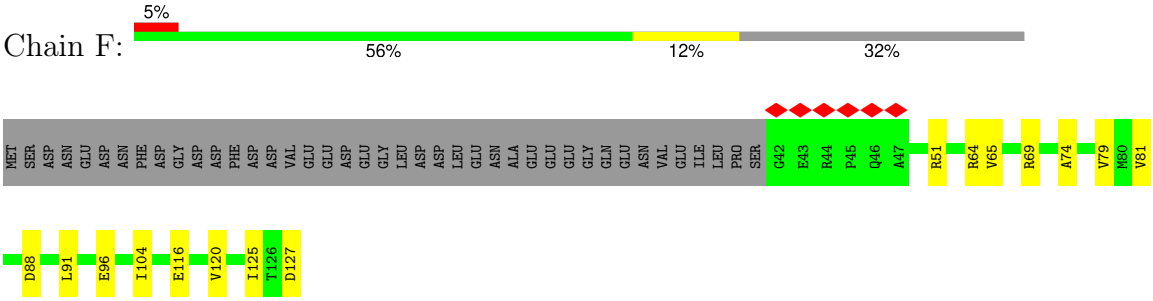

• Molecule 5: DNA-directed RNA polymerase II subunit RPB5

Chain E:



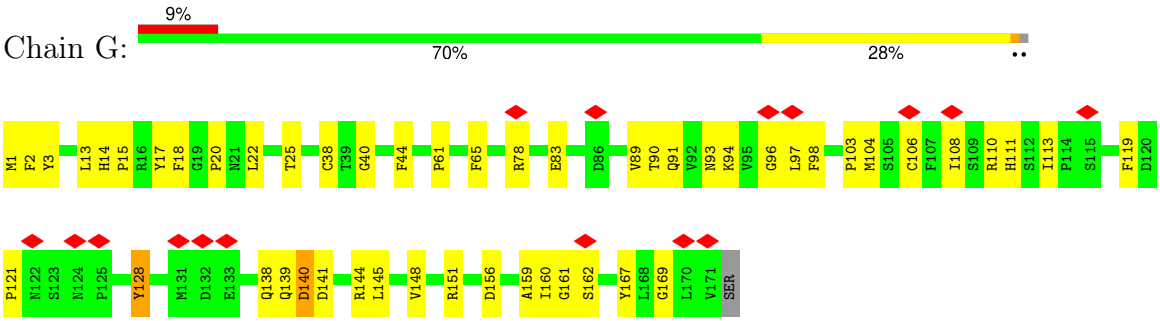

• Molecule 6: DNA-directed RNA polymerase II subunit RPB6

Chain F:



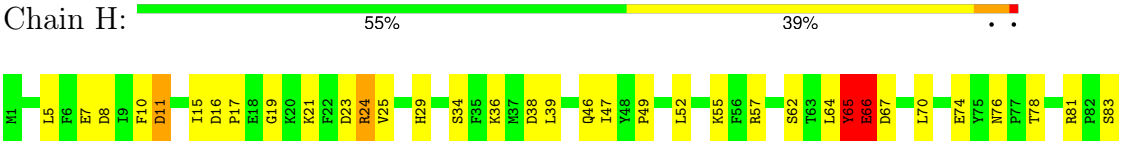

• Molecule 7: DNA-directed RNA polymerase II subunit RPB7

Chain G:

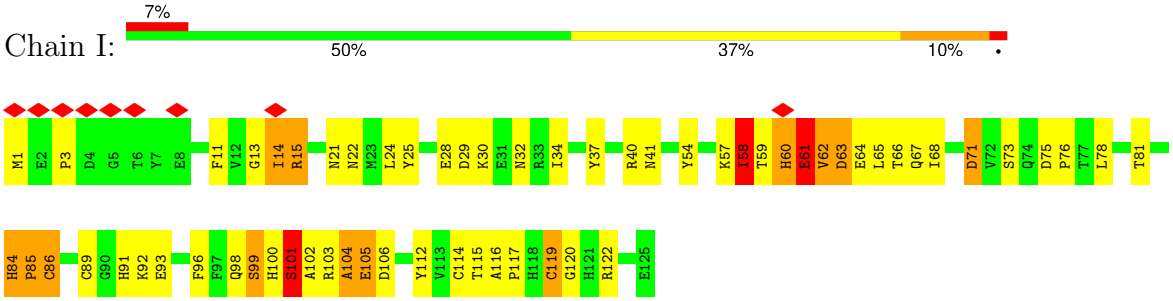



• Molecule 8: DNA-directed RNA polymerase II subunit RPB8

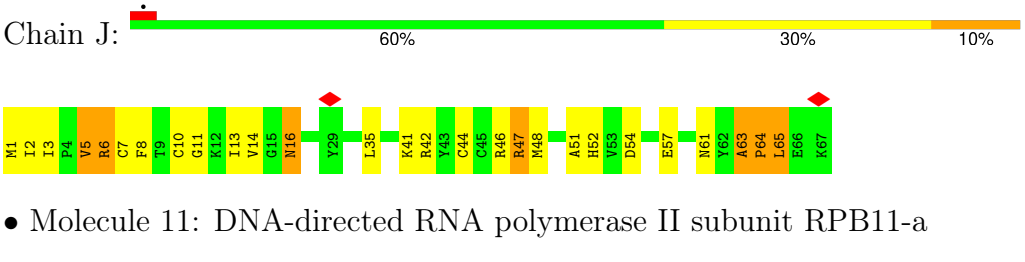
Chain H:



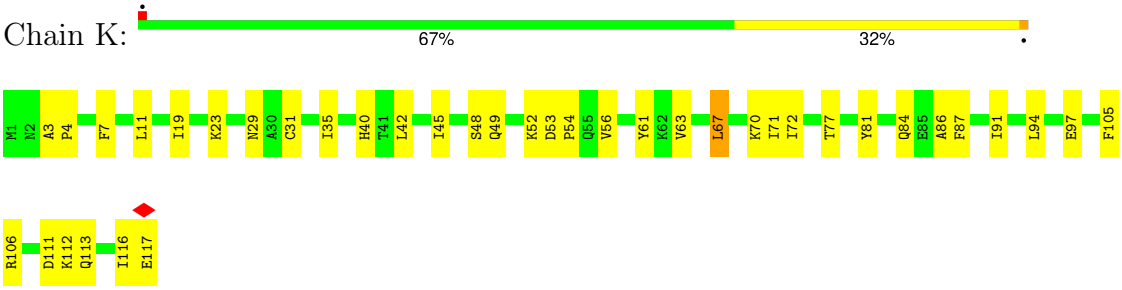

• Molecule 9: DNA-directed RNA polymerase II subunit RPB9



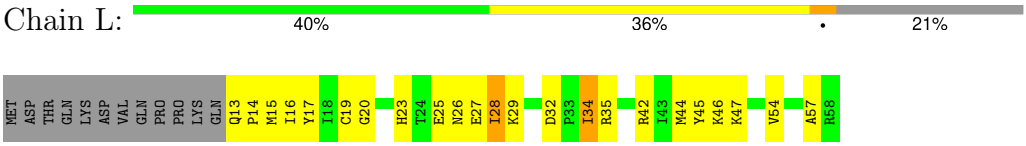

• Molecule 10: DNA-directed RNA polymerase II subunit RPB10



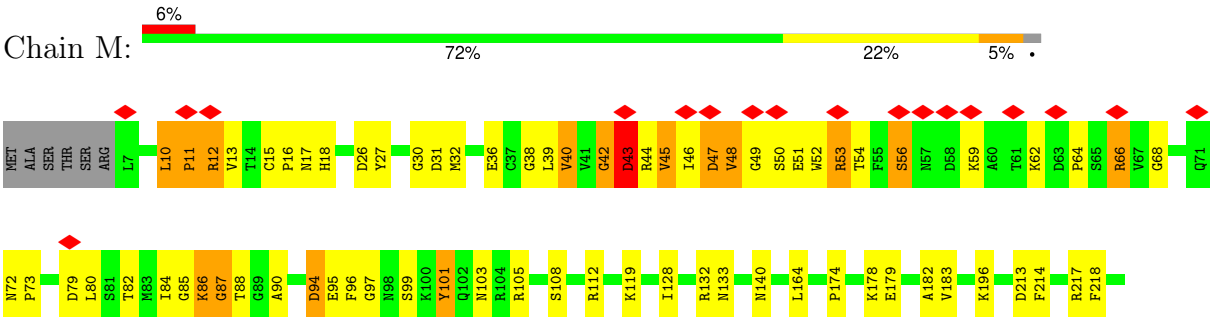

• Molecule 11: DNA-directed RNA polymerase II subunit RPB11-a




• Molecule 12: DNA-directed RNA polymerase II subunit RPB12

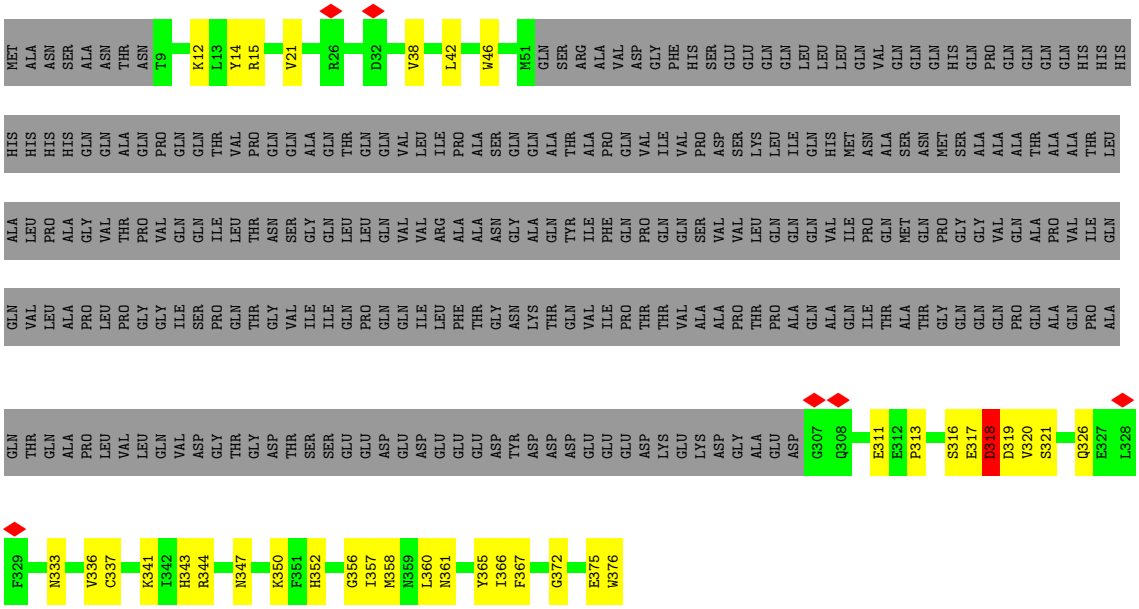



• Molecule 13: Transcription initiation factor IIB



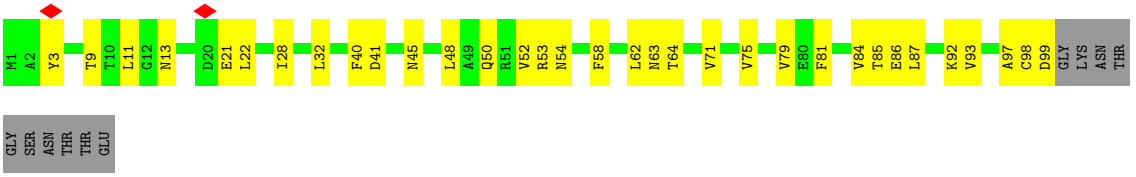

• Molecule 14: Transcription initiation factor IIA subunit 1

Chain N:

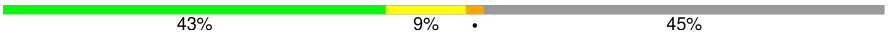

• Molecule 15: Transcription initiation factor IIA subunit 2

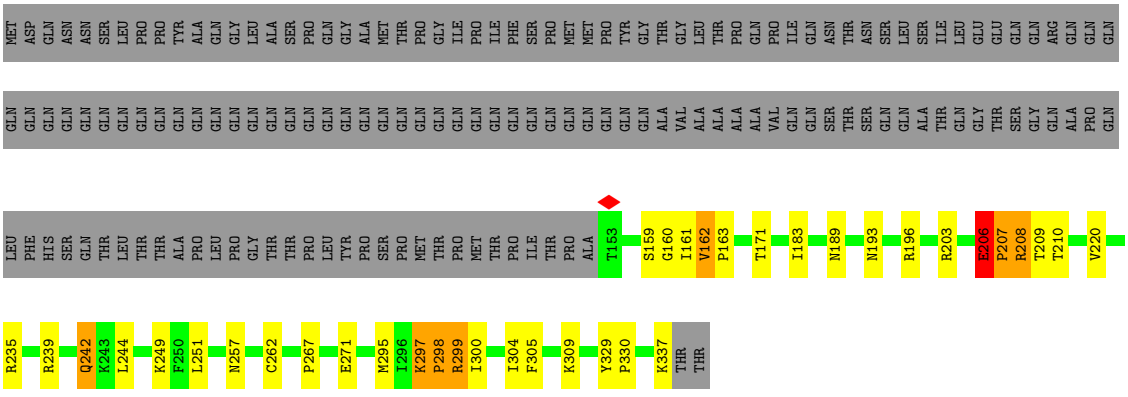
Chain O:


• Molecule 16: TATA-box-binding protein

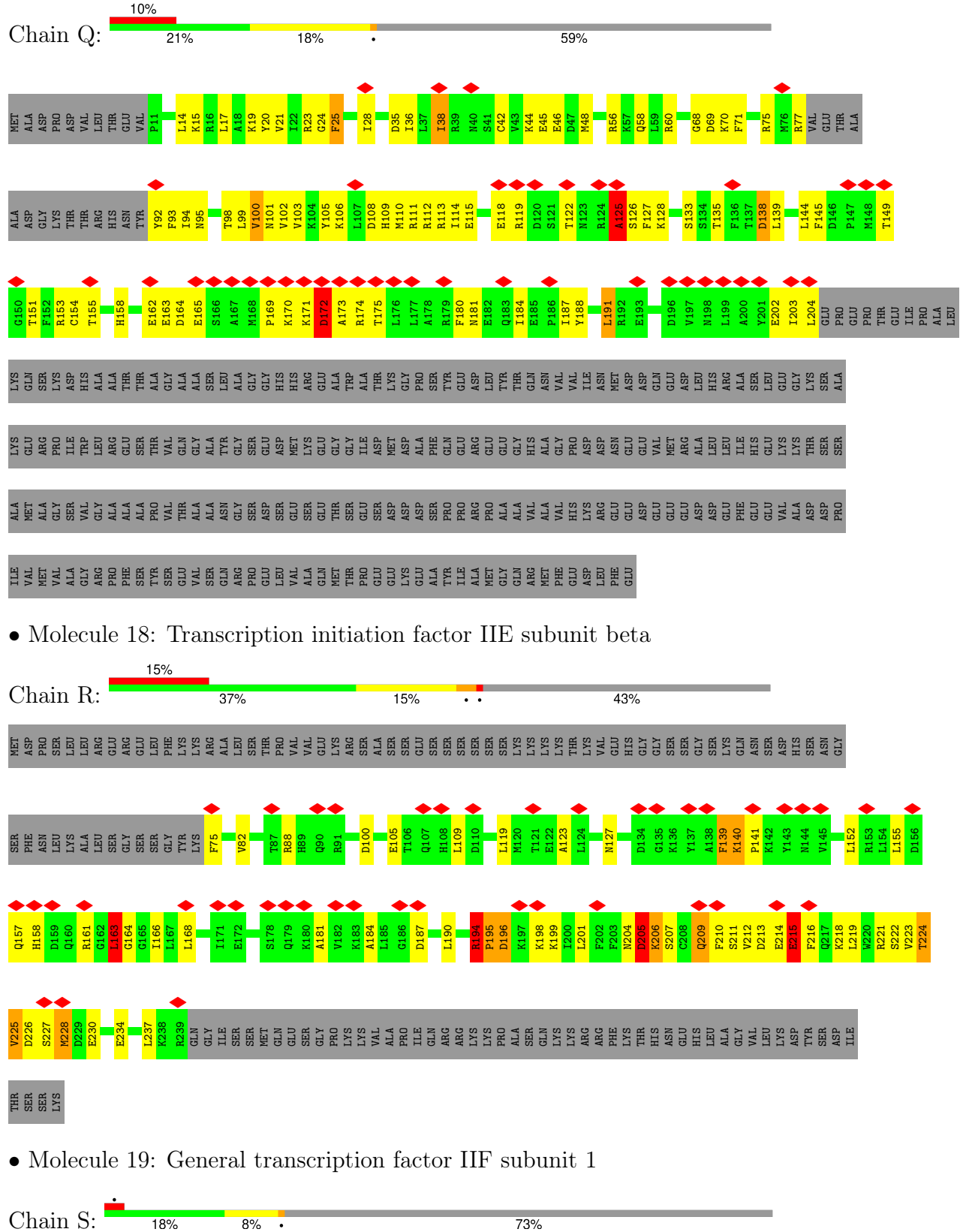
Chain P:



• Molecule 17: General transcription factor IIE subunit 1

Chain Q:



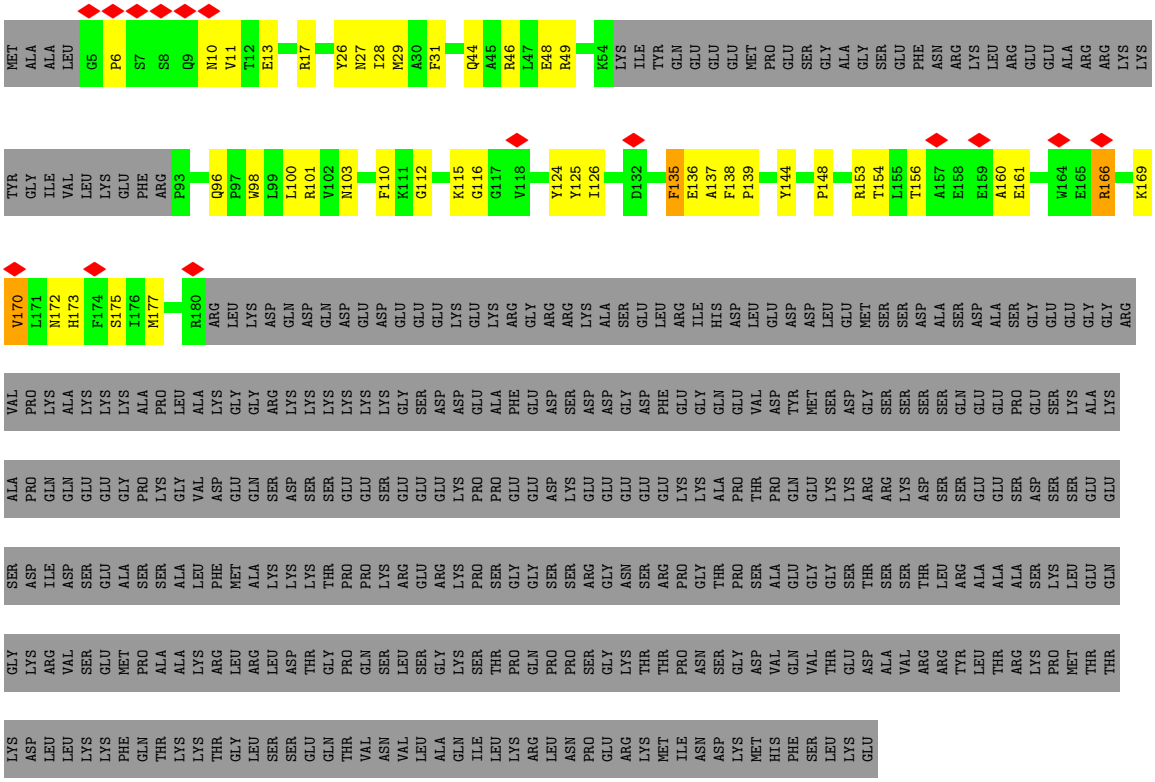

• Molecule 18: Transcription initiation factor IIE subunit beta

Chain R:



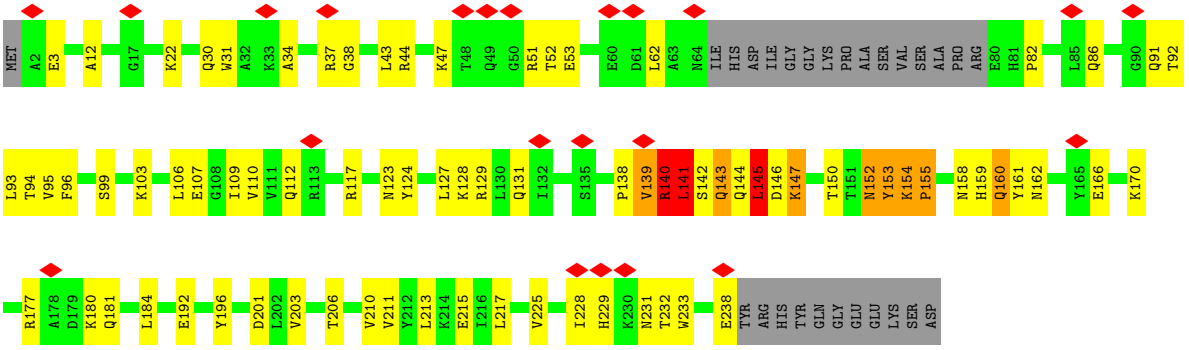

• Molecule 19: General transcription factor IIF subunit 1

Chain S:



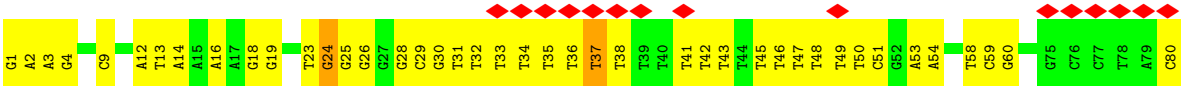
• Molecule 20: General transcription factor IIF subunit 2

Chain T:

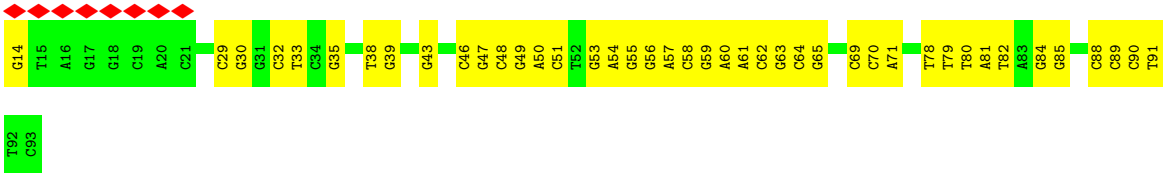
• Molecule 21: SCP-X

Chain X:

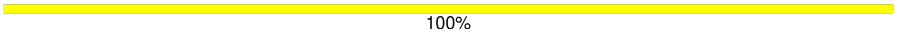
• Molecule 22: SCP-Y

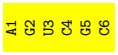
Chain Y:




- Molecule 23: RNA

Chain Z:



# 4 Experimental information (i)

| Property | Value | Source |
|---|---|---|
| EM reconstruction method | SINGLE PARTICLE | Depositor |
| Imposed symmetry | POINT, Not provided | |
| Number of particles used | 99929 | 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 ($e^-/Å^2$) | 42 | Depositor |
| Minimum defocus (nm) | 2000 | Depositor |
| Maximum defocus (nm) | 4000 | Depositor |
| Magnification | 27500 | Depositor |
| Image detector | GATAN K2 SUMMIT (4k x 4k) | Depositor |
| Maximum map value | 0.149 | Depositor |
| Minimum map value | -0.087 | Depositor |
| Average map value | 0.000 | Depositor |
| Map value standard deviation | 0.002 | Depositor |
| Recommended contour level | 0.01 | Depositor |
| Map size (Å) | 503.03998, 503.03998, 503.03998 | wwPDB |
| Map dimensions | 384, 384, 384 | wwPDB |
| Map angles (°) | 90.0, 90.0, 90.0 | wwPDB |
| Pixel spacing (Å) | 1.31, 1.31, 1.31 | Depositor |

# 5 Model quality

## 5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: MG, 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 | 0.56 | 1/11727 (0.0%) | 0.81 | 19/15833 (0.1%) |
| 2 | B | 0.66 | 3/9503 (0.0%) | 0.86 | 7/12831 (0.1%) |
| 3 | C | 0.54 | 0/2259 | 0.95 | 3/3073 (0.1%) |
| 4 | D | 0.27 | 0/1077 | 0.52 | 0/1446 |
| 5 | E | 0.43 | 0/1753 | 0.79 | 1/2368 (0.0%) |
| 6 | F | 0.43 | 0/700 | 0.69 | 0/946 |
| 7 | G | 0.32 | 0/1382 | 0.58 | 0/1874 |
| 8 | H | 0.45 | 0/1227 | 0.74 | 3/1654 (0.2%) |
| 9 | I | 0.38 | 0/1038 | 0.97 | 3/1407 (0.2%) |
| 10 | J | 0.66 | 1/542 (0.2%) | 0.91 | 1/730 (0.1%) |
| 11 | K | 0.50 | 0/956 | 0.72 | 1/1294 (0.1%) |
| 12 | L | 0.56 | 0/394 | 0.69 | 0/524 |
| 13 | M | 0.41 | 0/2429 | 0.71 | 4/3281 (0.1%) |
| 14 | N | 0.23 | 0/945 | 0.51 | 0/1274 |
| 15 | O | 0.25 | 0/816 | 0.48 | 0/1105 |
| 16 | P | 0.29 | 0/1489 | 0.72 | 1/2005 (0.0%) |
| 17 | Q | 0.28 | 0/1507 | 0.62 | 2/2023 (0.1%) |
| 18 | R | 0.57 | 0/1380 | 1.10 | 6/1854 (0.3%) |
| 19 | S | 0.26 | 0/1167 | 0.54 | 0/1576 |
| 20 | T | 0.27 | 0/1817 | 0.59 | 0/2445 |
| 21 | X | 0.68 | 0/1843 | 1.05 | 3/2847 (0.1%) |
| 22 | Y | 0.62 | 0/1817 | 0.96 | 0/2800 |
| 23 | Z | 0.37 | 0/139 | 0.84 | 0/215 |
| All | All | 0.53 | 5/47907 (0.0%) | 0.81 | 54/65405 (0.1%) |

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

| Mol | Chain | #Chirality outliers | #Planarity outliers |
|---|---|---|---|
| 1 | A | 0 | 3 |
| 2 | B | 0 | 1 |
| 8 | H | 0 | 1 |
| 9 | I | 0 | 1 |
| 16 | P | 0 | 1 |
| 17 | Q | 0 | 1 |
| 18 | R | 0 | 4 |
| 20 | T | 0 | 1 |
| All | All | 0 | 13 |

All (5) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|---|---|---|---|---|---|---|---|
| 10 | J | 44 | CYS | CB-SG | -6.57 | 1.71 | 1.82 |
| 1 | A | 500 | GLU | CG-CD | 6.11 | 1.61 | 1.51 |
| 2 | B | 984 | CYS | CB-SG | -5.70 | 1.72 | 1.81 |
| 2 | B | 959 | GLU | CG-CD | 5.59 | 1.60 | 1.51 |
| 2 | B | 112 | GLU | CD-OE2 | 5.17 | 1.31 | 1.25 |

All (54) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 3 | C | 6 | GLN | C-N-CD | -31.36 | 51.61 | 120.60 |
| 9 | I | 84 | HIS | C-N-CD | -25.23 | 65.08 | 120.60 |
| 18 | R | 194 | ARG | C-N-CD | -21.76 | 72.73 | 120.60 |
| 16 | P | 206 | GLU | C-N-CD | -21.58 | 73.12 | 120.60 |
| 5 | E | 47 | LYS | C-N-CD | -17.54 | 82.01 | 120.60 |
| 1 | A | 622 | SER | N-CA-C | -9.24 | 86.06 | 111.00 |
| 1 | A | 622 | SER | C-N-CD | -9.14 | 100.49 | 120.60 |
| 2 | B | 112 | GLU | OE1-CD-OE2 | -8.36 | 113.27 | 123.30 |
| 1 | A | 609 | HIS | C-N-CD | -8.09 | 102.80 | 120.60 |
| 1 | A | 501 | MET | CA-CB-CG | 8.05 | 126.99 | 113.30 |
| 3 | C | 137 | ASN | N-CA-C | -8.00 | 89.41 | 111.00 |
| 13 | M | 94 | ASP | N-CA-C | -7.62 | 90.44 | 111.00 |
| 18 | R | 224 | THR | N-CA-C | 7.18 | 130.38 | 111.00 |
| 2 | B | 479 | LEU | CB-CG-CD2 | -7.00 | 99.11 | 111.00 |
| 9 | I | 104 | ALA | N-CA-C | -6.90 | 92.38 | 111.00 |
| 1 | A | 614 | ASP | N-CA-C | 6.90 | 129.62 | 111.00 |
| 1 | A | 1307 | VAL | N-CA-C | 6.80 | 129.36 | 111.00 |
| 21 | X | 37 | DT | O4'-C1'-N1 | 6.79 | 112.75 | 108.00 |
| 13 | M | 43 | ASP | N-CA-C | -6.63 | 93.09 | 111.00 |
| 8 | H | 148 | LEU | CA-CB-CG | 6.43 | 130.10 | 115.30 |
| 18 | R | 88 | ARG | NE-CZ-NH1 | 6.40 | 123.50 | 120.30 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 10 | J | 63 | ALA | C-N-CD | -6.00 | 107.40 | 120.60 |
| 1 | A | 641 | CYS | CA-CB-SG | -6.00 | 103.21 | 114.00 |
| 3 | C | 6 | GLN | N-CA-C | 5.98 | 127.14 | 111.00 |
| 18 | R | 163 | LEU | C-N-CA | -5.97 | 109.76 | 122.30 |
| 2 | B | 883 | THR | C-N-CA | -5.92 | 106.91 | 121.70 |
| 9 | I | 84 | HIS | N-CA-C | 5.91 | 126.96 | 111.00 |
| 1 | A | 932 | ARG | C-N-CA | -5.90 | 106.94 | 121.70 |
| 1 | A | 620 | HIS | N-CA-C | 5.83 | 126.74 | 111.00 |
| 2 | B | 79 | GLU | C-N-CA | -5.75 | 107.33 | 121.70 |
| 13 | M | 11 | PRO | N-CA-C | -5.62 | 97.48 | 112.10 |
| 1 | A | 1396 | ARG | NE-CZ-NH2 | -5.58 | 117.51 | 120.30 |
| 1 | A | 540 | ASP | CB-CG-OD2 | -5.58 | 113.28 | 118.30 |
| 13 | M | 42 | GLY | N-CA-C | 5.55 | 126.97 | 113.10 |
| 2 | B | 388 | TYR | CB-CG-CD1 | -5.55 | 117.67 | 121.00 |
| 1 | A | 1090 | LEU | CB-CG-CD2 | -5.49 | 101.67 | 111.00 |
| 1 | A | 1402 | CYS | CA-CB-SG | -5.41 | 104.27 | 114.00 |
| 8 | H | 85 | ALA | N-CA-C | -5.31 | 96.67 | 111.00 |
| 8 | H | 66 | GLU | N-CA-C | 5.30 | 125.31 | 111.00 |
| 18 | R | 224 | THR | CA-C-N | -5.29 | 105.56 | 117.20 |
| 1 | A | 206 | ASN | C-N-CA | -5.26 | 108.54 | 121.70 |
| 18 | R | 205 | ASP | N-CA-C | 5.24 | 125.16 | 111.00 |
| 11 | K | 67 | LEU | CA-CB-CG | -5.21 | 103.31 | 115.30 |
| 1 | A | 807 | LEU | CB-CG-CD2 | -5.19 | 102.18 | 111.00 |
| 21 | X | 37 | DT | C1'-O4'-C4' | -5.18 | 104.92 | 110.10 |
| 1 | A | 133 | SER | N-CA-C | 5.14 | 124.87 | 111.00 |
| 17 | Q | 172 | ASP | N-CA-C | 5.14 | 124.87 | 111.00 |
| 2 | B | 751 | LEU | CB-CG-CD1 | -5.12 | 102.30 | 111.00 |
| 17 | Q | 100 | VAL | N-CA-C | 5.11 | 124.80 | 111.00 |
| 1 | A | 486 | LEU | CA-CB-CG | -5.07 | 103.64 | 115.30 |
| 1 | A | 894 | ASP | CB-CG-OD1 | 5.06 | 122.86 | 118.30 |
| 21 | X | 24 | DG | O4'-C4'-C3' | -5.05 | 102.48 | 104.50 |
| 2 | B | 922 | ARG | NE-CZ-NH1 | -5.02 | 117.79 | 120.30 |
| 1 | A | 655 | ILE | CG1-CB-CG2 | -5.01 | 100.38 | 111.40 |

There are no chirality outliers.

All (13) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group |
|---|---|---|---|---|
| 1 | A | 1291 | ASN | Sidechain |
| 1 | A | 1308 | TYR | Peptide |
| 1 | A | 210 | GLN | Mainchain |
| 2 | B | 873 | LEU | Mainchain |

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| Mol | Chain | Res | Type | Group |
|---|---|---|---|---|
| 8 | H | 99 | ILE | Peptide |
| 9 | I | 101 | SER | Mainchain |
| 16 | P | 242 | GLN | Sidechain |
| 17 | Q | 125 | ALA | Peptide |
| 18 | R | 109 | LEU | Mainchain |
| 18 | R | 139 | PHE | Peptide,Mainchain |
| 18 | R | 215 | GLU | Mainchain |
| 20 | T | 123 | ASN | 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 | 11515 | 0 | 11615 | 527 | 0 |
| 2 | B | 9317 | 0 | 9312 | 463 | 0 |
| 3 | C | 2213 | 0 | 2157 | 99 | 0 |
| 4 | D | 1062 | 0 | 1042 | 14 | 0 |
| 5 | E | 1723 | 0 | 1745 | 49 | 0 |
| 6 | F | 689 | 0 | 715 | 11 | 0 |
| 7 | G | 1351 | 0 | 1358 | 43 | 0 |
| 8 | H | 1205 | 0 | 1168 | 64 | 0 |
| 9 | I | 1013 | 0 | 939 | 80 | 0 |
| 10 | J | 533 | 0 | 557 | 43 | 0 |
| 11 | K | 937 | 0 | 959 | 27 | 0 |
| 12 | L | 388 | 0 | 397 | 24 | 0 |
| 13 | M | 2391 | 0 | 2413 | 160 | 0 |
| 14 | N | 930 | 0 | 888 | 32 | 0 |
| 15 | O | 806 | 0 | 818 | 27 | 0 |
| 16 | P | 1462 | 0 | 1548 | 49 | 0 |
| 17 | Q | 1484 | 0 | 1501 | 231 | 0 |
| 18 | R | 1357 | 0 | 1381 | 229 | 0 |
| 19 | S | 1138 | 0 | 1103 | 42 | 0 |
| 20 | T | 1788 | 0 | 1817 | 153 | 0 |
| 21 | X | 1645 | 0 | 908 | 53 | 0 |
| 22 | Y | 1624 | 0 | 899 | 48 | 0 |
| 23 | Z | 125 | 0 | 67 | 10 | 0 |
| 24 | A | 2 | 0 | 0 | 0 | 0 |
| 25 | A | 3 | 0 | 0 | 0 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|---|---|---|---|---|---|---|
| 25 | B | 1 | 0 | 0 | 2 | 0 |
| 25 | C | 1 | 0 | 0 | 0 | 0 |
| 25 | I | 2 | 0 | 0 | 2 | 0 |
| 25 | J | 1 | 0 | 0 | 0 | 0 |
| 25 | L | 1 | 0 | 0 | 0 | 0 |
| 25 | M | 1 | 0 | 0 | 0 | 0 |
| 25 | Q | 1 | 0 | 0 | 0 | 0 |
| All | All | 46709 | 0 | 45307 | 1937 | 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 21.

All (1937) 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) |
|---|---|---|---|
| 18:R:224:THR:CG2 | 18:R:225:VAL:HG23 | 1.23 | 1.56 |
| 1:A:1290:SER:CB | 2:B:250:SER:CB | 1.84 | 1.55 |
| 1:A:1290:SER:CB | 2:B:250:SER:HB3 | 1.12 | 1.54 |
| 1:A:1307:VAL:HG21 | 1:A:1339:ASP:CB | 1.35 | 1.50 |
| 2:B:92:TYR:CD1 | 20:T:141:LEU:HD11 | 1.45 | 1.48 |
| 2:B:56:GLN:HG2 | 20:T:140:ARG:CD | 1.45 | 1.44 |
| 3:C:157:GLN:NE2 | 10:J:65:LEU:HB3 | 1.20 | 1.44 |
| 17:Q:113:ARG:NE | 18:R:222:SER:HB3 | 1.24 | 1.44 |
| 5:E:47:LYS:HB3 | 5:E:48:PRO:CD | 1.39 | 1.43 |
| 8:H:65:TYR:CE2 | 8:H:70:LEU:HB3 | 1.51 | 1.42 |
| 1:A:458:PHE:HE1 | 1:A:501:MET:SD | 1.40 | 1.41 |
| 17:Q:109:HIS:CE1 | 18:R:225:VAL:HG21 | 1.58 | 1.39 |
| 17:Q:113:ARG:HE | 18:R:222:SER:CB | 1.33 | 1.38 |
| 1:A:608:THR:C | 1:A:610:PRO:HD2 | 1.41 | 1.37 |
| 13:M:44:ARG:NH1 | 13:M:46:ILE:HG22 | 1.37 | 1.37 |
| 17:Q:23:ARG:HH12 | 18:R:206:LYS:CG | 1.35 | 1.37 |
| 17:Q:184:ILE:HD11 | 18:R:213:ASP:CG | 1.42 | 1.37 |
| 3:C:5:ASN:O | 3:C:7:PRO:HD3 | 1.20 | 1.36 |
| 1:A:1290:SER:OG | 2:B:250:SER:HB3 | 1.18 | 1.35 |
| 17:Q:188:TYR:CE2 | 18:R:210:PHE:CD1 | 2.15 | 1.35 |
| 1:A:427:ILE:HG12 | 13:M:38:GLY:O | 1.25 | 1.34 |
| 13:M:27:TYR:CE2 | 13:M:46:ILE:HD13 | 1.64 | 1.33 |
| 17:Q:109:HIS:ND1 | 18:R:225:VAL:HG21 | 1.43 | 1.32 |
| 17:Q:113:ARG:HD3 | 18:R:221:ARG:C | 1.50 | 1.31 |
| 1:A:1307:VAL:CG2 | 1:A:1339:ASP:HB3 | 1.59 | 1.30 |
| 16:P:159:SER:HB2 | 16:P:329:TYR:CD2 | 1.66 | 1.30 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 3:C:157:GLN:CD | 10:J:65:LEU:HB3 | 1.52 | 1.29 |
| 8:H:65:TYR:CE2 | 8:H:70:LEU:CB | 2.12 | 1.28 |
| 1:A:152:ASN:O | 1:A:153:ILE:HG12 | 1.32 | 1.28 |
| 13:M:178:LYS:O | 20:T:154:LYS:HB2 | 1.18 | 1.27 |
| 17:Q:21:VAL:O | 18:R:210:PHE:CE2 | 1.87 | 1.27 |
| 16:P:297:LYS:HB3 | 16:P:298:PRO:CD | 1.62 | 1.27 |
| 1:A:156:GLY:HA2 | 1:A:181:HIS:ND1 | 1.47 | 1.27 |
| 17:Q:184:ILE:CD1 | 18:R:213:ASP:OD2 | 1.80 | 1.27 |
| 13:M:178:LYS:O | 20:T:154:LYS:CB | 1.83 | 1.27 |
| 1:A:202:TRP:HE3 | 1:A:212:LYS:O | 1.11 | 1.26 |
| 18:R:224:THR:CG2 | 18:R:225:VAL:H | 1.40 | 1.26 |
| 5:E:47:LYS:CB | 5:E:48:PRO:HD2 | 1.63 | 1.26 |
| 13:M:182:ALA:HB2 | 20:T:154:LYS:CB | 1.64 | 1.25 |
| 2:B:92:TYR:CB | 20:T:145:LEU:HD12 | 1.66 | 1.25 |
| 1:A:264:VAL:C | 1:A:272:ASN:HD22 | 1.40 | 1.25 |
| 9:I:62:VAL:O | 9:I:64:GLU:N | 1.71 | 1.23 |
| 17:Q:113:ARG:HD3 | 18:R:221:ARG:O | 1.36 | 1.23 |
| 1:A:425:ASP:OD2 | 13:M:39:LEU:CD1 | 1.85 | 1.23 |
| 17:Q:113:ARG:CD | 18:R:221:ARG:C | 2.06 | 1.22 |
| 18:R:224:THR:CG2 | 18:R:225:VAL:CG2 | 2.16 | 1.22 |
| 17:Q:188:TYR:CE2 | 18:R:210:PHE:HD1 | 1.51 | 1.21 |
| 9:I:57:LYS:O | 9:I:58:ILE:HG12 | 1.40 | 1.21 |
| 17:Q:188:TYR:CZ | 18:R:210:PHE:CD1 | 2.29 | 1.21 |
| 17:Q:113:ARG:HD2 | 18:R:221:ARG:CB | 1.70 | 1.20 |
| 16:P:159:SER:HB2 | 16:P:329:TYR:CE2 | 1.75 | 1.20 |
| 17:Q:23:ARG:NH1 | 18:R:206:LYS:CG | 2.03 | 1.19 |
| 16:P:159:SER:CB | 16:P:329:TYR:CD2 | 2.23 | 1.19 |
| 17:Q:23:ARG:HH12 | 18:R:206:LYS:CB | 1.55 | 1.19 |
| 2:B:883:THR:O | 2:B:885:ARG:N | 1.74 | 1.19 |
| 1:A:265:VAL:N | 1:A:272:ASN:HB2 | 1.58 | 1.18 |
| 1:A:551:ARG:HD3 | 1:A:625:ASP:OD2 | 1.41 | 1.18 |
| 17:Q:113:ARG:NE | 18:R:222:SER:CB | 1.97 | 1.18 |
| 2:B:882:SER:HB3 | 2:B:887:TYR:CE1 | 1.79 | 1.17 |
| 1:A:458:PHE:CE1 | 1:A:501:MET:SD | 2.32 | 1.17 |
| 17:Q:184:ILE:CG1 | 18:R:213:ASP:OD1 | 1.93 | 1.17 |
| 17:Q:188:TYR:CZ | 18:R:210:PHE:HD1 | 1.61 | 1.17 |
| 18:R:224:THR:HG22 | 18:R:225:VAL:N | 1.50 | 1.17 |
| 1:A:622:SER:O | 1:A:624:GLY:N | 1.77 | 1.16 |
| 1:A:1290:SER:HB3 | 2:B:250:SER:OG | 1.46 | 1.16 |
| 3:C:157:GLN:NE2 | 10:J:65:LEU:CB | 2.08 | 1.16 |
| 2:B:882:SER:HB3 | 2:B:887:TYR:CZ | 1.80 | 1.15 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:B:132:VAL:CG2 | 2:B:141:GLN:HG3 | 1.75 | 1.15 |
| 17:Q:113:ARG:CZ | 18:R:222:SER:HB3 | 1.76 | 1.15 |
| 9:I:85:PRO:O | 9:I:86:CYS:O | 1.62 | 1.14 |
| 1:A:609:HIS:N | 1:A:610:PRO:CD | 2.09 | 1.14 |
| 1:A:202:TRP:HB2 | 1:A:212:LYS:HB3 | 1.27 | 1.14 |
| 2:B:92:TYR:CD1 | 20:T:141:LEU:CD1 | 2.30 | 1.14 |
| 1:A:1307:VAL:CG2 | 1:A:1339:ASP:CB | 2.21 | 1.13 |
| 2:B:56:GLN:HG2 | 20:T:140:ARG:HD3 | 1.23 | 1.13 |
| 17:Q:188:TYR:OH | 18:R:210:PHE:CE1 | 2.02 | 1.13 |
| 1:A:262:PRO:HG3 | 2:B:1070:LEU:HG | 1.14 | 1.13 |
| 1:A:425:ASP:OD2 | 13:M:39:LEU:HD11 | 0.96 | 1.12 |
| 1:A:608:THR:OG1 | 1:A:610:PRO:CG | 1.97 | 1.12 |
| 16:P:159:SER:CB | 16:P:329:TYR:CE2 | 2.32 | 1.12 |
| 3:C:157:GLN:CG | 10:J:65:LEU:CB | 2.28 | 1.12 |
| 13:M:182:ALA:HB2 | 20:T:154:LYS:HB3 | 1.24 | 1.12 |
| 1:A:624:GLY:O | 1:A:625:ASP:HB2 | 1.46 | 1.11 |
| 2:B:132:VAL:HG23 | 2:B:141:GLN:HG3 | 1.20 | 1.11 |
| 17:Q:187:ILE:HG21 | 18:R:211:SER:HA | 1.20 | 1.11 |
| 10:J:63:ALA:HB3 | 10:J:64:PRO:HD3 | 1.32 | 1.10 |
| 1:A:1290:SER:HB3 | 2:B:250:SER:CB | 1.64 | 1.10 |
| 17:Q:184:ILE:HD11 | 18:R:213:ASP:OD2 | 0.94 | 1.10 |
| 18:R:224:THR:HG23 | 18:R:225:VAL:HG23 | 1.32 | 1.10 |
| 13:M:11:PRO:HD2 | 13:M:13:VAL:HG22 | 1.11 | 1.10 |
| 18:R:224:THR:HG22 | 18:R:225:VAL:HG23 | 1.27 | 1.10 |
| 2:B:298:MET:SD | 9:I:13:GLY:O | 2.10 | 1.10 |
| 2:B:882:SER:O | 2:B:887:TYR:CD2 | 2.02 | 1.10 |
| 1:A:202:TRP:CE3 | 1:A:212:LYS:O | 2.03 | 1.09 |
| 1:A:1290:SER:HB2 | 2:B:250:SER:HB3 | 1.22 | 1.09 |
| 2:B:92:TYR:HB2 | 20:T:145:LEU:HD12 | 1.33 | 1.09 |
| 9:I:85:PRO:O | 9:I:86:CYS:C | 1.89 | 1.09 |
| 17:Q:187:ILE:HG22 | 18:R:210:PHE:O | 1.49 | 1.09 |
| 1:A:265:VAL:N | 1:A:272:ASN:CB | 2.15 | 1.08 |
| 8:H:66:GLU:HG3 | 8:H:67:ASP:N | 1.60 | 1.08 |
| 1:A:608:THR:C | 1:A:610:PRO:CD | 2.22 | 1.08 |
| 17:Q:110:MET:HG2 | 18:R:222:SER:HB2 | 1.08 | 1.08 |
| 2:B:883:THR:O | 2:B:884:ASN:C | 1.83 | 1.08 |
| 13:M:44:ARG:HH11 | 13:M:46:ILE:CG2 | 1.67 | 1.08 |
| 18:R:224:THR:HG21 | 18:R:225:VAL:HG23 | 1.27 | 1.08 |
| 17:Q:113:ARG:NH1 | 18:R:218:LYS:O | 1.86 | 1.07 |
| 2:B:56:GLN:CG | 20:T:140:ARG:CD | 2.32 | 1.07 |
| 20:T:139:VAL:O | 20:T:141:LEU:N | 1.86 | 1.07 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 5:E:47:LYS:CB | 5:E:48:PRO:CD | 2.13 | 1.07 |
| 13:M:11:PRO:HD2 | 13:M:13:VAL:CG2 | 1.85 | 1.07 |
| 1:A:262:PRO:CG | 2:B:1070:LEU:HG | 1.85 | 1.06 |
| 1:A:131:ALA:O | 1:A:133:SER:N | 1.86 | 1.06 |
| 1:A:264:VAL:HB | 1:A:272:ASN:CG | 1.75 | 1.06 |
| 2:B:74:ALA:O | 2:B:75:SER:OG | 1.72 | 1.06 |
| 2:B:92:TYR:HD1 | 20:T:141:LEU:CD1 | 1.66 | 1.06 |
| 1:A:264:VAL:C | 1:A:272:ASN:ND2 | 2.08 | 1.05 |
| 3:C:157:GLN:CG | 10:J:65:LEU:HB3 | 1.83 | 1.05 |
| 17:Q:184:ILE:HG12 | 18:R:213:ASP:OD1 | 1.56 | 1.05 |
| 1:A:610:PRO:O | 1:A:611:ASP:HB2 | 1.55 | 1.05 |
| 13:M:94:ASP:OD2 | 13:M:97:GLY:O | 1.75 | 1.04 |
| 16:P:297:LYS:CB | 16:P:298:PRO:CD | 2.34 | 1.04 |
| 17:Q:184:ILE:HD13 | 18:R:211:SER:HB2 | 1.36 | 1.04 |
| 17:Q:187:ILE:HG21 | 18:R:211:SER:CA | 1.88 | 1.04 |
| 17:Q:113:ARG:HD2 | 18:R:221:ARG:HB2 | 1.32 | 1.04 |
| 17:Q:23:ARG:NH1 | 18:R:206:LYS:HG2 | 1.70 | 1.03 |
| 17:Q:188:TYR:CE1 | 18:R:211:SER:HB3 | 1.93 | 1.02 |
| 2:B:292:PHE:CD2 | 9:I:14:ILE:HD13 | 1.94 | 1.01 |
| 1:A:425:ASP:CG | 13:M:39:LEU:HD11 | 1.79 | 1.01 |
| 1:A:273:GLN:O | 1:A:274:ASP:O | 1.77 | 1.01 |
| 17:Q:188:TYR:OH | 18:R:210:PHE:CD1 | 2.07 | 1.01 |
| 2:B:882:SER:CB | 2:B:887:TYR:CZ | 2.44 | 1.00 |
| 18:R:225:VAL:O | 18:R:230:GLU:OE1 | 1.78 | 1.00 |
| 2:B:92:TYR:CE1 | 20:T:141:LEU:HD11 | 1.96 | 1.00 |
| 16:P:297:LYS:HB3 | 16:P:298:PRO:HD3 | 1.03 | 1.00 |
| 1:A:265:VAL:CA | 1:A:272:ASN:HB2 | 1.91 | 1.00 |
| 3:C:210:GLU:O | 3:C:213:GLU:HG3 | 1.60 | 1.00 |
| 1:A:609:HIS:N | 1:A:610:PRO:HD3 | 1.77 | 1.00 |
| 1:A:67:ARG:NH2 | 13:M:45:VAL:O | 1.94 | 1.00 |
| 18:R:224:THR:CG2 | 18:R:225:VAL:N | 2.08 | 1.00 |
| 1:A:1290:SER:OG | 2:B:250:SER:O | 1.79 | 0.99 |
| 13:M:94:ASP:CB | 13:M:99:SER:H | 1.76 | 0.99 |
| 17:Q:20:TYR:O | 18:R:210:PHE:CD2 | 2.14 | 0.99 |
| 17:Q:105:TYR:OH | 18:R:234:GLU:OE1 | 1.80 | 0.99 |
| 17:Q:113:ARG:CD | 18:R:222:SER:N | 2.25 | 0.99 |
| 13:M:27:TYR:HE2 | 13:M:46:ILE:HD13 | 0.95 | 0.98 |
| 13:M:94:ASP:HB2 | 13:M:99:SER:H | 1.26 | 0.98 |
| 2:B:56:GLN:HG2 | 20:T:140:ARG:HD2 | 1.45 | 0.98 |
| 17:Q:109:HIS:ND1 | 18:R:225:VAL:CG2 | 2.25 | 0.98 |
| 1:A:133:SER:O | 1:A:135:GLY:N | 1.96 | 0.98 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 16:P:298:PRO:O | 16:P:300:ILE:HG12 | 1.63 | 0.98 |
| 1:A:610:PRO:O | 1:A:626:THR:HG21 | 1.62 | 0.98 |
| 3:C:5:ASN:C | 3:C:7:PRO:HD3 | 1.73 | 0.98 |
| 17:Q:112:ARG:NH2 | 18:R:237:LEU:HB2 | 1.78 | 0.98 |
| 3:C:5:ASN:O | 3:C:7:PRO:CD | 2.12 | 0.97 |
| 2:B:56:GLN:CD | 20:T:140:ARG:NH1 | 2.17 | 0.97 |
| 5:E:48:PRO:O | 5:E:50:GLU:CG | 2.12 | 0.97 |
| 17:Q:113:ARG:CZ | 18:R:218:LYS:O | 2.12 | 0.97 |
| 17:Q:188:TYR:HE2 | 18:R:210:PHE:CD1 | 1.76 | 0.97 |
| 3:C:157:GLN:CG | 10:J:65:LEU:HB2 | 1.94 | 0.97 |
| 13:M:44:ARG:HH11 | 13:M:46:ILE:HG22 | 0.82 | 0.97 |
| 3:C:157:GLN:HG2 | 10:J:65:LEU:CB | 1.95 | 0.96 |
| 13:M:182:ALA:CB | 20:T:154:LYS:HB3 | 1.95 | 0.96 |
| 17:Q:109:HIS:HB3 | 18:R:224:THR:HG21 | 1.47 | 0.96 |
| 1:A:156:GLY:CA | 1:A:181:HIS:ND1 | 2.28 | 0.96 |
| 3:C:157:GLN:CD | 10:J:65:LEU:CB | 2.32 | 0.95 |
| 17:Q:184:ILE:CD1 | 18:R:213:ASP:CG | 2.27 | 0.95 |
| 1:A:79:THR:HG21 | 13:M:43:ASP:HB2 | 1.45 | 0.95 |
| 18:R:224:THR:HG23 | 18:R:225:VAL:H | 1.30 | 0.95 |
| 8:H:65:TYR:CE2 | 8:H:70:LEU:HB2 | 2.00 | 0.95 |
| 17:Q:21:VAL:O | 18:R:210:PHE:HE2 | 1.36 | 0.95 |
| 17:Q:184:ILE:HD12 | 18:R:218:LYS:NZ | 1.81 | 0.95 |
| 2:B:1137:CYS:HG | 25:B:1201:ZN:ZN | 0.68 | 0.95 |
| 1:A:79:THR:CG2 | 13:M:43:ASP:HB2 | 1.96 | 0.95 |
| 17:Q:24:GLY:N | 18:R:210:PHE:CD2 | 2.35 | 0.95 |
| 17:Q:187:ILE:CG2 | 18:R:210:PHE:O | 2.15 | 0.94 |
| 1:A:152:ASN:O | 1:A:153:ILE:CG1 | 2.16 | 0.94 |
| 9:I:15:ARG:O | 9:I:24:LEU:HD12 | 1.67 | 0.94 |
| 1:A:1117:VAL:O | 1:A:1118:THR:C | 2.06 | 0.94 |
| 17:Q:24:GLY:CA | 18:R:210:PHE:CE2 | 2.51 | 0.94 |
| 1:A:266:MET:HG2 | 1:A:272:ASN:ND2 | 1.82 | 0.94 |
| 13:M:11:PRO:CD | 13:M:13:VAL:HG22 | 1.97 | 0.94 |
| 2:B:225:LEU:HB2 | 2:B:228:SER:HB3 | 1.48 | 0.93 |
| 1:A:1290:SER:OG | 2:B:250:SER:CB | 1.97 | 0.93 |
| 17:Q:109:HIS:CE1 | 18:R:225:VAL:CG2 | 2.50 | 0.93 |
| 2:B:92:TYR:HB3 | 20:T:145:LEU:HD12 | 1.49 | 0.93 |
| 17:Q:113:ARG:NE | 18:R:222:SER:CA | 2.31 | 0.93 |
| 17:Q:113:ARG:HE | 18:R:222:SER:CA | 1.82 | 0.93 |
| 1:A:156:GLY:HA2 | 1:A:181:HIS:CG | 2.02 | 0.93 |
| 1:A:1171:ALA:HB1 | 9:I:59:THR:CG2 | 1.98 | 0.93 |
| 5:E:47:LYS:HE2 | 5:E:47:LYS:HA | 1.47 | 0.93 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 17:Q:24:GLY:HA3 | 18:R:210:PHE:CD2 | 2.04 | 0.93 |
| 5:E:46:ASP:O | 5:E:47:LYS:HB2 | 1.65 | 0.93 |
| 9:I:116:ALA:CB | 25:I:202:ZN:ZN | 1.46 | 0.92 |
| 17:Q:23:ARG:HH12 | 18:R:206:LYS:HB3 | 1.34 | 0.92 |
| 17:Q:24:GLY:N | 18:R:210:PHE:CE2 | 2.38 | 0.92 |
| 17:Q:110:MET:HG2 | 18:R:222:SER:CB | 1.98 | 0.92 |
| 13:M:179:GLU:HA | 20:T:154:LYS:HG2 | 1.50 | 0.91 |
| 17:Q:23:ARG:HH12 | 18:R:206:LYS:HG2 | 1.28 | 0.91 |
| 17:Q:113:ARG:HH22 | 18:R:218:LYS:HG2 | 1.35 | 0.91 |
| 1:A:926:ASN:OD1 | 1:A:931:ARG:HG2 | 1.71 | 0.91 |
| 13:M:44:ARG:NH1 | 13:M:46:ILE:CG2 | 2.29 | 0.91 |
| 2:B:549:SER:HG | 2:B:577:HIS:HE2 | 1.17 | 0.91 |
| 5:E:47:LYS:CB | 5:E:48:PRO:HD3 | 2.00 | 0.91 |
| 13:M:27:TYR:HE2 | 13:M:46:ILE:CD1 | 1.82 | 0.91 |
| 17:Q:188:TYR:CE2 | 18:R:210:PHE:CE1 | 2.58 | 0.91 |
| 1:A:264:VAL:O | 1:A:272:ASN:ND2 | 2.03 | 0.91 |
| 17:Q:113:ARG:HD2 | 18:R:221:ARG:C | 1.90 | 0.91 |
| 2:B:878:ASP:O | 2:B:879:GLU:O | 1.89 | 0.90 |
| 8:H:65:TYR:HE2 | 8:H:70:LEU:CB | 1.69 | 0.90 |
| 5:E:48:PRO:O | 5:E:50:GLU:HG3 | 1.71 | 0.89 |
| 1:A:262:PRO:HG3 | 2:B:1070:LEU:CG | 2.03 | 0.89 |
| 1:A:1115:LYS:O | 1:A:1116:ASN:O | 1.89 | 0.89 |
| 2:B:90:GLN:HG2 | 20:T:141:LEU:HD12 | 1.53 | 0.89 |
| 2:B:56:GLN:CG | 20:T:140:ARG:HD3 | 2.01 | 0.89 |
| 3:C:132:SER:HB3 | 3:C:147:ASP:HB2 | 1.54 | 0.89 |
| 17:Q:188:TYR:CE1 | 18:R:211:SER:CB | 2.55 | 0.89 |
| 13:M:182:ALA:CB | 20:T:154:LYS:CB | 2.52 | 0.88 |
| 2:B:882:SER:O | 2:B:887:TYR:CG | 2.27 | 0.88 |
| 9:I:57:LYS:C | 9:I:58:ILE:HG12 | 1.92 | 0.88 |
| 1:A:608:THR:OG1 | 1:A:610:PRO:HG3 | 1.72 | 0.88 |
| 1:A:929:ALA:O | 1:A:931:ARG:N | 2.06 | 0.88 |
| 16:P:159:SER:HB3 | 16:P:329:TYR:CD2 | 2.08 | 0.88 |
| 3:C:56:SER:O | 10:J:65:LEU:O | 1.90 | 0.87 |
| 17:Q:24:GLY:HA3 | 18:R:210:PHE:CE2 | 2.09 | 0.87 |
| 1:A:203:LYS:O | 1:A:204:HIS:HB2 | 1.74 | 0.87 |
| 1:A:211:GLU:O | 1:A:212:LYS:HB2 | 1.71 | 0.87 |
| 17:Q:187:ILE:HD13 | 18:R:211:SER:HA | 1.57 | 0.87 |
| 5:E:48:PRO:O | 5:E:50:GLU:N | 2.06 | 0.87 |
| 17:Q:110:MET:CG | 18:R:222:SER:HB2 | 1.99 | 0.87 |
| 2:B:716:HIS:HD2 | 2:B:982:ILE:HG13 | 1.38 | 0.86 |
| 9:I:84:HIS:HB3 | 9:I:92:LYS:HB3 | 1.57 | 0.86 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:1116:ASN:HD21 | 1:A:1138:SER:HB3 | 1.39 | 0.86 |
| 5:E:15:LYS:NZ | 5:E:35:GLN:O | 2.07 | 0.86 |
| 20:T:140:ARG:HA | 20:T:140:ARG:NE | 1.90 | 0.86 |
| 2:B:225:LEU:O | 2:B:227:ASN:N | 2.08 | 0.86 |
| 2:B:56:GLN:CG | 20:T:140:ARG:HD2 | 2.01 | 0.86 |
| 13:M:94:ASP:HB2 | 13:M:97:GLY:O | 1.74 | 0.86 |
| 17:Q:24:GLY:HA2 | 18:R:209:GLN:CG | 2.05 | 0.86 |
| 1:A:1307:VAL:HG21 | 1:A:1339:ASP:HB2 | 1.54 | 0.86 |
| 1:A:1116:ASN:HD21 | 1:A:1138:SER:CB | 1.88 | 0.86 |
| 1:A:1171:ALA:HB1 | 9:I:59:THR:HG22 | 1.57 | 0.86 |
| 13:M:179:GLU:HA | 20:T:154:LYS:CG | 2.05 | 0.85 |
| 16:P:159:SER:HB3 | 16:P:329:TYR:CG | 2.10 | 0.85 |
| 14:N:313:PRO:HG2 | 16:P:235:ARG:HH22 | 1.40 | 0.85 |
| 2:B:56:GLN:HG2 | 20:T:140:ARG:NE | 1.91 | 0.85 |
| 1:A:79:THR:HG21 | 13:M:43:ASP:CB | 2.06 | 0.85 |
| 17:Q:35:ASP:OD2 | 18:R:161:ARG:NH2 | 2.10 | 0.85 |
| 1:A:266:MET:HG2 | 1:A:272:ASN:HD21 | 1.35 | 0.85 |
| 10:J:63:ALA:CB | 10:J:64:PRO:HD3 | 2.00 | 0.85 |
| 2:B:803:ARG:NH2 | 3:C:177:ASN:OD1 | 2.10 | 0.85 |
| 5:E:47:LYS:HA | 5:E:47:LYS:CE | 2.07 | 0.85 |
| 17:Q:24:GLY:CA | 18:R:210:PHE:CD2 | 2.59 | 0.84 |
| 17:Q:188:TYR:HE1 | 18:R:211:SER:CB | 1.89 | 0.84 |
| 20:T:154:LYS:HE3 | 20:T:154:LYS:H | 1.42 | 0.84 |
| 17:Q:184:ILE:CD1 | 18:R:213:ASP:OD1 | 2.25 | 0.84 |
| 20:T:140:ARG:HA | 20:T:140:ARG:CZ | 2.05 | 0.84 |
| 1:A:1290:SER:HB2 | 2:B:250:SER:CB | 1.83 | 0.84 |
| 3:C:157:GLN:HG2 | 10:J:65:LEU:HB2 | 1.57 | 0.84 |
| 17:Q:112:ARG:HH21 | 18:R:237:LEU:HD22 | 1.41 | 0.84 |
| 17:Q:109:HIS:CB | 18:R:224:THR:HG21 | 2.07 | 0.84 |
| 17:Q:113:ARG:NH2 | 18:R:222:SER:HB3 | 1.92 | 0.84 |
| 5:E:126:ILE:HD13 | 5:E:186:LYS:HE3 | 1.60 | 0.83 |
| 16:P:159:SER:HB3 | 16:P:329:TYR:CD1 | 2.12 | 0.83 |
| 17:Q:112:ARG:HH22 | 18:R:237:LEU:HB2 | 1.39 | 0.83 |
| 2:B:225:LEU:HB3 | 2:B:228:SER:HB2 | 1.60 | 0.83 |
| 13:M:182:ALA:HB2 | 20:T:154:LYS:CG | 2.07 | 0.83 |
| 1:A:890:ARG:HH21 | 1:A:1023:VAL:HG13 | 1.42 | 0.83 |
| 17:Q:21:VAL:O | 18:R:210:PHE:CZ | 2.32 | 0.83 |
| 1:A:427:ILE:CG1 | 13:M:38:GLY:O | 2.20 | 0.83 |
| 2:B:289:ILE:HG12 | 2:B:297:MET:HG2 | 1.60 | 0.83 |
| 17:Q:20:TYR:O | 18:R:210:PHE:HD2 | 1.57 | 0.83 |
| 13:M:39:LEU:O | 13:M:40:VAL:HG22 | 1.78 | 0.83 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 3:C:157:GLN:HE21 | 10:J:65:LEU:HB3 | 1.03 | 0.83 |
| 17:Q:21:VAL:C | 18:R:210:PHE:CE2 | 2.52 | 0.83 |
| 1:A:133:SER:C | 1:A:135:GLY:H | 1.80 | 0.82 |
| 13:M:178:LYS:C | 20:T:154:LYS:HB2 | 1.99 | 0.82 |
| 1:A:623:PRO:O | 1:A:625:ASP:N | 2.12 | 0.82 |
| 20:T:141:LEU:O | 20:T:143:GLN:N | 2.12 | 0.82 |
| 1:A:426:ARG:O | 13:M:39:LEU:HA | 1.79 | 0.82 |
| 8:H:65:TYR:CZ | 8:H:70:LEU:HB2 | 2.13 | 0.82 |
| 18:R:224:THR:HG22 | 18:R:225:VAL:CG2 | 1.95 | 0.82 |
| 1:A:1246:ILE:HD11 | 1:A:1258:ARG:HD2 | 1.60 | 0.81 |
| 8:H:66:GLU:CG | 8:H:67:ASP:N | 2.42 | 0.81 |
| 20:T:139:VAL:C | 20:T:141:LEU:H | 1.83 | 0.81 |
| 1:A:910:LYS:HD2 | 1:A:911:PRO:HD2 | 1.63 | 0.81 |
| 17:Q:58:GLN:OE1 | 18:R:194:ARG:HD2 | 1.80 | 0.81 |
| 2:B:61:ASP:HB3 | 2:B:63:PRO:HD3 | 1.61 | 0.81 |
| 17:Q:24:GLY:HA2 | 18:R:209:GLN:HG2 | 1.61 | 0.81 |
| 19:S:31:PHE:HB2 | 20:T:92:THR:HB | 1.60 | 0.81 |
| 1:A:1307:VAL:HG21 | 1:A:1339:ASP:CA | 2.10 | 0.81 |
| 1:A:1304:ILE:O | 1:A:1307:VAL:HG12 | 1.80 | 0.81 |
| 13:M:182:ALA:CB | 20:T:154:LYS:CG | 2.59 | 0.81 |
| 1:A:608:THR:CA | 1:A:610:PRO:HD2 | 2.10 | 0.81 |
| 1:A:1307:VAL:HG21 | 1:A:1339:ASP:HB3 | 0.83 | 0.81 |
| 5:E:48:PRO:O | 5:E:50:GLU:HG2 | 1.78 | 0.81 |
| 17:Q:101:ASN:C | 17:Q:103:VAL:H | 1.80 | 0.81 |
| 1:A:659:GLU:OE1 | 1:A:985:ARG:NH1 | 2.13 | 0.80 |
| 16:P:159:SER:CB | 16:P:329:TYR:CG | 2.64 | 0.80 |
| 16:P:159:SER:HB3 | 16:P:329:TYR:CE2 | 2.15 | 0.80 |
| 17:Q:113:ARG:NH2 | 18:R:222:SER:CB | 2.45 | 0.80 |
| 17:Q:105:TYR:CZ | 18:R:234:GLU:OE1 | 2.33 | 0.80 |
| 17:Q:113:ARG:HD2 | 18:R:221:ARG:CA | 2.10 | 0.80 |
| 1:A:926:ASN:HD22 | 1:A:932:ARG:HG3 | 1.47 | 0.80 |
| 2:B:957:THR:O | 2:B:960:GLY:N | 2.10 | 0.80 |
| 1:A:153:ILE:O | 1:A:154:CYS:O | 2.00 | 0.80 |
| 1:A:609:HIS:ND1 | 1:A:609:HIS:O | 2.14 | 0.80 |
| 17:Q:23:ARG:NH1 | 18:R:206:LYS:HG3 | 1.95 | 0.80 |
| 1:A:926:ASN:OD1 | 1:A:931:ARG:CG | 2.30 | 0.80 |
| 17:Q:184:ILE:CD1 | 18:R:218:LYS:NZ | 2.45 | 0.80 |
| 1:A:263:ALA:O | 1:A:265:VAL:N | 2.15 | 0.79 |
| 8:H:65:TYR:CZ | 8:H:70:LEU:CB | 2.64 | 0.79 |
| 1:A:455:ILE:HD13 | 1:A:520:MET:HE1 | 1.61 | 0.79 |
| 17:Q:23:ARG:HH22 | 18:R:206:LYS:HB3 | 1.47 | 0.79 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 17:Q:113:ARG:HD3 | 18:R:222:SER:N | 1.90 | 0.79 |
| 17:Q:113:ARG:HE | 18:R:222:SER:HB3 | 0.69 | 0.79 |
| 2:B:225:LEU:HB2 | 2:B:228:SER:CB | 2.12 | 0.79 |
| 13:M:178:LYS:O | 20:T:154:LYS:HB3 | 1.80 | 0.79 |
| 17:Q:113:ARG:HH21 | 18:R:222:SER:CB | 1.96 | 0.79 |
| 2:B:958:CYS:SG | 2:B:959:GLU:N | 2.56 | 0.79 |
| 17:Q:113:ARG:CD | 18:R:221:ARG:O | 2.22 | 0.79 |
| 2:B:496:ALA:HB1 | 2:B:498:PRO:HD2 | 1.65 | 0.79 |
| 17:Q:24:GLY:H | 18:R:210:PHE:HD2 | 1.28 | 0.79 |
| 14:N:317:GLU:O | 14:N:318:ASP:O | 2.01 | 0.78 |
| 20:T:141:LEU:O | 20:T:143:GLN:OE1 | 2.02 | 0.78 |
| 1:A:478:PRO:O | 1:A:483:ARG:NH2 | 2.16 | 0.78 |
| 16:P:159:SER:HB3 | 16:P:329:TYR:CE1 | 2.18 | 0.78 |
| 16:P:208:ARG:HH21 | 16:P:208:ARG:HG3 | 1.47 | 0.78 |
| 17:Q:23:ARG:NH1 | 18:R:206:LYS:HB3 | 1.96 | 0.78 |
| 1:A:926:ASN:ND2 | 1:A:932:ARG:CG | 2.47 | 0.78 |
| 13:M:94:ASP:CB | 13:M:97:GLY:O | 2.32 | 0.78 |
| 18:R:213:ASP:C | 18:R:215:GLU:H | 1.82 | 0.78 |
| 1:A:608:THR:OG1 | 1:A:610:PRO:HG2 | 1.84 | 0.78 |
| 2:B:56:GLN:CD | 20:T:140:ARG:HH11 | 1.85 | 0.78 |
| 10:J:5:VAL:HG12 | 10:J:6:ARG:HG3 | 1.65 | 0.78 |
| 18:R:195:PRO:O | 18:R:196:ASP:CB | 2.31 | 0.78 |
| 5:E:40:PHE:CE2 | 5:E:46:ASP:OD2 | 2.37 | 0.78 |
| 2:B:225:LEU:O | 2:B:228:SER:N | 2.17 | 0.78 |
| 1:A:926:ASN:HD21 | 1:A:932:ARG:HG2 | 1.48 | 0.78 |
| 2:B:490:GLY:O | 2:B:491:ARG:HB2 | 1.84 | 0.78 |
| 16:P:159:SER:HB3 | 16:P:329:TYR:CZ | 2.19 | 0.77 |
| 2:B:92:TYR:CE1 | 20:T:141:LEU:CD1 | 2.63 | 0.77 |
| 2:B:1137:CYS:SG | 25:B:1201:ZN:ZN | 1.72 | 0.77 |
| 18:R:195:PRO:O | 18:R:196:ASP:HB2 | 1.81 | 0.77 |
| 1:A:360:ASP:OD1 | 1:A:361:PHE:N | 2.17 | 0.77 |
| 2:B:874:PRO:O | 2:B:875:GLU:HB2 | 1.82 | 0.77 |
| 16:P:297:LYS:CB | 16:P:298:PRO:HD2 | 2.13 | 0.77 |
| 17:Q:184:ILE:HD11 | 18:R:213:ASP:OD1 | 1.83 | 0.77 |
| 2:B:222:ARG:HB3 | 2:B:222:ARG:HH11 | 1.49 | 0.77 |
| 17:Q:113:ARG:CZ | 18:R:222:SER:CB | 2.51 | 0.77 |
| 1:A:129:ILE:O | 1:A:132:LYS:HB2 | 1.84 | 0.77 |
| 17:Q:23:ARG:NH1 | 18:R:206:LYS:CB | 2.38 | 0.77 |
| 17:Q:188:TYR:HE2 | 18:R:210:PHE:CE1 | 2.00 | 0.77 |
| 5:E:45:GLY:O | 5:E:46:ASP:O | 2.02 | 0.77 |
| 20:T:141:LEU:C | 20:T:143:GLN:OE1 | 2.23 | 0.77 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 21:X:41:DT:H3' | 21:X:42:DT:H4' | 1.67 | 0.76 |
| 13:M:182:ALA:HB2 | 20:T:154:LYS:CA | 2.15 | 0.76 |
| 1:A:1307:VAL:CG2 | 1:A:1339:ASP:HB2 | 2.10 | 0.76 |
| 2:B:428:ASP:OD1 | 20:T:158:ASN:ND2 | 2.18 | 0.76 |
| 17:Q:113:ARG:NE | 18:R:222:SER:N | 2.33 | 0.76 |
| 17:Q:184:ILE:HD13 | 18:R:211:SER:CB | 2.15 | 0.76 |
| 2:B:1080:ARG:HH21 | 13:M:50:SER:HB3 | 1.49 | 0.76 |
| 17:Q:109:HIS:CG | 18:R:224:THR:HG21 | 2.20 | 0.76 |
| 17:Q:113:ARG:CD | 18:R:221:ARG:CB | 2.60 | 0.76 |
| 2:B:225:LEU:O | 2:B:226:GLU:C | 2.22 | 0.76 |
| 17:Q:184:ILE:HD12 | 18:R:218:LYS:HZ3 | 1.50 | 0.76 |
| 18:R:194:ARG:C | 18:R:196:ASP:H | 1.88 | 0.76 |
| 9:I:103:ARG:C | 9:I:105:GLU:N | 2.34 | 0.76 |
| 13:M:44:ARG:HE | 13:M:46:ILE:HG23 | 1.50 | 0.76 |
| 14:N:343:HIS:NE2 | 21:X:9:DC:OP1 | 2.19 | 0.76 |
| 3:C:157:GLN:HE21 | 10:J:65:LEU:CB | 1.80 | 0.75 |
| 8:H:65:TYR:CD2 | 8:H:70:LEU:HB3 | 2.20 | 0.75 |
| 2:B:225:LEU:CB | 2:B:228:SER:CB | 2.64 | 0.75 |
| 5:E:64:HIS:C | 5:E:66:ASP:H | 1.89 | 0.75 |
| 13:M:44:ARG:CZ | 13:M:46:ILE:HG22 | 2.14 | 0.75 |
| 17:Q:187:ILE:CD1 | 18:R:212:VAL:H | 1.99 | 0.75 |
| 18:R:194:ARG:O | 18:R:196:ASP:N | 2.19 | 0.75 |
| 1:A:18:ILE:HD12 | 2:B:1171:MET:HB2 | 1.69 | 0.75 |
| 1:A:265:VAL:HA | 1:A:272:ASN:HB2 | 1.67 | 0.75 |
| 1:A:679:TRP:CH2 | 1:A:683:GLU:HG3 | 2.22 | 0.75 |
| 2:B:91:ILE:HD11 | 2:B:124:LEU:HD21 | 1.69 | 0.75 |
| 2:B:1040:GLN:OE1 | 2:B:1040:GLN:N | 2.20 | 0.75 |
| 2:B:906:GLN:HG2 | 12:L:45:TYR:HE1 | 1.52 | 0.74 |
| 13:M:39:LEU:O | 13:M:40:VAL:CG2 | 2.35 | 0.74 |
| 1:A:1192:TRP:HE1 | 1:A:1249:ASP:H | 1.35 | 0.74 |
| 7:G:151:ARG:HG3 | 17:Q:139:LEU:HD22 | 1.67 | 0.74 |
| 1:A:61:ARG:HB3 | 1:A:72:GLN:HG2 | 1.69 | 0.74 |
| 1:A:551:ARG:CD | 1:A:625:ASP:OD2 | 2.31 | 0.74 |
| 1:A:157:GLY:H | 1:A:181:HIS:CE1 | 2.05 | 0.74 |
| 2:B:591:ARG:NH1 | 2:B:663:GLU:OE2 | 2.21 | 0.74 |
| 17:Q:113:ARG:NH2 | 18:R:222:SER:OG | 2.21 | 0.74 |
| 2:B:91:ILE:O | 20:T:141:LEU:HD12 | 1.87 | 0.74 |
| 1:A:157:GLY:N | 1:A:181:HIS:CE1 | 2.56 | 0.74 |
| 19:S:49:ARG:NH1 | 19:S:96:GLN:O | 2.21 | 0.74 |
| 2:B:132:VAL:CG2 | 2:B:141:GLN:CG | 2.62 | 0.73 |
| 2:B:907:VAL:HG13 | 2:B:921:ILE:HG22 | 1.69 | 0.73 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 14:N:42:LEU:HB2 | 15:O:22:LEU:HD11 | 1.69 | 0.73 |
| 17:Q:122:THR:HA | 17:Q:169:PRO:HD2 | 1.70 | 0.73 |
| 1:A:608:THR:OG1 | 1:A:610:PRO:CD | 2.35 | 0.73 |
| 9:I:103:ARG:C | 9:I:105:GLU:H | 1.92 | 0.73 |
| 2:B:310:VAL:HG13 | 19:S:161:GLU:HB3 | 1.69 | 0.73 |
| 10:J:3:ILE:H | 10:J:3:ILE:HD12 | 1.54 | 0.73 |
| 7:G:97:LEU:HB2 | 7:G:108:ILE:HB | 1.71 | 0.73 |
| 1:A:926:ASN:ND2 | 1:A:932:ARG:HG3 | 2.03 | 0.73 |
| 14:N:333:ASN:HB3 | 14:N:360:LEU:HA | 1.70 | 0.73 |
| 2:B:89:GLU:HB3 | 2:B:127:ASP:HB3 | 1.70 | 0.73 |
| 9:I:92:LYS:NZ | 9:I:93:GLU:OE2 | 2.20 | 0.72 |
| 13:M:279:GLY:HA2 | 20:T:153:TYR:CE2 | 2.24 | 0.72 |
| 13:M:53:ARG:HH22 | 22:Y:54:DA:H61 | 1.34 | 0.72 |
| 1:A:1223:ASP:OD2 | 1:A:1224:ARG:NH1 | 2.22 | 0.72 |
| 8:H:99:ILE:HG22 | 8:H:136:GLU:HG3 | 1.70 | 0.72 |
| 1:A:691:ASP:HB3 | 1:A:766:PHE:HB2 | 1.71 | 0.72 |
| 2:B:356:PHE:HB3 | 19:S:116:GLY:HA2 | 1.71 | 0.72 |
| 1:A:608:THR:CB | 1:A:610:PRO:CD | 2.67 | 0.72 |
| 3:C:193:ARG:HH12 | 3:C:218:ALA:HB1 | 1.54 | 0.72 |
| 8:H:65:TYR:OH | 8:H:70:LEU:HB2 | 1.89 | 0.72 |
| 13:M:279:GLY:HA2 | 20:T:153:TYR:HE2 | 1.55 | 0.72 |
| 18:R:224:THR:HG23 | 18:R:225:VAL:CG2 | 2.00 | 0.72 |
| 14:N:311:GLU:HG2 | 16:P:251:LEU:HD21 | 1.72 | 0.72 |
| 14:N:343:HIS:HB3 | 14:N:350:LYS:HB2 | 1.70 | 0.72 |
| 1:A:612:ASP:C | 1:A:614:ASP:H | 1.91 | 0.72 |
| 1:A:1439:LEU:HD13 | 2:B:1162:LEU:HD21 | 1.70 | 0.72 |
| 1:A:1171:ALA:CB | 9:I:59:THR:HG22 | 2.18 | 0.72 |
| 2:B:487:SER:OG | 2:B:524:LYS:NZ | 2.22 | 0.72 |
| 12:L:19:CYS:SG | 12:L:20:GLY:N | 2.62 | 0.72 |
| 14:N:316:SER:OG | 16:P:235:ARG:NH1 | 2.23 | 0.72 |
| 2:B:514:THR:HG22 | 2:B:524:LYS:HA | 1.72 | 0.72 |
| 3:C:59:LEU:HD22 | 3:C:151:VAL:HG23 | 1.72 | 0.72 |
| 18:R:224:THR:HG22 | 18:R:225:VAL:CB | 2.19 | 0.72 |
| 16:P:160:GLY:O | 16:P:162:VAL:HG13 | 1.90 | 0.71 |
| 1:A:622:SER:C | 1:A:624:GLY:H | 1.93 | 0.71 |
| 2:B:225:LEU:CB | 2:B:228:SER:HB2 | 2.19 | 0.71 |
| 22:Y:49:DG:H2' | 22:Y:50:DA:H8 | 1.56 | 0.71 |
| 13:M:179:GLU:HA | 20:T:154:LYS:CD | 2.20 | 0.71 |
| 2:B:873:LEU:H | 2:B:874:PRO:HD2 | 1.54 | 0.71 |
| 13:M:10:LEU:N | 13:M:10:LEU:HD22 | 2.05 | 0.71 |
| 18:R:224:THR:HG22 | 18:R:225:VAL:CA | 2.20 | 0.71 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:153:ILE:O | 1:A:154:CYS:C | 2.28 | 0.71 |
| 1:A:926:ASN:ND2 | 1:A:932:ARG:HG2 | 2.06 | 0.71 |
| 17:Q:24:GLY:HA2 | 18:R:209:GLN:CD | 2.11 | 0.71 |
| 21:X:47:DT:H3' | 21:X:48:DT:H5" | 1.71 | 0.71 |
| 1:A:47:THR:HG23 | 1:A:53:LYS:HA | 1.72 | 0.71 |
| 2:B:854:ILE:HD11 | 2:B:921:ILE:HD12 | 1.73 | 0.70 |
| 17:Q:23:ARG:NH2 | 18:R:206:LYS:HB3 | 2.05 | 0.70 |
| 2:B:56:GLN:CG | 20:T:140:ARG:NH1 | 2.54 | 0.70 |
| 2:B:102:ASP:OD1 | 2:B:103:GLY:N | 2.24 | 0.70 |
| 5:E:41:LYS:NZ | 5:E:47:LYS:HE3 | 2.06 | 0.70 |
| 17:Q:188:TYR:CE1 | 18:R:211:SER:OG | 2.42 | 0.70 |
| 1:A:358:ARG:NH2 | 2:B:1076:GLU:OE1 | 2.23 | 0.70 |
| 2:B:132:VAL:HG23 | 2:B:141:GLN:CG | 2.12 | 0.70 |
| 1:A:1307:VAL:HG11 | 1:A:1340:GLY:H | 1.57 | 0.70 |
| 2:B:56:GLN:HG2 | 20:T:140:ARG:NH1 | 2.07 | 0.70 |
| 9:I:15:ARG:HD3 | 9:I:37:TYR:CD2 | 2.27 | 0.70 |
| 13:M:94:ASP:CG | 13:M:97:GLY:O | 2.30 | 0.70 |
| 21:X:42:DT:H3' | 21:X:43:DT:H5" | 1.72 | 0.70 |
| 2:B:92:TYR:HD1 | 20:T:141:LEU:HD11 | 0.83 | 0.70 |
| 3:C:212:ASP:O | 3:C:214:ASP:N | 2.24 | 0.70 |
| 17:Q:187:ILE:HD13 | 18:R:212:VAL:H | 1.56 | 0.70 |
| 2:B:132:VAL:HG21 | 2:B:141:GLN:HG3 | 1.69 | 0.70 |
| 17:Q:114:ILE:HD11 | 18:R:218:LYS:HE3 | 1.74 | 0.70 |
| 20:T:154:LYS:HE3 | 20:T:154:LYS:N | 2.07 | 0.70 |
| 1:A:79:THR:HG21 | 13:M:43:ASP:CA | 2.22 | 0.70 |
| 2:B:56:GLN:HG2 | 20:T:140:ARG:CZ | 2.20 | 0.70 |
| 17:Q:101:ASN:C | 17:Q:103:VAL:N | 2.43 | 0.70 |
| 17:Q:184:ILE:HG13 | 18:R:213:ASP:OD1 | 1.91 | 0.70 |
| 2:B:1066:PRO:HB3 | 13:M:46:ILE:HG12 | 1.74 | 0.70 |
| 9:I:84:HIS:HB3 | 9:I:92:LYS:CB | 2.22 | 0.70 |
| 13:M:94:ASP:HB3 | 13:M:99:SER:H | 1.57 | 0.70 |
| 9:I:119:CYS:SG | 9:I:120:GLY:N | 2.64 | 0.69 |
| 2:B:851:ASP:HB2 | 12:L:14:PRO:HG3 | 1.72 | 0.69 |
| 8:H:147:LYS:HE2 | 8:H:149:ALA:HA | 1.73 | 0.69 |
| 18:R:213:ASP:C | 18:R:215:GLU:N | 2.46 | 0.69 |
| 8:H:66:GLU:HG3 | 8:H:67:ASP:H | 1.52 | 0.69 |
| 1:A:211:GLU:O | 1:A:212:LYS:CB | 2.41 | 0.69 |
| 1:A:1116:ASN:ND2 | 1:A:1138:SER:CB | 2.54 | 0.69 |
| 2:B:1076:GLU:HG3 | 13:M:54:THR:OG1 | 1.92 | 0.69 |
| 9:I:15:ARG:O | 9:I:24:LEU:CD1 | 2.39 | 0.69 |
| 9:I:84:HIS:CB | 9:I:92:LYS:HB3 | 2.23 | 0.69 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:190:ARG:NH2 | 21:X:58:DT:OP2 | 2.24 | 0.69 |
| 1:A:202:TRP:HB2 | 1:A:212:LYS:CB | 2.16 | 0.69 |
| 13:M:108:SER:HB3 | 13:M:112:ARG:HH11 | 1.58 | 0.69 |
| 20:T:228:ILE:HG22 | 21:X:29:DC:H1' | 1.75 | 0.69 |
| 22:Y:53:DG:H2" | 22:Y:55:DG:H5' | 1.73 | 0.69 |
| 1:A:686:THR:OG1 | 1:A:687:ILE:N | 2.26 | 0.68 |
| 17:Q:184:ILE:CD1 | 18:R:211:SER:HB2 | 2.20 | 0.68 |
| 1:A:228:ILE:O | 1:A:244:ARG:NH2 | 2.26 | 0.68 |
| 1:A:1086:MET:O | 1:A:1088:GLY:N | 2.27 | 0.68 |
| 1:A:1116:ASN:C | 1:A:1118:THR:H | 1.97 | 0.68 |
| 17:Q:188:TYR:CZ | 18:R:210:PHE:CE1 | 2.65 | 0.68 |
| 9:I:85:PRO:C | 9:I:86:CYS:O | 2.31 | 0.68 |
| 3:C:157:GLN:HG3 | 10:J:65:LEU:HB2 | 1.73 | 0.68 |
| 2:B:92:TYR:CB | 20:T:145:LEU:CD1 | 2.59 | 0.68 |
| 2:B:329:GLY:H | 2:B:335:ARG:HH21 | 1.39 | 0.68 |
| 7:G:93:ASN:ND2 | 17:Q:151:THR:HA | 2.08 | 0.68 |
| 13:M:62:LYS:HB2 | 23:Z:1:A:H5" | 1.76 | 0.68 |
| 16:P:159:SER:CB | 16:P:329:TYR:CZ | 2.75 | 0.68 |
| 1:A:264:VAL:HB | 1:A:272:ASN:ND2 | 2.08 | 0.68 |
| 13:M:44:ARG:NE | 13:M:46:ILE:HG23 | 2.09 | 0.68 |
| 2:B:1029:TYR:HE1 | 2:B:1036:LYS:HE2 | 1.59 | 0.67 |
| 1:A:612:ASP:HB3 | 1:A:617:PRO:HD3 | 1.75 | 0.67 |
| 2:B:56:GLN:CG | 20:T:140:ARG:HH11 | 2.07 | 0.67 |
| 2:B:73:HIS:O | 2:B:75:SER:N | 2.27 | 0.67 |
| 2:B:801:VAL:HA | 2:B:805:PHE:HB3 | 1.77 | 0.67 |
| 3:C:267:ILE:HG21 | 11:K:84:GLN:HE22 | 1.60 | 0.67 |
| 12:L:28:ILE:HG23 | 12:L:32:ASP:OD1 | 1.94 | 0.67 |
| 1:A:112:PHE:H | 1:A:188:GLN:HE22 | 1.42 | 0.67 |
| 1:A:207:GLU:O | 1:A:209:SER:N | 2.27 | 0.67 |
| 2:B:490:GLY:O | 2:B:491:ARG:CB | 2.43 | 0.67 |
| 1:A:265:VAL:N | 1:A:272:ASN:HB3 | 2.08 | 0.67 |
| 2:B:91:ILE:O | 20:T:141:LEU:CD1 | 2.42 | 0.67 |
| 2:B:895:PHE:O | 2:B:897:ARG:NE | 2.25 | 0.67 |
| 2:B:292:PHE:CD2 | 9:I:14:ILE:CD1 | 2.75 | 0.66 |
| 17:Q:187:ILE:CG2 | 18:R:210:PHE:C | 2.62 | 0.66 |
| 1:A:923:ASP:O | 1:A:932:ARG:NH1 | 2.28 | 0.66 |
| 2:B:775:GLY:N | 2:B:1047:TYR:OH | 2.28 | 0.66 |
| 1:A:1117:VAL:O | 1:A:1118:THR:O | 2.12 | 0.66 |
| 1:A:264:VAL:C | 1:A:272:ASN:CB | 2.64 | 0.66 |
| 5:E:71:GLN:HE21 | 5:E:99:ILE:HA | 1.59 | 0.66 |
| 1:A:775:LYS:HB3 | 2:B:974:SER:OG | 1.96 | 0.66 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 11:K:111:ASP:O | 11:K:113:GLN:N | 2.28 | 0.66 |
| 17:Q:112:ARG:NH2 | 18:R:237:LEU:CB | 2.58 | 0.66 |
| 1:A:929:ALA:C | 1:A:931:ARG:H | 2.00 | 0.66 |
| 1:A:611:ASP:OD1 | 1:A:626:THR:HG23 | 1.96 | 0.66 |
| 2:B:309:PHE:CE2 | 9:I:40:ARG:HD2 | 2.31 | 0.66 |
| 3:C:3:TYR:O | 11:K:52:LYS:HE3 | 1.96 | 0.66 |
| 17:Q:113:ARG:NH2 | 18:R:218:LYS:HG2 | 2.10 | 0.66 |
| 5:E:47:LYS:HB3 | 5:E:48:PRO:HD2 | 0.67 | 0.65 |
| 16:P:239:ARG:NH1 | 16:P:242:GLN:OE1 | 2.29 | 0.65 |
| 2:B:834:ARG:O | 2:B:885:ARG:NH1 | 2.24 | 0.65 |
| 1:A:265:VAL:H | 1:A:272:ASN:HB2 | 1.57 | 0.65 |
| 17:Q:113:ARG:HH12 | 18:R:218:LYS:HG3 | 1.61 | 0.65 |
| 1:A:421:ARG:NH2 | 1:A:425:ASP:OD2 | 2.29 | 0.65 |
| 1:A:608:THR:CB | 1:A:610:PRO:HD2 | 2.26 | 0.65 |
| 2:B:241:ALA:HA | 2:B:253:GLY:HA2 | 1.78 | 0.65 |
| 2:B:489:ILE:HG21 | 2:B:522:LEU:HD13 | 1.79 | 0.65 |
| 13:M:86:LYS:HA | 13:M:86:LYS:NZ | 2.12 | 0.65 |
| 17:Q:68:GLY:O | 18:R:226:ASP:OD2 | 2.14 | 0.65 |
| 13:M:27:TYR:HD2 | 13:M:46:ILE:HB | 1.61 | 0.65 |
| 2:B:250:SER:O | 2:B:251:ALA:HB2 | 1.96 | 0.65 |
| 3:C:67:ARG:NH2 | 10:J:3:ILE:O | 2.28 | 0.65 |
| 13:M:179:GLU:HA | 20:T:154:LYS:HD3 | 1.78 | 0.65 |
| 1:A:622:SER:C | 1:A:624:GLY:N | 2.50 | 0.65 |
| 1:A:890:ARG:NH2 | 1:A:1023:VAL:HG13 | 2.12 | 0.65 |
| 18:R:227:SER:O | 18:R:228:MET:O | 2.14 | 0.65 |
| 1:A:608:THR:O | 1:A:610:PRO:HD2 | 1.94 | 0.65 |
| 2:B:626:LEU:HD23 | 2:B:662:VAL:HG12 | 1.79 | 0.65 |
| 17:Q:113:ARG:HD2 | 18:R:221:ARG:HB3 | 1.75 | 0.65 |
| 1:A:738:GLU:OE2 | 1:A:797:ARG:HD3 | 1.97 | 0.65 |
| 2:B:225:LEU:CB | 2:B:228:SER:HB3 | 2.24 | 0.65 |
| 17:Q:113:ARG:HH12 | 18:R:218:LYS:CG | 2.09 | 0.65 |
| 1:A:258:LEU:HA | 1:A:261:ARG:HG3 | 1.79 | 0.64 |
| 1:A:467:MET:SD | 1:A:524:MET:HB3 | 2.38 | 0.64 |
| 3:C:212:ASP:C | 3:C:214:ASP:N | 2.50 | 0.64 |
| 13:M:179:GLU:HG2 | 20:T:154:LYS:HD3 | 1.79 | 0.64 |
| 2:B:312:GLN:HB3 | 19:S:153:ARG:HH22 | 1.62 | 0.64 |
| 1:A:425:ASP:HB2 | 13:M:39:LEU:HG | 1.79 | 0.64 |
| 2:B:934:LYS:NZ | 23:Z:6:C:OP1 | 2.31 | 0.64 |
| 2:B:1124:ILE:HG22 | 2:B:1126:ALA:H | 1.63 | 0.64 |
| 1:A:1116:ASN:O | 1:A:1118:THR:N | 2.31 | 0.64 |
| 1:A:67:ARG:H | 1:A:78:MET:HE1 | 1.62 | 0.64 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 14:N:358:MET:HB2 | 14:N:365:TYR:HB2 | 1.78 | 0.64 |
| 1:A:79:THR:HG21 | 13:M:43:ASP:HA | 1.78 | 0.64 |
| 1:A:691:ASP:OD2 | 1:A:765:ASN:HB2 | 1.98 | 0.64 |
| 2:B:602:SER:OG | 2:B:620:ARG:NH1 | 2.31 | 0.64 |
| 2:B:882:SER:CB | 2:B:887:TYR:CE2 | 2.80 | 0.64 |
| 13:M:39:LEU:O | 13:M:40:VAL:O | 2.15 | 0.64 |
| 2:B:326:ALA:HB2 | 2:B:338:TYR:HE2 | 1.61 | 0.64 |
| 13:M:17:ASN:OD1 | 13:M:18:HIS:N | 2.30 | 0.64 |
| 20:T:153:TYR:HA | 20:T:154:LYS:HE3 | 1.78 | 0.64 |
| 1:A:265:VAL:H | 1:A:272:ASN:CB | 2.07 | 0.64 |
| 1:A:610:PRO:O | 1:A:611:ASP:CB | 2.40 | 0.64 |
| 1:A:1290:SER:HG | 2:B:250:SER:HB3 | 1.43 | 0.64 |
| 2:B:92:TYR:CG | 20:T:145:LEU:HD12 | 2.32 | 0.64 |
| 7:G:94:LYS:NZ | 17:Q:162:GLU:OE2 | 2.30 | 0.63 |
| 1:A:156:GLY:HA2 | 1:A:181:HIS:CE1 | 2.31 | 0.63 |
| 2:B:95:LYS:HD3 | 2:B:162:LEU:HD21 | 1.81 | 0.63 |
| 17:Q:113:ARG:HH22 | 18:R:218:LYS:CG | 2.11 | 0.63 |
| 2:B:132:VAL:HG21 | 2:B:141:GLN:OE1 | 1.98 | 0.63 |
| 8:H:57:ARG:HD3 | 8:H:146:LYS:HD3 | 1.78 | 0.63 |
| 1:A:367:ILE:HG21 | 1:A:501:MET:CG | 2.28 | 0.63 |
| 2:B:453:TRP:CE3 | 2:B:466:VAL:HG21 | 2.33 | 0.63 |
| 13:M:10:LEU:HD22 | 13:M:10:LEU:H | 1.62 | 0.63 |
| 17:Q:114:ILE:CD1 | 18:R:218:LYS:HE3 | 2.29 | 0.63 |
| 20:T:141:LEU:C | 20:T:141:LEU:HD22 | 2.18 | 0.63 |
| 1:A:618:TYR:C | 1:A:620:HIS:H | 2.01 | 0.63 |
| 2:B:73:HIS:C | 2:B:75:SER:H | 2.01 | 0.63 |
| 2:B:298:MET:SD | 9:I:13:GLY:C | 2.77 | 0.63 |
| 11:K:81:TYR:HE2 | 11:K:86:ALA:HB2 | 1.61 | 0.63 |
| 12:L:28:ILE:HD12 | 12:L:34:ILE:HA | 1.80 | 0.63 |
| 14:N:319:ASP:C | 14:N:321:SER:H | 2.01 | 0.63 |
| 18:R:127:ASN:ND2 | 20:T:238:GLU:OE1 | 2.31 | 0.63 |
| 1:A:47:THR:O | 1:A:48:GLU:HB2 | 1.97 | 0.63 |
| 2:B:956:PHE:HB3 | 2:B:962:THR:HG22 | 1.81 | 0.63 |
| 21:X:32:DT:H4' | 21:X:33:DT:H5' | 1.78 | 0.63 |
| 2:B:90:GLN:HG2 | 20:T:141:LEU:CD1 | 2.24 | 0.63 |
| 2:B:882:SER:HB2 | 2:B:887:TYR:CZ | 2.33 | 0.63 |
| 8:H:7:GLU:OE2 | 8:H:57:ARG:NH2 | 2.32 | 0.63 |
| 1:A:152:ASN:C | 1:A:153:ILE:HG12 | 2.16 | 0.62 |
| 8:H:64:LEU:HB3 | 8:H:84:ARG:CD | 2.27 | 0.62 |
| 11:K:56:VAL:HA | 11:K:77:THR:HG22 | 1.81 | 0.62 |
| 8:H:23:ASP:O | 8:H:25:VAL:N | 2.31 | 0.62 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:B:899:SER:O | 2:B:901:THR:N | 2.33 | 0.62 |
| 5:E:46:ASP:O | 5:E:47:LYS:CB | 2.40 | 0.62 |
| 1:A:375:ILE:HB | 1:A:666:ARG:HD2 | 1.80 | 0.62 |
| 6:F:125:ILE:HG22 | 6:F:127:ASP:H | 1.63 | 0.62 |
| 9:I:14:ILE:HG23 | 9:I:14:ILE:O | 1.99 | 0.62 |
| 13:M:94:ASP:CB | 13:M:99:SER:N | 2.58 | 0.62 |
| 1:A:264:VAL:CA | 1:A:272:ASN:HB3 | 2.30 | 0.62 |
| 1:A:265:VAL:C | 1:A:272:ASN:ND2 | 2.52 | 0.62 |
| 5:E:166:ARG:HB2 | 5:E:169:GLN:HG3 | 1.80 | 0.62 |
| 17:Q:180:PHE:CD2 | 18:R:213:ASP:OD1 | 2.33 | 0.62 |
| 19:S:28:ILE:HD13 | 20:T:95:VAL:HG22 | 1.82 | 0.62 |
| 1:A:1192:TRP:CD1 | 1:A:1248:ASN:HA | 2.34 | 0.62 |
| 8:H:65:TYR:HE2 | 8:H:70:LEU:CA | 2.12 | 0.62 |
| 1:A:202:TRP:CB | 1:A:212:LYS:HB3 | 2.16 | 0.62 |
| 1:A:531:ASN:HD22 | 1:A:901:VAL:HG23 | 1.65 | 0.62 |
| 1:A:935:GLN:HG2 | 1:A:1059:ARG:HH12 | 1.65 | 0.62 |
| 1:A:264:VAL:HB | 1:A:272:ASN:CB | 2.30 | 0.62 |
| 1:A:376:ASP:HB3 | 1:A:522:PRO:HD3 | 1.82 | 0.62 |
| 2:B:489:ILE:HG13 | 2:B:490:GLY:H | 1.65 | 0.62 |
| 5:E:41:LYS:HE3 | 5:E:47:LYS:CE | 2.30 | 0.62 |
| 12:L:35:ARG:NH1 | 12:L:42:ARG:HH21 | 1.98 | 0.62 |
| 17:Q:165:GLU:HB3 | 17:Q:170:LYS:HE2 | 1.82 | 0.62 |
| 1:A:1372:GLU:HG3 | 5:E:193:ILE:HD13 | 1.82 | 0.61 |
| 9:I:15:ARG:O | 9:I:15:ARG:HG3 | 2.00 | 0.61 |
| 13:M:86:LYS:HA | 13:M:86:LYS:CE | 2.29 | 0.61 |
| 17:Q:188:TYR:HE1 | 18:R:211:SER:OG | 1.80 | 0.61 |
| 16:P:208:ARG:HG3 | 16:P:208:ARG:NH2 | 2.15 | 0.61 |
| 2:B:225:LEU:C | 2:B:227:ASN:N | 2.52 | 0.61 |
| 2:B:461:GLN:NE2 | 21:X:43:DT:O2 | 2.34 | 0.61 |
| 9:I:116:ALA:HB2 | 25:I:202:ZN:ZN | 1.26 | 0.61 |
| 18:R:194:ARG:C | 18:R:196:ASP:N | 2.54 | 0.61 |
| 21:X:42:DT:H2' | 21:X:43:DT:H71 | 1.81 | 0.61 |
| 1:A:1480:CYS:O | 1:A:1484:MET:HG3 | 1.99 | 0.61 |
| 2:B:1115:GLN:HB2 | 2:B:1148:LEU:HD21 | 1.82 | 0.61 |
| 9:I:15:ARG:HD3 | 9:I:37:TYR:CE2 | 2.35 | 0.61 |
| 15:O:41:ASP:OD1 | 15:O:45:ASN:ND2 | 2.33 | 0.61 |
| 17:Q:108:ASP:OD2 | 18:R:237:LEU:HD22 | 2.01 | 0.61 |
| 20:T:12:ALA:HB2 | 20:T:106:LEU:HD23 | 1.81 | 0.61 |
| 1:A:610:PRO:C | 1:A:626:THR:HG21 | 2.20 | 0.61 |
| 17:Q:42:CYS:C | 17:Q:95:ASN:HD21 | 2.04 | 0.61 |
| 1:A:153:ILE:O | 1:A:153:ILE:HG22 | 2.01 | 0.61 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:1290:SER:HB2 | 2:B:250:SER:HB2 | 1.79 | 0.61 |
| 10:J:3:ILE:HG13 | 10:J:52:HIS:CE1 | 2.36 | 0.61 |
| 17:Q:23:ARG:CZ | 18:R:206:LYS:HB3 | 2.30 | 0.61 |
| 2:B:329:GLY:O | 2:B:335:ARG:NE | 2.34 | 0.61 |
| 2:B:810:PHE:N | 2:B:925:SER:O | 2.29 | 0.61 |
| 2:B:933:ASP:OD2 | 2:B:1050:ARG:NH2 | 2.32 | 0.61 |
| 4:D:70:ARG:NH2 | 7:G:140:ASP:O | 2.33 | 0.61 |
| 1:A:265:VAL:N | 1:A:272:ASN:HD22 | 1.95 | 0.61 |
| 1:A:486:LEU:HD22 | 2:B:790:GLN:CD | 2.22 | 0.61 |
| 13:M:59:LYS:HB2 | 23:Z:1:A:H5' | 1.83 | 0.61 |
| 19:S:166:ARG:HH11 | 19:S:166:ARG:HG3 | 1.65 | 0.61 |
| 1:A:865:ILE:O | 1:A:869:GLU:HB3 | 2.01 | 0.61 |
| 2:B:861:SER:N | 2:B:864:ASP:OD2 | 2.34 | 0.61 |
| 2:B:1005:ALA:C | 2:B:1007:ASN:H | 2.04 | 0.61 |
| 6:F:65:VAL:HG22 | 6:F:104:ILE:HD11 | 1.81 | 0.61 |
| 12:L:28:ILE:O | 12:L:28:ILE:HG22 | 2.01 | 0.61 |
| 17:Q:23:ARG:NH2 | 18:R:207:SER:O | 2.33 | 0.61 |
| 2:B:56:GLN:HG2 | 20:T:140:ARG:HH11 | 1.64 | 0.60 |
| 9:I:99:SER:OG | 9:I:100:HIS:N | 2.32 | 0.60 |
| 22:Y:49:DG:N2 | 23:Z:4:C:O2 | 2.34 | 0.60 |
| 2:B:959:GLU:OE2 | 2:B:961:ILE:HB | 2.01 | 0.60 |
| 13:M:44:ARG:HE | 13:M:46:ILE:CG2 | 2.14 | 0.60 |
| 20:T:94:THR:HG23 | 20:T:109:ILE:HG22 | 1.83 | 0.60 |
| 3:C:42:VAL:HB | 3:C:178:PRO:HG2 | 1.81 | 0.60 |
| 3:C:157:GLN:HG2 | 10:J:65:LEU:HB3 | 1.62 | 0.60 |
| 3:C:212:ASP:C | 3:C:214:ASP:H | 2.03 | 0.60 |
| 13:M:36:GLU:N | 13:M:36:GLU:OE1 | 2.34 | 0.60 |
| 20:T:82:PRO:HG2 | 20:T:117:ARG:HB2 | 1.83 | 0.60 |
| 2:B:712:PRO:O | 2:B:939:HIS:HE1 | 1.84 | 0.60 |
| 13:M:46:ILE:HD12 | 13:M:46:ILE:O | 2.00 | 0.60 |
| 17:Q:171:LYS:O | 17:Q:173:ALA:N | 2.35 | 0.60 |
| 1:A:208:ASP:OD1 | 1:A:209:SER:N | 2.32 | 0.60 |
| 1:A:156:GLY:CA | 1:A:181:HIS:CE1 | 2.84 | 0.60 |
| 1:A:930:LEU:O | 1:A:931:ARG:O | 2.20 | 0.60 |
| 8:H:64:LEU:C | 8:H:66:GLU:H | 2.05 | 0.60 |
| 18:R:206:LYS:HA | 18:R:206:LYS:NZ | 2.16 | 0.60 |
| 2:B:40:VAL:O | 2:B:44:LEU:HD13 | 2.01 | 0.60 |
| 9:I:29:ASP:OD2 | 9:I:32:ASN:ND2 | 2.28 | 0.60 |
| 13:M:27:TYR:CE2 | 13:M:46:ILE:CD1 | 2.60 | 0.60 |
| 18:R:166:ILE:HG22 | 18:R:168:LEU:H | 1.66 | 0.60 |
| 2:B:553:LEU:HD13 | 2:B:573:TRP:CZ3 | 2.36 | 0.60 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 8:H:85:ALA:CB | 8:H:144:LEU:CD2 | 2.80 | 0.60 |
| 12:L:26:ASN:HB2 | 12:L:44:MET:CE | 2.31 | 0.60 |
| 1:A:114:CYS:HB2 | 1:A:184:CYS:SG | 2.42 | 0.60 |
| 2:B:866:ILE:HD12 | 2:B:921:ILE:HD11 | 1.82 | 0.60 |
| 2:B:882:SER:HB3 | 2:B:887:TYR:CD1 | 2.33 | 0.60 |
| 8:H:85:ALA:HB1 | 8:H:144:LEU:HD22 | 1.81 | 0.60 |
| 2:B:52:GLN:OE1 | 2:B:160:TYR:OH | 2.15 | 0.60 |
| 1:A:1022:ILE:HG23 | 1:A:1023:VAL:HG23 | 1.84 | 0.59 |
| 12:L:15:MET:HB3 | 12:L:29:LYS:HB3 | 1.83 | 0.59 |
| 22:Y:48:DC:H2' | 22:Y:49:DG:C8 | 2.37 | 0.59 |
| 2:B:1079:SER:O | 2:B:1080:ARG:HD2 | 2.02 | 0.59 |
| 1:A:621:ILE:HG22 | 1:A:621:ILE:O | 2.01 | 0.59 |
| 17:Q:113:ARG:CD | 18:R:222:SER:CA | 2.77 | 0.59 |
| 1:A:268:GLY:HA3 | 1:A:271:ARG:HB2 | 1.84 | 0.59 |
| 2:B:1130:THR:HB | 2:B:1133:HIS:HB2 | 1.83 | 0.59 |
| 3:C:56:SER:OG | 3:C:158:GLU:N | 2.28 | 0.59 |
| 3:C:147:ASP:O | 10:J:16:ASN:HB3 | 2.03 | 0.59 |
| 9:I:101:SER:O | 9:I:104:ALA:HB2 | 2.02 | 0.59 |
| 17:Q:109:HIS:CG | 18:R:225:VAL:CG2 | 2.85 | 0.59 |
| 19:S:10:ASN:OD1 | 19:S:11:VAL:N | 2.36 | 0.59 |
| 19:S:44:GLN:HB2 | 19:S:103:ASN:HA | 1.84 | 0.59 |
| 1:A:1036:ASN:ND2 | 5:E:202:ARG:O | 2.29 | 0.59 |
| 1:A:1123:ARG:NH2 | 1:A:1381:GLU:OE1 | 2.31 | 0.59 |
| 2:B:552:ASN:OD1 | 2:B:553:LEU:N | 2.35 | 0.59 |
| 20:T:154:LYS:H | 20:T:154:LYS:CE | 2.13 | 0.59 |
| 1:A:1026:ASP:O | 1:A:1031:ARG:NH1 | 2.36 | 0.59 |
| 1:A:1188:GLU:HG3 | 9:I:1:MET:HG2 | 1.83 | 0.59 |
| 2:B:470:LEU:HD21 | 2:B:478:THR:HG23 | 1.83 | 0.59 |
| 13:M:94:ASP:O | 13:M:96:PHE:N | 2.35 | 0.59 |
| 1:A:931:ARG:O | 1:A:933:THR:N | 2.35 | 0.59 |
| 1:A:935:GLN:HA | 1:A:1059:ARG:HH22 | 1.67 | 0.59 |
| 2:B:631:GLN:HB3 | 2:B:685:LYS:NZ | 2.18 | 0.59 |
| 8:H:96:VAL:HG22 | 8:H:116:VAL:HG13 | 1.84 | 0.59 |
| 17:Q:109:HIS:CG | 18:R:225:VAL:HG21 | 2.33 | 0.59 |
| 1:A:51:ARG:H | 1:A:52:PRO:HD2 | 1.66 | 0.59 |
| 1:A:60:PRO:HD2 | 1:A:62:GLN:HG2 | 1.83 | 0.59 |
| 1:A:486:LEU:HD22 | 2:B:790:GLN:OE1 | 2.03 | 0.59 |
| 1:A:545:VAL:HG22 | 1:A:676:ILE:HG13 | 1.84 | 0.59 |
| 2:B:419:ALA:O | 2:B:423:ILE:HG12 | 2.03 | 0.59 |
| 13:M:59:LYS:HG3 | 13:M:64:PRO:HG2 | 1.84 | 0.59 |
| 1:A:579:ILE:HB | 1:A:585:LEU:HB2 | 1.85 | 0.58 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:B:290:TYR:OH | 2:B:566:LYS:NZ | 2.36 | 0.58 |
| 2:B:357:CYS:HB2 | 2:B:360:LYS:HD2 | 1.86 | 0.58 |
| 13:M:311:ASP:OD2 | 13:M:312:LYS:NZ | 2.36 | 0.58 |
| 2:B:1117:HIS:HB2 | 2:B:1127:ILE:HG12 | 1.84 | 0.58 |
| 14:N:347:ASN:ND2 | 14:N:375:GLU:OE2 | 2.35 | 0.58 |
| 22:Y:49:DG:H2' | 22:Y:50:DA:C8 | 2.37 | 0.58 |
| 1:A:355:MET:HE1 | 1:A:1431:SER:HB2 | 1.84 | 0.58 |
| 1:A:1464:ALA:O | 1:A:1469:GLY:HA3 | 2.03 | 0.58 |
| 1:A:320:ASN:HB2 | 1:A:338:SER:OG | 2.03 | 0.58 |
| 1:A:890:ARG:HE | 1:A:1023:VAL:HG22 | 1.67 | 0.58 |
| 1:A:926:ASN:OD1 | 1:A:931:ARG:CB | 2.51 | 0.58 |
| 2:B:510:CYS:HB2 | 2:B:705:GLY:HA3 | 1.84 | 0.58 |
| 20:T:147:LYS:HG2 | 20:T:147:LYS:O | 2.04 | 0.58 |
| 20:T:158:ASN:HB3 | 20:T:161:TYR:HB2 | 1.84 | 0.58 |
| 5:E:64:HIS:C | 5:E:66:ASP:N | 2.56 | 0.58 |
| 17:Q:184:ILE:CD1 | 18:R:218:LYS:HZ2 | 2.14 | 0.58 |
| 2:B:74:ALA:C | 2:B:75:SER:OG | 2.40 | 0.58 |
| 17:Q:46:GLU:OE2 | 17:Q:56:ARG:NH1 | 2.34 | 0.58 |
| 1:A:33:ARG:HB3 | 2:B:1139:GLY:HA2 | 1.85 | 0.58 |
| 1:A:619:LYS:C | 1:A:620:HIS:CG | 2.76 | 0.58 |
| 1:A:1211:LEU:HD11 | 1:A:1258:ARG:HG3 | 1.86 | 0.58 |
| 5:E:64:HIS:O | 5:E:66:ASP:N | 2.37 | 0.58 |
| 7:G:144:ARG:N | 7:G:169:GLY:O | 2.34 | 0.58 |
| 8:H:106:THR:O | 8:H:107:GLU:HB2 | 2.03 | 0.58 |
| 13:M:44:ARG:CZ | 13:M:46:ILE:CG2 | 2.80 | 0.58 |
| 1:A:1307:VAL:HG21 | 1:A:1339:ASP:N | 2.18 | 0.58 |
| 17:Q:77:ARG:HB2 | 17:Q:93:PHE:HB3 | 1.86 | 0.58 |
| 2:B:90:GLN:CG | 20:T:141:LEU:HD12 | 2.31 | 0.58 |
| 3:C:4:ALA:HA | 11:K:52:LYS:NZ | 2.18 | 0.58 |
| 3:C:60:HIS:CE1 | 3:C:63:PHE:HB2 | 2.39 | 0.58 |
| 17:Q:23:ARG:HH11 | 18:R:206:LYS:HG2 | 1.66 | 0.58 |
| 1:A:386:ALA:HA | 1:A:449:HIS:CD2 | 2.38 | 0.58 |
| 2:B:798:ARG:O | 2:B:801:VAL:HG22 | 2.03 | 0.58 |
| 5:E:62:VAL:O | 5:E:63:ALA:HB2 | 2.04 | 0.58 |
| 13:M:39:LEU:C | 13:M:40:VAL:HG22 | 2.24 | 0.58 |
| 13:M:103:ASN:HB3 | 13:M:105:ARG:HH22 | 1.69 | 0.58 |
| 1:A:620:HIS:O | 1:A:621:ILE:HB | 2.05 | 0.57 |
| 2:B:422:PHE:CD1 | 2:B:422:PHE:C | 2.77 | 0.57 |
| 3:C:274:ILE:HD11 | 11:K:31:CYS:SG | 2.43 | 0.57 |
| 1:A:567:LEU:HG | 1:A:671:ASN:OD1 | 2.04 | 0.57 |
| 3:C:90:CYS:SG | 3:C:94:CYS:HB3 | 2.43 | 0.57 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 17:Q:58:GLN:NE2 | 18:R:194:ARG:NH1 | 2.52 | 0.57 |
| 1:A:805:ARG:NH2 | 2:B:671:GLU:O | 2.37 | 0.57 |
| 2:B:446:TYR:HB2 | 22:Y:59:DG:OP1 | 2.05 | 0.57 |
| 8:H:8:ASP:HB3 | 8:H:10:PHE:CE1 | 2.39 | 0.57 |
| 22:Y:48:DC:O2 | 23:Z:5:G:N2 | 2.26 | 0.57 |
| 1:A:79:THR:HG23 | 13:M:43:ASP:HB2 | 1.81 | 0.57 |
| 1:A:1116:ASN:C | 1:A:1118:THR:N | 2.57 | 0.57 |
| 1:A:1123:ARG:NH2 | 1:A:1360:ASN:HB2 | 2.19 | 0.57 |
| 1:A:1372:GLU:OE2 | 5:E:207:ARG:NH1 | 2.36 | 0.57 |
| 2:B:501:LEU:HD12 | 2:B:505:LEU:HD12 | 1.86 | 0.57 |
| 2:B:882:SER:HB2 | 2:B:887:TYR:CE2 | 2.38 | 0.57 |
| 20:T:138:PRO:O | 20:T:140:ARG:N | 2.37 | 0.57 |
| 2:B:232:THR:HG23 | 2:B:233:SER:H | 1.69 | 0.57 |
| 2:B:761:THR:OG1 | 2:B:764:MET:HG3 | 2.05 | 0.57 |
| 11:K:63:VAL:HG22 | 11:K:71:ILE:HG22 | 1.86 | 0.57 |
| 13:M:182:ALA:CB | 20:T:154:LYS:HG3 | 2.33 | 0.57 |
| 2:B:1029:TYR:CE1 | 2:B:1036:LYS:HE2 | 2.38 | 0.57 |
| 1:A:133:SER:C | 1:A:135:GLY:N | 2.46 | 0.57 |
| 1:A:298:ALA:H | 17:Q:60:ARG:HE | 1.53 | 0.57 |
| 2:B:474:THR:HG23 | 2:B:732:ALA:O | 2.05 | 0.57 |
| 21:X:49:DT:H2' | 21:X:50:DT:H4' | 1.85 | 0.57 |
| 1:A:264:VAL:N | 1:A:272:ASN:HB3 | 2.20 | 0.57 |
| 5:E:41:LYS:CE | 5:E:47:LYS:HE3 | 2.35 | 0.57 |
| 15:O:28:ILE:HB | 15:O:32:LEU:HD23 | 1.86 | 0.57 |
| 17:Q:113:ARG:HH21 | 18:R:222:SER:HB3 | 1.62 | 0.57 |
| 1:A:334:ARG:NH2 | 13:M:66:ARG:O | 2.37 | 0.57 |
| 1:A:375:ILE:HB | 1:A:666:ARG:CD | 2.35 | 0.57 |
| 1:A:1188:GLU:O | 1:A:1192:TRP:HZ3 | 1.87 | 0.56 |
| 1:A:264:VAL:CB | 1:A:272:ASN:ND2 | 2.67 | 0.56 |
| 1:A:355:MET:CE | 1:A:1431:SER:HB2 | 2.35 | 0.56 |
| 2:B:94:SER:O | 2:B:122:ALA:HB1 | 2.05 | 0.56 |
| 1:A:265:VAL:HG21 | 13:M:48:VAL:HB | 1.88 | 0.56 |
| 1:A:904:GLN:NE2 | 1:A:982:ASN:HA | 2.20 | 0.56 |
| 2:B:81:PRO:HD2 | 2:B:135:GLU:HG3 | 1.87 | 0.56 |
| 2:B:895:PHE:O | 2:B:897:ARG:HG3 | 2.05 | 0.56 |
| 3:C:157:GLN:HG3 | 10:J:65:LEU:CB | 2.30 | 0.56 |
| 17:Q:21:VAL:HA | 18:R:210:PHE:CE2 | 2.39 | 0.56 |
| 1:A:425:ASP:HB2 | 13:M:39:LEU:CG | 2.35 | 0.56 |
| 17:Q:113:ARG:HD3 | 18:R:222:SER:CA | 2.34 | 0.56 |
| 18:R:155:LEU:HD13 | 18:R:204:ASN:HD22 | 1.70 | 0.56 |
| 1:A:455:ILE:HG12 | 1:A:473:ARG:HG2 | 1.87 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 17:Q:125:ALA:HB1 | 17:Q:138:ASP:HB3 | 1.87 | 0.56 |
| 18:R:163:LEU:O | 18:R:164:GLY:C | 2.42 | 0.56 |
| 1:A:30:GLU:OE1 | 1:A:33:ARG:NH2 | 2.24 | 0.56 |
| 2:B:56:GLN:CB | 20:T:140:ARG:CD | 2.83 | 0.56 |
| 2:B:166:LEU:HB3 | 2:B:170:ASP:HB2 | 1.87 | 0.56 |
| 2:B:718:GLN:HG2 | 2:B:720:PRO:HD2 | 1.87 | 0.56 |
| 1:A:263:ALA:C | 1:A:265:VAL:H | 2.09 | 0.56 |
| 1:A:546:ARG:NH1 | 1:A:768:SER:OG | 2.39 | 0.56 |
| 2:B:132:VAL:HG21 | 2:B:141:GLN:CG | 2.31 | 0.56 |
| 13:M:44:ARG:NE | 13:M:46:ILE:CG2 | 2.68 | 0.56 |
| 18:R:184:ALA:HA | 18:R:187:ASP:HB3 | 1.87 | 0.56 |
| 1:A:1154:ALA:HB1 | 1:A:1310:HIS:CE1 | 2.41 | 0.56 |
| 1:A:1004:LEU:HD13 | 1:A:1062:GLY:HA2 | 1.88 | 0.56 |
| 2:B:45:ASP:HB3 | 2:B:534:VAL:HG11 | 1.88 | 0.56 |
| 2:B:906:GLN:CG | 12:L:45:TYR:HE1 | 2.17 | 0.56 |
| 2:B:1053:HIS:CE1 | 2:B:1058:LYS:HG3 | 2.40 | 0.56 |
| 10:J:65:LEU:H | 10:J:65:LEU:HD22 | 1.70 | 0.56 |
| 17:Q:108:ASP:O | 17:Q:111:ARG:HG2 | 2.06 | 0.56 |
| 1:A:65:ILE:HA | 1:A:78:MET:HE2 | 1.88 | 0.56 |
| 1:A:138:LYS:N | 1:A:1445:HIS:HE1 | 2.03 | 0.56 |
| 1:A:139:LYS:HE2 | 1:A:143:HIS:NE2 | 2.20 | 0.56 |
| 1:A:619:LYS:O | 1:A:620:HIS:CG | 2.59 | 0.56 |
| 2:B:270:ILE:HG21 | 2:B:308:ALA:HB2 | 1.87 | 0.56 |
| 2:B:852:GLY:O | 2:B:868:GLY:N | 2.31 | 0.56 |
| 17:Q:58:GLN:HE22 | 18:R:194:ARG:HH11 | 1.54 | 0.56 |
| 1:A:426:ARG:HB3 | 13:M:40:VAL:HG21 | 1.87 | 0.55 |
| 13:M:72:ASN:HB2 | 22:Y:58:DC:H42 | 1.70 | 0.55 |
| 1:A:322:LEU:HD12 | 1:A:323:PRO:HD2 | 1.87 | 0.55 |
| 2:B:92:TYR:HE2 | 2:B:146:LYS:HE2 | 1.69 | 0.55 |
| 3:C:154:ARG:NH2 | 10:J:61:ASN:OD1 | 2.35 | 0.55 |
| 3:C:154:ARG:NH1 | 10:J:61:ASN:HA | 2.21 | 0.55 |
| 13:M:10:LEU:HD23 | 13:M:10:LEU:O | 2.06 | 0.55 |
| 13:M:17:ASN:OD1 | 13:M:18:HIS:ND1 | 2.39 | 0.55 |
| 13:M:94:ASP:HB3 | 13:M:99:SER:N | 2.21 | 0.55 |
| 13:M:182:ALA:HB3 | 20:T:154:LYS:CG | 2.34 | 0.55 |
| 17:Q:187:ILE:HG21 | 18:R:211:SER:N | 2.21 | 0.55 |
| 19:S:6:PRO:HG3 | 19:S:10:ASN:HD22 | 1.71 | 0.55 |
| 1:A:1253:GLU:HG2 | 9:I:3:PRO:HB2 | 1.89 | 0.55 |
| 2:B:758:LEU:HD13 | 2:B:991:ALA:HB2 | 1.88 | 0.55 |
| 2:B:894:THR:HG23 | 2:B:897:ARG:NH1 | 2.22 | 0.55 |
| 16:P:171:THR:HG22 | 16:P:220:VAL:HG22 | 1.87 | 0.55 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 17:Q:187:ILE:HG21 | 18:R:210:PHE:C | 2.27 | 0.55 |
| 19:S:27:ASN:O | 20:T:95:VAL:HG13 | 2.06 | 0.55 |
| 2:B:855:ALA:O | 2:B:858:VAL:HG12 | 2.07 | 0.55 |
| 8:H:85:ALA:HB3 | 8:H:144:LEU:CD2 | 2.36 | 0.55 |
| 9:I:96:PHE:HB3 | 9:I:112:TYR:HD1 | 1.72 | 0.55 |
| 17:Q:115:GLU:HA | 17:Q:118:GLU:HB3 | 1.87 | 0.55 |
| 17:Q:170:LYS:HG2 | 17:Q:171:LYS:H | 1.72 | 0.55 |
| 1:A:425:ASP:CB | 13:M:39:LEU:HD11 | 2.35 | 0.55 |
| 16:P:257:ASN:ND2 | 21:X:14:DA:N3 | 2.54 | 0.55 |
| 1:A:1373:ALA:HB2 | 5:E:145:VAL:HG22 | 1.88 | 0.55 |
| 2:B:90:GLN:CG | 20:T:141:LEU:CD1 | 2.83 | 0.55 |
| 3:C:157:GLN:HE21 | 10:J:65:LEU:CA | 2.20 | 0.55 |
| 21:X:24:DG:H2" | 21:X:25:DG:H5' | 1.89 | 0.55 |
| 13:M:174:PRO:HD2 | 13:M:213:ASP:HB3 | 1.89 | 0.55 |
| 2:B:605:ARG:NH2 | 9:I:71:ASP:OD2 | 2.39 | 0.55 |
| 2:B:1087:GLY:HA3 | 22:Y:48:DC:OP1 | 2.07 | 0.55 |
| 6:F:88:ASP:OD1 | 6:F:91:LEU:N | 2.33 | 0.55 |
| 13:M:94:ASP:HB2 | 13:M:99:SER:N | 2.09 | 0.55 |
| 19:S:172:ASN:HD21 | 19:S:175:SER:HB2 | 1.72 | 0.55 |
| 16:P:163:PRO:HA | 16:P:262:CYS:HB3 | 1.88 | 0.55 |
| 2:B:625:LEU:HD13 | 2:B:675:LEU:HD11 | 1.88 | 0.55 |
| 4:D:96:GLU:OE2 | 4:D:117:SER:OG | 2.22 | 0.55 |
| 18:R:181:ALA:HA | 18:R:184:ALA:HB3 | 1.88 | 0.55 |
| 1:A:269:SER:H | 1:A:271:ARG:HD3 | 1.73 | 0.54 |
| 1:A:328:ALA:HA | 13:M:84:ILE:HG22 | 1.89 | 0.54 |
| 1:A:1199:MET:SD | 1:A:1200:PRO:HD2 | 2.47 | 0.54 |
| 13:M:45:VAL:CG1 | 13:M:48:VAL:HG13 | 2.37 | 0.54 |
| 17:Q:188:TYR:OH | 18:R:210:PHE:HE1 | 1.79 | 0.54 |
| 20:T:203:VAL:HG11 | 20:T:210:VAL:HG22 | 1.88 | 0.54 |
| 1:A:522:PRO:HB3 | 1:A:666:ARG:HB2 | 1.89 | 0.54 |
| 1:A:1158:LEU:HD11 | 1:A:1308:TYR:CG | 2.41 | 0.54 |
| 2:B:92:TYR:CD2 | 20:T:145:LEU:HD11 | 2.42 | 0.54 |
| 8:H:106:THR:O | 8:H:108:ALA:N | 2.37 | 0.54 |
| 9:I:61:GLU:C | 9:I:63:ASP:H | 2.08 | 0.54 |
| 17:Q:25:PHE:N | 18:R:210:PHE:CE2 | 2.74 | 0.54 |
| 1:A:152:ASN:OD1 | 1:A:188:GLN:HB2 | 2.06 | 0.54 |
| 1:A:196:LEU:HB2 | 1:A:325:LEU:HD21 | 1.90 | 0.54 |
| 2:B:549:SER:OG | 2:B:577:HIS:NE2 | 2.25 | 0.54 |
| 8:H:88:PHE:HD2 | 8:H:144:LEU:HB3 | 1.72 | 0.54 |
| 17:Q:149:THR:HG23 | 17:Q:151:THR:H | 1.72 | 0.54 |
| 1:A:285:LYS:HD2 | 13:M:80:LEU:HD23 | 1.89 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:1264:SER:OG | 1:A:1267:ASN:ND2 | 2.38 | 0.54 |
| 2:B:708:ALA:O | 2:B:711:ILE:HG23 | 2.08 | 0.54 |
| 13:M:119:LYS:HD3 | 22:Y:60:DA:H62 | 1.72 | 0.54 |
| 20:T:177:ARG:HH22 | 21:X:19:DG:P | 2.31 | 0.54 |
| 21:X:42:DT:H3' | 21:X:43:DT:C5' | 2.37 | 0.54 |
| 1:A:47:THR:OG1 | 1:A:53:LYS:HG2 | 2.07 | 0.54 |
| 1:A:129:ILE:HG22 | 1:A:140:ARG:HG3 | 1.90 | 0.54 |
| 1:A:644:SER:O | 1:A:651:SER:HB3 | 2.06 | 0.54 |
| 1:A:760:LEU:HD13 | 1:A:767:LYS:HB2 | 1.89 | 0.54 |
| 2:B:252:ILE:O | 2:B:254:GLN:N | 2.35 | 0.54 |
| 20:T:93:LEU:HB2 | 20:T:110:VAL:HB | 1.89 | 0.54 |
| 2:B:473:LEU:HD21 | 2:B:1052:LYS:HB2 | 1.90 | 0.54 |
| 2:B:883:THR:O | 2:B:885:ARG:CA | 2.55 | 0.54 |
| 21:X:45:DT:O2 | 21:X:46:DT:N3 | 2.41 | 0.54 |
| 2:B:206:TYR:HD1 | 2:B:208:PHE:HE1 | 1.54 | 0.54 |
| 2:B:649:ASN:OD1 | 2:B:650:ASN:N | 2.40 | 0.54 |
| 17:Q:113:ARG:NH1 | 18:R:218:LYS:C | 2.59 | 0.54 |
| 22:Y:64:DC:H2" | 22:Y:65:DG:H5' | 1.89 | 0.54 |
| 2:B:627:ILE:HD11 | 2:B:663:GLU:HB2 | 1.89 | 0.54 |
| 2:B:1162:LEU:HD23 | 2:B:1165:MET:HE3 | 1.90 | 0.54 |
| 3:C:209:SER:O | 3:C:212:ASP:OD1 | 2.25 | 0.54 |
| 7:G:106:CYS:HA | 7:G:159:ALA:O | 2.08 | 0.54 |
| 7:G:108:ILE:HG23 | 7:G:162:SER:HA | 1.90 | 0.54 |
| 17:Q:21:VAL:CA | 18:R:210:PHE:CE2 | 2.91 | 0.54 |
| 20:T:177:ARG:NH2 | 21:X:19:DG:OP1 | 2.39 | 0.54 |
| 1:A:264:VAL:HG21 | 13:M:68:GLY:HA3 | 1.88 | 0.53 |
| 1:A:790:GLN:HE22 | 1:A:821:GLY:HA3 | 1.71 | 0.53 |
| 1:A:1204:VAL:HA | 1:A:1207:ILE:HG12 | 1.89 | 0.53 |
| 2:B:92:TYR:CE2 | 2:B:146:LYS:HE2 | 2.42 | 0.53 |
| 17:Q:112:ARG:NH2 | 18:R:237:LEU:HD22 | 2.17 | 0.53 |
| 2:B:254:GLN:HG3 | 2:B:303:PRO:HG2 | 1.90 | 0.53 |
| 2:B:292:PHE:HD2 | 9:I:14:ILE:HD13 | 1.68 | 0.53 |
| 2:B:1053:HIS:HE1 | 2:B:1058:LYS:HG3 | 1.73 | 0.53 |
| 7:G:94:LYS:O | 7:G:110:ARG:NH1 | 2.34 | 0.53 |
| 2:B:914:GLU:HG3 | 13:M:132:ARG:HB3 | 1.91 | 0.53 |
| 8:H:66:GLU:CG | 8:H:67:ASP:H | 2.16 | 0.53 |
| 17:Q:144:LEU:HD22 | 17:Q:154:CYS:HA | 1.91 | 0.53 |
| 1:A:95:PHE:CE1 | 1:A:218:PRO:HG3 | 2.44 | 0.53 |
| 1:A:152:ASN:O | 1:A:153:ILE:CB | 2.56 | 0.53 |
| 1:A:1477:ALA:HB2 | 7:G:22:LEU:HD23 | 1.90 | 0.53 |
| 2:B:352:GLY:HA3 | 2:B:357:CYS:SG | 2.48 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 17:Q:25:PHE:HZ | 18:R:223:VAL:HG22 | 1.72 | 0.53 |
| 19:S:48:GLU:OE1 | 19:S:101:ARG:NH2 | 2.41 | 0.53 |
| 1:A:601:ASN:HD21 | 1:A:632:ASN:H | 1.55 | 0.53 |
| 2:B:489:ILE:HA | 21:X:47:DT:O2 | 2.09 | 0.53 |
| 2:B:716:HIS:CD2 | 2:B:982:ILE:HG13 | 2.30 | 0.53 |
| 2:B:752:TYR:CG | 3:C:63:PHE:HE1 | 2.26 | 0.53 |
| 17:Q:113:ARG:HD3 | 18:R:222:SER:HA | 1.91 | 0.53 |
| 23:Z:1:A:H2' | 23:Z:2:G:O4' | 2.09 | 0.53 |
| 3:C:183:ALA:HB3 | 3:C:232:ASN:HB3 | 1.91 | 0.53 |
| 22:Y:53:DG:H4' | 22:Y:54:DA:OP1 | 2.09 | 0.53 |
| 1:A:373:LEU:O | 1:A:485:ASN:ND2 | 2.41 | 0.53 |
| 1:A:1466:ALA:O | 1:A:1469:GLY:N | 2.39 | 0.53 |
| 2:B:309:PHE:HE2 | 9:I:40:ARG:HD2 | 1.72 | 0.53 |
| 2:B:824:ASP:OD2 | 2:B:875:GLU:HG3 | 2.09 | 0.53 |
| 12:L:35:ARG:HH11 | 12:L:42:ARG:HH21 | 1.57 | 0.53 |
| 1:A:624:GLY:O | 1:A:625:ASP:CB | 2.33 | 0.53 |
| 2:B:356:PHE:HB3 | 19:S:116:GLY:CA | 2.39 | 0.53 |
| 3:C:56:SER:HG | 3:C:158:GLU:H | 1.55 | 0.53 |
| 7:G:138:GLN:HG2 | 7:G:139:GLN:HG2 | 1.89 | 0.53 |
| 16:P:309:LYS:HD3 | 22:Y:82:DT:H5" | 1.91 | 0.53 |
| 19:S:13:GLU:OE1 | 20:T:44:ARG:NH1 | 2.41 | 0.53 |
| 1:A:611:ASP:O | 1:A:612:ASP:HB2 | 2.09 | 0.53 |
| 1:A:1457:ASN:OD1 | 1:A:1462:GLN:NE2 | 2.39 | 0.53 |
| 2:B:712:PRO:HD2 | 2:B:939:HIS:CE1 | 2.44 | 0.53 |
| 2:B:873:LEU:HB3 | 2:B:874:PRO:HD3 | 1.89 | 0.53 |
| 2:B:906:GLN:HG2 | 12:L:45:TYR:CE1 | 2.39 | 0.53 |
| 7:G:104:MET:HE2 | 7:G:159:ALA:HB2 | 1.91 | 0.53 |
| 8:H:16:ASP:HB3 | 8:H:19:GLY:HA2 | 1.89 | 0.53 |
| 21:X:26:DG:N2 | 22:Y:69:DC:N3 | 2.57 | 0.53 |
| 1:A:426:ARG:HD2 | 13:M:40:VAL:HG11 | 1.91 | 0.52 |
| 1:A:557:ARG:HA | 1:A:586:TRP:CZ3 | 2.44 | 0.52 |
| 1:A:679:TRP:CZ3 | 1:A:683:GLU:HG3 | 2.44 | 0.52 |
| 1:A:870:SER:HB2 | 1:A:882:SER:HB3 | 1.90 | 0.52 |
| 2:B:132:VAL:HG21 | 2:B:141:GLN:CD | 2.29 | 0.52 |
| 2:B:800:ALA:O | 2:B:805:PHE:HB2 | 2.09 | 0.52 |
| 2:B:1073:GLN:NE2 | 2:B:1154:ALA:HB2 | 2.25 | 0.52 |
| 3:C:157:GLN:NE2 | 10:J:65:LEU:CG | 2.70 | 0.52 |
| 1:A:203:LYS:O | 1:A:204:HIS:CB | 2.53 | 0.52 |
| 2:B:344:GLN:O | 2:B:361:LYS:NZ | 2.38 | 0.52 |
| 2:B:844:ILE:HG22 | 2:B:846:ASP:H | 1.74 | 0.52 |
| 4:D:33:LEU:HD12 | 4:D:80:ILE:HG23 | 1.91 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 17:Q:25:PHE:HA | 18:R:219:LEU:HD13 | 1.91 | 0.52 |
| 1:A:44:PRO:HG3 | 1:A:284:VAL:HG13 | 1.91 | 0.52 |
| 1:A:375:ILE:HG13 | 1:A:666:ARG:HH11 | 1.74 | 0.52 |
| 4:D:135:GLN:HA | 4:D:138:ARG:HG2 | 1.91 | 0.52 |
| 17:Q:203:ILE:HG23 | 17:Q:204:LEU:HG | 1.91 | 0.52 |
| 1:A:40:GLY:O | 1:A:42:LYS:HG2 | 2.10 | 0.52 |
| 1:A:1098:PRO:O | 1:A:1101:GLN:CD | 2.48 | 0.52 |
| 2:B:198:GLU:OE2 | 2:B:391:LYS:NZ | 2.35 | 0.52 |
| 2:B:822:GLY:HA3 | 2:B:825:GLN:HG2 | 1.92 | 0.52 |
| 3:C:4:ALA:HA | 11:K:52:LYS:HZ1 | 1.74 | 0.52 |
| 6:F:64:ARG:HH12 | 7:G:61:PRO:HB3 | 1.75 | 0.52 |
| 1:A:440:LEU:HB2 | 1:A:444:TYR:HD2 | 1.73 | 0.52 |
| 1:A:530:SER:O | 1:A:532:ARG:N | 2.43 | 0.52 |
| 1:A:1305:SER:OG | 1:A:1307:VAL:HB | 2.10 | 0.52 |
| 1:A:1313:GLN:OE1 | 1:A:1316:ASN:ND2 | 2.43 | 0.52 |
| 1:A:1370:GLY:HA2 | 5:E:178:PRO:HD2 | 1.91 | 0.52 |
| 2:B:56:GLN:CB | 20:T:140:ARG:HD2 | 2.38 | 0.52 |
| 2:B:1016:SER:HB3 | 2:B:1022:LEU:CB | 2.40 | 0.52 |
| 7:G:111:HIS:CE1 | 17:Q:125:ALA:H | 2.28 | 0.52 |
| 9:I:84:HIS:ND1 | 9:I:85:PRO:HD3 | 2.23 | 0.52 |
| 1:A:367:ILE:HG21 | 1:A:501:MET:HG2 | 1.91 | 0.52 |
| 1:A:367:ILE:HG12 | 1:A:499:ASP:O | 2.10 | 0.52 |
| 1:A:601:ASN:HB3 | 1:A:988:TRP:CZ3 | 2.45 | 0.52 |
| 1:A:1128:ILE:HG23 | 1:A:1414:ILE:HG13 | 1.92 | 0.52 |
| 2:B:92:TYR:CD2 | 20:T:145:LEU:CD1 | 2.92 | 0.52 |
| 2:B:312:GLN:HB3 | 19:S:153:ARG:NH2 | 2.24 | 0.52 |
| 9:I:62:VAL:O | 9:I:64:GLU:HG2 | 2.10 | 0.52 |
| 19:S:100:LEU:HD23 | 19:S:110:PHE:HD2 | 1.75 | 0.52 |
| 1:A:26:LEU:HB2 | 2:B:1168:ALA:HB2 | 1.92 | 0.52 |
| 1:A:837:PHE:HB2 | 2:B:506:TRP:HZ3 | 1.74 | 0.52 |
| 2:B:553:LEU:O | 2:B:556:ILE:HG12 | 2.10 | 0.52 |
| 2:B:747:LEU:HD21 | 2:B:810:PHE:HE1 | 1.75 | 0.52 |
| 2:B:882:SER:HB3 | 2:B:887:TYR:CE2 | 2.35 | 0.52 |
| 19:S:125:TYR:CD1 | 19:S:139:PRO:HA | 2.44 | 0.52 |
| 2:B:331:THR:O | 2:B:333:GLU:N | 2.42 | 0.52 |
| 2:B:911:LEU:HD13 | 2:B:915:GLY:HA2 | 1.90 | 0.52 |
| 2:B:1075:MET:CE | 13:M:51:GLU:HG2 | 2.40 | 0.52 |
| 5:E:53:PRO:HB2 | 5:E:56:THR:HB | 1.92 | 0.52 |
| 13:M:27:TYR:CD2 | 13:M:46:ILE:HB | 2.44 | 0.52 |
| 17:Q:28:ILE:HD12 | 18:R:190:LEU:HD21 | 1.92 | 0.52 |
| 17:Q:172:ASP:HA | 17:Q:175:THR:HB | 1.91 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:1207:ILE:HG22 | 1:A:1262:MET:HG3 | 1.92 | 0.52 |
| 1:A:1290:SER:CB | 2:B:250:SER:HB2 | 2.21 | 0.52 |
| 2:B:1053:HIS:ND1 | 2:B:1058:LYS:HE3 | 2.25 | 0.52 |
| 6:F:51:ARG:HA | 6:F:116:GLU:OE1 | 2.10 | 0.52 |
| 13:M:179:GLU:CG | 20:T:154:LYS:HD3 | 2.39 | 0.52 |
| 21:X:24:DG:H2' | 21:X:25:DG:C8 | 2.45 | 0.52 |
| 1:A:926:ASN:OD1 | 1:A:931:ARG:HB3 | 2.10 | 0.51 |
| 2:B:56:GLN:CB | 20:T:140:ARG:HD3 | 2.39 | 0.51 |
| 2:B:1053:HIS:CE1 | 2:B:1058:LYS:HE3 | 2.45 | 0.51 |
| 8:H:17:PRO:C | 8:H:19:GLY:H | 2.13 | 0.51 |
| 14:N:313:PRO:HG2 | 16:P:235:ARG:NH2 | 2.17 | 0.51 |
| 16:P:193:ASN:HD21 | 16:P:196:ARG:HD3 | 1.74 | 0.51 |
| 1:A:924:TYR:CZ | 1:A:949:GLN:HG3 | 2.45 | 0.51 |
| 2:B:214:LYS:O | 2:B:240:LEU:HD12 | 2.11 | 0.51 |
| 9:I:91:HIS:ND1 | 9:I:92:LYS:O | 2.43 | 0.51 |
| 1:A:201:GLU:OE2 | 1:A:203:LYS:NZ | 2.43 | 0.51 |
| 1:A:1323:THR:HG23 | 1:A:1325:ASP:H | 1.75 | 0.51 |
| 16:P:203:ARG:NH2 | 16:P:210:THR:OG1 | 2.43 | 0.51 |
| 16:P:206:GLU:OE1 | 16:P:207:PRO:HD3 | 2.10 | 0.51 |
| 3:C:5:ASN:N | 11:K:97:GLU:OE2 | 2.43 | 0.51 |
| 3:C:99:VAL:HG13 | 3:C:124:SER:OG | 2.10 | 0.51 |
| 20:T:181:GLN:HA | 20:T:184:LEU:HD12 | 1.93 | 0.51 |
| 1:A:112:PHE:H | 1:A:188:GLN:NE2 | 2.09 | 0.51 |
| 1:A:266:MET:HG2 | 1:A:272:ASN:CG | 2.29 | 0.51 |
| 1:A:710:LYS:O | 1:A:714:ILE:HG12 | 2.11 | 0.51 |
| 2:B:295:PRO:HB3 | 9:I:11:PHE:HD2 | 1.75 | 0.51 |
| 11:K:116:ILE:HG13 | 11:K:117:GLU:HG3 | 1.90 | 0.51 |
| 13:M:45:VAL:HG11 | 13:M:48:VAL:HG13 | 1.92 | 0.51 |
| 21:X:23:DT:H2" | 21:X:24:DG:H8 | 1.75 | 0.51 |
| 22:Y:80:DT:H2" | 22:Y:81:DA:C8 | 2.45 | 0.51 |
| 1:A:613:GLU:O | 1:A:614:ASP:HB3 | 2.10 | 0.51 |
| 2:B:56:GLN:NE2 | 2:B:60:GLU:OE2 | 2.44 | 0.51 |
| 2:B:468:GLN:OE1 | 2:B:481:HIS:NE2 | 2.44 | 0.51 |
| 10:J:54:ASP:OD2 | 10:J:57:GLU:HG2 | 2.11 | 0.51 |
| 2:B:838:GLN:O | 2:B:891:ASP:N | 2.43 | 0.51 |
| 17:Q:23:ARG:NH2 | 18:R:207:SER:N | 2.58 | 0.51 |
| 17:Q:101:ASN:O | 17:Q:103:VAL:N | 2.43 | 0.51 |
| 19:S:26:TYR:CD2 | 19:S:138:PHE:HB3 | 2.46 | 0.51 |
| 1:A:264:VAL:CG1 | 13:M:52:TRP:CD1 | 2.94 | 0.51 |
| 2:B:234:THR:O | 2:B:236:TRP:HD1 | 1.93 | 0.51 |
| 8:H:76:ASN:OD1 | 8:H:78:THR:OG1 | 2.25 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 22:Y:48:DC:H2' | 22:Y:49:DG:H8 | 1.76 | 0.51 |
| 1:A:927:GLU:HB3 | 1:A:931:ARG:HD3 | 1.93 | 0.51 |
| 2:B:988:LYS:O | 2:B:992:ASN:HB2 | 2.11 | 0.51 |
| 2:B:1151:MET:HE1 | 2:B:1171:MET:SD | 2.50 | 0.51 |
| 14:N:347:ASN:O | 14:N:375:GLU:HA | 2.11 | 0.51 |
| 18:R:195:PRO:HB2 | 18:R:199:LYS:CD | 2.41 | 0.51 |
| 1:A:298:ALA:N | 17:Q:60:ARG:HE | 2.09 | 0.51 |
| 1:A:1020:LEU:HD13 | 1:A:1041:PHE:HE2 | 1.76 | 0.51 |
| 3:C:157:GLN:CD | 10:J:65:LEU:CG | 2.79 | 0.51 |
| 8:H:65:TYR:N | 8:H:65:TYR:CD1 | 2.77 | 0.51 |
| 1:A:1319:LYS:HB2 | 1:A:1333:GLU:OE2 | 2.11 | 0.50 |
| 2:B:854:ILE:HG13 | 2:B:866:ILE:O | 2.10 | 0.50 |
| 8:H:88:PHE:CE1 | 8:H:146:LYS:HD2 | 2.46 | 0.50 |
| 9:I:93:GLU:O | 9:I:115:THR:HG22 | 2.11 | 0.50 |
| 17:Q:36:ILE:HG21 | 17:Q:48:MET:HG2 | 1.92 | 0.50 |
| 20:T:229:HIS:NE2 | 21:X:28:DG:H1' | 2.25 | 0.50 |
| 1:A:930:LEU:O | 1:A:931:ARG:C | 2.49 | 0.50 |
| 1:A:1022:ILE:HD13 | 1:A:1080:ILE:HD12 | 1.92 | 0.50 |
| 7:G:93:ASN:HD22 | 17:Q:151:THR:HA | 1.73 | 0.50 |
| 8:H:85:ALA:HB1 | 8:H:144:LEU:CD2 | 2.41 | 0.50 |
| 8:H:85:ALA:HB3 | 8:H:144:LEU:HD21 | 1.93 | 0.50 |
| 2:B:1029:TYR:CE1 | 2:B:1036:LYS:HG3 | 2.46 | 0.50 |
| 9:I:81:THR:HB | 9:I:96:PHE:CE2 | 2.46 | 0.50 |
| 17:Q:44:LYS:HG3 | 17:Q:46:GLU:H | 1.76 | 0.50 |
| 17:Q:109:HIS:HB3 | 18:R:224:THR:CG2 | 2.33 | 0.50 |
| 19:S:26:TYR:HB2 | 19:S:139:PRO:O | 2.12 | 0.50 |
| 21:X:50:DT:H3' | 21:X:51:DC:H5" | 1.92 | 0.50 |
| 1:A:710:LYS:HE3 | 1:A:818:GLU:OE2 | 2.11 | 0.50 |
| 3:C:137:ASN:ND2 | 3:C:137:ASN:H | 2.09 | 0.50 |
| 5:E:41:LYS:HE3 | 5:E:47:LYS:HE3 | 1.91 | 0.50 |
| 7:G:13:LEU:HD21 | 7:G:22:LEU:HD11 | 1.93 | 0.50 |
| 13:M:276:ASP:O | 20:T:153:TYR:HB2 | 2.11 | 0.50 |
| 17:Q:24:GLY:CA | 18:R:209:GLN:HG2 | 2.38 | 0.50 |
| 17:Q:188:TYR:OH | 18:R:211:SER:OG | 2.19 | 0.50 |
| 21:X:3:DA:H1' | 21:X:4:DG:H5' | 1.94 | 0.50 |
| 21:X:36:DT:H71 | 21:X:37:DT:H3 | 1.77 | 0.50 |
| 1:A:138:LYS:H | 1:A:1445:HIS:HE1 | 1.60 | 0.50 |
| 2:B:92:TYR:HE1 | 20:T:141:LEU:HG | 1.77 | 0.50 |
| 13:M:128:ILE:HG23 | 13:M:183:VAL:HG11 | 1.92 | 0.50 |
| 1:A:36:VAL:HG11 | 1:A:72:GLN:NE2 | 2.27 | 0.50 |
| 1:A:366:VAL:O | 1:A:481:THR:HB | 2.12 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:603:ILE:HG12 | 1:A:604:ARG:H | 1.76 | 0.50 |
| 2:B:367:TYR:OH | 2:B:371:ARG:NH1 | 2.45 | 0.50 |
| 3:C:259:LEU:HD22 | 11:K:42:LEU:HD21 | 1.94 | 0.50 |
| 19:S:172:ASN:OD1 | 19:S:173:HIS:N | 2.45 | 0.50 |
| 21:X:13:DT:H3 | 22:Y:81:DA:H61 | 1.60 | 0.50 |
| 1:A:137:PRO:HB2 | 1:A:1445:HIS:CE1 | 2.46 | 0.50 |
| 1:A:451:CYS:O | 1:A:453:GLY:N | 2.38 | 0.50 |
| 9:I:57:LYS:C | 9:I:58:ILE:CG1 | 2.75 | 0.50 |
| 13:M:182:ALA:HB2 | 20:T:154:LYS:HA | 1.92 | 0.50 |
| 18:R:82:VAL:HG22 | 18:R:140:LYS:HE2 | 1.94 | 0.50 |
| 2:B:225:LEU:O | 2:B:227:ASN:C | 2.51 | 0.50 |
| 3:C:142:TYR:O | 3:C:144:GLU:N | 2.45 | 0.50 |
| 3:C:212:ASP:O | 3:C:213:GLU:C | 2.50 | 0.50 |
| 14:N:21:VAL:HG21 | 15:O:40:PHE:HD1 | 1.77 | 0.50 |
| 17:Q:113:ARG:HH12 | 18:R:218:LYS:CA | 2.25 | 0.50 |
| 17:Q:180:PHE:CE1 | 18:R:212:VAL:O | 2.65 | 0.50 |
| 1:A:1076:PHE:CE2 | 1:A:1080:ILE:HD11 | 2.47 | 0.49 |
| 1:A:1304:ILE:HA | 1:A:1340:GLY:HA3 | 1.93 | 0.49 |
| 1:A:1361:ASP:OD2 | 1:A:1364:GLU:HB2 | 2.12 | 0.49 |
| 13:M:85:GLY:O | 13:M:86:LYS:HB2 | 2.11 | 0.49 |
| 1:A:196:LEU:HD22 | 1:A:325:LEU:HD21 | 1.94 | 0.49 |
| 1:A:262:PRO:CB | 2:B:1070:LEU:HG | 2.38 | 0.49 |
| 1:A:606:HIS:HB3 | 1:A:627:LYS:HA | 1.94 | 0.49 |
| 1:A:802:PHE:CE2 | 1:A:808:PRO:HD3 | 2.47 | 0.49 |
| 1:A:1305:SER:OG | 1:A:1306:LYS:N | 2.46 | 0.49 |
| 2:B:92:TYR:HB3 | 20:T:145:LEU:CD1 | 2.30 | 0.49 |
| 2:B:838:GLN:HG3 | 2:B:886:ARG:NH2 | 2.27 | 0.49 |
| 9:I:86:CYS:HB2 | 9:I:114:CYS:SG | 2.51 | 0.49 |
| 9:I:96:PHE:HB3 | 9:I:112:TYR:CD1 | 2.47 | 0.49 |
| 18:R:213:ASP:O | 18:R:215:GLU:N | 2.44 | 0.49 |
| 20:T:34:ALA:O | 20:T:37:ARG:HG3 | 2.12 | 0.49 |
| 20:T:144:GLN:O | 20:T:145:LEU:HB2 | 2.13 | 0.49 |
| 22:Y:46:DC:H2' | 22:Y:47:DG:C8 | 2.48 | 0.49 |
| 22:Y:46:DC:H2' | 22:Y:47:DG:H8 | 1.77 | 0.49 |
| 1:A:273:GLN:O | 1:A:274:ASP:C | 2.49 | 0.49 |
| 1:A:1290:SER:CB | 2:B:250:SER:OG | 2.24 | 0.49 |
| 2:B:628:VAL:HG12 | 2:B:633:LEU:HA | 1.95 | 0.49 |
| 8:H:65:TYR:HE1 | 8:H:84:ARG:HH21 | 1.60 | 0.49 |
| 1:A:371:PRO:HD2 | 2:B:788:TYR:CE1 | 2.48 | 0.49 |
| 1:A:612:ASP:C | 1:A:614:ASP:N | 2.62 | 0.49 |
| 17:Q:70:LYS:NZ | 18:R:230:GLU:OE2 | 2.46 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:1473:LEU:HD13 | 6:F:104:ILE:HD12 | 1.94 | 0.49 |
| 15:O:48:LEU:HD23 | 15:O:52:VAL:HG21 | 1.93 | 0.49 |
| 22:Y:57:DA:H5" | 22:Y:58:DC:H2' | 1.95 | 0.49 |
| 1:A:60:PRO:O | 1:A:61:ARG:HG3 | 2.12 | 0.49 |
| 1:A:883:ILE:HG21 | 1:A:1424:THR:HA | 1.93 | 0.49 |
| 13:M:52:TRP:C | 13:M:54:THR:H | 2.16 | 0.49 |
| 13:M:56:SER:O | 22:Y:51:DC:N4 | 2.45 | 0.49 |
| 1:A:107:LEU:HD23 | 1:A:191:ILE:HD13 | 1.95 | 0.49 |
| 1:A:131:ALA:C | 1:A:133:SER:N | 2.56 | 0.49 |
| 1:A:133:SER:O | 1:A:134:LYS:HB2 | 2.12 | 0.49 |
| 3:C:146:ASP:O | 3:C:148:ILE:N | 2.45 | 0.49 |
| 17:Q:25:PHE:H | 18:R:210:PHE:HE2 | 1.61 | 0.49 |
| 17:Q:75:ARG:HB3 | 17:Q:95:ASN:HB3 | 1.95 | 0.49 |
| 17:Q:187:ILE:HD13 | 18:R:212:VAL:N | 2.25 | 0.49 |
| 20:T:95:VAL:O | 20:T:107:GLU:N | 2.45 | 0.49 |
| 20:T:166:GLU:O | 20:T:170:LYS:HG3 | 2.13 | 0.49 |
| 1:A:263:ALA:O | 1:A:265:VAL:HG22 | 2.12 | 0.49 |
| 2:B:89:GLU:HG3 | 2:B:90:GLN:H | 1.78 | 0.49 |
| 12:L:25:GLU:OE1 | 12:L:25:GLU:N | 2.36 | 0.49 |
| 19:S:126:ILE:O | 19:S:137:ALA:HA | 2.13 | 0.49 |
| 1:A:358:ARG:HE | 2:B:1076:GLU:CD | 2.16 | 0.49 |
| 2:B:1162:LEU:HD23 | 2:B:1165:MET:CE | 2.43 | 0.49 |
| 3:C:36:ARG:NH2 | 11:K:40:HIS:HB2 | 2.28 | 0.49 |
| 9:I:66:THR:O | 9:I:68:ILE:N | 2.44 | 0.49 |
| 15:O:86:GLU:HG3 | 15:O:87:LEU:N | 2.28 | 0.49 |
| 2:B:62:ALA:N | 2:B:63:PRO:HD3 | 2.28 | 0.49 |
| 2:B:323:SER:HB3 | 2:B:335:ARG:NH1 | 2.27 | 0.49 |
| 20:T:180:LYS:HE3 | 20:T:184:LEU:HD11 | 1.95 | 0.49 |
| 1:A:1158:LEU:HD11 | 1:A:1308:TYR:CD1 | 2.47 | 0.48 |
| 2:B:422:PHE:CE2 | 2:B:429:PHE:HB2 | 2.48 | 0.48 |
| 2:B:631:GLN:HB3 | 2:B:685:LYS:HZ3 | 1.77 | 0.48 |
| 3:C:154:ARG:HG2 | 3:C:155:LYS:H | 1.77 | 0.48 |
| 5:E:112:PRO:HA | 5:E:115:LYS:HE2 | 1.95 | 0.48 |
| 8:H:10:PHE:CE2 | 8:H:39:LEU:HD22 | 2.47 | 0.48 |
| 21:X:33:DT:H2" | 21:X:34:DT:C5 | 2.47 | 0.48 |
| 1:A:266:MET:HB3 | 13:M:52:TRP:CE3 | 2.49 | 0.48 |
| 1:A:458:PHE:HE2 | 1:A:482:PHE:CD2 | 2.31 | 0.48 |
| 1:A:1290:SER:OG | 2:B:250:SER:C | 2.48 | 0.48 |
| 1:A:1319:LYS:HD3 | 1:A:1333:GLU:OE1 | 2.13 | 0.48 |
| 2:B:497:LYS:O | 2:B:500:GLN:HG2 | 2.14 | 0.48 |
| 2:B:1080:ARG:NH1 | 13:M:53:ARG:HD2 | 2.28 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 9:I:28:GLU:HG2 | 9:I:30:LYS:HG3 | 1.94 | 0.48 |
| 17:Q:191:LEU:HD21 | 18:R:210:PHE:HB2 | 1.95 | 0.48 |
| 18:R:75:PHE:HD2 | 20:T:192:GLU:OE2 | 1.96 | 0.48 |
| 1:A:266:MET:HE2 | 13:M:52:TRP:CE2 | 2.49 | 0.48 |
| 1:A:347:GLU:OE1 | 1:A:347:GLU:N | 2.42 | 0.48 |
| 2:B:58:ILE:O | 2:B:61:ASP:HB2 | 2.13 | 0.48 |
| 2:B:422:PHE:O | 2:B:425:ARG:N | 2.46 | 0.48 |
| 6:F:79:VAL:HG12 | 6:F:81:VAL:H | 1.78 | 0.48 |
| 7:G:145:LEU:HD13 | 7:G:161:GLY:HA3 | 1.94 | 0.48 |
| 8:H:65:TYR:HE2 | 8:H:70:LEU:HA | 1.76 | 0.48 |
| 22:Y:29:DC:H2" | 22:Y:30:DG:C8 | 2.48 | 0.48 |
| 1:A:312:PHE:HB2 | 13:M:101:TYR:OH | 2.14 | 0.48 |
| 1:A:609:HIS:H | 1:A:610:PRO:HD3 | 1.73 | 0.48 |
| 2:B:248:LYS:HG2 | 19:S:170:VAL:HG23 | 1.96 | 0.48 |
| 2:B:378:GLY:O | 9:I:102:ALA:HB3 | 2.14 | 0.48 |
| 2:B:728:MET:HA | 2:B:731:GLN:HB2 | 1.95 | 0.48 |
| 2:B:881:GLU:HB3 | 2:B:883:THR:HG23 | 1.94 | 0.48 |
| 2:B:1029:TYR:HE1 | 2:B:1036:LYS:CE | 2.25 | 0.48 |
| 2:B:1104:ARG:O | 2:B:1108:PHE:HB3 | 2.14 | 0.48 |
| 5:E:49:SER:O | 5:E:52:ARG:NH1 | 2.36 | 0.48 |
| 18:R:161:ARG:HG3 | 18:R:161:ARG:O | 2.13 | 0.48 |
| 20:T:217:LEU:HB3 | 20:T:233:TRP:CE3 | 2.48 | 0.48 |
| 1:A:641:CYS:SG | 1:A:643:LYS:N | 2.86 | 0.48 |
| 1:A:745:LEU:HD21 | 1:A:817:PRO:HB3 | 1.95 | 0.48 |
| 1:A:930:LEU:C | 1:A:931:ARG:O | 2.50 | 0.48 |
| 2:B:225:LEU:HB3 | 2:B:228:SER:CB | 2.31 | 0.48 |
| 2:B:819:SER:HB3 | 2:B:821:LYS:HB2 | 1.94 | 0.48 |
| 7:G:97:LEU:HG | 7:G:113:ILE:HD11 | 1.95 | 0.48 |
| 8:H:99:ILE:HD11 | 8:H:112:LEU:HD21 | 1.94 | 0.48 |
| 1:A:137:PRO:HB2 | 1:A:1445:HIS:NE2 | 2.29 | 0.48 |
| 1:A:371:PRO:HD2 | 2:B:788:TYR:CZ | 2.49 | 0.48 |
| 1:A:1020:LEU:HD22 | 1:A:1076:PHE:CD2 | 2.48 | 0.48 |
| 1:A:1463:LEU:HA | 2:B:1104:ARG:HD3 | 1.96 | 0.48 |
| 2:B:274:ARG:NH2 | 2:B:279:VAL:O | 2.47 | 0.48 |
| 2:B:363:TYR:CD2 | 2:B:553:LEU:HD11 | 2.48 | 0.48 |
| 3:C:100:GLU:HG3 | 3:C:164:TYR:CE1 | 2.48 | 0.48 |
| 8:H:90:TYR:HB3 | 8:H:145:MET:HB3 | 1.96 | 0.48 |
| 1:A:540:ASP:HB3 | 2:B:790:GLN:HG2 | 1.96 | 0.48 |
| 1:A:623:PRO:C | 1:A:625:ASP:N | 2.67 | 0.48 |
| 1:A:772:SER:OG | 1:A:773:GLY:N | 2.45 | 0.48 |
| 2:B:23:GLN:OE1 | 2:B:23:GLN:N | 2.40 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:B:752:TYR:O | 10:J:1:MET:HG3 | 2.13 | 0.48 |
| 2:B:799:SER:HB2 | 2:B:951:GLN:HB2 | 1.95 | 0.48 |
| 2:B:952:GLU:OE2 | 3:C:40:ALA:HB2 | 2.13 | 0.48 |
| 3:C:69:GLY:HA3 | 12:L:57:ALA:HB1 | 1.95 | 0.48 |
| 13:M:214:PHE:HB3 | 13:M:218:PHE:CE2 | 2.48 | 0.48 |
| 20:T:138:PRO:HB2 | 20:T:140:ARG:HH21 | 1.79 | 0.48 |
| 1:A:522:PRO:HG3 | 1:A:666:ARG:HG2 | 1.95 | 0.48 |
| 1:A:719:LYS:HG2 | 1:A:724:GLU:OE1 | 2.13 | 0.48 |
| 1:A:1147:SER:HB3 | 1:A:1157:ILE:HD11 | 1.95 | 0.48 |
| 2:B:573:TRP:O | 2:B:573:TRP:HE3 | 1.97 | 0.48 |
| 3:C:37:VAL:HG12 | 3:C:248:ALA:HB1 | 1.96 | 0.48 |
| 1:A:567:LEU:HD11 | 1:A:595:ILE:HG12 | 1.96 | 0.48 |
| 1:A:891:TYR:CE1 | 1:A:1087:VAL:HG13 | 2.49 | 0.48 |
| 2:B:1163:MET:HA | 2:B:1167:ILE:O | 2.14 | 0.48 |
| 12:L:13:GLN:C | 12:L:15:MET:H | 2.17 | 0.48 |
| 17:Q:21:VAL:HA | 18:R:210:PHE:CD2 | 2.49 | 0.48 |
| 17:Q:184:ILE:CD1 | 18:R:211:SER:CB | 2.86 | 0.48 |
| 19:S:110:PHE:CD1 | 19:S:148:PRO:HA | 2.48 | 0.48 |
| 1:A:1130:ILE:HD13 | 1:A:1411:LEU:HB3 | 1.95 | 0.47 |
| 2:B:312:GLN:O | 19:S:153:ARG:NH2 | 2.47 | 0.47 |
| 2:B:950:ARG:HH12 | 3:C:171:LYS:HG3 | 1.79 | 0.47 |
| 2:B:1060:HIS:CE1 | 2:B:1078:ARG:HG2 | 2.48 | 0.47 |
| 4:D:60:VAL:HG13 | 7:G:103:PRO:HG3 | 1.95 | 0.47 |
| 17:Q:106:LYS:NZ | 18:R:223:VAL:O | 2.33 | 0.47 |
| 19:S:110:PHE:HD1 | 19:S:148:PRO:HA | 1.78 | 0.47 |
| 20:T:47:LYS:HG2 | 20:T:52:THR:HG23 | 1.95 | 0.47 |
| 1:A:77:ASN:OD1 | 1:A:77:ASN:N | 2.47 | 0.47 |
| 1:A:613:GLU:O | 1:A:614:ASP:CB | 2.62 | 0.47 |
| 2:B:733:MET:HG2 | 2:B:1050:ARG:O | 2.14 | 0.47 |
| 2:B:1075:MET:HE3 | 13:M:51:GLU:HG2 | 1.96 | 0.47 |
| 5:E:173:ILE:CG2 | 5:E:209:VAL:HG22 | 2.44 | 0.47 |
| 14:N:317:GLU:C | 14:N:318:ASP:O | 2.52 | 0.47 |
| 1:A:344:LYS:NZ | 22:Y:43:DG:H5” | 2.28 | 0.47 |
| 1:A:702:ILE:HG12 | 1:A:752:THR:HG23 | 1.94 | 0.47 |
| 1:A:1067:TRP:CZ2 | 1:A:1071:GLU:HG3 | 2.50 | 0.47 |
| 2:B:861:SER:O | 2:B:896:LEU:HD23 | 2.15 | 0.47 |
| 3:C:100:GLU:HG3 | 3:C:164:TYR:HE1 | 1.79 | 0.47 |
| 4:D:112:LYS:HD2 | 4:D:124:ASP:OD1 | 2.14 | 0.47 |
| 5:E:27:LEU:HB2 | 5:E:64:HIS:HB3 | 1.96 | 0.47 |
| 7:G:40:GLY:O | 7:G:78:ARG:NH1 | 2.48 | 0.47 |
| 11:K:87:PHE:CE1 | 11:K:91:ILE:HD11 | 2.49 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 13:M:245:VAL:HG12 | 13:M:291:LEU:HD23 | 1.95 | 0.47 |
| 14:N:344:ARG:HH21 | 22:Y:78:DT:H3' | 1.77 | 0.47 |
| 15:O:79:VAL:HG21 | 15:O:93:VAL:HG12 | 1.96 | 0.47 |
| 17:Q:169:PRO:HA | 17:Q:174:ARG:HG2 | 1.96 | 0.47 |
| 2:B:52:GLN:O | 20:T:140:ARG:HG3 | 2.14 | 0.47 |
| 2:B:531:TYR:HE2 | 2:B:599:SER:HB3 | 1.79 | 0.47 |
| 9:I:21:ASN:O | 9:I:22:ASN:ND2 | 2.47 | 0.47 |
| 13:M:182:ALA:HB3 | 20:T:154:LYS:HG2 | 1.96 | 0.47 |
| 14:N:360:LEU:HD11 | 15:O:81:PHE:HD2 | 1.79 | 0.47 |
| 17:Q:24:GLY:HA2 | 18:R:209:GLN:OE1 | 2.13 | 0.47 |
| 1:A:1304:ILE:HB | 1:A:1307:VAL:CG1 | 2.44 | 0.47 |
| 1:A:485:ASN:C | 1:A:485:ASN:OD1 | 2.52 | 0.47 |
| 1:A:810:PHE:CZ | 1:A:819:SER:HA | 2.50 | 0.47 |
| 1:A:1290:SER:OG | 2:B:250:SER:CA | 2.61 | 0.47 |
| 2:B:494:LYS:HG3 | 21:X:49:DT:C2 | 2.50 | 0.47 |
| 2:B:804:GLY:HA2 | 2:B:807:ARG:HE | 1.79 | 0.47 |
| 3:C:117:SER:OG | 3:C:147:ASP:HB3 | 2.15 | 0.47 |
| 17:Q:58:GLN:HE22 | 18:R:194:ARG:NH1 | 2.10 | 0.47 |
| 17:Q:113:ARG:HH11 | 18:R:221:ARG:HB2 | 1.79 | 0.47 |
| 18:R:194:ARG:HD3 | 18:R:194:ARG:HA | 1.39 | 0.47 |
| 18:R:204:ASN:OD1 | 18:R:205:ASP:N | 2.48 | 0.47 |
| 20:T:141:LEU:CA | 20:T:143:GLN:OE1 | 2.63 | 0.47 |
| 1:A:362:SER:OG | 2:B:1084:LEU:HD13 | 2.15 | 0.47 |
| 1:A:597:PRO:O | 1:A:599:HIS:N | 2.48 | 0.47 |
| 2:B:348:LEU:N | 2:B:349:PRO:HD3 | 2.30 | 0.47 |
| 2:B:886:ARG:NH2 | 13:M:12:ARG:HH22 | 2.13 | 0.47 |
| 10:J:8:PHE:H | 10:J:48:MET:HE1 | 1.80 | 0.47 |
| 10:J:65:LEU:HD22 | 10:J:65:LEU:N | 2.29 | 0.47 |
| 13:M:217:ARG:O | 13:M:221:ASN:ND2 | 2.46 | 0.47 |
| 17:Q:188:TYR:CD2 | 17:Q:191:LEU:HD22 | 2.50 | 0.47 |
| 1:A:360:ASP:CG | 2:B:1064:ARG:H | 2.17 | 0.47 |
| 8:H:24:ARG:NH1 | 8:H:46:GLN:OE1 | 2.48 | 0.47 |
| 9:I:61:GLU:HG3 | 9:I:103:ARG:NH2 | 2.30 | 0.47 |
| 17:Q:42:CYS:O | 17:Q:95:ASN:ND2 | 2.40 | 0.47 |
| 18:R:140:LYS:H | 18:R:141:PRO:HD2 | 1.79 | 0.47 |
| 18:R:157:GLN:O | 18:R:161:ARG:N | 2.46 | 0.47 |
| 19:S:136:GLU:HG2 | 19:S:138:PHE:CE1 | 2.49 | 0.47 |
| 22:Y:63:DG:H5' | 22:Y:65:DG:OP1 | 2.15 | 0.47 |
| 2:B:896:LEU:C | 2:B:897:ARG:HG3 | 2.34 | 0.47 |
| 3:C:1:MET:O | 3:C:3:TYR:N | 2.37 | 0.47 |
| 3:C:14:LEU:HD13 | 3:C:19:VAL:HG23 | 1.95 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 4:D:95:PHE:HZ | 7:G:83:GLU:HG3 | 1.80 | 0.47 |
| 7:G:139:GLN:O | 7:G:141:ASP:N | 2.47 | 0.47 |
| 14:N:333:ASN:CG | 14:N:361:ASN:H | 2.19 | 0.47 |
| 19:S:135:PHE:HE2 | 20:T:43:LEU:HD23 | 1.79 | 0.47 |
| 21:X:48:DT:OP1 | 21:X:48:DT:H4' | 2.15 | 0.47 |
| 1:A:156:GLY:N | 1:A:181:HIS:ND1 | 2.63 | 0.47 |
| 1:A:1374:VAL:HG11 | 1:A:1411:LEU:HD21 | 1.96 | 0.47 |
| 2:B:217:TYR:CE2 | 2:B:376:ALA:HA | 2.50 | 0.47 |
| 2:B:1022:LEU:HD12 | 2:B:1023:ARG:HG3 | 1.97 | 0.47 |
| 3:C:175:LYS:NZ | 12:L:57:ALA:HB3 | 2.30 | 0.47 |
| 18:R:209:GLN:NE2 | 18:R:215:GLU:OE1 | 2.48 | 0.47 |
| 1:A:322:LEU:HD23 | 1:A:325:LEU:HD22 | 1.97 | 0.46 |
| 1:A:334:ARG:HE | 13:M:66:ARG:HD3 | 1.79 | 0.46 |
| 1:A:466:LYS:HA | 2:B:1093:CYS:SG | 2.55 | 0.46 |
| 1:A:606:HIS:O | 1:A:608:THR:N | 2.44 | 0.46 |
| 1:A:926:ASN:CG | 1:A:931:ARG:HB3 | 2.35 | 0.46 |
| 2:B:295:PRO:HB3 | 9:I:11:PHE:CD2 | 2.49 | 0.46 |
| 2:B:561:ILE:HD11 | 2:B:576:ILE:HG21 | 1.97 | 0.46 |
| 2:B:588:ARG:HH11 | 2:B:588:ARG:HB2 | 1.79 | 0.46 |
| 2:B:924:ARG:O | 2:B:924:ARG:HG3 | 2.15 | 0.46 |
| 2:B:1016:SER:HB3 | 2:B:1022:LEU:HB3 | 1.96 | 0.46 |
| 2:B:1080:ARG:NH2 | 13:M:50:SER:HB3 | 2.26 | 0.46 |
| 9:I:98:GLN:O | 9:I:100:HIS:N | 2.47 | 0.46 |
| 13:M:108:SER:HB3 | 13:M:112:ARG:NH1 | 2.30 | 0.46 |
| 17:Q:118:GLU:HB2 | 17:Q:181:ASN:ND2 | 2.29 | 0.46 |
| 1:A:430:ARG:NH2 | 13:M:26:ASP:OD2 | 2.47 | 0.46 |
| 2:B:206:TYR:HD1 | 2:B:208:PHE:CE1 | 2.32 | 0.46 |
| 2:B:584:MET:HG3 | 2:B:605:ARG:HD2 | 1.97 | 0.46 |
| 2:B:756:LYS:HG2 | 10:J:51:ALA:O | 2.16 | 0.46 |
| 7:G:94:LYS:HA | 7:G:119:PHE:CD2 | 2.49 | 0.46 |
| 12:L:35:ARG:NH1 | 12:L:42:ARG:NH2 | 2.62 | 0.46 |
| 13:M:196:LYS:NZ | 21:X:13:DT:OP1 | 2.32 | 0.46 |
| 16:P:183:ILE:HG12 | 16:P:244:LEU:HD13 | 1.96 | 0.46 |
| 16:P:297:LYS:HB2 | 16:P:298:PRO:HD2 | 1.91 | 0.46 |
| 1:A:365:THR:HG22 | 2:B:1059:ILE:HG22 | 1.97 | 0.46 |
| 1:A:426:ARG:O | 13:M:39:LEU:CA | 2.59 | 0.46 |
| 1:A:472:HIS:NE2 | 1:A:521:VAL:HG21 | 2.31 | 0.46 |
| 1:A:601:ASN:ND2 | 1:A:992:LYS:HD2 | 2.30 | 0.46 |
| 1:A:1252:ALA:HB1 | 9:I:3:PRO:HB3 | 1.96 | 0.46 |
| 2:B:92:TYR:CG | 20:T:145:LEU:CD1 | 2.97 | 0.46 |
| 2:B:874:PRO:HG2 | 2:B:875:GLU:H | 1.81 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 3:C:169:PHE:CE1 | 3:C:171:LYS:HB3 | 2.51 | 0.46 |
| 5:E:146:PRO:O | 5:E:148:HIS:ND1 | 2.48 | 0.46 |
| 5:E:173:ILE:HG23 | 5:E:209:VAL:HG22 | 1.97 | 0.46 |
| 8:H:105:SER:HB2 | 8:H:108:ALA:HB2 | 1.98 | 0.46 |
| 14:N:333:ASN:O | 15:O:93:VAL:HG23 | 2.14 | 0.46 |
| 14:N:337:CYS:O | 15:O:97:ALA:HA | 2.14 | 0.46 |
| 16:P:249:LYS:HB3 | 16:P:251:LEU:HG | 1.97 | 0.46 |
| 17:Q:24:GLY:CA | 18:R:209:GLN:OE1 | 2.63 | 0.46 |
| 20:T:127:LEU:O | 20:T:131:GLN:N | 2.44 | 0.46 |
| 1:A:34:MET:SD | 2:B:1124:ILE:HG21 | 2.54 | 0.46 |
| 1:A:687:ILE:HG13 | 1:A:691:ASP:OD2 | 2.16 | 0.46 |
| 3:C:100:GLU:CG | 3:C:164:TYR:HE1 | 2.28 | 0.46 |
| 11:K:61:TYR:HA | 11:K:72:ILE:O | 2.15 | 0.46 |
| 17:Q:113:ARG:CD | 18:R:221:ARG:HB3 | 2.40 | 0.46 |
| 21:X:60:DG:N3 | 22:Y:35:DG:N2 | 2.64 | 0.46 |
| 2:B:127:ASP:HA | 2:B:145:GLN:O | 2.16 | 0.46 |
| 3:C:274:ILE:O | 11:K:23:LYS:NZ | 2.33 | 0.46 |
| 8:H:64:LEU:C | 8:H:66:GLU:N | 2.69 | 0.46 |
| 9:I:61:GLU:C | 9:I:63:ASP:N | 2.69 | 0.46 |
| 17:Q:135:THR:HG23 | 17:Q:164:ASP:OD1 | 2.15 | 0.46 |
| 17:Q:184:ILE:CD1 | 18:R:218:LYS:HZ3 | 2.18 | 0.46 |
| 20:T:211:VAL:O | 20:T:215:GLU:HG2 | 2.15 | 0.46 |
| 1:A:265:VAL:C | 1:A:272:ASN:HD22 | 2.19 | 0.46 |
| 2:B:203:ASN:O | 2:B:204:THR:OG1 | 2.27 | 0.46 |
| 9:I:84:HIS:ND1 | 9:I:85:PRO:CD | 2.77 | 0.46 |
| 16:P:298:PRO:O | 16:P:299:ARG:C | 2.53 | 0.46 |
| 20:T:128:LYS:HA | 20:T:131:GLN:HB3 | 1.97 | 0.46 |
| 1:A:46:THR:HG23 | 1:A:58:MET:HG2 | 1.98 | 0.46 |
| 1:A:608:THR:OG1 | 1:A:610:PRO:HD2 | 2.13 | 0.46 |
| 1:A:760:LEU:HD22 | 1:A:764:ASN:HD22 | 1.81 | 0.46 |
| 1:A:939:VAL:O | 1:A:942:VAL:HG22 | 2.16 | 0.46 |
| 2:B:74:ALA:HB2 | 20:T:201:ASP:CG | 2.35 | 0.46 |
| 2:B:250:SER:O | 2:B:251:ALA:CB | 2.61 | 0.46 |
| 2:B:972:ILE:HG12 | 2:B:981:LEU:HD21 | 1.97 | 0.46 |
| 3:C:136:ASP:N | 3:C:136:ASP:OD1 | 2.49 | 0.46 |
| 11:K:49:GLN:HG3 | 11:K:94:LEU:HB2 | 1.97 | 0.46 |
| 18:R:195:PRO:HG2 | 18:R:201:LEU:HD21 | 1.98 | 0.46 |
| 18:R:198:LYS:HE3 | 18:R:199:LYS:HE3 | 1.98 | 0.46 |
| 19:S:98:TRP:HB2 | 19:S:112:GLY:HA3 | 1.98 | 0.46 |
| 1:A:264:VAL:C | 1:A:272:ASN:CG | 2.70 | 0.46 |
| 1:A:795:GLY:HA3 | 1:A:1107:PHE:HD2 | 1.80 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:1128:ILE:HG23 | 1:A:1414:ILE:CG1 | 2.46 | 0.46 |
| 2:B:1135:TYR:O | 2:B:1136:GLU:HG2 | 2.16 | 0.46 |
| 3:C:68:LEU:HD12 | 3:C:71:ILE:HD12 | 1.97 | 0.46 |
| 3:C:157:GLN:CD | 10:J:65:LEU:HG | 2.36 | 0.46 |
| 8:H:23:ASP:OD1 | 8:H:23:ASP:N | 2.37 | 0.46 |
| 14:N:46:TRP:CZ2 | 15:O:11:LEU:HD11 | 2.51 | 0.46 |
| 15:O:84:VAL:HG13 | 15:O:85:THR:HG23 | 1.97 | 0.46 |
| 21:X:24:DG:H4' | 21:X:25:DG:OP1 | 2.16 | 0.46 |
| 21:X:30:DG:N2 | 22:Y:64:DC:O2 | 2.49 | 0.46 |
| 21:X:31:DT:H2' | 21:X:32:DT:C2 | 2.50 | 0.46 |
| 1:A:373:LEU:HD12 | 1:A:373:LEU:HA | 1.70 | 0.46 |
| 1:A:574:VAL:O | 8:H:74:GLU:HA | 2.16 | 0.46 |
| 1:A:601:ASN:ND2 | 1:A:988:TRP:HZ3 | 2.14 | 0.46 |
| 1:A:1176:TYR:HB2 | 1:A:1211:LEU:HD23 | 1.98 | 0.46 |
| 2:B:234:THR:O | 2:B:236:TRP:CD1 | 2.69 | 0.46 |
| 2:B:257:VAL:HA | 2:B:268:PRO:HA | 1.97 | 0.46 |
| 2:B:853:LEU:HD13 | 2:B:907:VAL:HG11 | 1.97 | 0.46 |
| 2:B:959:GLU:OE2 | 10:J:42:ARG:HB3 | 2.15 | 0.46 |
| 3:C:246:LEU:HD11 | 11:K:106:ARG:NH2 | 2.31 | 0.46 |
| 16:P:297:LYS:HA | 16:P:297:LYS:HD3 | 1.30 | 0.46 |
| 2:B:952:GLU:OE1 | 2:B:952:GLU:N | 2.46 | 0.46 |
| 2:B:1108:PHE:CD2 | 2:B:1109:GLU:HG3 | 2.51 | 0.46 |
| 13:M:53:ARG:NH1 | 22:Y:55:DG:O6 | 2.49 | 0.46 |
| 13:M:94:ASP:HB3 | 13:M:99:SER:C | 2.36 | 0.46 |
| 14:N:376:TRP:HD1 | 15:O:62:LEU:O | 1.98 | 0.46 |
| 18:R:119:LEU:HA | 18:R:123:ALA:HB3 | 1.97 | 0.46 |
| 1:A:196:LEU:HD21 | 1:A:311:GLN:HG3 | 1.99 | 0.45 |
| 1:A:687:ILE:HA | 1:A:691:ASP:OD2 | 2.15 | 0.45 |
| 1:A:1210:TRP:CD1 | 1:A:1281:ASP:HB3 | 2.52 | 0.45 |
| 2:B:594:MET:O | 20:T:129:ARG:NH1 | 2.49 | 0.45 |
| 2:B:595:ASP:OD1 | 20:T:129:ARG:NH1 | 2.48 | 0.45 |
| 3:C:131:THR:HB | 3:C:147:ASP:OD1 | 2.15 | 0.45 |
| 20:T:177:ARG:NH1 | 21:X:19:DG:H3' | 2.31 | 0.45 |
| 1:A:324:GLY:HA2 | 13:M:90:ALA:HB3 | 1.99 | 0.45 |
| 2:B:489:ILE:HD12 | 21:X:47:DT:O2 | 2.17 | 0.45 |
| 2:B:551:GLU:HB2 | 2:B:576:ILE:HD11 | 1.97 | 0.45 |
| 2:B:1123:GLY:HA3 | 2:B:1170:ARG:HB3 | 1.97 | 0.45 |
| 3:C:72:PRO:HG3 | 10:J:13:ILE:HD13 | 1.97 | 0.45 |
| 8:H:108:ALA:O | 8:H:109:ALA:C | 2.55 | 0.45 |
| 12:L:19:CYS:HB3 | 12:L:23:HIS:H | 1.81 | 0.45 |
| 17:Q:114:ILE:CG1 | 18:R:218:LYS:HE3 | 2.47 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 20:T:30:GLN:NE2 | 20:T:62:LEU:O | 2.48 | 0.45 |
| 21:X:37:DT:H1' | 21:X:38:DT:O5' | 2.16 | 0.45 |
| 1:A:426:ARG:HB3 | 13:M:40:VAL:CG2 | 2.47 | 0.45 |
| 1:A:582:PRO:HD2 | 8:H:47:ILE:HD12 | 1.98 | 0.45 |
| 2:B:258:ALA:N | 2:B:267:VAL:O | 2.42 | 0.45 |
| 8:H:96:VAL:HG13 | 8:H:115:TYR:O | 2.16 | 0.45 |
| 17:Q:99:LEU:O | 17:Q:101:ASN:N | 2.42 | 0.45 |
| 17:Q:112:ARG:O | 17:Q:115:GLU:HB2 | 2.16 | 0.45 |
| 1:A:187:TYR:HD2 | 1:A:202:TRP:CD1 | 2.35 | 0.45 |
| 1:A:350:VAL:HG21 | 1:A:1435:THR:HG23 | 1.98 | 0.45 |
| 1:A:539:GLN:HB3 | 1:A:540:ASP:H | 1.44 | 0.45 |
| 2:B:65:ILE:HD11 | 2:B:86:LEU:HD12 | 1.99 | 0.45 |
| 2:B:92:TYR:HB2 | 20:T:145:LEU:CD1 | 2.24 | 0.45 |
| 2:B:489:ILE:HG13 | 2:B:490:GLY:N | 2.29 | 0.45 |
| 7:G:14:HIS:CG | 7:G:15:PRO:HD2 | 2.51 | 0.45 |
| 8:H:85:ALA:CB | 8:H:144:LEU:HD22 | 2.46 | 0.45 |
| 9:I:32:ASN:HB2 | 9:I:34:ILE:HG12 | 1.98 | 0.45 |
| 9:I:61:GLU:H | 9:I:61:GLU:HG2 | 1.45 | 0.45 |
| 13:M:10:LEU:C | 13:M:12:ARG:N | 2.69 | 0.45 |
| 16:P:160:GLY:O | 16:P:162:VAL:CG1 | 2.57 | 0.45 |
| 20:T:31:TRP:HD1 | 20:T:62:LEU:HD21 | 1.82 | 0.45 |
| 1:A:485:ASN:O | 1:A:487:SER:N | 2.49 | 0.45 |
| 1:A:1005:HIS:ND1 | 1:A:1007:ILE:HG22 | 2.31 | 0.45 |
| 2:B:497:LYS:HE2 | 2:B:497:LYS:HB3 | 1.77 | 0.45 |
| 2:B:561:ILE:HD11 | 2:B:576:ILE:HG12 | 1.97 | 0.45 |
| 2:B:957:THR:HG23 | 2:B:961:ILE:HG23 | 1.98 | 0.45 |
| 5:E:80:PRO:HA | 5:E:107:GLN:HB3 | 1.97 | 0.45 |
| 7:G:98:PHE:CZ | 17:Q:145:PHE:HB2 | 2.51 | 0.45 |
| 17:Q:144:LEU:O | 17:Q:153:ARG:N | 2.44 | 0.45 |
| 18:R:198:LYS:HG3 | 18:R:199:LYS:HG3 | 1.98 | 0.45 |
| 22:Y:61:DA:H3' | 22:Y:62:DC:H5" | 1.98 | 0.45 |
| 1:A:275:ASP:OD1 | 1:A:276:LEU:N | 2.50 | 0.45 |
| 1:A:959:MET:HE1 | 1:A:1046:ARG:O | 2.17 | 0.45 |
| 1:A:1484:MET:SD | 7:G:20:PRO:HA | 2.57 | 0.45 |
| 2:B:73:HIS:C | 2:B:75:SER:N | 2.66 | 0.45 |
| 2:B:309:PHE:HA | 2:B:312:GLN:NE2 | 2.31 | 0.45 |
| 10:J:35:LEU:HD13 | 10:J:46:ARG:HG2 | 1.99 | 0.45 |
| 13:M:86:LYS:N | 13:M:86:LYS:HD2 | 2.31 | 0.45 |
| 13:M:244:LEU:HD21 | 13:M:292:ILE:HA | 1.98 | 0.45 |
| 17:Q:92:TYR:CE2 | 17:Q:94:ILE:HB | 2.52 | 0.45 |
| 17:Q:105:TYR:OH | 18:R:234:GLU:CD | 2.50 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:393:ILE:CG2 | 6:F:74:ALA:HB1 | 2.47 | 0.45 |
| 1:A:408:ARG:HD3 | 1:A:412:GLN:OE1 | 2.17 | 0.45 |
| 1:A:421:ARG:HA | 1:A:444:TYR:CD1 | 2.52 | 0.45 |
| 1:A:470:MET:HG2 | 1:A:524:MET:HG3 | 1.98 | 0.45 |
| 2:B:56:GLN:HB3 | 20:T:140:ARG:HD2 | 1.98 | 0.45 |
| 2:B:102:ASP:OD1 | 2:B:104:ALA:N | 2.38 | 0.45 |
| 2:B:882:SER:CB | 2:B:887:TYR:CE1 | 2.72 | 0.45 |
| 2:B:968:ASN:OD1 | 2:B:970:HIS:N | 2.34 | 0.45 |
| 5:E:55:ARG:NE | 5:E:107:GLN:OE1 | 2.46 | 0.45 |
| 11:K:67:LEU:HA | 11:K:67:LEU:HD23 | 1.63 | 0.45 |
| 15:O:50:GLN:O | 15:O:53:ARG:NH1 | 2.49 | 0.45 |
| 17:Q:69:ASP:HB3 | 17:Q:71:PHE:CD2 | 2.52 | 0.45 |
| 18:R:225:VAL:HG12 | 18:R:230:GLU:OE1 | 2.17 | 0.45 |
| 1:A:285:LYS:HE3 | 1:A:285:LYS:HB3 | 1.83 | 0.45 |
| 1:A:1057:GLU:O | 1:A:1059:ARG:HG3 | 2.17 | 0.45 |
| 2:B:420:GLN:HA | 2:B:423:ILE:HG12 | 1.99 | 0.45 |
| 5:E:88:LYS:O | 5:E:91:CYS:HB2 | 2.17 | 0.45 |
| 20:T:51:ARG:NE | 20:T:53:GLU:OE2 | 2.39 | 0.45 |
| 20:T:196:TYR:HB2 | 20:T:232:THR:HB | 1.98 | 0.45 |
| 21:X:37:DT:H4' | 21:X:38:DT:OP1 | 2.15 | 0.45 |
| 1:A:206:ASN:HB3 | 1:A:208:ASP:OD2 | 2.17 | 0.45 |
| 1:A:810:PHE:CE2 | 1:A:819:SER:HA | 2.52 | 0.45 |
| 2:B:556:ILE:O | 20:T:91:GLN:NE2 | 2.49 | 0.45 |
| 3:C:37:VAL:HG13 | 3:C:41:GLU:HB2 | 1.98 | 0.45 |
| 5:E:40:PHE:HE2 | 5:E:46:ASP:OD2 | 1.94 | 0.45 |
| 13:M:73:PRO:HB3 | 13:M:79:ASP:OD1 | 2.17 | 0.45 |
| 1:A:622:SER:O | 1:A:623:PRO:C | 2.48 | 0.45 |
| 2:B:931:ILE:HD11 | 2:B:947:ILE:HA | 1.99 | 0.45 |
| 2:B:1040:GLN:HG2 | 3:C:203:TRP:CZ2 | 2.51 | 0.45 |
| 4:D:74:PHE:CZ | 4:D:83:VAL:HG21 | 2.51 | 0.45 |
| 13:M:87:GLY:O | 13:M:88:THR:CB | 2.64 | 0.45 |
| 16:P:295:MET:HG2 | 16:P:297:LYS:H | 1.81 | 0.45 |
| 1:A:202:TRP:HZ3 | 1:A:214:ILE:HG12 | 1.81 | 0.44 |
| 1:A:1160:ARG:NH1 | 1:A:1349:GLU:OE2 | 2.50 | 0.44 |
| 2:B:899:SER:C | 2:B:901:THR:H | 2.21 | 0.44 |
| 9:I:11:PHE:HE1 | 9:I:54:TYR:HA | 1.82 | 0.44 |
| 12:L:26:ASN:HB2 | 12:L:44:MET:HE1 | 1.98 | 0.44 |
| 13:M:286:ARG:HG3 | 13:M:316:LEU:HD23 | 1.98 | 0.44 |
| 17:Q:17:LEU:HD11 | 17:Q:191:LEU:HB3 | 1.99 | 0.44 |
| 17:Q:114:ILE:HD11 | 18:R:218:LYS:CE | 2.43 | 0.44 |
| 1:A:374:SER:C | 1:A:485:ASN:HD22 | 2.20 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:601:ASN:ND2 | 1:A:632:ASN:H | 2.15 | 0.44 |
| 2:B:1021:HIS:HB2 | 3:C:203:TRP:CZ3 | 2.53 | 0.44 |
| 8:H:15:ILE:HD11 | 8:H:52:LEU:N | 2.32 | 0.44 |
| 8:H:108:ALA:O | 8:H:110:THR:N | 2.49 | 0.44 |
| 14:N:317:GLU:O | 14:N:318:ASP:C | 2.56 | 0.44 |
| 20:T:146:ASP:HB3 | 20:T:147:LYS:H | 1.64 | 0.44 |
| 21:X:53:DA:C6 | 21:X:54:DA:C6 | 3.05 | 0.44 |
| 2:B:32:SER:OG | 2:B:643:LEU:HD22 | 2.17 | 0.44 |
| 2:B:203:ASN:O | 2:B:571:GLY:HA3 | 2.18 | 0.44 |
| 2:B:878:ASP:C | 2:B:879:GLU:O | 2.55 | 0.44 |
| 7:G:96:GLY:O | 7:G:128:TYR:HE2 | 2.00 | 0.44 |
| 18:R:139:PHE:HA | 18:R:140:LYS:HB2 | 1.98 | 0.44 |
| 19:S:17:ARG:HG2 | 20:T:38:GLY:O | 2.17 | 0.44 |
| 1:A:526:VAL:HA | 1:A:533:PRO:HA | 2.00 | 0.44 |
| 1:A:567:LEU:HD22 | 1:A:570:TRP:HB2 | 2.00 | 0.44 |
| 1:A:1298:LEU:O | 1:A:1300:GLY:N | 2.50 | 0.44 |
| 1:A:1477:ALA:O | 1:A:1480:CYS:HB2 | 2.18 | 0.44 |
| 2:B:854:ILE:HD13 | 2:B:904:VAL:HG21 | 1.99 | 0.44 |
| 2:B:1062:ARG:CZ | 2:B:1074:PRO:HB3 | 2.48 | 0.44 |
| 3:C:6:GLN:O | 3:C:7:PRO:CB | 2.62 | 0.44 |
| 12:L:16:ILE:HG21 | 12:L:47:LYS:CD | 2.48 | 0.44 |
| 13:M:59:LYS:HA | 23:Z:1:A:N7 | 2.32 | 0.44 |
| 13:M:86:LYS:HB3 | 13:M:87:GLY:H | 1.66 | 0.44 |
| 19:S:125:TYR:HD1 | 19:S:139:PRO:HA | 1.82 | 0.44 |
| 20:T:99:SER:HB2 | 20:T:103:LYS:H | 1.81 | 0.44 |
| 20:T:141:LEU:C | 20:T:141:LEU:CD2 | 2.86 | 0.44 |
| 21:X:29:DC:H2" | 21:X:30:DG:H5' | 1.99 | 0.44 |
| 2:B:119:THR:HG23 | 2:B:187:ILE:HD13 | 1.99 | 0.44 |
| 2:B:838:GLN:HG3 | 2:B:886:ARG:HH22 | 1.82 | 0.44 |
| 2:B:1080:ARG:HH21 | 13:M:50:SER:CB | 2.27 | 0.44 |
| 7:G:1:MET:HB3 | 7:G:3:TYR:CZ | 2.53 | 0.44 |
| 9:I:59:THR:OG1 | 9:I:60:HIS:N | 2.51 | 0.44 |
| 13:M:10:LEU:N | 13:M:10:LEU:CD2 | 2.76 | 0.44 |
| 14:N:372:GLY:HA3 | 15:O:58:PHE:CZ | 2.53 | 0.44 |
| 15:O:64:THR:HA | 16:P:189:ASN:OD1 | 2.18 | 0.44 |
| 16:P:171:THR:HG21 | 21:X:16:DA:H4' | 1.99 | 0.44 |
| 17:Q:70:LYS:HZ2 | 18:R:226:ASP:HA | 1.83 | 0.44 |
| 17:Q:98:THR:H | 17:Q:98:THR:HG1 | 1.58 | 0.44 |
| 22:Y:70:DC:H2" | 22:Y:71:DA:H8 | 1.82 | 0.44 |
| 1:A:152:ASN:C | 1:A:153:ILE:CG1 | 2.79 | 0.44 |
| 1:A:278:HIS:HB3 | 13:M:82:THR:HG23 | 2.00 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:B:74:ALA:HB2 | 20:T:201:ASP:CB | 2.47 | 0.44 |
| 2:B:244:GLY:O | 2:B:246:GLY:N | 2.50 | 0.44 |
| 2:B:281:ASP:H | 9:I:22:ASN:HD22 | 1.66 | 0.44 |
| 2:B:818:GLU:OE2 | 2:B:828:VAL:HA | 2.17 | 0.44 |
| 2:B:867:ILE:O | 2:B:893:SER:HB2 | 2.17 | 0.44 |
| 2:B:903:ILE:O | 2:B:923:VAL:HG13 | 2.18 | 0.44 |
| 9:I:65:LEU:HD23 | 9:I:122:ARG:NH2 | 2.32 | 0.44 |
| 11:K:7:PHE:CD1 | 11:K:11:LEU:HD12 | 2.53 | 0.44 |
| 16:P:304:ILE:HD12 | 16:P:304:ILE:N | 2.33 | 0.44 |
| 19:S:124:TYR:HE1 | 20:T:22:LYS:HG3 | 1.83 | 0.44 |
| 20:T:139:VAL:C | 20:T:141:LEU:N | 2.50 | 0.44 |
| 20:T:159:HIS:CG | 20:T:160:GLN:N | 2.85 | 0.44 |
| 2:B:99:TRP:NE1 | 2:B:105:PRO:HB3 | 2.31 | 0.44 |
| 2:B:1029:TYR:HD1 | 2:B:1036:LYS:HA | 1.82 | 0.44 |
| 8:H:64:LEU:HB3 | 8:H:84:ARG:NE | 2.32 | 0.44 |
| 17:Q:69:ASP:HB3 | 17:Q:71:PHE:HD2 | 1.83 | 0.44 |
| 17:Q:114:ILE:HG12 | 18:R:218:LYS:HE3 | 2.00 | 0.44 |
| 17:Q:187:ILE:CD1 | 18:R:211:SER:HA | 2.36 | 0.44 |
| 20:T:94:THR:HA | 20:T:109:ILE:HA | 1.99 | 0.44 |
| 20:T:225:VAL:HA | 20:T:231:ASN:HA | 1.99 | 0.44 |
| 22:Y:56:DG:N2 | 22:Y:58:DC:OP1 | 2.51 | 0.44 |
| 1:A:264:VAL:CB | 1:A:272:ASN:HB3 | 2.47 | 0.44 |
| 1:A:802:PHE:CE1 | 2:B:504:THR:HG22 | 2.53 | 0.44 |
| 1:A:1254:LYS:HE3 | 9:I:3:PRO:HA | 2.00 | 0.44 |
| 2:B:128:ILE:HG21 | 2:B:431:LEU:HD21 | 2.00 | 0.44 |
| 2:B:226:GLU:OE1 | 2:B:226:GLU:N | 2.51 | 0.44 |
| 2:B:1079:SER:C | 2:B:1080:ARG:HD2 | 2.38 | 0.44 |
| 11:K:35:ILE:HB | 11:K:71:ILE:HG12 | 1.98 | 0.44 |
| 22:Y:60:DA:H2" | 22:Y:61:DA:C8 | 2.53 | 0.44 |
| 22:Y:88:DC:H2" | 22:Y:89:DC:O4' | 2.18 | 0.44 |
| 1:A:600:ILE:HD12 | 1:A:656:SER:HA | 1.99 | 0.44 |
| 1:A:800:PHE:HA | 1:A:805:ARG:O | 2.18 | 0.44 |
| 1:A:1127:LEU:HD11 | 1:A:1381:GLU:HB3 | 2.00 | 0.44 |
| 2:B:56:GLN:NE2 | 20:T:140:ARG:NH1 | 2.65 | 0.44 |
| 2:B:873:LEU:HB3 | 2:B:874:PRO:CD | 2.47 | 0.44 |
| 2:B:1030:ASN:N | 2:B:1035:ARG:O | 2.42 | 0.44 |
| 7:G:89:VAL:HA | 7:G:98:PHE:O | 2.17 | 0.44 |
| 11:K:63:VAL:HG13 | 11:K:70:LYS:O | 2.18 | 0.44 |
| 12:L:19:CYS:HB3 | 12:L:23:HIS:N | 2.33 | 0.44 |
| 22:Y:79:DT:H6 | 22:Y:79:DT:H2' | 1.62 | 0.44 |
| 1:A:564:LEU:HA | 1:A:564:LEU:HD23 | 1.76 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:1298:LEU:C | 1:A:1300:GLY:H | 2.21 | 0.43 |
| 3:C:45:ILE:HG22 | 3:C:73:LEU:HD12 | 2.00 | 0.43 |
| 3:C:263:LEU:HD13 | 11:K:19:ILE:HD13 | 2.00 | 0.43 |
| 7:G:14:HIS:CD2 | 7:G:65:PHE:HE1 | 2.35 | 0.43 |
| 8:H:11:ASP:OD2 | 8:H:55:LYS:HG2 | 2.17 | 0.43 |
| 14:N:326:GLN:OE1 | 15:O:92:LYS:NZ | 2.30 | 0.43 |
| 15:O:71:VAL:HG22 | 15:O:98:CYS:HB3 | 1.99 | 0.43 |
| 17:Q:113:ARG:HH12 | 18:R:218:LYS:HA | 1.83 | 0.43 |
| 22:Y:58:DC:H2' | 22:Y:58:DC:H6 | 1.65 | 0.43 |
| 1:A:246:GLU:HG3 | 1:A:247:TRP:CD1 | 2.53 | 0.43 |
| 1:A:264:VAL:C | 1:A:272:ASN:HB3 | 2.37 | 0.43 |
| 2:B:271:ILE:HG12 | 2:B:311:ILE:HD11 | 2.00 | 0.43 |
| 2:B:725:GLN:HG2 | 2:B:938:ARG:O | 2.18 | 0.43 |
| 2:B:894:THR:HG23 | 2:B:897:ARG:HH11 | 1.83 | 0.43 |
| 15:O:64:THR:HG22 | 15:O:75:VAL:HB | 2.00 | 0.43 |
| 16:P:267:PRO:HG2 | 16:P:337:LYS:HB2 | 2.00 | 0.43 |
| 1:A:134:LYS:HA | 1:A:140:ARG:NH2 | 2.33 | 0.43 |
| 1:A:861:GLN:HE22 | 1:A:1093:GLN:HA | 1.83 | 0.43 |
| 1:A:1130:ILE:HD11 | 1:A:1405:MET:CE | 2.47 | 0.43 |
| 2:B:403:LEU:HD21 | 2:B:447:SER:HB2 | 2.00 | 0.43 |
| 2:B:625:LEU:CD1 | 2:B:675:LEU:HD11 | 2.49 | 0.43 |
| 4:D:118:LEU:HB2 | 4:D:122:PHE:CD2 | 2.52 | 0.43 |
| 8:H:5:LEU:HD11 | 8:H:62:SER:HB3 | 2.00 | 0.43 |
| 8:H:135:PHE:O | 8:H:137:VAL:HG22 | 2.19 | 0.43 |
| 17:Q:127:PHE:HA | 17:Q:163:GLU:C | 2.39 | 0.43 |
| 1:A:81:CYS:HA | 1:A:82:PRO:HD2 | 1.87 | 0.43 |
| 1:A:760:LEU:HD22 | 1:A:764:ASN:ND2 | 2.34 | 0.43 |
| 2:B:632:LYS:HA | 2:B:682:LEU:HD21 | 1.99 | 0.43 |
| 2:B:875:GLU:O | 2:B:876:ASN:HB2 | 2.18 | 0.43 |
| 8:H:34:SER:O | 8:H:36:LYS:HG2 | 2.18 | 0.43 |
| 16:P:305:PHE:CZ | 22:Y:82:DT:H1' | 2.54 | 0.43 |
| 1:A:231:GLU:H | 1:A:231:GLU:CD | 2.19 | 0.43 |
| 1:A:1307:VAL:CG2 | 1:A:1339:ASP:N | 2.81 | 0.43 |
| 2:B:874:PRO:CG | 2:B:875:GLU:H | 2.30 | 0.43 |
| 8:H:38:ASP:OD1 | 8:H:39:LEU:N | 2.51 | 0.43 |
| 18:R:195:PRO:HB2 | 18:R:199:LYS:CB | 2.48 | 0.43 |
| 20:T:86:GLN:O | 20:T:112:GLN:NE2 | 2.52 | 0.43 |
| 1:A:459:ASN:C | 1:A:459:ASN:OD1 | 2.56 | 0.43 |
| 2:B:754:PRO:HB2 | 2:B:773:PRO:HB2 | 1.99 | 0.43 |
| 2:B:797:ASN:HB2 | 2:B:964:ASP:HA | 2.00 | 0.43 |
| 2:B:906:GLN:NE2 | 12:L:45:TYR:CE1 | 2.84 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 3:C:18:ASN:HB2 | 3:C:234:GLU:HG2 | 1.99 | 0.43 |
| 3:C:44:ILE:O | 3:C:167:LYS:HA | 2.18 | 0.43 |
| 3:C:45:ILE:O | 3:C:73:LEU:HB2 | 2.18 | 0.43 |
| 1:A:924:TYR:CE1 | 1:A:949:GLN:HG3 | 2.53 | 0.43 |
| 1:A:1301:ILE:O | 1:A:1345:ARG:HD3 | 2.19 | 0.43 |
| 2:B:25:ALA:HA | 2:B:28:ILE:HD12 | 2.00 | 0.43 |
| 2:B:312:GLN:OE1 | 19:S:153:ARG:NH1 | 2.49 | 0.43 |
| 2:B:573:TRP:CZ3 | 2:B:575:GLY:HA2 | 2.54 | 0.43 |
| 3:C:9:VAL:HG21 | 11:K:105:PHE:HA | 2.00 | 0.43 |
| 14:N:38:VAL:HG13 | 15:O:22:LEU:HD22 | 1.99 | 0.43 |
| 16:P:207:PRO:O | 16:P:209:THR:HG23 | 2.18 | 0.43 |
| 1:A:230:ASP:OD1 | 1:A:244:ARG:NH1 | 2.51 | 0.43 |
| 1:A:1103:THR:HG21 | 1:A:1106:THR:OG1 | 2.18 | 0.43 |
| 2:B:41:ARG:HD2 | 2:B:41:ARG:HA | 1.75 | 0.43 |
| 2:B:931:ILE:CD1 | 2:B:947:ILE:HA | 2.48 | 0.43 |
| 9:I:62:VAL:O | 9:I:63:ASP:C | 2.45 | 0.43 |
| 17:Q:113:ARG:NH1 | 18:R:218:LYS:HA | 2.33 | 0.43 |
| 21:X:2:DA:N6 | 22:Y:91:DT:O4 | 2.52 | 0.43 |
| 1:A:367:ILE:HG21 | 1:A:501:MET:HG3 | 1.99 | 0.43 |
| 1:A:546:ARG:HG2 | 1:A:546:ARG:O | 2.18 | 0.43 |
| 1:A:805:ARG:HG2 | 1:A:812:LYS:HA | 2.01 | 0.43 |
| 2:B:74:ALA:CB | 20:T:201:ASP:HB3 | 2.49 | 0.43 |
| 2:B:651:TYR:HA | 2:B:655:ASP:OD2 | 2.19 | 0.43 |
| 20:T:141:LEU:C | 20:T:143:GLN:N | 2.72 | 0.43 |
| 20:T:150:THR:C | 20:T:152:ASN:H | 2.22 | 0.43 |
| 21:X:30:DG:H5" | 21:X:31:DT:O4' | 2.18 | 0.43 |
| 1:A:62:GLN:NE2 | 1:A:261:ARG:HH21 | 2.17 | 0.43 |
| 1:A:94:VAL:HG21 | 1:A:314:VAL:HG21 | 2.01 | 0.43 |
| 1:A:375:ILE:HG13 | 1:A:666:ARG:NH1 | 2.34 | 0.43 |
| 1:A:603:ILE:HG12 | 1:A:604:ARG:N | 2.34 | 0.43 |
| 1:A:1132:LYS:HE3 | 21:X:53:DA:H5' | 2.01 | 0.43 |
| 4:D:90:LYS:HE3 | 4:D:130:ILE:HD11 | 2.01 | 0.43 |
| 9:I:75:ASP:OD2 | 9:I:78:LEU:HG | 2.18 | 0.43 |
| 17:Q:15:LYS:HE3 | 17:Q:38:ILE:HG23 | 2.01 | 0.43 |
| 20:T:159:HIS:O | 20:T:162:ASN:HB3 | 2.19 | 0.43 |
| 1:A:1192:TRP:O | 1:A:1195:VAL:HB | 2.19 | 0.42 |
| 2:B:40:VAL:HG21 | 2:B:181:PRO:HB2 | 2.00 | 0.42 |
| 2:B:878:ASP:O | 2:B:879:GLU:C | 2.56 | 0.42 |
| 2:B:993:LYS:HA | 2:B:1018:TYR:OH | 2.19 | 0.42 |
| 20:T:154:LYS:H | 20:T:154:LYS:CD | 2.31 | 0.42 |
| 1:A:274:ASP:OD2 | 1:A:276:LEU:HB3 | 2.18 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:364:ARG:HD3 | 1:A:500:GLU:OE1 | 2.19 | 0.42 |
| 1:A:658:LEU:HD23 | 1:A:658:LEU:HA | 1.88 | 0.42 |
| 1:A:1086:MET:SD | 1:A:1466:ALA:HB1 | 2.58 | 0.42 |
| 2:B:56:GLN:OE1 | 20:T:140:ARG:NH1 | 2.49 | 0.42 |
| 2:B:333:GLU:HG2 | 2:B:337:LYS:HE3 | 2.00 | 0.42 |
| 2:B:758:LEU:HD11 | 10:J:47:ARG:HB3 | 2.01 | 0.42 |
| 4:D:37:VAL:HG21 | 7:G:2:PHE:CD2 | 2.54 | 0.42 |
| 13:M:178:LYS:HD3 | 13:M:279:GLY:HA3 | 2.01 | 0.42 |
| 21:X:41:DT:H2' | 21:X:42:DT:O3' | 2.19 | 0.42 |
| 1:A:413:TYR:CD1 | 1:A:414:PRO:HD3 | 2.54 | 0.42 |
| 1:A:882:SER:C | 1:A:884:ASN:H | 2.22 | 0.42 |
| 1:A:906:LEU:HA | 1:A:906:LEU:HD23 | 1.88 | 0.42 |
| 1:A:914:LYS:O | 1:A:918:LYS:HG2 | 2.19 | 0.42 |
| 2:B:92:TYR:HE1 | 20:T:141:LEU:CG | 2.32 | 0.42 |
| 2:B:275:ALA:O | 2:B:314:GLN:NE2 | 2.48 | 0.42 |
| 9:I:86:CYS:HB3 | 9:I:89:CYS:SG | 2.59 | 0.42 |
| 16:P:208:ARG:NH2 | 16:P:208:ARG:CG | 2.79 | 0.42 |
| 17:Q:19:LYS:O | 17:Q:23:ARG:HG3 | 2.19 | 0.42 |
| 20:T:143:GLN:O | 20:T:144:GLN:C | 2.58 | 0.42 |
| 1:A:126:ILE:HD13 | 1:A:129:ILE:HD12 | 2.01 | 0.42 |
| 1:A:322:LEU:HA | 1:A:323:PRO:HD3 | 1.84 | 0.42 |
| 1:A:679:TRP:CZ2 | 1:A:683:GLU:HG3 | 2.55 | 0.42 |
| 2:B:499:ARG:CZ | 2:B:522:LEU:HD11 | 2.49 | 0.42 |
| 2:B:760:THR:OG1 | 2:B:761:THR:N | 2.51 | 0.42 |
| 2:B:776:ILE:HD12 | 2:B:806:PHE:CD1 | 2.55 | 0.42 |
| 2:B:861:SER:O | 2:B:896:LEU:CD2 | 2.67 | 0.42 |
| 8:H:5:LEU:HD22 | 8:H:133:HIS:HB3 | 2.02 | 0.42 |
| 14:N:12:LYS:O | 14:N:15:ARG:HB2 | 2.19 | 0.42 |
| 18:R:214:GLU:O | 18:R:216:PHE:N | 2.53 | 0.42 |
| 1:A:264:VAL:HB | 1:A:272:ASN:HB3 | 2.00 | 0.42 |
| 1:A:274:ASP:OD2 | 1:A:276:LEU:N | 2.46 | 0.42 |
| 1:A:365:THR:CG2 | 2:B:1059:ILE:HG22 | 2.50 | 0.42 |
| 1:A:608:THR:HB | 1:A:610:PRO:CD | 2.49 | 0.42 |
| 2:B:33:TYR:CE1 | 2:B:37:LYS:HG3 | 2.55 | 0.42 |
| 2:B:1069:ILE:HD12 | 2:B:1070:LEU:HD12 | 2.00 | 0.42 |
| 6:F:69:ARG:NE | 6:F:96:GLU:OE2 | 2.52 | 0.42 |
| 8:H:137:VAL:HG21 | 8:H:140:ARG:HD2 | 2.01 | 0.42 |
| 10:J:46:ARG:HH11 | 10:J:46:ARG:HD3 | 1.74 | 0.42 |
| 16:P:206:GLU:HB3 | 16:P:207:PRO:HD2 | 1.34 | 0.42 |
| 17:Q:70:LYS:NZ | 18:R:226:ASP:HA | 2.34 | 0.42 |
| 19:S:135:PHE:HD1 | 19:S:135:PHE:HA | 1.71 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:602:CYS:H | 1:A:630:VAL:CG1 | 2.33 | 0.42 |
| 13:M:164:LEU:HD12 | 13:M:164:LEU:HA | 1.80 | 0.42 |
| 13:M:214:PHE:HB3 | 13:M:218:PHE:HE2 | 1.84 | 0.42 |
| 14:N:356:GLY:HA3 | 14:N:367:PHE:CZ | 2.54 | 0.42 |
| 14:N:366:ILE:O | 15:O:54:ASN:ND2 | 2.50 | 0.42 |
| 15:O:3:TYR:HE2 | 15:O:99:ASP:HA | 1.82 | 0.42 |
| 17:Q:105:TYR:CE1 | 18:R:234:GLU:CD | 2.93 | 0.42 |
| 17:Q:113:ARG:NH1 | 18:R:218:LYS:CA | 2.82 | 0.42 |
| 17:Q:154:CYS:SG | 17:Q:155:THR:N | 2.93 | 0.42 |
| 21:X:80:DC:H42 | 22:Y:14:DG:H1 | 1.67 | 0.42 |
| 1:A:266:MET:HE3 | 13:M:68:GLY:O | 2.19 | 0.42 |
| 1:A:275:ASP:HA | 1:A:278:HIS:HD2 | 1.84 | 0.42 |
| 1:A:344:LYS:HZ1 | 22:Y:43:DG:H5" | 1.83 | 0.42 |
| 1:A:539:GLN:NE2 | 2:B:791:GLU:OE2 | 2.52 | 0.42 |
| 1:A:1306:LYS:HB2 | 1:A:1306:LYS:HE3 | 1.46 | 0.42 |
| 2:B:47:PHE:O | 2:B:50:PHE:HB3 | 2.20 | 0.42 |
| 2:B:292:PHE:CG | 9:I:14:ILE:HD13 | 2.50 | 0.42 |
| 2:B:570:ASN:OD1 | 2:B:616:THR:HG22 | 2.19 | 0.42 |
| 2:B:597:ILE:HB | 2:B:600:GLU:HB2 | 2.02 | 0.42 |
| 2:B:711:ILE:O | 2:B:714:PRO:HD3 | 2.19 | 0.42 |
| 2:B:908:MET:CE | 2:B:920:LYS:HB2 | 2.50 | 0.42 |
| 5:E:61:LEU:HD21 | 5:E:71:GLN:HB2 | 2.02 | 0.42 |
| 7:G:90:THR:O | 7:G:91:GLN:HG3 | 2.20 | 0.42 |
| 13:M:182:ALA:H | 20:T:154:LYS:HB3 | 1.83 | 0.42 |
| 21:X:18:DG:OP2 | 21:X:18:DG:H2' | 2.20 | 0.42 |
| 1:A:672:ILE:HG23 | 1:A:673:GLN:N | 2.35 | 0.42 |
| 1:A:942:VAL:HG21 | 1:A:1005:HIS:NE2 | 2.35 | 0.42 |
| 2:B:76:GLY:O | 2:B:77:GLU:HB2 | 2.18 | 0.42 |
| 2:B:411:LEU:HD11 | 2:B:435:ILE:HG23 | 2.01 | 0.42 |
| 2:B:856:PRO:HG2 | 12:L:46:LYS:O | 2.20 | 0.42 |
| 2:B:924:ARG:HH11 | 3:C:60:HIS:HB2 | 1.84 | 0.42 |
| 6:F:64:ARG:NH1 | 7:G:61:PRO:HB3 | 2.35 | 0.42 |
| 13:M:119:LYS:HD3 | 22:Y:60:DA:N6 | 2.34 | 0.42 |
| 17:Q:24:GLY:O | 18:R:215:GLU:OE2 | 2.38 | 0.42 |
| 1:A:53:LYS:HE3 | 1:A:59:ASP:HB3 | 2.00 | 0.42 |
| 1:A:375:ILE:HD13 | 1:A:485:ASN:ND2 | 2.35 | 0.42 |
| 1:A:378:VAL:HG23 | 1:A:484:LEU:HD23 | 2.02 | 0.42 |
| 1:A:486:LEU:O | 1:A:486:LEU:HG | 2.19 | 0.42 |
| 1:A:926:ASN:OD1 | 1:A:927:GLU:N | 2.52 | 0.42 |
| 2:B:74:ALA:HB2 | 20:T:201:ASP:HB3 | 2.00 | 0.42 |
| 20:T:213:LEU:HA | 20:T:213:LEU:HD23 | 1.78 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:521:VAL:HG12 | 1:A:666:ARG:HH21 | 1.85 | 0.42 |
| 1:A:912:SER:HB3 | 1:A:915:ALA:HB3 | 2.02 | 0.42 |
| 1:A:1162:GLU:HG3 | 1:A:1306:LYS:O | 2.20 | 0.42 |
| 2:B:561:ILE:HD12 | 2:B:561:ILE:HA | 1.86 | 0.42 |
| 2:B:1032:PHE:O | 3:C:32:ASN:ND2 | 2.53 | 0.42 |
| 3:C:44:ILE:HG23 | 3:C:176:TRP:HD1 | 1.84 | 0.42 |
| 3:C:220:TYR:CE2 | 3:C:222:PRO:HB3 | 2.55 | 0.42 |
| 4:D:110:GLU:HA | 7:G:167:TYR:CE2 | 2.55 | 0.42 |
| 5:E:187:ARG:HG3 | 5:E:210:GLN:HA | 2.02 | 0.42 |
| 7:G:38:CYS:SG | 7:G:156:ASP:HA | 2.59 | 0.42 |
| 10:J:35:LEU:HA | 10:J:35:LEU:HD23 | 1.86 | 0.42 |
| 14:N:336:VAL:HG23 | 14:N:357:ILE:HB | 2.01 | 0.42 |
| 15:O:63:ASN:HB3 | 15:O:75:VAL:O | 2.20 | 0.42 |
| 17:Q:115:GLU:O | 17:Q:119:ARG:N | 2.40 | 0.42 |
| 17:Q:184:ILE:HG13 | 18:R:218:LYS:HZ2 | 1.85 | 0.42 |
| 1:A:457:ILE:HD11 | 2:B:1102:PHE:CE2 | 2.55 | 0.41 |
| 1:A:458:PHE:HE2 | 1:A:482:PHE:CE2 | 2.38 | 0.41 |
| 1:A:531:ASN:ND2 | 1:A:901:VAL:HG23 | 2.31 | 0.41 |
| 1:A:609:HIS:O | 1:A:609:HIS:CG | 2.73 | 0.41 |
| 1:A:689:ILE:HD11 | 2:B:981:LEU:CB | 2.50 | 0.41 |
| 2:B:211:LYS:HE3 | 21:X:48:DT:H2' | 2.02 | 0.41 |
| 2:B:831:LYS:HA | 2:B:832:PRO:HD3 | 1.90 | 0.41 |
| 8:H:81:ARG:C | 8:H:83:SER:H | 2.23 | 0.41 |
| 9:I:75:ASP:HA | 9:I:76:PRO:HD2 | 1.95 | 0.41 |
| 13:M:44:ARG:HD2 | 13:M:45:VAL:H | 1.85 | 0.41 |
| 17:Q:92:TYR:HE2 | 17:Q:94:ILE:HB | 1.84 | 0.41 |
| 17:Q:128:LYS:HB3 | 17:Q:164:ASP:HA | 2.02 | 0.41 |
| 20:T:128:LYS:NZ | 20:T:131:GLN:OE1 | 2.52 | 0.41 |
| 20:T:140:ARG:NE | 20:T:140:ARG:CA | 2.73 | 0.41 |
| 20:T:153:TYR:CD1 | 20:T:153:TYR:C | 2.93 | 0.41 |
| 22:Y:32:DC:H2" | 22:Y:33:DT:C6 | 2.55 | 0.41 |
| 1:A:340:LYS:HG3 | 1:A:1436:VAL:HG21 | 2.02 | 0.41 |
| 1:A:499:ASP:OD1 | 23:Z:6:C:H4' | 2.20 | 0.41 |
| 1:A:1304:ILE:HB | 1:A:1307:VAL:HG12 | 2.02 | 0.41 |
| 2:B:80:GLU:OE1 | 2:B:134:LYS:HB3 | 2.20 | 0.41 |
| 2:B:180:ASP:OD1 | 2:B:181:PRO:HD2 | 2.20 | 0.41 |
| 2:B:921:ILE:O | 2:B:921:ILE:HG13 | 2.19 | 0.41 |
| 3:C:263:LEU:O | 3:C:266:GLU:HB2 | 2.19 | 0.41 |
| 5:E:82:VAL:HB | 5:E:110:MET:SD | 2.60 | 0.41 |
| 7:G:148:VAL:HG23 | 7:G:160:ILE:CD1 | 2.51 | 0.41 |
| 14:N:14:TYR:CE1 | 15:O:11:LEU:HD22 | 2.55 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 21:X:1:DG:H2" | 21:X:2:DA:C8 | 2.55 | 0.41 |
| 1:A:367:ILE:HG22 | 1:A:482:PHE:HB2 | 2.03 | 0.41 |
| 1:A:505:LEU:HA | 1:A:506:PRO:HD2 | 1.93 | 0.41 |
| 1:A:689:ILE:HD12 | 1:A:689:ILE:HG23 | 1.75 | 0.41 |
| 1:A:802:PHE:HE2 | 1:A:808:PRO:HD3 | 1.85 | 0.41 |
| 1:A:818:GLU:OE1 | 1:A:818:GLU:N | 2.50 | 0.41 |
| 2:B:56:GLN:CG | 20:T:140:ARG:CZ | 2.92 | 0.41 |
| 2:B:823:PHE:HA | 13:M:140:ASN:HD21 | 1.86 | 0.41 |
| 5:E:58:LEU:HD23 | 5:E:76:PHE:CE2 | 2.55 | 0.41 |
| 8:H:113:SER:HA | 8:H:125:LEU:O | 2.20 | 0.41 |
| 9:I:41:ASN:CG | 19:S:153:ARG:HD2 | 2.40 | 0.41 |
| 9:I:84:HIS:CG | 9:I:85:PRO:HD3 | 1.99 | 0.41 |
| 15:O:41:ASP:O | 15:O:45:ASN:ND2 | 2.37 | 0.41 |
| 17:Q:108:ASP:CG | 18:R:237:LEU:HD22 | 2.39 | 0.41 |
| 21:X:35:DT:H6 | 21:X:35:DT:H2' | 1.75 | 0.41 |
| 1:A:155:GLU:O | 1:A:181:HIS:ND1 | 2.54 | 0.41 |
| 1:A:618:TYR:C | 1:A:620:HIS:N | 2.71 | 0.41 |
| 1:A:901:VAL:HB | 1:A:978:VAL:CG1 | 2.51 | 0.41 |
| 2:B:510:CYS:SG | 2:B:511:PRO:HD2 | 2.61 | 0.41 |
| 4:D:92:LEU:HD23 | 4:D:122:PHE:CE2 | 2.56 | 0.41 |
| 9:I:11:PHE:CE1 | 9:I:54:TYR:HA | 2.55 | 0.41 |
| 9:I:58:ILE:HG22 | 9:I:58:ILE:O | 2.20 | 0.41 |
| 18:R:158:HIS:HA | 18:R:161:ARG:HG2 | 2.02 | 0.41 |
| 1:A:368:THR:HB | 1:A:369:PRO:HD2 | 2.01 | 0.41 |
| 1:A:757:GLN:HG2 | 1:A:778:LYS:HD2 | 2.03 | 0.41 |
| 2:B:506:TRP:O | 2:B:506:TRP:CD1 | 2.73 | 0.41 |
| 2:B:510:CYS:HB2 | 2:B:705:GLY:CA | 2.49 | 0.41 |
| 3:C:67:ARG:NH1 | 3:C:67:ARG:HB3 | 2.36 | 0.41 |
| 3:C:210:GLU:O | 3:C:213:GLU:N | 2.54 | 0.41 |
| 9:I:61:GLU:O | 9:I:63:ASP:N | 2.54 | 0.41 |
| 9:I:62:VAL:C | 9:I:64:GLU:N | 2.57 | 0.41 |
| 13:M:30:GLY:CA | 13:M:44:ARG:HG2 | 2.50 | 0.41 |
| 17:Q:23:ARG:NH2 | 18:R:207:SER:H | 2.18 | 0.41 |
| 22:Y:55:DG:H21 | 22:Y:56:DG:H1 | 1.67 | 0.41 |
| 1:A:532:ARG:HD2 | 1:A:647:THR:O | 2.20 | 0.41 |
| 1:A:800:PHE:HD1 | 1:A:805:ARG:C | 2.23 | 0.41 |
| 1:A:901:VAL:HB | 1:A:978:VAL:HG13 | 2.01 | 0.41 |
| 1:A:908:THR:C | 1:A:910:LYS:H | 2.24 | 0.41 |
| 1:A:966:LEU:HA | 1:A:969:ILE:HD12 | 2.03 | 0.41 |
| 1:A:1141:VAL:HG13 | 1:A:1352:VAL:HG13 | 2.02 | 0.41 |
| 2:B:226:GLU:HA | 2:B:230:ARG:HG2 | 2.03 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:B:711:ILE:HA | 2:B:712:PRO:HD3 | 1.88 | 0.41 |
| 2:B:873:LEU:CB | 2:B:874:PRO:CD | 2.99 | 0.41 |
| 13:M:47:ASP:O | 13:M:49:GLY:N | 2.54 | 0.41 |
| 17:Q:109:HIS:CG | 18:R:225:VAL:HG23 | 2.55 | 0.41 |
| 21:X:45:DT:H4' | 21:X:46:DT:O4' | 2.21 | 0.41 |
| 23:Z:3:U:H2' | 23:Z:4:C:O4' | 2.20 | 0.41 |
| 2:B:246:GLY:HA3 | 19:S:169:LYS:HD2 | 2.02 | 0.41 |
| 2:B:262:TYR:O | 2:B:263:ILE:HD13 | 2.20 | 0.41 |
| 8:H:65:TYR:CZ | 8:H:70:LEU:HD22 | 2.56 | 0.41 |
| 9:I:61:GLU:HG3 | 9:I:103:ARG:HH22 | 1.86 | 0.41 |
| 17:Q:202:GLU:C | 17:Q:204:LEU:H | 2.23 | 0.41 |
| 1:A:1117:VAL:O | 1:A:1117:VAL:HG12 | 2.21 | 0.41 |
| 2:B:215:TYR:CD1 | 2:B:238:SER:HB3 | 2.55 | 0.41 |
| 2:B:849:ASP:OD1 | 2:B:850:ASP:N | 2.52 | 0.41 |
| 2:B:1040:GLN:O | 2:B:1041:ILE:HD13 | 2.21 | 0.41 |
| 3:C:49:TRP:CE3 | 12:L:54:VAL:HG21 | 2.56 | 0.41 |
| 6:F:104:ILE:O | 6:F:120:VAL:HG23 | 2.21 | 0.41 |
| 7:G:138:GLN:HG2 | 7:G:139:GLN:N | 2.35 | 0.41 |
| 13:M:182:ALA:N | 20:T:154:LYS:HB3 | 2.36 | 0.41 |
| 19:S:46:ARG:NH2 | 20:T:3:GLU:OE2 | 2.41 | 0.41 |
| 19:S:144:TYR:CD2 | 20:T:96:PHE:HZ | 2.39 | 0.41 |
| 20:T:153:TYR:CE1 | 20:T:155:PRO:HG3 | 2.56 | 0.41 |
| 1:A:811:ILE:HD12 | 1:A:811:ILE:HA | 1.88 | 0.41 |
| 1:A:878:THR:HA | 1:A:889:LEU:O | 2.20 | 0.41 |
| 1:A:889:LEU:HD23 | 1:A:889:LEU:HA | 1.88 | 0.41 |
| 1:A:1128:ILE:HG23 | 1:A:1414:ILE:HD11 | 2.01 | 0.41 |
| 1:A:1302:GLU:HG3 | 1:A:1304:ILE:HG12 | 2.02 | 0.41 |
| 2:B:554:GLU:OE1 | 19:S:115:LYS:HG3 | 2.20 | 0.41 |
| 2:B:953:ASP:OD1 | 3:C:36:ARG:NH1 | 2.51 | 0.41 |
| 2:B:1132:THR:HG23 | 2:B:1133:HIS:ND1 | 2.36 | 0.41 |
| 3:C:38:PHE:HE1 | 3:C:245:VAL:HA | 1.86 | 0.41 |
| 3:C:132:SER:HB3 | 3:C:147:ASP:CB | 2.39 | 0.41 |
| 5:E:99:ILE:O | 5:E:125:TYR:HE1 | 2.02 | 0.41 |
| 9:I:25:TYR:HD2 | 9:I:40:ARG:HG3 | 1.85 | 0.41 |
| 9:I:104:ALA:O | 9:I:105:GLU:HB2 | 2.20 | 0.41 |
| 10:J:2:ILE:HG12 | 10:J:3:ILE:N | 2.36 | 0.41 |
| 13:M:15:CYS:HA | 13:M:16:PRO:HD3 | 1.89 | 0.41 |
| 13:M:62:LYS:HD3 | 23:Z:1:A:H4' | 2.02 | 0.41 |
| 16:P:329:TYR:N | 16:P:330:PRO:HD2 | 2.36 | 0.41 |
| 17:Q:187:ILE:HD13 | 18:R:211:SER:CA | 2.39 | 0.41 |
| 1:A:265:VAL:HG21 | 13:M:48:VAL:CG2 | 2.51 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:B:529:MET:HE3 | 2:B:624:PRO:HD2 | 2.03 | 0.41 |
| 2:B:751:LEU:HD12 | 2:B:751:LEU:HA | 1.90 | 0.41 |
| 3:C:10:ARG:HH21 | 3:C:24:GLU:CD | 2.23 | 0.41 |
| 7:G:119:PHE:CE2 | 7:G:121:PRO:HB3 | 2.56 | 0.41 |
| 15:O:86:GLU:HG3 | 15:O:87:LEU:H | 1.85 | 0.41 |
| 17:Q:187:ILE:O | 17:Q:191:LEU:HD13 | 2.21 | 0.41 |
| 19:S:166:ARG:HH11 | 19:S:166:ARG:CG | 2.32 | 0.41 |
| 19:S:169:LYS:HE3 | 19:S:169:LYS:HB3 | 1.83 | 0.41 |
| 21:X:12:DA:C2 | 21:X:13:DT:C4 | 3.09 | 0.41 |
| 21:X:59:DC:H2" | 21:X:60:DG:O5' | 2.21 | 0.41 |
| 22:Y:38:DT:H2" | 22:Y:39:DG:O4' | 2.20 | 0.41 |
| 7:G:17:TYR:HB3 | 7:G:25:THR:HG21 | 2.03 | 0.40 |
| 7:G:97:LEU:N | 7:G:108:ILE:O | 2.49 | 0.40 |
| 9:I:84:HIS:CG | 9:I:85:PRO:CD | 2.77 | 0.40 |
| 11:K:3:ALA:HA | 11:K:4:PRO:HD3 | 1.97 | 0.40 |
| 14:N:341:LYS:H | 14:N:352:HIS:HB2 | 1.86 | 0.40 |
| 15:O:9:THR:O | 15:O:13:ASN:N | 2.48 | 0.40 |
| 16:P:271:GLU:OE1 | 16:P:271:GLU:N | 2.50 | 0.40 |
| 21:X:25:DG:N2 | 22:Y:70:DC:O2 | 2.53 | 0.40 |
| 22:Y:84:DG:C2 | 22:Y:85:DG:C4 | 3.09 | 0.40 |
| 1:A:909:LEU:HD23 | 1:A:909:LEU:HA | 1.68 | 0.40 |
| 2:B:197:GLN:HB2 | 2:B:394:ASP:HB2 | 2.04 | 0.40 |
| 2:B:631:GLN:HB3 | 2:B:685:LYS:HZ1 | 1.86 | 0.40 |
| 2:B:1054:MET:HE3 | 2:B:1054:MET:HB2 | 1.78 | 0.40 |
| 10:J:10:CYS:SG | 10:J:11:GLY:N | 2.94 | 0.40 |
| 17:Q:187:ILE:CG2 | 18:R:211:SER:HA | 2.15 | 0.40 |
| 1:A:265:VAL:H | 1:A:272:ASN:HB3 | 1.81 | 0.40 |
| 1:A:520:MET:HG3 | 1:A:522:PRO:HD2 | 2.03 | 0.40 |
| 1:A:912:SER:HB3 | 1:A:915:ALA:CB | 2.51 | 0.40 |
| 1:A:966:LEU:HD13 | 1:A:1043:ILE:HD11 | 2.03 | 0.40 |
| 2:B:39:LEU:HD23 | 2:B:39:LEU:HA | 1.79 | 0.40 |
| 2:B:873:LEU:HG | 2:B:874:PRO:N | 2.36 | 0.40 |
| 3:C:256:LEU:HD23 | 3:C:256:LEU:HA | 1.89 | 0.40 |
| 11:K:53:ASP:OD1 | 11:K:54:PRO:HD2 | 2.22 | 0.40 |
| 13:M:27:TYR:HA | 13:M:44:ARG:HH11 | 1.86 | 0.40 |
| 13:M:32:MET:SD | 13:M:44:ARG:NH2 | 2.95 | 0.40 |
| 17:Q:14:LEU:HD11 | 17:Q:103:VAL:HG11 | 2.04 | 0.40 |
| 18:R:224:THR:HG21 | 18:R:225:VAL:CG2 | 2.20 | 0.40 |
| 20:T:154:LYS:HA | 20:T:155:PRO:HD3 | 1.90 | 0.40 |
| 1:A:547:LYS:HE2 | 1:A:683:GLU:OE1 | 2.22 | 0.40 |
| 1:A:1005:HIS:HA | 1:A:1006:PRO:HD3 | 1.93 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:1163:HIS:HA | 1:A:1300:GLY:HA2 | 2.04 | 0.40 |
| 2:B:573:TRP:CH2 | 2:B:576:ILE:HG23 | 2.56 | 0.40 |
| 3:C:30:VAL:HG22 | 11:K:45:ILE:HD11 | 2.02 | 0.40 |
| 5:E:63:ALA:HB1 | 5:E:64:HIS:H | 1.66 | 0.40 |
| 7:G:44:PHE:CD2 | 7:G:103:PRO:HG2 | 2.57 | 0.40 |
| 8:H:108:ALA:O | 8:H:110:THR:OG1 | 2.35 | 0.40 |
| 8:H:122:LEU:HD23 | 8:H:122:LEU:HA | 1.82 | 0.40 |
| 19:S:29:MET:HB2 | 20:T:96:PHE:CD1 | 2.57 | 0.40 |
| 22:Y:89:DC:H2" | 22:Y:90:DC:C6 | 2.56 | 0.40 |
| 1:A:425:ASP:HB2 | 13:M:39:LEU:CD1 | 2.52 | 0.40 |
| 1:A:457:ILE:HD13 | 1:A:457:ILE:HG21 | 1.75 | 0.40 |
| 1:A:551:ARG:HG2 | 1:A:551:ARG:NH1 | 2.37 | 0.40 |
| 1:A:1065:PHE:CZ | 1:A:1069:LEU:HD21 | 2.57 | 0.40 |
| 1:A:1129:ASN:OD1 | 1:A:1415:THR:HG21 | 2.22 | 0.40 |
| 1:A:1189:ASP:HA | 1:A:1192:TRP:CZ3 | 2.56 | 0.40 |
| 2:B:95:LYS:HB2 | 2:B:96:PRO:HD2 | 2.04 | 0.40 |
| 2:B:384:ASP:OD1 | 2:B:386:ASP:N | 2.38 | 0.40 |
| 2:B:402:PHE:CD1 | 2:B:402:PHE:C | 2.95 | 0.40 |
| 2:B:789:ASN:HB3 | 2:B:795:ILE:HG13 | 2.03 | 0.40 |
| 3:C:210:GLU:O | 3:C:213:GLU:CG | 2.50 | 0.40 |
| 4:D:30:GLU:O | 7:G:3:TYR:HA | 2.22 | 0.40 |
| 7:G:18:PHE:HA | 7:G:22:LEU:HD13 | 2.02 | 0.40 |
| 10:J:13:ILE:H | 10:J:13:ILE:HG13 | 1.70 | 0.40 |
| 13:M:108:SER:O | 13:M:108:SER:OG | 2.38 | 0.40 |
| 22:Y:56:DG:C4 | 22:Y:57:DA:H1' | 2.56 | 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 | 1450/1970 (74%) | 1270 (88%) | 121 (8%) | 59 (4%) | 2 22 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles |
|---|---|---|---|---|---|---|
| 2 | B | 1163/1174 (99%) | 999 (86%) | 120 (10%) | 44 (4%) | 2 23 |
| 3 | C | 273/275 (99%) | 241 (88%) | 22 (8%) | 10 (4%) | 2 23 |
| 4 | D | 127/142 (89%) | 119 (94%) | 8 (6%) | 0 | 100 100 |
| 5 | E | 208/210 (99%) | 191 (92%) | 11 (5%) | 6 (3%) | 3 27 |
| 6 | F | 84/127 (66%) | 82 (98%) | 2 (2%) | 0 | 100 100 |
| 7 | G | 169/172 (98%) | 158 (94%) | 10 (6%) | 1 (1%) | 22 57 |
| 8 | H | 148/150 (99%) | 117 (79%) | 22 (15%) | 9 (6%) | 1 16 |
| 9 | I | 123/125 (98%) | 90 (73%) | 18 (15%) | 15 (12%) | 0 5 |
| 10 | J | 65/67 (97%) | 51 (78%) | 8 (12%) | 6 (9%) | 0 10 |
| 11 | K | 115/117 (98%) | 109 (95%) | 4 (4%) | 2 (2%) | 7 36 |
| 12 | L | 44/58 (76%) | 33 (75%) | 9 (20%) | 2 (4%) | 2 20 |
| 13 | M | 308/316 (98%) | 266 (86%) | 31 (10%) | 11 (4%) | 3 24 |
| 14 | N | 109/376 (29%) | 101 (93%) | 6 (6%) | 2 (2%) | 7 35 |
| 15 | O | 97/109 (89%) | 95 (98%) | 2 (2%) | 0 | 100 100 |
| 16 | P | 183/339 (54%) | 172 (94%) | 5 (3%) | 6 (3%) | 3 25 |
| 17 | Q | 176/439 (40%) | 158 (90%) | 10 (6%) | 8 (4%) | 2 20 |
| 18 | R | 163/291 (56%) | 140 (86%) | 15 (9%) | 8 (5%) | 2 19 |
| 19 | S | 134/517 (26%) | 120 (90%) | 10 (8%) | 4 (3%) | 3 27 |
| 20 | T | 218/249 (88%) | 190 (87%) | 19 (9%) | 9 (4%) | 2 22 |
| All | All | 5357/7223 (74%) | 4702 (88%) | 453 (8%) | 202 (4%) | 4 23 |

All (202) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 132 | LYS |
| 1 | A | 153 | ILE |
| 1 | A | 154 | CYS |
| 1 | A | 204 | HIS |
| 1 | A | 207 | GLU |
| 1 | A | 208 | ASP |
| 1 | A | 210 | GLN |
| 1 | A | 212 | LYS |
| 1 | A | 264 | VAL |
| 1 | A | 265 | VAL |
| 1 | A | 274 | ASP |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 531 | ASN |
| 1 | A | 598 | GLY |
| 1 | A | 607 | SER |
| 1 | A | 609 | HIS |
| 1 | A | 610 | PRO |
| 1 | A | 611 | ASP |
| 1 | A | 623 | PRO |
| 1 | A | 625 | ASP |
| 1 | A | 911 | PRO |
| 1 | A | 930 | LEU |
| 1 | A | 931 | ARG |
| 1 | A | 1087 | VAL |
| 1 | A | 1101 | GLN |
| 1 | A | 1116 | ASN |
| 1 | A | 1117 | VAL |
| 1 | A | 1200 | PRO |
| 1 | A | 1275 | VAL |
| 1 | A | 1299 | GLN |
| 1 | A | 1307 | VAL |
| 2 | B | 63 | PRO |
| 2 | B | 74 | ALA |
| 2 | B | 78 | VAL |
| 2 | B | 231 | PRO |
| 2 | B | 251 | ALA |
| 2 | B | 383 | ASP |
| 2 | B | 428 | ASP |
| 2 | B | 876 | ASN |
| 2 | B | 879 | GLU |
| 2 | B | 884 | ASN |
| 2 | B | 958 | CYS |
| 2 | B | 1007 | ASN |
| 2 | B | 1136 | GLU |
| 3 | C | 6 | GLN |
| 3 | C | 7 | PRO |
| 5 | E | 46 | ASP |
| 5 | E | 47 | LYS |
| 5 | E | 48 | PRO |
| 5 | E | 49 | SER |
| 9 | I | 58 | ILE |
| 9 | I | 63 | ASP |
| 9 | I | 85 | PRO |
| 9 | I | 86 | CYS |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 9 | I | 119 | CYS |
| 11 | K | 112 | LYS |
| 13 | M | 40 | VAL |
| 13 | M | 42 | GLY |
| 13 | M | 43 | ASP |
| 13 | M | 48 | VAL |
| 13 | M | 95 | GLU |
| 13 | M | 101 | TYR |
| 14 | N | 318 | ASP |
| 16 | P | 161 | ILE |
| 16 | P | 162 | VAL |
| 16 | P | 207 | PRO |
| 16 | P | 208 | ARG |
| 17 | Q | 100 | VAL |
| 17 | Q | 172 | ASP |
| 18 | R | 140 | LYS |
| 18 | R | 195 | PRO |
| 18 | R | 196 | ASP |
| 18 | R | 215 | GLU |
| 18 | R | 225 | VAL |
| 18 | R | 228 | MET |
| 20 | T | 124 | TYR |
| 20 | T | 140 | ARG |
| 20 | T | 143 | GLN |
| 20 | T | 145 | LEU |
| 1 | A | 12 | ALA |
| 1 | A | 466 | LYS |
| 1 | A | 624 | GLY |
| 1 | A | 932 | ARG |
| 1 | A | 1118 | THR |
| 1 | A | 1145 | GLY |
| 1 | A | 1435 | THR |
| 2 | B | 77 | GLU |
| 2 | B | 141 | GLN |
| 2 | B | 226 | GLU |
| 2 | B | 229 | SER |
| 2 | B | 253 | GLY |
| 2 | B | 491 | ARG |
| 2 | B | 785 | TYR |
| 2 | B | 900 | GLU |
| 3 | C | 143 | VAL |
| 5 | E | 70 | ASP |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 8 | H | 21 | LYS |
| 8 | H | 65 | TYR |
| 9 | I | 61 | GLU |
| 9 | I | 67 | GLN |
| 9 | I | 99 | SER |
| 9 | I | 106 | ASP |
| 10 | J | 5 | VAL |
| 10 | J | 6 | ARG |
| 13 | M | 53 | ARG |
| 16 | P | 299 | ARG |
| 17 | Q | 126 | SER |
| 17 | Q | 158 | HIS |
| 1 | A | 61 | ARG |
| 1 | A | 70 | ARG |
| 1 | A | 184 | CYS |
| 1 | A | 262 | PRO |
| 1 | A | 599 | HIS |
| 1 | A | 613 | GLU |
| 1 | A | 614 | ASP |
| 1 | A | 1109 | TYR |
| 2 | B | 61 | ASP |
| 2 | B | 75 | SER |
| 2 | B | 233 | SER |
| 2 | B | 245 | GLN |
| 2 | B | 458 | LYS |
| 2 | B | 549 | SER |
| 2 | B | 873 | LEU |
| 2 | B | 875 | GLU |
| 3 | C | 3 | TYR |
| 3 | C | 210 | GLU |
| 3 | C | 213 | GLU |
| 5 | E | 65 | ASN |
| 7 | G | 140 | ASP |
| 8 | H | 66 | GLU |
| 8 | H | 111 | ARG |
| 9 | I | 15 | ARG |
| 9 | I | 105 | GLU |
| 12 | L | 17 | TYR |
| 16 | P | 298 | PRO |
| 17 | Q | 125 | ALA |
| 17 | Q | 133 | SER |
| 18 | R | 163 | LEU |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 19 | S | 160 | ALA |
| 20 | T | 139 | VAL |
| 20 | T | 141 | LEU |
| 20 | T | 142 | SER |
| 1 | A | 38 | GLU |
| 1 | A | 51 | ARG |
| 1 | A | 62 | GLN |
| 1 | A | 134 | LYS |
| 1 | A | 266 | MET |
| 1 | A | 622 | SER |
| 2 | B | 427 | LYS |
| 2 | B | 559 | ALA |
| 2 | B | 821 | LYS |
| 2 | B | 1032 | PHE |
| 8 | H | 100 | GLU |
| 8 | H | 128 | ASP |
| 9 | I | 73 | SER |
| 9 | I | 101 | SER |
| 9 | I | 117 | PRO |
| 10 | J | 16 | ASN |
| 10 | J | 41 | LYS |
| 11 | K | 29 | ASN |
| 13 | M | 56 | SER |
| 13 | M | 87 | GLY |
| 19 | S | 156 | THR |
| 19 | S | 170 | VAL |
| 20 | T | 155 | PRO |
| 1 | A | 619 | LYS |
| 1 | A | 620 | HIS |
| 1 | A | 981 | CYS |
| 2 | B | 457 | LYS |
| 2 | B | 515 | PRO |
| 8 | H | 24 | ARG |
| 12 | L | 34 | ILE |
| 13 | M | 45 | VAL |
| 13 | M | 66 | ARG |
| 14 | N | 320 | VAL |
| 17 | Q | 25 | PHE |
| 20 | T | 152 | ASN |
| 1 | A | 195 | GLY |
| 1 | A | 453 | GLY |
| 2 | B | 76 | GLY |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 3 | C | 2 | PRO |
| 8 | H | 109 | ALA |
| 10 | J | 64 | PRO |
| 19 | S | 154 | THR |
| 1 | A | 1304 | ILE |
| 2 | B | 493 | GLY |
| 2 | B | 1006 | VAL |
| 2 | B | 1113 | PRO |
| 9 | I | 62 | VAL |
| 17 | Q | 102 | VAL |
| 18 | R | 194 | ARG |
| 3 | C | 58 | VAL |
| 3 | C | 78 | ILE |
| 2 | B | 561 | ILE |
| 2 | B | 931 | ILE |
| 3 | C | 151 | VAL |
| 8 | H | 49 | PRO |
| 1 | A | 56 | GLY |
| 2 | B | 289 | ILE |
| 2 | B | 1034 | GLY |
| 10 | J | 14 | VAL |
| 1 | A | 1312 | PRO |
| 2 | B | 489 | ILE |

### 5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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 | 1279/1748 (73%) | 1234 (96%) | 45 (4%) | 31 54 |
| 2 | B | 1020/1028 (99%) | 980 (96%) | 40 (4%) | 27 51 |
| 3 | C | 252/252 (100%) | 245 (97%) | 7 (3%) | 38 59 |
| 4 | D | 119/126 (94%) | 118 (99%) | 1 (1%) | 79 84 |
| 5 | E | 192/192 (100%) | 187 (97%) | 5 (3%) | 41 61 |
| 6 | F | 74/111 (67%) | 74 (100%) | 0 | 100 100 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles |
|---|---|---|---|---|---|
| 7 | G | 152/153 (99%) | 151 (99%) | 1 (1%) | 81 86 |
| 8 | H | 131/131 (100%) | 126 (96%) | 5 (4%) | 28 52 |
| 9 | I | 112/112 (100%) | 107 (96%) | 5 (4%) | 23 48 |
| 10 | J | 56/56 (100%) | 53 (95%) | 3 (5%) | 18 44 |
| 11 | K | 106/106 (100%) | 105 (99%) | 1 (1%) | 75 83 |
| 12 | L | 43/55 (78%) | 41 (95%) | 2 (5%) | 22 47 |
| 13 | M | 263/268 (98%) | 257 (98%) | 6 (2%) | 45 64 |
| 14 | N | 105/324 (32%) | 104 (99%) | 1 (1%) | 73 81 |
| 15 | O | 90/98 (92%) | 89 (99%) | 1 (1%) | 70 79 |
| 16 | P | 159/293 (54%) | 157 (99%) | 2 (1%) | 65 76 |
| 17 | Q | 164/373 (44%) | 159 (97%) | 5 (3%) | 36 58 |
| 18 | R | 150/261 (58%) | 143 (95%) | 7 (5%) | 22 47 |
| 19 | S | 121/448 (27%) | 118 (98%) | 3 (2%) | 42 62 |
| 20 | T | 196/218 (90%) | 188 (96%) | 8 (4%) | 26 50 |
| All | All | 4784/6353 (75%) | 4636 (97%) | 148 (3%) | 37 56 |

All (148) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 48 | GLU |
| 1 | A | 65 | ILE |
| 1 | A | 74 | CYS |
| 1 | A | 132 | LYS |
| 1 | A | 204 | HIS |
| 1 | A | 205 | VAL |
| 1 | A | 259 | SER |
| 1 | A | 261 | ARG |
| 1 | A | 265 | VAL |
| 1 | A | 271 | ARG |
| 1 | A | 286 | ILE |
| 1 | A | 303 | ILE |
| 1 | A | 449 | HIS |
| 1 | A | 463 | THR |
| 1 | A | 502 | ASN |
| 1 | A | 540 | ASP |
| 1 | A | 567 | LEU |
| 1 | A | 611 | ASP |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 614 | ASP |
| 1 | A | 619 | LYS |
| 1 | A | 625 | ASP |
| 1 | A | 652 | LEU |
| 1 | A | 712 | ASP |
| 1 | A | 757 | GLN |
| 1 | A | 771 | VAL |
| 1 | A | 849 | ASP |
| 1 | A | 870 | SER |
| 1 | A | 873 | VAL |
| 1 | A | 908 | THR |
| 1 | A | 928 | ARG |
| 1 | A | 931 | ARG |
| 1 | A | 1015 | GLU |
| 1 | A | 1036 | ASN |
| 1 | A | 1077 | ASN |
| 1 | A | 1102 | MET |
| 1 | A | 1167 | ARG |
| 1 | A | 1279 | MET |
| 1 | A | 1282 | ASP |
| 1 | A | 1298 | LEU |
| 1 | A | 1307 | VAL |
| 1 | A | 1309 | MET |
| 1 | A | 1311 | LEU |
| 1 | A | 1337 | GLU |
| 1 | A | 1341 | VAL |
| 1 | A | 1407 | CYS |
| 2 | B | 41 | ARG |
| 2 | B | 73 | HIS |
| 2 | B | 78 | VAL |
| 2 | B | 79 | GLU |
| 2 | B | 131 | THR |
| 2 | B | 132 | VAL |
| 2 | B | 140 | LEU |
| 2 | B | 168 | ASP |
| 2 | B | 222 | ARG |
| 2 | B | 232 | THR |
| 2 | B | 248 | LYS |
| 2 | B | 249 | LYS |
| 2 | B | 250 | SER |
| 2 | B | 338 | TYR |
| 2 | B | 388 | TYR |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 2 | B | 412 | LEU |
| 2 | B | 422 | PHE |
| 2 | B | 446 | TYR |
| 2 | B | 472 | ARG |
| 2 | B | 539 | SER |
| 2 | B | 573 | TRP |
| 2 | B | 588 | ARG |
| 2 | B | 606 | ASP |
| 2 | B | 641 | ASP |
| 2 | B | 666 | ASP |
| 2 | B | 667 | THR |
| 2 | B | 675 | LEU |
| 2 | B | 711 | ILE |
| 2 | B | 879 | GLU |
| 2 | B | 880 | LEU |
| 2 | B | 881 | GLU |
| 2 | B | 897 | ARG |
| 2 | B | 957 | THR |
| 2 | B | 959 | GLU |
| 2 | B | 1007 | ASN |
| 2 | B | 1056 | ASP |
| 2 | B | 1080 | ARG |
| 2 | B | 1090 | GLU |
| 2 | B | 1091 | ARG |
| 2 | B | 1092 | ASP |
| 3 | C | 77 | ASP |
| 3 | C | 94 | CYS |
| 3 | C | 102 | THR |
| 3 | C | 136 | ASP |
| 3 | C | 137 | ASN |
| 3 | C | 177 | ASN |
| 3 | C | 242 | GLU |
| 4 | D | 135 | GLN |
| 5 | E | 23 | ASP |
| 5 | E | 47 | LYS |
| 5 | E | 64 | HIS |
| 5 | E | 147 | GLU |
| 5 | E | 199 | THR |
| 7 | G | 128 | TYR |
| 8 | H | 11 | ASP |
| 8 | H | 29 | HIS |
| 8 | H | 65 | TYR |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 8 | H | 66 | GLU |
| 8 | H | 107 | GLU |
| 9 | I | 14 | ILE |
| 9 | I | 58 | ILE |
| 9 | I | 60 | HIS |
| 9 | I | 61 | GLU |
| 9 | I | 71 | ASP |
| 10 | J | 7 | CYS |
| 10 | J | 47 | ARG |
| 10 | J | 65 | LEU |
| 11 | K | 48 | SER |
| 12 | L | 27 | GLU |
| 12 | L | 28 | ILE |
| 13 | M | 10 | LEU |
| 13 | M | 12 | ARG |
| 13 | M | 31 | ASP |
| 13 | M | 47 | ASP |
| 13 | M | 86 | LYS |
| 13 | M | 133 | ASN |
| 14 | N | 318 | ASP |
| 15 | O | 21 | GLU |
| 16 | P | 206 | GLU |
| 16 | P | 297 | LYS |
| 17 | Q | 38 | ILE |
| 17 | Q | 45 | GLU |
| 17 | Q | 138 | ASP |
| 17 | Q | 172 | ASP |
| 17 | Q | 191 | LEU |
| 18 | R | 100 | ASP |
| 18 | R | 105 | GLU |
| 18 | R | 152 | LEU |
| 18 | R | 194 | ARG |
| 18 | R | 205 | ASP |
| 18 | R | 206 | LYS |
| 18 | R | 209 | GLN |
| 19 | S | 135 | PHE |
| 19 | S | 166 | ARG |
| 19 | S | 177 | MET |
| 20 | T | 140 | ARG |
| 20 | T | 141 | LEU |
| 20 | T | 145 | LEU |
| 20 | T | 147 | LYS |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 20 | T | 153 | TYR |
| 20 | T | 154 | LYS |
| 20 | T | 160 | GLN |
| 20 | T | 206 | THR |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (19) such sidechains are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 62 | GLN |
| 1 | A | 122 | ASN |
| 1 | A | 272 | ASN |
| 1 | A | 449 | HIS |
| 1 | A | 601 | ASN |
| 1 | A | 1077 | ASN |
| 1 | A | 1116 | ASN |
| 1 | A | 1310 | HIS |
| 1 | A | 1313 | GLN |
| 1 | A | 1316 | ASN |
| 1 | A | 1445 | HIS |
| 2 | B | 390 | ASN |
| 2 | B | 716 | HIS |
| 2 | B | 1053 | HIS |
| 2 | B | 1097 | HIS |
| 3 | C | 137 | ASN |
| 8 | H | 126 | GLN |
| 11 | K | 84 | GLN |
| 17 | Q | 95 | ASN |

### 5.3.3 RNA (i)

| Mol | Chain | Analysed | Backbone Outliers | Pucker Outliers |
|---|---|---|---|---|
| 23 | Z | 5/6 (83%) | 0 | 0 |

There are no RNA backbone outliers to report.

There are no RNA pucker outliers to report.

## 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 oligosaccharides in this entry.

## 5.6 Ligand geometry (i)

Of 13 ligands modelled in this entry, 13 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

## 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.

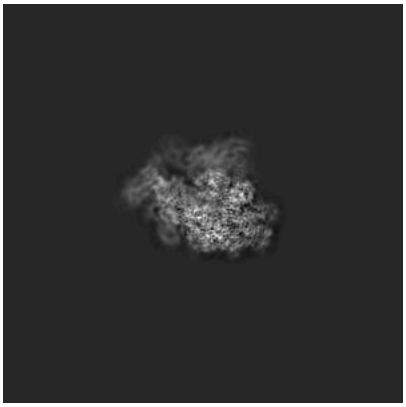
# 6 Map visualisation

This section contains visualisations of the EMDB entry EMD-8138. These allow visual inspection of the internal detail of the map and identification of artifacts.

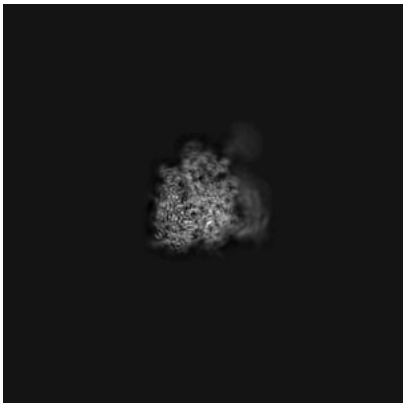
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

## 6.1 Orthogonal projections

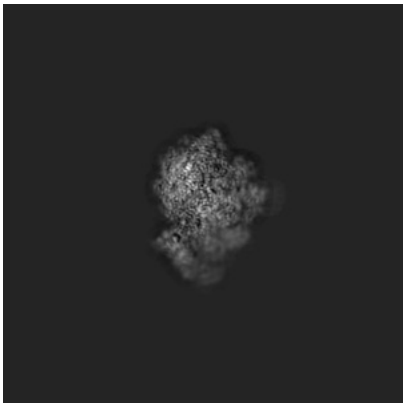
### 6.1.1 Primary map



X



Y



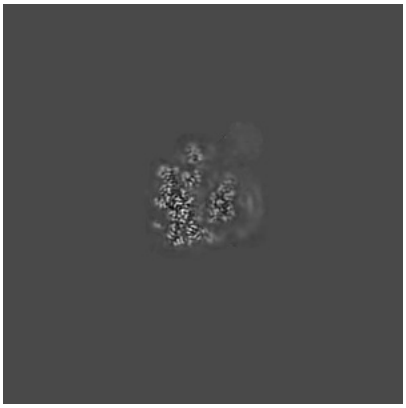
Z

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

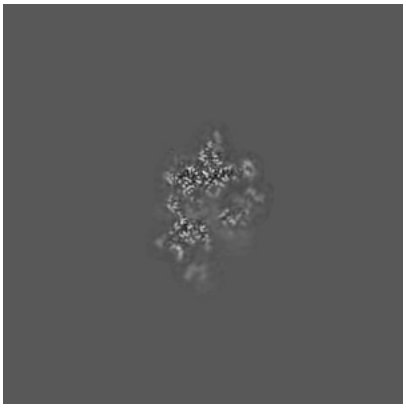
## 6.2 Central slices

### 6.2.1 Primary map

X Index: 192



Y Index: 192

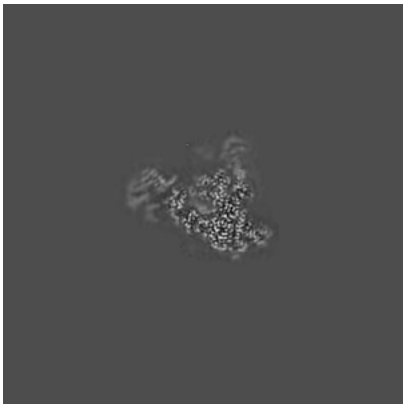


Z Index: 192

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

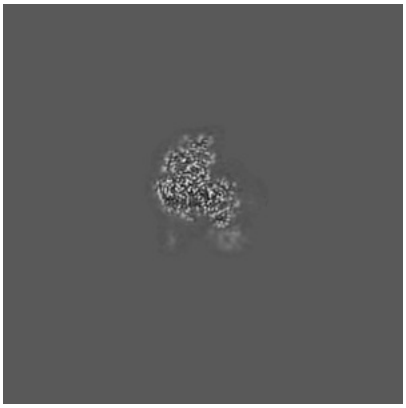
## 6.3 Largest variance slices (i)

### 6.3.1 Primary map



X Index: 178

Y Index: 224

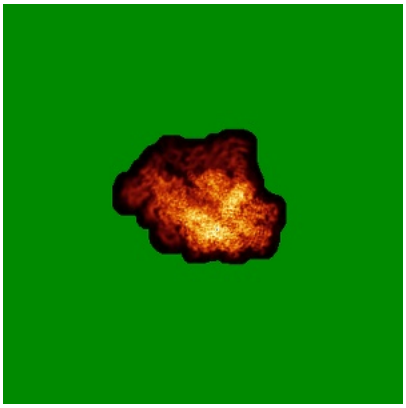


Z Index: 166

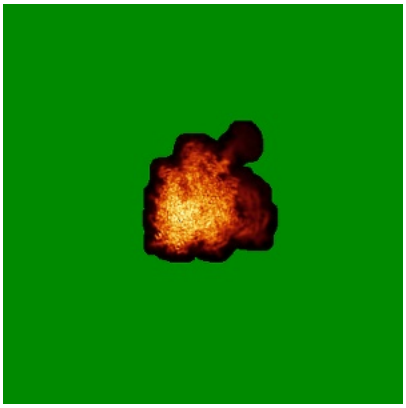
The images above show the largest variance slices of the map in three orthogonal directions.

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

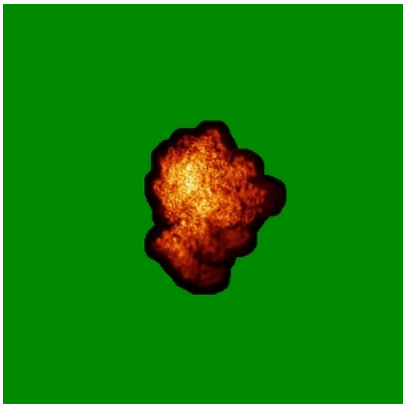
### 6.4.1 Primary map



X



Y

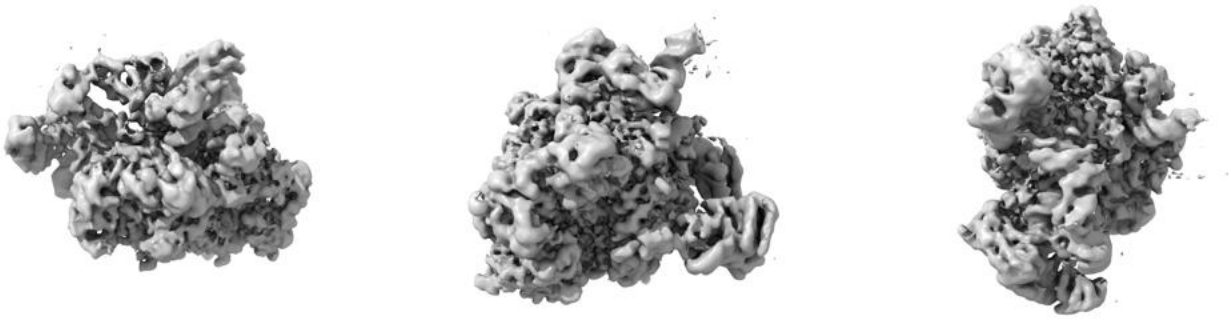


Z

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



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.01. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

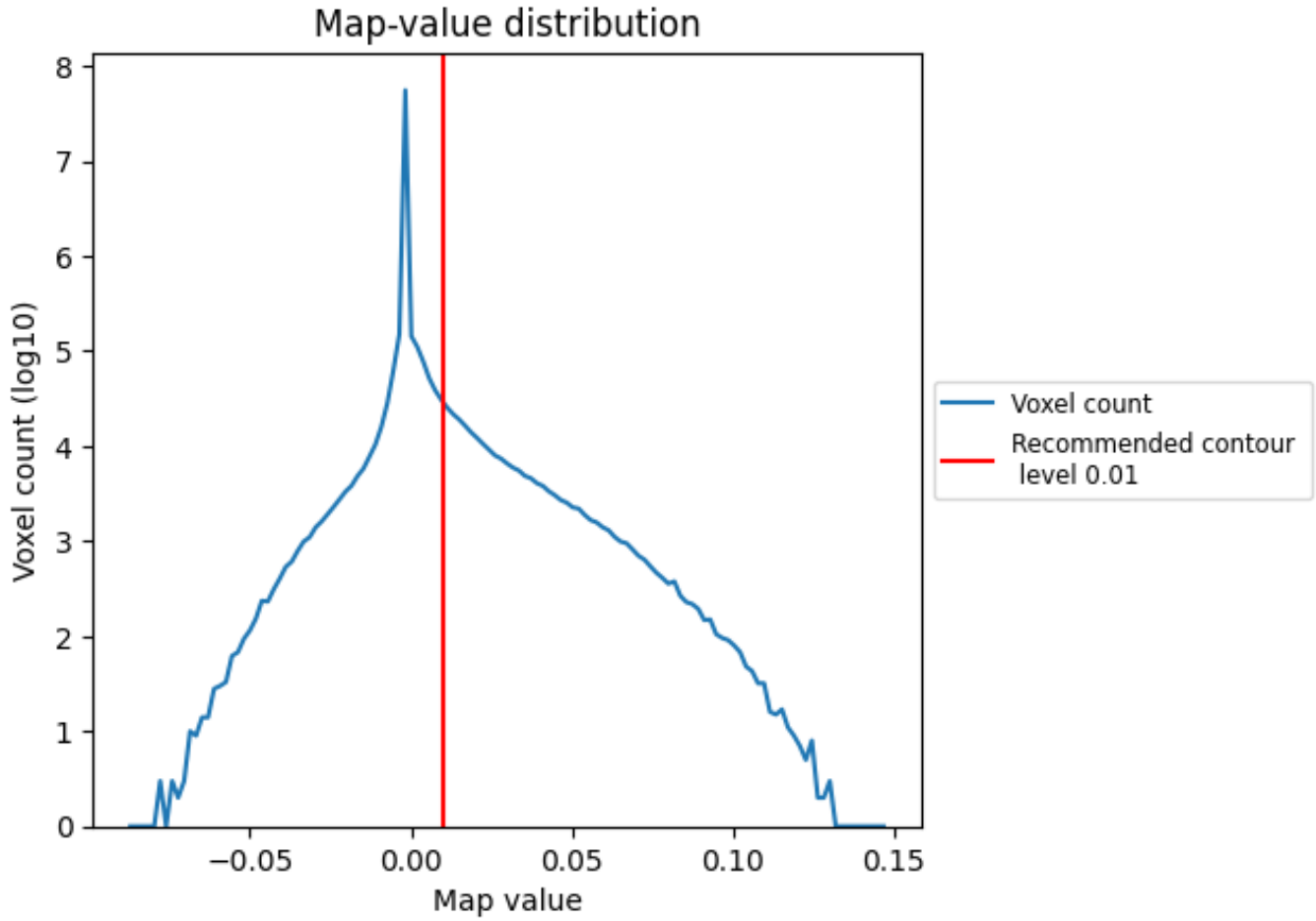
## 6.6 Mask visualisation (i)

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

# 7 Map analysis

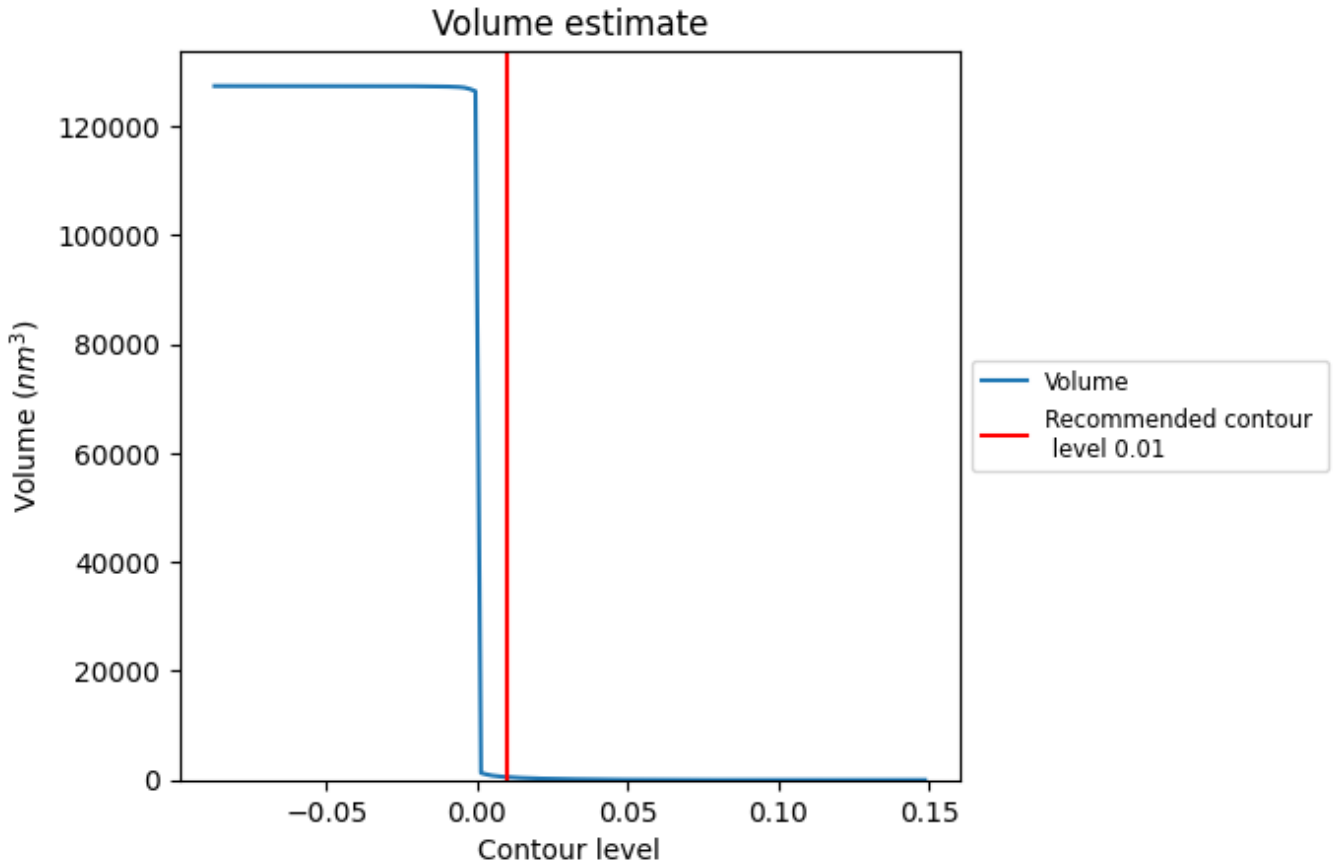
This section contains the results of statistical analysis of the map.

## 7.1 Map-value distribution




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.

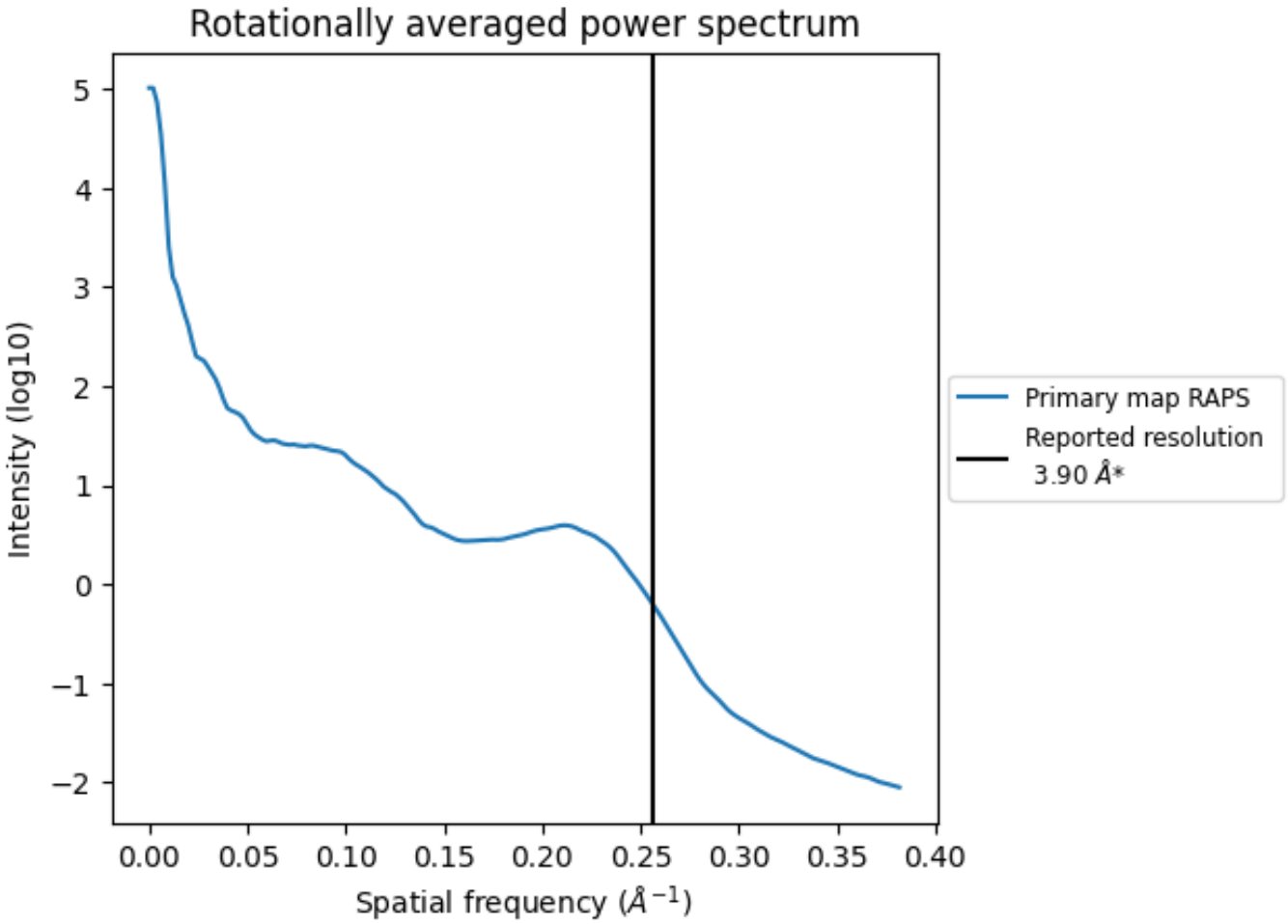
## 7.2 Volume estimate




The volume at the recommended contour level is 526 $nm^3$; this corresponds to an approximate mass of 475 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)

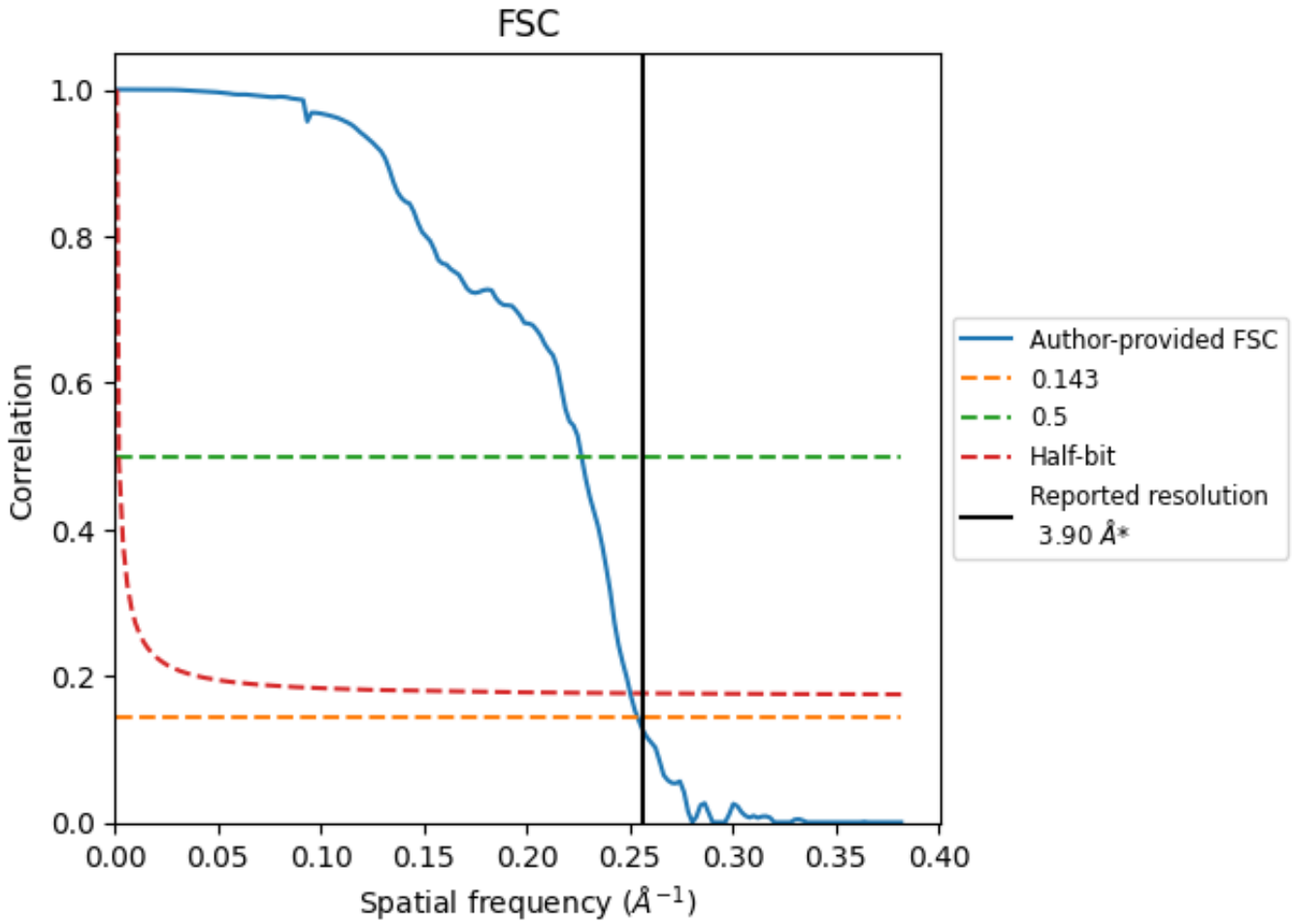



*Reported resolution corresponds to spatial frequency of 0.256 Å$^{-1}$

# 8 Fourier-Shell correlation

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

## 8.1 FSC




*Reported resolution corresponds to spatial frequency of 0.256 Å$^{-1}$

## 8.2 Resolution estimates (i)

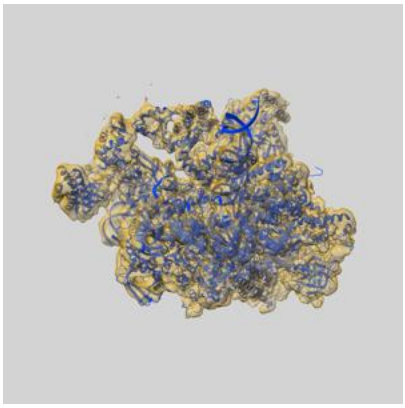
| Resolution estimate (Å) | Estimation criterion (FSC cut-off) | | |
|---|---|---|---|
| | 0.143 | 0.5 | Half-bit |
| Reported by author | 3.90 | - | - |
| Author-provided FSC curve | 3.94 | 4.41 | 4.00 |
| Unmasked-calculated* | - | - | - |

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

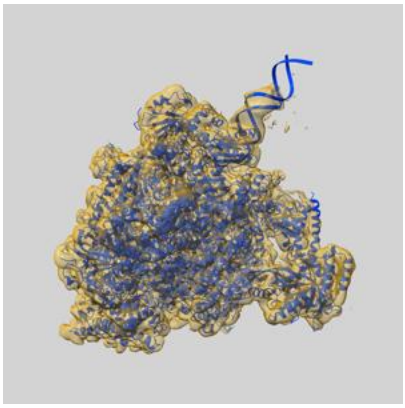
# 9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-8138 and PDB model 5IYD. Per-residue inclusion information can be found in section 3 on page 8.

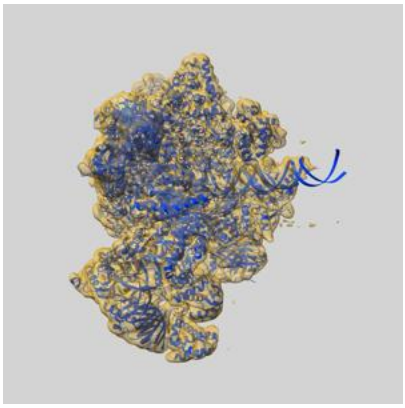
## 9.1 Map-model overlay



X



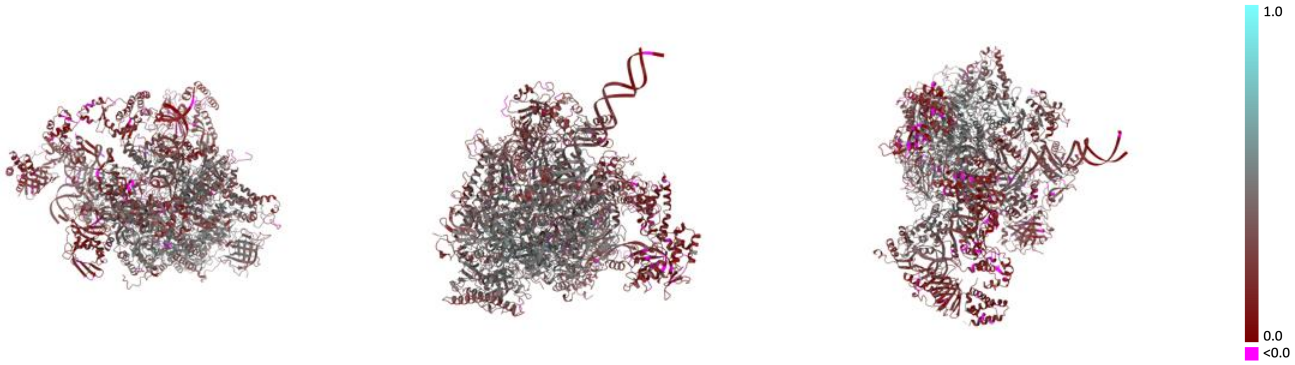
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.01 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.

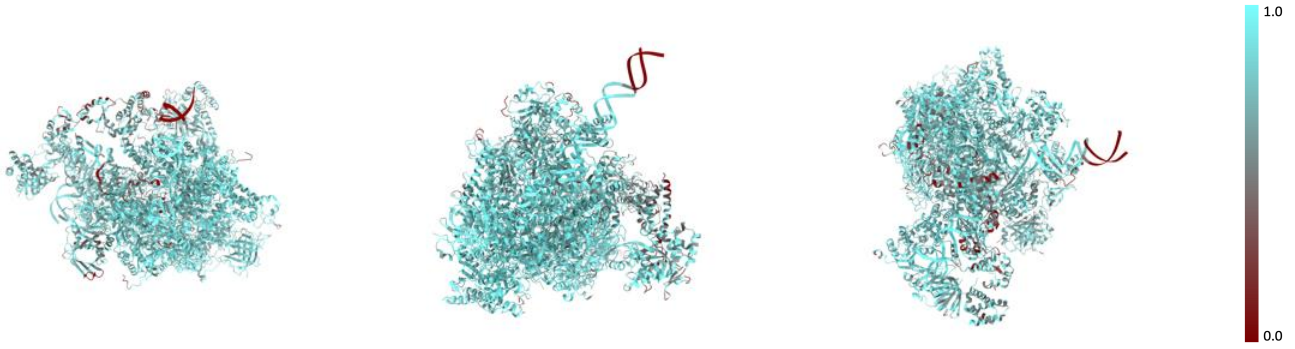
## 9.2 Q-score mapped to coordinate model (i)




X Y Z

The images above show the model with each residue coloured according 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.

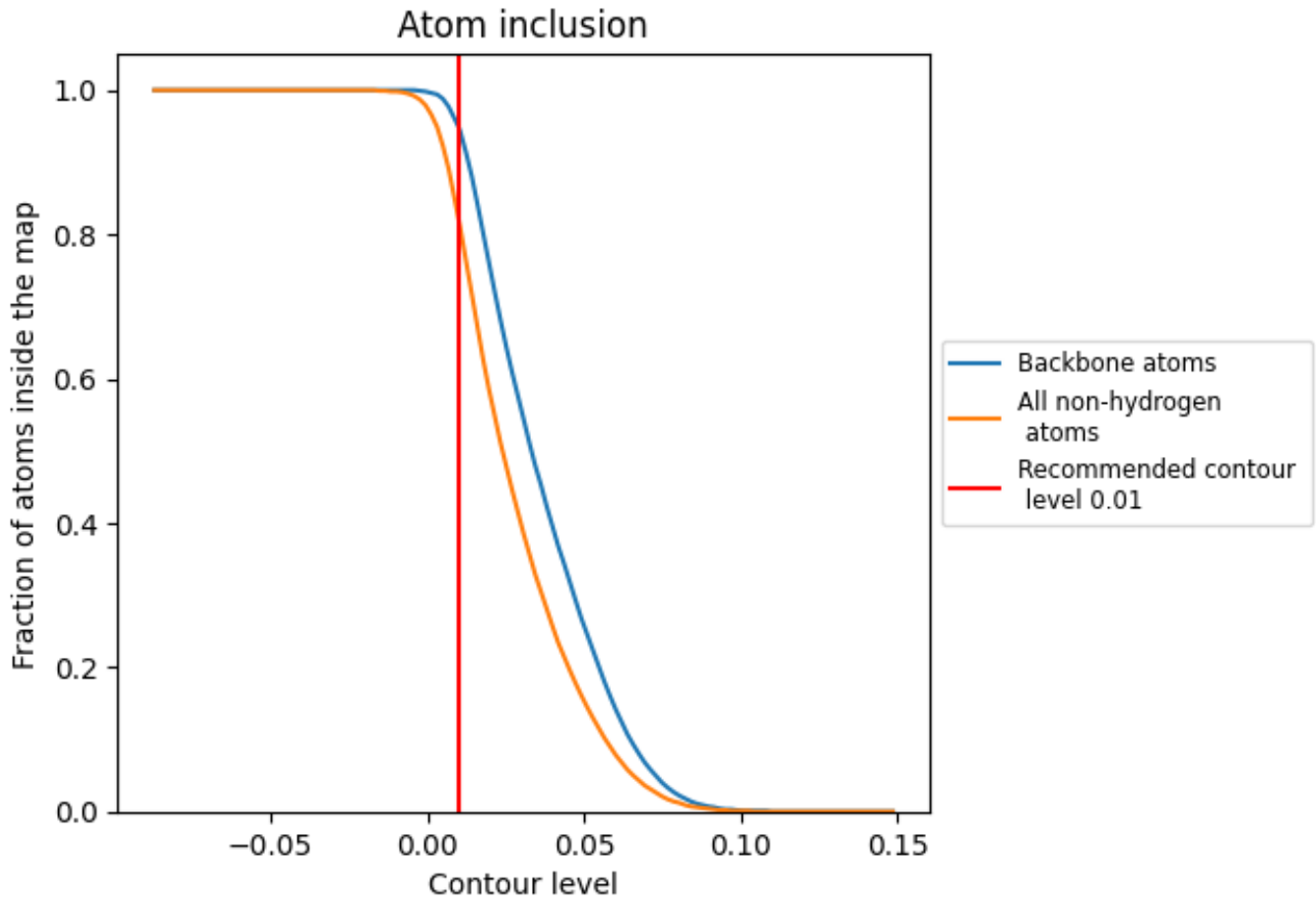
## 9.3 Atom inclusion mapped to coordinate model (i)




X Y Z

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 (0.01).

## 9.4 Atom inclusion (i)




At the recommended contour level, 95% of all backbone atoms, 82% 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 (0.01) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion | Q-score |
|---|---|---|
| All | 0.8210 | 0.3220 |
| A | 0.8650 | 0.3830 |
| B | 0.8720 | 0.4120 |
| C | 0.8820 | 0.3920 |
| D | 0.7390 | 0.1730 |
| E | 0.8470 | 0.3370 |
| F | 0.8380 | 0.3990 |
| G | 0.7660 | 0.2110 |
| H | 0.8560 | 0.3470 |
| I | 0.8210 | 0.2770 |
| J | 0.8700 | 0.4020 |
| K | 0.8920 | 0.3920 |
| L | 0.8820 | 0.3750 |
| M | 0.8200 | 0.3220 |
| N | 0.7470 | 0.1670 |
| O | 0.7680 | 0.1840 |
| P | 0.8400 | 0.2540 |
| Q | 0.6160 | 0.1490 |
| R | 0.5720 | 0.1220 |
| S | 0.7120 | 0.1650 |
| T | 0.7010 | 0.1810 |
| X | 0.7440 | 0.2230 |
| Y | 0.8390 | 0.2580 |
| Z | 0.8560 | 0.3090 |